

**IN SEARCH OF THE LATENT STRUCTURE OF AN
e-LEARNING PRACTITIONER CONSTRUCT**

by

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ABSTRACT

In this study systems thinking approaches were applied to uncover the structure of the e-learning practitioner **construct**. Assumptions abducted from the systemic view of the e-learning practitioner construct hold that the e-learning practitioner system involves the e-learning practitioner and the e-learning practice as two subsystems that interact in the e-learning work environment. The characteristics of the subsystems are patterned to reflect their respective structures, which collaboratively construe the structure of the e-learning practitioner system.

Different lenses were used to take 'snapshots' and to illuminate the separate parts (the environment, the e-learning practitioner and the e-learning practice) of the system and to tell the e-learning practitioner's story. Work behavioural styles expressed in terms of DISC language were used to describe a particular aspect of work personality structure. A personality-orientated job analysis, namely the Human Job Analysis, was used to identify and describe job characteristics and job structure. Person characteristics from the individual and characteristics from the job are the inputs into the e-learning practitioner system, and through a process of reciprocal interaction lead to certain outputs, for example person-job (P-J) fit, moderated by environmental influences, and constantly monitored by feedback systems.

Environmental changes act as drivers in the system and practical interventions, such as the implementation of support programmes, job redesign and career development, may be applied as leverage points to change the output, for example to create a number of P-J fit scenarios. The characteristics of each subsystem and their relationships form the building blocks of the system structured in an **e-learning P-J fit triad**. Triad congruence is dependent on the characteristics of each leg of the triad, as well as influences and drivers from the environment. The different parts work together towards a specific goal according to a specific plan driven by organising principles to fulfil a common purpose, which gives meaning to the system. Different scenarios may alter the congruence of these three legs, which may then emerge in different configurations from their latent position.

To gain a better understanding of this construct, a case study was applied focusing on the characteristics and work behavioural styles of e-learning practitioners in the e-learning work environment at the Tshwane University of Technology. A **bricolage** of data collection methods

and instruments was applied to collect evidence for answering the research questions. Rich and varied sources of data, for example interviews, participant observation, documents and archival records, were tapped during the data collection phase. Data analysis included **quantitative and qualitative analysis**, and reasoning through both inductive and abductive logic.

Synthesis of these research findings resulted in a classifying scheme as a form for expressing the latent structure of the five possible e-learning scenarios to answer the main research question: “**What is the latent structure of the e-learning practitioner construct?**”

The study focused on the creation of knowledge about the ‘goodness of fit’ between the e-learning practitioner and the e-learning job in the e-learning environment by using the combined languages of systems thinking and the DISC profiling system.

The uniqueness of this study pertains to the following:

- the interplay between the characteristics of e-learning practitioners, the e-learning practice and the e-learning environment;
- P-J fit scenarios in the e-learning environment, and
- a classification scheme for the e-learning practitioner construct displaying five categories, namely job structure, job theme, person attributes, roles and applications against the dimensions of an environmental structuredness continuum.

Findings from this research may support initiatives to establish benchmarks for the e-learning practitioner job description. Practical applications may be useful to **practitioners** using electronic learning management systems and to **planners of staff development and e-learning training programmes**.

Keywords

e-learning; e-learning practitioner; e-learning practice; Person-Job fit, behavioural style; latent structure; interactionist model, e-learning practitioner system; unstructured environment; structured environment.

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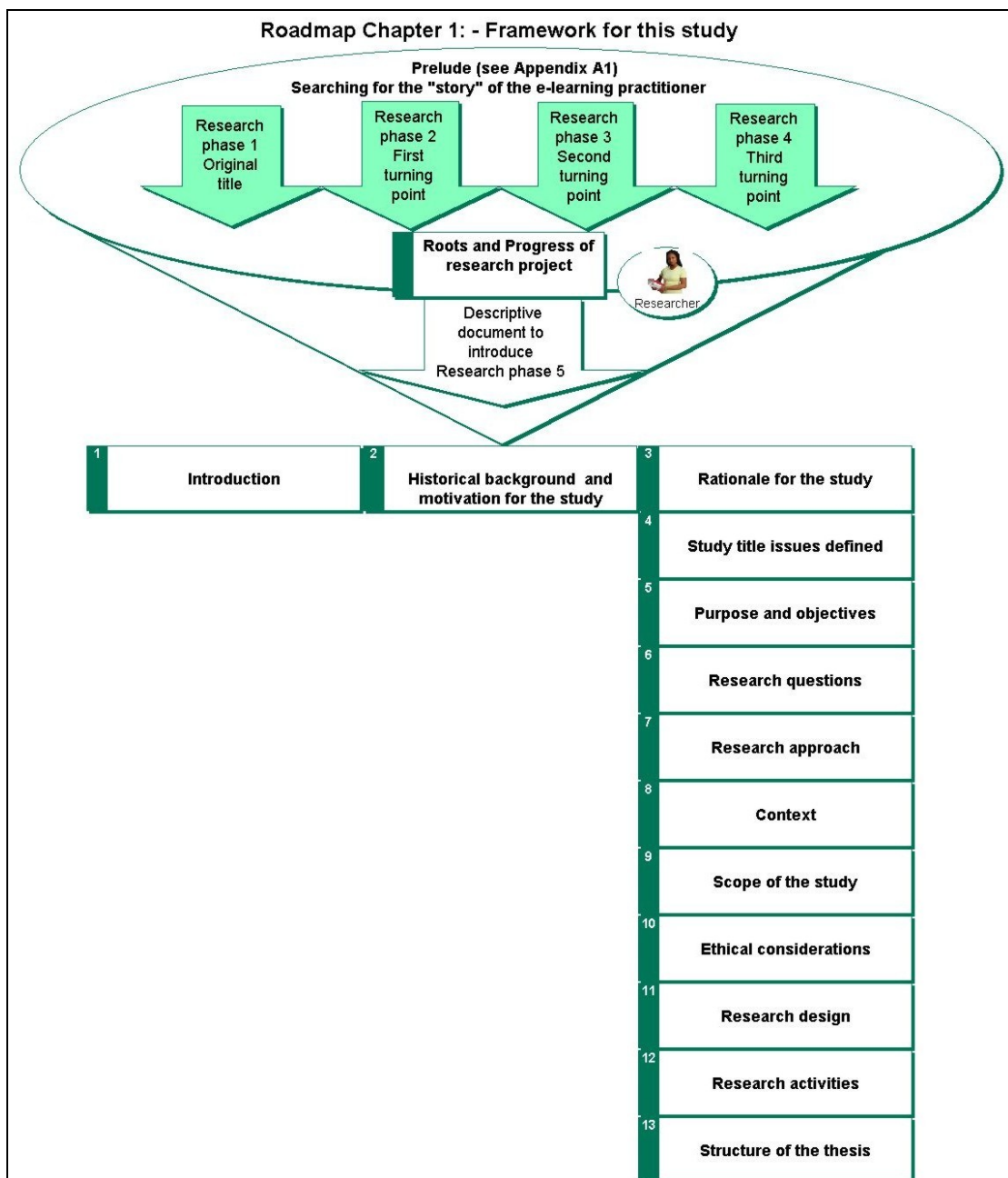
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Chapter 1: Framework for this study

In this chapter the research study is outlined, starting with the historical background, and motivation as well as the rationale for the project. This is followed by a clarification of study title issues, and a statement of the research purpose, objectives, research questions and approach. The context, scope and ethical considerations of the research are described and the chapter concludes with an explanation of the research design and research activities and an outline of the thesis structure (see Figure 1.1 for a graphical presentation of the chapter layout.).

Figure 1.1: Graphical presentation of the layout of Chapter 1



1.1 Introduction

Wachterhauser (1986:22) states: "Our very ability to understand at all comes from our participation in the contexts that make reality meaningful in the first place."

These words capture the heart of this study, embodied in the e-learning context of the Tshwane University of Technology (TUT). Participation in this context means that if you have to "understand how far e-learning has come, you need to understand that it is a moving target. e-Learning is a collection of technologies, products, services and processes – all in a state of constant evolution hurried along by the forces of competition" (Morrison, 2003:21). However, these forces of competition have proved to be dangerous for the survival of e-learning and perhaps the words of Gould (1977:90) are relevant here: "Extinction is the fate of most species, usually because they fail to adapt rapidly enough to changing conditions of climate or competition. Social organisations often behave in ways similar to biological organisms."

The current e-learning pattern of innovation and change has failed to deliver the envisaged dividends, and leads to some introspection of what has happened in the e-learning domain (Zemsky & Massy, 2004). Realisation that technology on its own cannot deliver the outcomes (Kruse, n.d.) has spurred current interest in the social nature of learning (Beetham, 2004a). As a result, social software, communication tools and online communication, spanning time, distance and space, are becoming more important in the e-learning environment (Beetham, 2004b). Current central issues in e-learning practice in higher education reflect these trends and are frequently mentioned in the literature (Beetham, 2004a; JISC, 2004a; STEP, 2005) showing distinct clusters around topics on the impact of continuous change on e-learning practice, practice development approaches, designing for effective learning, and benchmarking of e-learning practice.

Various authors (Gunn, 2001; Twigg, 2001; Browne & Jenkins, 2003; Salmon, 2003; Attwell, 2004; Vuorikari, 2004; Nichols & Anderson, 2005; Thompson, 2005) highlight topics such as the implementation of professional development and staff training as supportive measures to help e-learning practitioners cope with the increasing and changing job demands. These authors also frequently mention the use of practice models, case studies and scenarios by communities of practice as suggested practical interventions to alleviate the pressure of job demands on e-learning practitioners. Meeting the demands of a job that is fast changing may sometimes result in output that lacks the required standards, therefore benchmarking becomes a crucial intervention in e-learning practice. This is not only important for maintaining quality standards of service output, but also for job positioning during the process of job redesign. Aligning the e-learning practitioner and the e-learning job becomes increasingly difficult and therefore it is very

important to clarify and define them very clearly and distinctly. Attempting to do this is one of the aims of this study in its search for the latent structure of the e-learning practitioner.

This study reports on efforts to develop a classifying scheme reflecting the latent structure of an e-learning practitioner construct. Systems thinking approaches to the **construct** of e-learning practitioner assume that the e-learning practitioner system involves the e-learning practitioner and the e-learning practice as two subsystems interacting in the e-learning work environment. The characteristics of the subsystems are patterned to reflect their respective structures. The characteristics and relationships between the subsystem structures reflect the structure of the e-learning practitioner system. To gain a better understanding of this construct, a case study was applied focusing on the characteristics and work behavioural styles of e-learning practitioners from the e-learning work environment at the Tshwane University of Technology (TUT).

The term 'e-learning practitioners' refers to individuals who create, use and maintain e-learning and teaching environments. They are involved in a number of job roles, defined by their job description, which suggest a variety of competencies, skills and person attributes needed to fulfil the various job tasks. Research indicates a number of person attributes in this regard (Kearsley, 1998; Gunn, 2001; Palloff, & Pratt, 2001b; Salmon, 2003), but a lack of empirical research on the characteristics of the e-learning practitioner and the e-learning job and their relationship in the e-learning environment is evident from the literature.

The personality-related attributes necessary for any job are established by job analysis techniques and psychological testing (Bergh & Theron, 2001:510), whilst the necessary competencies to perform the job successfully are listed in the job specification. Assessment instruments, such as questionnaires and self-report inventories, are usually applied to determine the attributes that will contribute to the best fit between the person and the job.

For this study the **Dominance_Influence_Steadiness_Compliance (DISC)** profiling instruments (Thomas International, 2005) were used to determine work behavioural style. The scope of this profiling is narrowed to dimensions of 'work' personality and does not include measurement of job competencies and skills, or cognitive aspects such as intelligence, memory, reasoning or problem solving. Uncovering the attributes that are important in a good fit e-learning person-job relationship may provide valuable insight into and understanding of the e-learning practitioner construct.

1.2 Historical background and motivation for the study

This thesis originated from a research project focusing on the key factors important for the usefulness of an electronic support system for WebCT users, funded by the NRF from 2002-2004. The research history of this study is described in Appendix A1, which presents a brief research history that will take the reader through the different phases of the original research project and reports on the roots and progress of the project. It highlights the relevant course of events to illustrate the logic of the process, and how the original research project grew into the thesis presented here. **Searching** for the **story** of the e-learning practitioner resulted in four distinct turning points in the research process. These turning points divided the research activities into four phases that **preceded** the searching process documented in this study (see Figure 1.1: prelude).

A description of the **fifth phase** will follow in the next paragraphs.

Research phase 5:

Research progress: The searching process documented in this study

One crucial aspect of this study is that its focus is on the latent structure of the e-learning practitioner construct, which implies that the relevant characteristics are patterned, related and embedded in a particular context, interacting with the e-learning practice. Furthermore, this construct is ill defined and the characteristic features are fuzzy and have to be uncovered and described by this study. Using positivistic approaches for data analysis, for example factor or taxometric analysis, may be too limiting in their applications. The title of this study implies more than merely a statistical analysis of the construct under investigation. An important issue here is the study focus in terms of the **scope**. A too wide, undefined focus may result in a general taxonomy without discriminative features for the e-learning practitioner per se. Although the study proposed to synthesise “shared meaning” from the online survey participants, there are limitations pertaining to **contextualisation** and **embeddedness** in an **e-learning practice** subsystem. Different thinking paradigms, the lack of a uniform theoretical framework and the diverse perceptions of the participants when describing the construct under investigation may prove beneficial to the study in terms of richness of the collected data. In contrast to this is the possibility that this may also be a serious **limitation** of the study because of the speculative nature of data not anchored in real-life situations. A large sample of participants is crucial to ensure the validity and reliability of such contributions by online participants. As this was not envisioned for this study, the focus was **narrowed** to e-learning practitioners at TUT.

Transcribing this into systems thinking means that the two subsystems, e-learning practitioner

(person) and e-learning practice (job), and their interacting relationship have no meaning without an environment. However, a mechanical input, process and output approach would also limit the study. Therefore, to compensate for the ontological and language limitations (Patton & McMahon, 1999) inherent to the systems theory approach, interpretive dimensions have been added. These issues will be debated in Chapter 3 of the study. However, systems theory provides an alternative to statistical, taxometric approaches to construct analysis by emphasising holistic approaches that assume that the whole is more than the sum of the particles of the whole, thus offering options for an enriched story to describe the latent structure of the e-learning practitioner construct.

A number of studies and literature reports on the online facilitator (Backroad Connections, 2002; Illinois Online Network, 2003), e-moderator (Salmon, 2003), online mentor (Weston & Amundsen, 1999) and the participative instructor (University of Illinois, 1999; Hoffmann, 2003), as dimensions of the e-learning practitioner, suggest a need for understanding and clarifying the multifaceted nature of the e-learning practitioner.

Rice (2003) analyses a wide range of empirical studies that examine the impact of teacher characteristics on teacher effectiveness in order to draw conclusions about the extent to which these characteristics are, in fact, linked to teacher performance. She states that “greater clarity on the empirical evidence can inform the wisdom of current practice, guide state efforts as they struggle with *No Child Left Behind* compliance regarding teacher quality, and provide direction for future teacher policy decisions”. She argues that “developing an approach to policy that values different and multiple teacher characteristics based on the research evidence may prove promising” (Rice, 2003). But adds that it is “important to note that many personal characteristics important for a good teacher are not measured in the studies reviewed” (Rice, 2003). Therefore, based on the research evidence, developing a framework for the planning of interventions to enhance productivity amongst e-learning practitioners, and to customise training programmes that value individual and multiple characteristics of e-learning practitioners may prove useful (Rice, 2003; Archer, 2002a).

Various authors (Tschannen-Moran, Hoy & Hoy, 1998; Tschannen-Moran & Hoy, 2001; Brennan, McFadden & Law, 2001; Kemshal-Bell, 2001; Brennan, 2003a) comment on the powerful relationship of teacher efficiency to many meaningful educational and student outcomes. e-Learning practitioners as primary role players in the e-learning environment will impact hugely on the nature of the e-learning and teaching environment (Bennett, Priest & Macpherson, 1999; Blair, 2002). However, Tschannen-Moran and Hoy (2001) observe that studies focusing on the topic of teacher efficiency have been plagued by persistent measurement problems.

The complex range of online environments, electronic support systems, aids and resources to support the use and integration of teaching and learning technologies are argued in the literature (Howlett & Stamm, 2002; Collis & De Boer, 1999; Conole, 2002; Conole & Oliver, 2002; Christman & Kazlauskas, 2000), and highlight the need for guidance and support for the e-learning practitioner (Korthagen, 2004) to become a more “effective” practitioner. Owing to a lack of technical skills, ineffective utilisation of resources and time constraints, e-learning practitioners who do not possess instructional designer skills or who are not trained as e-learning instructors struggle to meet the demands of the online teaching and learning environment.

The problems experienced by the e-learning practitioners, urging the need for training, guidance and support amongst the WebCT practitioners at TUT, triggered my interest as researcher and gave impetus to this study. Available technical support in WebCT does not provide enough support for the inexperienced practitioner on grass-roots level; it lacks the “show me” component. The use worldwide of different didactic support systems for online course design suggests a need for support for the practitioner community. Support systems range from commercially available products and locally developed products, to prototypes for research purposes (CourseGenie; CyberProfTM: Raineri, Mehrtens & Hubler, 1997). In my opinion these generic support interventions lack adaptive strategies to suit individual needs. A costly, steep learning curve is necessary in order to achieve set standards. Generally, support strategies are tailored to enhance the practitioners’ skills and competencies for more effective use of technologies and to “do the job”, and do not focus on the person as a “learner” with very specific preferences and personal characteristics.

How are we going to assist these “learners” and what do we need to know about them? A refined understanding of how online practitioner attributes affect their performance in the electronic teaching and learning environment can be helpful in determining the range of potentially effective support options. According to various authors (Gunn, 2001; Oliver & Dempster, 2002; Browne & Jenkins, 2003; Attwell, 2004; Nichols & Anderson, 2005), staff development and training are ways of equipping e-learning practitioners for their tasks. These offer different approaches, ranging from technological to emotional support strategies.

Research on the use of staff development programmes to promote effective teaching are prominent in the literature (Sparks & Loucks-Horsley, 1989; Bennett, Priest & Macpherson, 1999; Hyde, 2002; Oliver & Dempster, 2002), which repeatedly emphasises that the e-learning practitioner needs to be empowered to cope with work demands. The implication of this is a learner role for the practitioner.

In my view, however, there is a lack of acknowledgement of the most important aspect of any teaching and learning approach, namely the learner. The “learner” in question here is the e-learning practitioner who needs to address the challenges of the e-learning environment, and who needs very specific support in this regard. Support plans are usually based on needs-analysis profiles and the characteristics of the target population. With regard to the latter, it would be logical to profile “learners” who need development and training programmes to address the following “real-life” practical questions that also inspired this project:

“What are the characteristics of the online teacher and why is it important to be aware of them?”

“How can we use online teachers’ profiles to support them in their e-learning practice?”

The second approach for addressing these questions is to use literature contributions. Various studies at the National Centre for Vocational Education Research (Kemshal-Bell, 2001; Brennan, McFadden & Law, 2001; Cashion & Palmieri, 2002), in an attempt to position it as a world leader in applying new technologies to education, report on online pedagogical practice in Australia, for example

- a framework of indicators of pedagogical effectiveness (Brennan, 2003a);
- the importance of professional development moving beyond “technical skills and operational understandings” to addressing wider conceptual and affective issues (Walsh, 2000:15 in Stehlik, n.d.);
- it “...requires much more than technical skills; it requires new pedagogical approaches” (Ellis & Phelps, 1999; McKavanagh, Kaness, Bevan, Cunningham & Choy, 2002; Brennan, 2003b);
- it challenges approaches to the norms, habits and beliefs that surround student/teacher interactions (Ellis & Phelps, 1999), and
- provides professional development opportunities to help teaching staff get up to speed in the online learning environment (Stehlik, Simons, Kerkham, Pearce & Gronold, 2003).

Some of the most important features of individuals in the work environment, namely their person attributes, are not illuminated by research initiatives. Although various authors (Kearsley, 1998; Gunn, 2001; Palloff & Pratt, 2001b; Brennan, 2003b; Salmon, 2003) suggest some important person attributes, a lack of empirical research on this topic is evident from the literature.

Various calls (Kearsley, 1998; Burke, 1999; Korthagen, 2004, Simon, 2004) for more research and debate evolve around the 'online teacher' topic and a number of questions for further research have been proposed. Some of them are listed here below:

- "Do online teachers have to have certain characteristics?" (Burke, 1999).
- "Are these basic personality traits or ones that can be taught?" (Burke, 1999).
- "Are all teachers capable of being online instructors?" (Simon, 2004).
- "If online teachers need certain characteristics that are different from traditional educators, what are the implications for training instructors to teach online?" (Burke, 1999).
- "Can and should they be trained?" (Burke, 1999).
- "What are the characteristics/essential qualities of a good/poor online teacher?" (Kearsley, 1998; Korthagen, 2004).

Research results published by Norby and Strand (2000) strongly suggest that some Myers Briggs and Gregorc types were more likely to embrace online instruction than others. They also suggest follow-up studies in this regard.

The main research aim and some of the research goals of this study will attempt to address some of these calls (see detailed discussion on research goals in Chapter 3).

1.3 Rationale for the study

The e-learning practitioner study may have relevance for some of the above-mentioned questions, as some answers may emerge from the literature study reported in Chapter 2, and some may be addressed by the research questions. Research calls resulting from "real-life" problems and gaps in the literature, and those suggested by various researchers as illustrated in the previous paragraphs, were the driving forces or rationale for this study. These may be summarised as the following:

- e-Learning practitioners' need for support and training to equip them for e-learning practice were evident from my practical experience in this field, literature sources (Gunn, 2001; Browne & Jenkins, 2003; Stehlik, n.d.; Attwell, 2004; Nichols & Anderson, 2005) and research calls (Burke, 1999; Oliver & Dempster, 2002), posing not only a practical problem in terms of the design, development and implementation of staff development and training programmes, but also a research problem in terms of the investigation of the e-learning practitioner as "learner" with very specific characteristics and preferences. The various "learners" will react differently to influences such as positive and negative cues from the staff development or training programmes. Therefore "knowing" the

personal profile of the “learner” is crucial for the successful implementation of these programmes.

- e-Learning practitioner person attributes have received limited attention from research initiatives. Although lists of important person attributes are suggested by various authors (Kearsley, 1998; Gunn, 2001; Palloff & Pratt, 2001b; Salmon, 2003), a lack of empirical research on this topic is evident from the literature. A scan of the literature revealed just one study on profiling the online teacher using the Myers Briggs inventory (Fuller, Norby, Pearce, & Strand, 2000) and one other study focusing on specific personality characteristics, namely cognitive playfulness, innovativeness and belief of essentialness (Dunn, 2004). These research studies did not focus on the work behavioural style of e-learning practitioners.
- Despite the changing focus to a more humanistic approach, I could find very little empirical research available on the topic of the e-learning practitioner’s work personality in a changing world of work and the literature review revealed a gap in this regard (Kearsley, 1998).
- A number of research studies focused on the development of new e-learning practice models (Beetham, 2004a; JISC, 2004a; STEP, 2005;). These initiatives are the result of new trends in e-learning practice; however, limited attention was given to the characteristics of the e-learning practitioners’ job (Oliver & Dempster, 2002; Mayes & de Freitas, 2004; Beetham, 2004a). These studies did not focus on the human job requirements or job structure of the e-learning practitioner’s job.
- The literature revealed another research gap, namely the relationship between the e-learning practitioner and the e-learning practice and the way in which the person and the job fitted together in the higher education work environment.

The aim of this research is not, however, to address the practical problems, but to focus on the specific core related to all these questions, namely, **the characteristics and structure of the relationships between these characteristics, forming the latent structure of the e-learning practitioner construct.**

The purpose of the structure is to identify possible e-learning practitioner characteristics as traits of the profile of the e-learning practitioner. The discussion of e-learning practitioner characteristics leads one to consider what characteristic *types/styles* might exist, not only in terms of the person attributes of the **e-learning practitioner**, but also in terms of **e-learning practice**. How do these styles fit together and how are they organised in the structure of the e-learning practitioner construct? Systematic classification of the e-learning practitioner and e-learning practice structures is needed to organise them in such a way that it is possible to spot relationships and affinities among the building blocks of the e-learning practitioner structure.

As proposed by Cody, Kreulen, Krishna and Spangler (2002), “a critical component for the success of modern enterprise is its ability to take advantage of all available information”. In the business arena, technologies such as business intelligence and knowledge management are used to manage information that can be leverage for the benefit of the organisation (Cody *et al.*, 2002). Likewise higher education institutions may use these technologies to manage organisational intellectual property, as well as the organisation’s most important assets – human assets. Human assets are defined as a “set of motivated and talented individuals, build them up through the various stages so that they may become rain makers in the industry perceiving and tackling new challenges and creating opportunities, the worth of which may be judged in the open competitive space of knowledge intensive industries” (Wikipedia, 2002). However, to optimise creative application and utilisation of these assets the organisation not only needs to manage them, but also to have knowledge and information about their nature.

One way to understand, group and classify these assets is through the use of taxonomies as knowledge representation tools (Di Maio, n.d.). According to Richey (1986:26-27 in Wiley 2000:21), the development of conceptual models such as taxonomies serves to “identify and organize the relevant variables; defining, explaining and describing relationships among variables”. While certain categorisations of personality, teaching, communication and learning styles exist, a general, holistic e-learning practitioner characteristic classification scheme does not. The **development of such a structure** will be a research aim of this study, in order to answer the research question “**What is the latent structure of the e-learning practitioner construct?**”. This study essentially combines four interlinked study areas, namely e-learning, e-learning practitioners, e-learning practice, and person-job fit. These study areas also form the foundation of the issues embodied in the research title.

1.4 Study title issues defined

This section uses the phrase segments of the study title as indicators to clarify the key elements in the study title: **In search of the latent structure of an e-learning practitioner construct.**

In search of ...

This is an exploratory study, searching for the ‘**story**’ of the e-learning practitioner. As described in the prelude (see Appendix A1) the story started with a series of research activities that set the stage for the e-learning practitioners’ and Partners’ stories. According to one of the key beliefs of systems theory, ‘stories’ represent communications about patterns that connect all living things (Bateson, 1979). Through personal communication the e-learning practitioners told their e-learning practice stories. Through their reflective essays and online blogs, the Partners’ stories captured the context richness and subjectivity of their experiences as e-

learning practitioners in the Partners@Work Programme¹. Through their stories they voiced the meaning that they attributed to events in the programme, which determined their behaviour.

...the latent structure (of the construct)...

In the domain of psychology the concept “latent structure” suggests statistical approaches, using taxometric or factor analysis methods, or *latent structure models*, to determine the latent or **unobserved** structure or **organised building blocks** of a *construct*.

The systems theory approach suggests that “the underlying structure provides a view of the interactions between the elements of the system which are responsible for producing the patterns of behavior” (Bellinger, 2004).

The interpretive approach suggests: “Many possible realities, each of which is relative to a specific context or frame of reference” (Chiang, 1998).

...e-learning (practitioner)...

e-Learning may reflect different agendas for different circumstances, but at TUT the concept of e-learning is best described as “[covering] a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet, audio and videotape, video conferencing, CD-ROM, and mobile technologies” (Cisco’s e-Learning Glossary, 2001). It also includes “the continuous assimilation of knowledge and skills by adults stimulated by synchronous and asynchronous learning events – and sometimes Knowledge Management outputs – which are authored, delivered, engaged with, supported, and administered using Internet” (Morrison, 2003:4) and other technologies.

The New Zealand Ministry’s ICT Strategy for Schools describes e-learning as “flexible learning using ICT resources, tools, and applications, and focusing on interactions among teachers, learners, and the online environment. E-learning usually refers to structured and managed learning experiences, and may involve the use of the internet, CD-ROMs, software, other media, and telecommunications” (ICT06 – E-Learning Fellowship Guidelines, 2005).

¹Partners@Work (P@W) Programme

The P@W Programme is a formal capacity-building programme for e-learning practitioners at TUT. The Partner group (P@W) consists of 14 members (Partners) who follow the programme for 6 months and then practise what they have learned for another 6 months.

...(e-learning) practitioner...

The final critical success factor to creating effective e-learning environments is to include a participative and active online instructor. The instructor is the glue that holds together the other four factors (student motivation, useable technology, opportunities to collaborate and interact, and the program blend) Jennifer Hoffmann, Learning Circuits, December 2003.

Numerous terms in the literature relate to the practitioner of online teaching and learning. Some of the common terms used are online teacher, e-teacher, e-moderator, cyber teacher, and online facilitator. The e-learning practitioner described in this study captures the characteristic profile of teachers/lecturers/instructors who **create, use and maintain electronic teaching and learning** environments for themselves and their learners for pedagogical purposes. These instructors are **professional educators** and may also include **subject matter experts**. Some of these e-learning practitioners may be described as "early adopters" and "innovators", and are according to Feist (2003) quick to incorporate technology into their teaching and learning environments and are able to capitalise on existing support mechanisms to accomplish their goals.

For the purpose of this study the concept 'e-learning practitioner' will include the early adopters, innovators and "slow starters" using the **e-learning environment as their scope of practice**.

...construct...

Cronbach and Meehl (1955:3) define a construct as some "postulated attribute of people, assumed to be reflected in test performance" and a "construct is defined implicitly by a network of associations or propositions in which it occurs. Constructs employed at different stages of research vary in definiteness" (Cronbach & Meehl, 1955). The objectivistic approach as stated by Cronbach and Meehl (1955) differs from the view of the constructivist approach mentioned in Babbie (2005:124). He defines *constructs* as "theoretical creations that are based on observations but cannot be observed directly or indirectly". He adds that constructs are not "real" but they are useful in providing the researcher with a way to organise, communicate about, and understand things that are real (Babbie, 2005:124). Constructs "help us make predictions about real things", because they have a definitive relationship to things that are real and observable (Babbie, 2005:125). Babbie (2005) continues by defining the bridge from direct and indirect observables to useful constructs as the process of conceptualisation. Elaboration on the latter will follow in the discussion of the research conceptual framework, in Chapter 2.

Two study areas subtly suggested but not specifically named in the study title are e-learning practice and person-job fit. Conceptualisation of these two resulted in person-job fit being seen as a separate dimension of person-environment fit, referring to a match between a person and the job. This is usually based on the competencies and attributes of the person and the demands of the job, and deals with two relationships: firstly the person skills and attributes for meeting the job demands, and secondly, whether the job meets the needs of the person. The e-learning practitioner 'job' at TUT has different environmental scenarios and person-job fit may thus imply a variety of relationships in different contexts, influenced by different situational features.

e-Learning practice is "demonstrated by professionals who provide evidence of pedagogically sound, learner focused and accessible activities that demonstrate the thoughtful and effective application and/or development of modular tools, environments and standards in the e-learning teaching and learning environment" (LTRI, 2004).

1.5 The purpose of this study

The purpose of this study is to develop a classification scheme for the characteristics and profile structures of e-learning practitioners and the e-learning practice, and to determine the relationship between these structures, as a form for expressing the latent structure of the e-learning practitioner construct. The context is a case study involving the e-learning practitioners at Tshwane University of Technology (TUT) focusing on the characteristics, relationships, patterns of characteristics, different pattern types and the way these pattern types fit together in the person-job relationship of the e-learning practitioner and e-learning practice. Exploring how these characteristics, being the building blocks for the structure of the work personalities of e-learning practitioners, fit together may enlighten our understanding of the e-learning practitioner construct.

The two main foci in this study are the e-learning job environment and the practitioner working in this environment. The job of the e-learning practitioner at TUT is not defined, nor is there a formal job description to guide us in our search for clarification in this field. However, through a process of crystallisation using available resources an attempt can be made to get a clearer picture of what this job looks like and what behaviour requirements should be specified for it.

Furthermore, it is interesting to note that, in the e-learning domain, other concurrent and completed research studies at the University of Pretoria have their focus on the role of the online facilitator; the profile of the online facilitator; and the skills and competencies needed by online facilitators (Adendorff, 2004; van Ryneveld, 2005). These studies may contribute to a holistic understanding of the different job dimensions of the e-learning practitioner, but differ

distinctly from this study in their specialised focus on the roles, skills and competencies of the online facilitator and the instructional designer.

The focus of the specific job analysis in this study is the **behavioural requirements** of the e-learning practitioner job function. The latter is an umbrella construct that may well include functions of an online teaching and learning facilitator as well as functions for the production and instructional design of e-learning materials.

1.6 The research questions

As already mentioned, the purpose of this research enquiry is to identify the latent structure of the e-learning practitioner construct, and it was therefore guided by a set of research questions. To state the essence of the research enquiry, these research questions are expressed as an intellectual puzzle (Mason, 2002:13) and are presented in Tables 1.1 and 1.2.

Main research question

What is the latent structure of the e-learning practitioner construct?

Sub-questions

To answer the main research question, the following subquestions were formulated:

What is the latent structure of the e-learning practitioner construct in terms of person attributes? (Chapter 4.3)

What is the latent structure of the e-learning practitioner construct in terms of the work environment context? (Chapter 4.4)

How do the work environment- and person attributes fit together in the structure of the e-learning practitioner construct? (Chapter 4.5)

A number of research goals were formulated to direct the research enquiry. Tables 1.1 and 1.2 provide explanatory details of the subquestions and the research goals. Colour coding is used to distinguish between the different sub-questions and the research goals. The legend is:

Legend for Tables 1.1 and 1.2

Research question 1		International e-learning domain		TUT e-learning population	
Research question 2		TUT e-learning domain		TUT e-learning practitioners	
Research question 3		P@W programme		Star performers	
Main question				Partners	

Table 1.1: Explanatory detail of subquestions

1. What is the latent structure of the e-learning practitioner construct in terms of person attributes?		
Subsidiary questions	Concepts	Considerations
What are the characteristics of e-learning practitioners?	Personal characteristics of e-learning practitioners at TUT	To address this question the following has to be considered: Behavioural work characteristics of e-learning practitioners
What are the profile patterns of e-learning practitioners at TUT?	Personal Profile Analysis	To address this question the following has to be considered: Personal profiles of work behaviour styles of the e-learning practitioners. Work behavioural pattern types of the e-learning practitioners. Pattern type structures of the e-learning practitioners.
2. What is the latent structure of the e-learning practitioner construct in terms of the work environment context?		
Subsidiary questions	Concepts	Considerations
What is the work environment context for e-learning practice? What are the characteristics of the e-learning practitioner job?	Job description	To address this question the following has to be considered: Characteristics of the e-learning practitioner job
What is the structure of the e-learning practitioner job?	Job analysis	Job profiles for e-learning practice. Job structures for the e-learning practice.
What are the job demands for e-learning practitioners at TUT?	Job demands	Motivators and demotivators for e-learning practitioners at TUT Job demands, distracters and releasers as dictated by different job roles in the P@W programme.
3. How do the work environment and person attributes fit together in the structure of the e-learning practitioner construct?		
Subsidiary question	Concepts	Considerations
What is person-work environment fit?	Person-work environment fit (person-job fit)	To address this question the following has to be considered: Match between the personal profile structures and e-learning job structures for e-learning practitioners at TUT.

To make the answers to the research questions more explicit and to solve the intellectual puzzle (Mason, 2002:13), the above-mentioned subsidiary questions and considerations have to be operationalised in measurable research goals. These goals are listed in Table 1.2 to provide an overview of **the refined subsidiary questions and research goals**, data collection methods, and data analysis instruments. In sections 3.8 on data collection instruments, the

instrumentation and procedures for data collection and data analysis (section 3.9) are discussed in detail.

Table 1.2: Research goals and refined subsidiary questions

Sub-questions	Research goal (objectives)	Subsidiary questions to address research goals	Focus area	Data collection and analysis instruments
1. What is the latent structure of the e-learning practitioner construct in terms of person attributes?	1.1.1 To identify indices, categories, dimensions and person attributes of e-learning practitioners	1.1 What are the characteristics of e-learning practitioners?	International e-learning domain	Literature review (Meta-analysis of characteristics as described in the literature) Screening survey (descriptive analysis of screening survey data) Pilot survey (survey discarded)
	1.2.1 To identify work behavioural characteristics of the e-learning practitioners at TUT	1.2 What are the work behavioural characteristics of e-learning practitioners at TUT?	TUT e-learning domain	Questionnaire – PPA form (PPAs) Question posed on the consent form (Char1)
	1.3.1 To identify the personal profiles of the e-learning practitioners at TUT	1.3 What are the personal profiles of e-learning practitioners at TUT?		Descriptive data from PPA
	1.4.1 To identify the profile patterns of the e-learning practitioners at TUT	1.4 What are the profile patterns of e-learning practitioners at TUT?		Descriptive data from PPA
	1.5.1 To identify the star performers at TUT	1.5 Who are the star performers at TUT?		Opinions from instructional designers on star performers (VG)
	1.6.1 To enrich the Personal Profile Analysis of the e-learning practitioners at TUT	1.6 How do the e-learning practitioners practise e-learning at TUT?		Face-to-face personal interviews (F2F) Question posed on the consent form (Char1)

Table 1.2: Research goals and refined subsidiary questions (continued)

Sub-questions	Research goal (objectives)	Subsidiary questions to address research goals	Focus area	Data collection and analysis instruments
	1.7.1 To identify work behavioural characteristics of the Partners in the P@W Programme	1.7 What are the characteristics of the Partners in the P@W Programme	P@W Programme	Questionnaire – PPA form (Personal Profile analysis) Self-reported feedback questionnaire (Char2)
	1.8.1 To identify the personal profiles of the Partners in the P@W Programme	1.8 What are the personal profiles of the Partners in the P@W Programme		Questionnaire – PPA form (PPAs) Descriptive data from PPA
	1.9.1 To identify the profile patterns of the Partners in the P@W Programme	1.9 What are the profile patterns of the Partners in the P@W Programme?		Descriptive data from PPA
	1.10.1 To enrich the Personal Profile Analysis of the Partners in the P@W Programme	1.10 How did the Partners in the P@W Programme perceive their e-learning practice?		Descriptive data from PPAs Self-reported feedback questionnaire (Char2) Focus group questionnaire (FGQues) Essays Research summaries (RS) Archival material – (Blog, eMod)
2. What is the latent structure of the e-learning practitioner construct in terms of the work environment context?	2.1.1 To identify job characteristics of e-learning practice	2.1 What are the characteristics of the e-learning job?	International e-learning domain	HJA based on preliminary e-learning practitioner taxonomy
	2.2.1 To identify job profile structures of e-learning practice	2.2 What are the job structures for the e-learning job?		Descriptive data from HJA based on preliminary e-learning practitioner taxonomy
	2.3.1 To identify job characteristics of the e-learning practice at TUT	2.3 What are the characteristics of the e-learning job at TUT?	TUT e-learning domain	HJA by expert consensus group from TUT
	2.3.2 To benchmark and validate the e-learning job at TUT			Data from PPAs of star performers
	2.4.1 To identify job profiles for e-learning practice at TUT	2.4 What are the job profiles for e-learning practice at TUT?		Descriptive data from HJA
	2.5.1 To identify job profile structures for e-learning practice at TUT	2.5 What are the job structures for the e-learning practice at TUT?		Descriptive data from Human Job Analysis

Table 1.2: Research goals and refined subsidiary questions (continued)

Sub-questions	Research goal (objectives)	Subsidiary questions to address research goals	Focus area	Data collection and analysis instruments
	2.6.1 To identify job characteristics of the e-learning practice in the P@W Programme	2.6 What are the characteristics of the e-learning practice in the P@W Programme?	P@W Programme	Descriptive data from HJA
	2.7.1 To identify job profiles for e-learning practice in the P@W Programme	2.7 What are the job profiles for e-learning practice in the P@W Programme?		Descriptive data from HJA
	2.8.1 To identify job profile structures for e-learning practice in the P@W Programme	2.8 What are the job profile structures for e-learning practice in the P@W Programme?		Descriptive data from HJA
	2.9.1 To identify the job demands, distracters and releasers as perceived by the Partners in the P@W Programme	2.9 What are the job demands, distracters, and releasers perceived by the Partners in the P@W Programme?		Focus group Questionnaire (FGQues) Essay Archival material –(Blog)
3. How do the work environment- and person attributes fit together in the structure of the e-learning practitioner construct?	3.1.1 To identify the relationship between the e-learning practitioners and the e-learning job (person-job fit) in terms of different work environments	3.1 What is the P-J fit for the different groups in different e-learning work environments	International e-learning domain	Integration of PPA and HJA data to determine the relationship between the person and the job in structured and unstructured environments.
			TUT e-learning domain	
			Perceived by practitioners	
			Star performers	
			Partners	
	3.2.1 To identify the match between the personal profile patterns and structures of the e-learning practitioners and the human job requirement patterns and structures of the e-learning practice	3.2 What is the “goodness of fit” between the personal profile and e-learning job structures for e-learning practitioners at TUT in terms of acceptable compatibility?	TUT e-learning population	Integration of PPA and HJA data to determine the goodness of fit between the patterns and structures of the person attributes and the job characteristics
TUT e-learning practitioners				
Star performers				
Partners				

Table 1.2: Research goals and refined subsidiary questions (continued)

Main question				
What is the latent structure of an e-learning practitioner construct?	4.1.1 To determine the latent structure of the e-learning practitioner construct	4.1 What is the latent structure of the e-learning practitioner construct?		Synthesis of research findings.

The operationalisation of the above-mentioned research goals and conceptualisations is outlined and discussed in section 3.5 on the research methodology of this study.

1.7 The research approach

Quantitative research and qualitative research are the ideal ends of a continuum along which actual research takes place. Olson (1995:4) cites Wildemuth suggesting that the “difference between positivist and interpretive paradigms is that the former recognizes an objective reality not dependent on the researcher and the latter views reality as subjective and socially constructed”. Livesey (2003) explains the difference in terms of the ultimate research aim saying that the “quantitative paradigm concentrates on what can be measured. It involves collecting and analysing objective (often numerical) data that can be organised into statistics to explain”. In contrast, the qualitative paradigm concentrates on “investigating subjective data, in particular, the perceptions of the people involved. The intention is to illuminate these perceptions and, thus, gain greater insight and knowledge with the aim to describe and *verstehen*” (Livesey, 2003). This study combined quantitative and qualitative research approaches in a mixed method application (see Chapter 3 for a detailed discussion on research approaches).

1.8 Context

The purposes of qualitative research, such as to interpret and to understand (*verstehen*), are interlinked for the purpose of contextualisation. Context sets the stage for the research problem, and the relevant TUT, national and international contexts are described in the following section.

1.8.1 Background

WebCT, as an example of a learning management system, is a widely used course management system in higher education, enabling the delivery of online education around the world. More than 2200 institutions in over 80 countries are currently licensed to use WebCT and eight of these institutions are in South Africa (WebCT, 2006). The challenges that practitioners face in using these learning management systems are cited extensively in the literature (Petrides, 2000; Epper & Bates, 2001; Leask, 2001; Laurillard, 2002). Different support systems

and strategies for successful implementation have also been proposed (Lim in Petrides, 2000; Laurillard, 2002).

At TUT these issues have been addressed in the Strategic Technology Plan and the Multimode Teaching and Learning Strategy, with the Department of Telematic Education playing an integral part and key role in the process of electronic/multimode teaching and learning. However, to be recognised as a university of technology it is important to support lecturers and learners with the programmes, services and tools (e.g. WebCT) necessary to build institutional capacity in order to support a successful electronic/multimode teaching and learning initiative. However, new technologies imply new educational applications, and lecturers as well as learners need support to help them teach and learn with these new technologies. The embedding of new technology into the learning and teaching process is sometimes patchy (Laurillard, Swift & Darby, 1993). At TUT, the following may impact on the movement towards a fully integrated learning management system:

- resistance to change;
- lack of knowledge;
- inexperienced lecturers;
- lack of training;
- not being part of the core business of lecturers;
- insecurity with new technologies;
- different competency computer literacy levels;
- lack of universal quality standards for online course material;
- differences in utilisation of WebCT facilities by practitioners;
- underutilisation of help files, templates and online WebCT user support;
- some lecturers prefer to outsource the development of materials rather than to use available support and aids, for example templates for multiple-choice questions, and
- time-consuming learning curves.

As also noted by Phelps, Oliver, Bailey and Jenkins (1999), another important reason for a slow implementation rate is the range of skills that need to be acquired to enable practitioners for their tasks. Not all lecturers have an educational background for this, as many of them are specialists in their subject field in industry and do not have the necessary didactic skills. Scaffolding, guidance and support for these lecturers are important in the instructional design process to ensure the quality and excellence of learning and teaching.

TUT's Strategic Technology Plan and Multimode Teaching and Learning Strategy offer different strategies at different levels to support the lecturers:

- **Macro level:** This includes the provision of institutional infrastructure, computer hardware and –software, and seed money for multimode teaching and learning projects, as well as various training courses offered by the Department of Staff Development.
- **Departmental level:** This entails the promotion of faculty and departmental multimode teaching and learning projects, assistance with project management, utilisation of different educational technologies, educational technology research, specialised training for practitioners and students, and teaching and learning roundtable activities.
- **Micro level:** At this level the Department of Telematic Education at the TUT plays a major role in providing guidance and support for all stakeholders. Key functions are to empower lecturers and learners to utilise the multimode teaching and learning environment and to optimise the capacity of the e-learning practitioners. A one-on-one approach, just enough, just in time, just for you, is followed. But this is time consuming and has a huge impact on human resources. e-Learning practitioners are not necessarily instructional designers and sometimes a steep learning curve is necessary to achieve the standards for quality didactic materials. As an instructional designer at TUT, I have noticed that the majority of e-learning practitioners at this university need support in their online practice. Various examples of just-in-time, just-for-you training and staff development and support initiatives (McKenzie, 1998; SEIR-TEC, 2001; Baars, Bakalis, van de Ven & Walsarie Wolff, 2003; Weaver, 2003;) are cited in the literature, but fail to explain the missing link between the “customised” training and the trainee. Training and support cannot be called “just for you” if the “you” is unknown! What are these attributes that will describe the “you” and are there distinctive patterns and profiles for classifying these e-learning practitioners? The first research question, namely, “What is the structure of the e-learning practitioner construct in terms of person attributes?” will comment on this.

The question remains as to whether e-learning teacher education and staff development can also contribute to the development of the professional identity of these practitioners. Must teacher education begin by exploring the “teaching self”? (Bullough, 1997 in Korthagen, 2004). However, the “teaching self” is not decontextualised and therefore it is important to take cognisance of the practice/organisational environment. Describing and probing the TUT e-learning practice environment will elucidate research question two, namely: “What is the structure of the e-learning practitioner construct in terms of work environment context?”

Trying to find answers to these questions inspired me to conduct this research project, which ultimately asks “Do the existing practitioners fit the job of e-learning practitioner?” and, “How do these fit patterns fit together in a possible structure?”

1.8.2 *The TUT e-learning practitioner environment*

The Department of Telematic Education at TUT drives the e-learning initiatives of the university by acting as change agents and service providers. The department supports all staff who are interested in using technology as a part of their daily tasks. Over the past couple of years the approach followed by the university focused on telematic projects, driven by individuals from different departments and faculties. The drive to initiate the projects came from the individuals who worked closely with the instructional designer assigned to that specific project; the result being a number of uncoordinated projects.

Iemand wat 'n uitdaging raaksien in iets wat hy/sy niks of bitter min van weet en dit ontwikkel (Char1).² [Someone who sees a challenge in something that he/she knows very little about and develops it.]

However, the approach bore a great deal of fruit in the sense that the bottom-up approach separated the ones who “wanted to become involved” from the ones who “were told to do so”.

Excellent personalised support from the Department of Telematic Education also impacted positively on the whole process with the effect that certain projects extended long past their project plan completion dates, because of the “people” factor present in those projects. As one participant described the characteristics of the e-learning practitioner:

Creative, Visionary, hands-on, Flexible, Fearless, Open-minded, Desire to uplift others, Determined, Persistent, Willing to stand up after something does not work and try again. Not to be controlled by negative non e-learning type (Char1).²

Some of the projects extended beyond limits whilst others died after the formal project was completed.

I cannot guarantee quality service to the students, they have too many problems accessing WebCT, that is why I am not going to use WebCT in the next semester (F2F).³

² “Char1” One open ended question on the consent form asks the participant to name the most important characteristics of e-learning practitioners.

³ “F2F” Informal conversational interviewing between the researcher and each of the e-learning practitioners at TUT took place during the first contact session. This very informal conversation was guided by one question: ‘Tell me about your e-learning practice.’

In March 2005, 108 lecturers at TUT were actively involved in WebCT and other telematic projects (statistics provided by the WebCT Administrator at TUT). Apart from the online learning management system (WebCT), other technologies, for example electronic testing, multimedia and Wimba presentations, CD-ROMs, animations, audio, video, and video conferencing, were available to practitioners, who combined the different applications and technologies creatively in their projects.

The Department of Telematic Education realised however that with the limited resources available in the department, and the growing need for its services, it was necessary to change the approach being followed. From 2004, the focus shifted to the P@W Programme. This initiative aims at the development and consequent implementation of well-rounded technology-enhanced courses that address specific challenges such as low pass rates, geographically dispersed learners and large groups (<http://www.tut.ac.za/>). A short description of the P@W Programme follows in the next paragraphs.

P@W Programme: Aim of programme

This training programme aims to provide a selected group of staff involved with all the skills they may need in order to use technology efficiently in and out of the classroom. A support team, consisting of programmers, instructional designers, curriculum designers, student development officers, quality experts, graphic artists, and video production experts, enriches the P@W Programme. The capacity-building programme involves face-to-face sessions, weekly contact sessions, and a variety of online training courses, workshops and hands-on training sessions. Various skills and topics are covered by the programme, for example **skills development activities** focusing on applications such as WebCT, Respondus, Camtasia, Impatica, FrontPage, Yahoo messenger, Bloggers and VTC; **knowledge development activities**, such as writing a scientific article, preparing and presenting a conference paper, designing a curriculum, facilitating and managing online learning, encouraging online collaboration and interaction, implementing high quality electronic learning activities, products and assessments, active involvement in an **action research** project with the aim of strengthening the partner's research skills and partners who are part of a **community of practice**.

The participants in the programme are the **Partners** who are committed to play the roles of **online teacher/facilitator/e-moderator** – implementation of developed courses; **instructional designer** – design and development of courses; **researcher** – action research project with research output, namely conference paper, publishable article, research day presentation; **adult learner/student** – participation in capacity and skills building programme; and **manager** – project manager of own programme as well as developed course implementation. **Academic support departments**, for example the Centre for Continuing Staff Development, and research

and development services. The Department of **Telematic education** (Instructional design team and technical staff), which performs the roles of administering and managing the programme, and providing instructional design support and services, training and professional development opportunities, and research activities.

1.8.3 National context

In terms of e-readiness South Africa is the highest ranked African country (Czerniewics & Carr, 2005:2). Although **South Africa** is often regarded as part of the Third World, there are pockets of First World education facilities (Kistan, n.d.). The disparity between higher education institutions presents complex challenges in terms of the implementation of e-learning. Issues such as lack of comprehensive infrastructure, insufficient bandwidth and financial support, few trained e-learning practitioners, computer illiteracy, lack of technical skills to maintain systems and the cost of e-learning mentioned earlier are also prominent in the South African context.

Although different strategies to promote access to information and communication technologies (ICT) exist in South Africa, the development efforts are more directed at communities and schools, and not at higher education per se. Gumbe (2004) lists a few examples of promotional strategies as (1) multipurpose community centres (MPCCs) in rural and urban areas across the country; offering services such as computer training, and providing access to the Internet and other online services (<http://www.gov.za>); (2) Magalakwena Hewlett-Packard I-community, including a multipurpose education centre, which is a partnership between Hewlett-Packard, CSIR and the government, to provide communities with access to ICT; (3) to provide training on the use of computers and the refurbishment of PCs, (http://www.southafrica.info/ess_info/sa_glance/education/i-community) and; (4) SchoolNet started in 1997 to provide computers and online access to historically disadvantaged schools. This is a partnership between the private sector, the donor community, the public sector and civil society (<http://www.schoolnet.org.za>). SchoolNet SA is an organisation founded to encourage the development and sharing of resources and technologies (Halse, 2002). Although the SchoolNet SA project is aimed at schools, it may be a breeding ground for progress into higher educational level in terms of skills and knowledge competencies for learners and teachers alike.

1.8.4 International context

Although Africa is the second most populated continent in the world, it has the second lowest percentage of Internet users; however, it has an enormous Internet user growth rate of 428,7 percent per annum (Internet Usage and Population Statistics for Africa, 2005). A comparison of Internet usage in the different regions of Southern Africa shows South Africa as the country with

the most users, but with the lowest use growth rate of 99 percent. Zimbabwe and Zambia have use growth rate figures of more than 1000 percent (see Table 2.4).

A comparative research study by Collis and van der Wende (2002) on the use of e-learning in higher education included the Netherlands, Germany, Norway, the United Kingdom, Australia, Finland and the USA. The researchers highlight the main challenges for both institutions and governments in developing more strategic policies for the use of ICT by the different target groups that higher education is expected to serve in the 21st century knowledge economy. They conclude that institutions need to develop strategic policies for accommodating diverse learner groups, improving the pedagogical use of ICT, adapting technology to different needs, and developing policy for instructor incentives to do the work required (Collis and van der Wende, 2002:72).

Some of these issues were also reflected in comparative research studies done in the United Kingdom. Research reports and survey studies by, for example UCISA and JISC in the UK, revealed a number of issues relating to virtual learning environments (VLEs), namely choosing VLEs, and their implementation, technical support, other support issues, and training and pedagogic issues relating to their use.

The picture painted by these reports is one of “evolutionary consolidation” (Browne & Jenkins, 2003:3), where “centralisation is increasing on matters considered strategic, development is occurring for a range of support activities [and] there is a markedly greater use of VLE’s” (Browne & Jenkins, 2003: 3). “Effective practice with e-learning” reported by JISC, commissioned under the e-Learning and Pedagogy strand of the JISC e-Learning Programmes, supports reports from Browne and Jenkins (2003) and also highlights issues on the current context of e-learning practice. The “government initiatives in all four UK countries have promoted e-learning as a means of empowering and engaging learners. Increasingly, they also focus on the practitioner as an active “innovator” of new practices and techniques” (JISC, 2004a).

One notable conclusion from the UCISA report is that the career implications for academic staff spending time exploring the use of a VLE in their learning and teaching are not perceived to be very positive” (Browne & Jenkins, 2003:34).

1.9 The scope of the study

This study was conducted at an institution for higher education, the Tshwane University of Technology (TUT). The focus of the study is e-learning practitioners at this organisation, specifically two groups, namely, the P@W group, and the e-learning practitioner group including

the “star performer” group. These diverse groups represent a variety of e-learning practices (e.g. WebCT courses presented fully online vs. using WebCT as a PDF-file storage manager), the application of different technologies (e.g. e-testing, video conferencing and video supplementary instruction), and the use of a number of approaches (problem-based learning, mastery learning or drill and practice tutorials). The boundary for this study is the interaction and relationship between e-learning practice and the e-learning practitioner, including all the e-learning practitioners at TUT.

Influences that were taken into account in this study were the environmental structure, the organisation, the job and personality differences. The research focused on the job and the person within a work environment embedded in the TUT organisation.

However, **organisational** influences were only briefly taken into account, tapping into participants’ reports and feedback on organisational matters. Organisational influences in the e-learning practitioner system, such as financial, infrastructural, personal, and social support/lack of support, as reported by the e-learning practitioners, were taken into account in terms of the impact of these influences on the e-learning practitioner system. Reactions from the system (person and job) to these influences, and the interplay between the system and organisational influences are relevant to this study and provide insight into the e-learning person-job interaction.

Environmental structure and influences, ranging from structured, semi-structured to unstructured, were taken into account for the following reasons. Environmental structuredness is highly relevant in work behavioural styles, especially the Steadiness behavioural style. All e-learning initiatives at TUT are bounded by organisational policies, rules and regulations, but the carrying out of these activities may take place on a continuum of environmental structuredness. For example, the P@W Programme provides a distinct environmental structure that defines the borders of the programme, sets definite goals, and specifies the programme activities and outcomes. Partners have to adhere to the ‘rules’ of the programme but do have the intellectual and creative freedom to create their online courses. Semi-structured environments include e-learning practitioners’ participation in projects supported by the Department of Telematic Education. Practising in unstructured e-learning environments at TUT involves commitment, driving force and dedication from the practitioners. Their initiative and self-initiated activities are the motivators for their e-learning courses.

Positive and negative **job** influences reported by the e-learning practitioners add another influence sphere from the subsystem to the system, resulting in different reactions from the

system; for example, the high Compliance profile that prefers a well-organised programme and does not like to work in a chaotic work environment.

The same logic applies to the subsystem of person attributes, displayed as work style characteristics, influencing the job, the work environment and the organisation. Congruence between the person and the job characteristics may result in a harmonious interaction, beneficial for all the role players.

The e-learning group's involvement in e-learning varies from novice practitioners just starting out to experts who have been practising for more than three years. However, for the purpose of this study, they were involved in the study from May 2005 to July 2005. The interaction between the Partners and the P@W Programme continued from June 2004 to June 2005. Data collection continued over a period of a year and data sources were archived. Archived data was used during the active case study period from May 2005 to July 2005 to enrich the DISC Personal Profiles of the e-learning practitioners.

1.9.1 *What is excluded from the study?*

The study will focus only on the person attributes of the e-learning practitioners at TUT and not on the competencies and skills needed to fulfil the tasks of e-learning practitioners. Person attributes include work behavioural styles measured by the DISC inventory not intended for clinical diagnostic purposes. The study does not include measuring personality traits in terms of the Big Five or 16 Factor taxonomies. Job characteristics relevant for this study include human job requirements and not specific job tasks. Situation specificity is relevant and therefore generalisation to other e-learning environments is not a major focus of this study. The intention is to focus on the latent structure of the e-learning practitioner construct in the context of a real-life case study. The study does not focus on task or job performance, measuring job satisfaction or the relationships between these two, vocational interests or the application of results to assess job performance. Although the outcome of the study may have practical value for the organisation, interventions to enhance person-job fit are excluded from this report.

1.9.2 *Limitations of the study*

The survey method used to collect data for the Personal Profile Analysis (PPA) may **lack depth**; therefore the use of additional data sources may add the required depth and context to the study. Only 60 participants were involved in the study therefore generalisation and taxometric analysis procedures would not be likely. The impact of high refusal rates and high non-response to the course of the study was pointed out in the first sections of this chapter, but the decisions that had to be taken enhanced the validity of the study by ensuring these are realistic and practical choices.

The study will be **delimited to TUT** and does not include e-learning practitioners from other institutions.

External validity/transferability issues refer to whether the conclusions of a study have any larger import and if they are transferable to other contexts. How far can they be generalised (Miles & Huberman, 1994)? In this study I did not aim to generalise results, I did not replicate findings in other studies to assess their robustness, nor could similar studies or findings be found to compare consistency with other research findings. The aim of this study was to investigate the underlying structure of the e-learning practitioner construct and to use the findings of the study to comment on possible future scenarios in terms of ***what is...?; what should be...?; and what does it mean...?***

Therefore, transferability to other contexts may be a possibility in future experimentation with different scenarios.

1.9.3 Significance of the study

Limited research has been done in the field of profiling e-learning practitioners in the South African environment (Adendorff, 2004:14). This study will comment on the **'teaching self'** on the level of higher education. Research contributions pertain to the following:

- Possible development of a classification scheme of e-learning practitioners.
- Possible structure for
 - planning of interventions for enhancing teaching and learning practice
 - a training programme for e-learning practitioners
 - possible insight for practitioners into their contribution to critical human and environmental factors to enhance the instructional design process.

This study might contribute to building capacity pertaining to a job description for the e-learning practitioner.

The e-learning practitioner construct is fuzzy and ill defined, and as the online teaching and learning environment becomes more and more prominent the findings of this study may contribute to establishing a benchmark for the e-learning practitioner job description.

The findings from this research could be useful for **practitioners** of electronic learning management systems, and **planners of staff development and e-learning training programmes**.

The question remains whether teacher education and staff development can also contribute to the development of teachers' professional identity? Must teacher education begin by exploring the "teaching self" (Bullough, 1997 in Korthagen, 2004)?

This study offers an opportunity to make a contribution to the corpus of knowledge in the field of educational/learning technology by offering insight into the multifaceted characteristics of the e-learning practitioner. My aim is to develop a classification scheme for e-learning practitioners, which may contribute to the development of theoretical frameworks that could be applied to guide planning for interventions to enhance e-learning practice, and the planning and development of training programmes for e-learning practitioners. This study may contribute to building capacity pertaining to a job description for the e-learning practitioner. Findings from this research may be useful as a job benchmark for e-learning practitioners at TUT and as a framework for planning staff development and training programmes for e-learning practitioners.

Findings of the study may stimulate further action in terms of the implementation of practical interventions as the application of research findings. The question remains, however, whether teacher education and staff development and training, focusing on the e-learning teaching self, can contribute to

- the development of the professional identity of the e-learning practitioner;
- enhancing the fit between the e-learning practitioner and the e-learning job;
- the development of effective, customised staff development and training programmes;
- sustainable e-learning practices, and
- facilitating change in the e-learning adoption cycle.

Trying to find answers to these questions may lead to further research in this field.

There are also questions about ethics in terms of "Who benefits from or may be harmed by this research study?". Therefore the next paragraphs will comment on ethical issues relevant to this study.

1.10 Ethical considerations

The following principles of ethical conduct, as suggested by the Research Ethics Committee (2005) of the University of Pretoria, were adhered to in this study:

- "*voluntary participation* in research, implying that the participants might withdraw from the research at any time;

- *informed consent*, meaning that research participants must at all times be fully informed about the research process and purposes, and must give consent to their participation in the research;
- *safety in participation*; put differently, that the human participants should not be placed at risk or harm of any kind e.g., research with young children;
- *privacy*, meaning that the *confidentiality* and *anonymity* of human respondents should be protected at all times;
- *trust*, which implies that human respondents will not be respondent to any acts of deception or betrayal in the research process or its published outcomes, and
- *plagiarism*, awareness of policies in this regard and I undertake not to make use of another student's or researcher's previous work and to submit it as my own".

Validated, reliable measuring instruments with international status were used in this study. The instruments were customised by Thomas International for the South African work environment and quantitative analyses were carried out by qualified analysts with specific training.

Guidelines provided by the South African Research Council promote four principles of biomedical ethics, namely autonomy, beneficence, non-maleficence and justice. These principles underline the importance of respect for, and the absence of harm to, the participant as human being (MRC, n.d.:1). "Ethics is the science of criteria, norms and values for human action and conduct" (MRC, n.d.:4) and serve as standards for self-evaluation (De Vos, 1998:24). Basic codes of behaviour that were included in this research study were respect for the autonomy, human rights and dignity of the participant. Therefore participants were not exposed to motives not directly linked to the research study (MRC, n.d.:5). I acted in a responsible manner, upholding "professional standards in accordance with academic training" (MRC, n.d.:5).

1.11 The research design

Denzin and Lincoln (1994:14) describe research design as "a flexible set of guidelines that connects theoretical paradigms to strategies of inquiry and methods for collecting empirical material". These guidelines aim at directing the researcher's focus to the end product to ensure that the evidence addresses the initial questions (Mouton, 2002). The research design for this study includes a case study using quantitative/qualitative approaches; survey/expert focus group methods; interview/questionnaire/documents/archival material data collection tools and techniques built on a phenomenological hermeneutics philosophical foundation. The main reason behind these choices was that it could guide the inquiry process to promote understanding of the e-learning practitioner phenomenon and could promote the required meaning in context, utilising the e-learning practitioners' perceptions of the characteristics of e-

learning practitioners interacting with their job. The context may be defined as the “corpus of practices that users enact as they go about their everyday life achieving day to day goals” (Irons, 2003:3). Although the research design employs mixed methods, tools and techniques, taking cognisance of the context and work environment of the e-learning practitioner as illustrated by the unit of analysis (e-learning practitioners at TUT) is of utmost importance in the holistic approach followed by this design. A brief summary of the research design illustrates the four dimensions of design used to position this study, these are:

- **empirical** vs. non-empirical studies;
- the use of **primary data** vs. the analysis of existing data;
- the nature of the data – **numerical and textual** or numerical vs. textual data, and
- the degree of control – highly structured conditions vs. **natural field settings** (Mouton, 2002:14).

A summary of the research design that guided this study is presented in Table 1.3.

Table 1.3: Summary of research design

Research design links theoretical paradigms & research questions to strategies	Action plan	Metatheory	Hermeneutical phenomenology, systems theory philosophy, interpretive tradition						
		Reasoning	Inductive.			Abductive			
		Key research questions	What is the latent structure of the e-learning practitioner construct in terms of person attributes?		What is the latent structure of the e-learning practitioner construct in terms of the work environment context?		How do the work environment and person attributes fit together in the structure of the e-learning practitioner construct?		
		Research strategy / methodology	Qualitative case study						
		Definition of case	e-Learning practitioners in the e-learning environment at TUT						
		Selection of cases	Criterion sampling including the total population of e-learning practitioners as well as the Partners in the P@W programme at TUT.						
		Design dimensions	Empirical	Primary data		Numerical and text		Low Control	
		Mixed Methods	Survey method			Rapid ethnography method			
	Pilot study Exploratory phase	Quantitative - Screening survey							
		Quantitative - Pilot study (questionnaire development, validation and administration)							
	Data collection methods	Quantitative Survey	Interview / personal communication	Expert consensus group	Documentation		Archival material	Self-reported feedback	
	Data collection instruments	PPA protocol HJA protocol	Interview schedule	HJA protocol	Consent form question	Essays	Blogger messages, e-moderator course, research summaries	Focus group questionnaire	
	Data source	Total population of e-learning practitioners	Total population of e-learning practitioners	Expert consensus group	Total population of e-learning practitioners	Partners	Partners	Partners	
	When administered	May-June 2005	May-June 2005	25-30 June 2005	May - June 2005	17 May 2005	June 2004-June 2005	17 May 2005	
	Data analysis time period	June-Aug 2005	Aug-Sept2005	25-30 June 2005	Jul-Sept 2005	Jul-Sept 2005	Jul-Sept 2005	Jul-Sept 2005	
Data analysis Who administered	TI analysts	Researcher	TI analysts Researcher	Researcher	Researcher	Researcher	Researcher		
Verification	TI analysts	Triangulation	Expert consensus group members	Triangulation	Member checks, triangulation, crystallisation				
	Ethical considerations	Confidentiality and anonymity, informed consent, restrict information to case study,							
	Strengths of case study design	High construct validity.							
	Limitations of case study design	Lack of generalisation.							
	Main source of error	Researcher judgment.							

The **case study** was selected as research methodology because its design highlights the participants' viewpoints by using multiple sources of data (Tellis, 1997). For deeper understanding of the case, an instrumental case study type was selected for this study. Other types of case study, such as explanatory studies focusing on causal investigations and collective types focusing on groups of cases, were not suitable for this particular study. The case study makes it possible to tap rich, multiple sources of anecdotal data, which may enrich and add quality to the quantitative data generated using survey techniques. The aim is to weave qualitative and quantitative data into a rich tapestry representing the systemic whole. This single case study of e-learning at TUT was conducted during the period May to July 2005. The unit of analysis is the e-learning practitioners practice in the e-learning environment at TUT.

Survey and rapid ethnography were used as additional research methods. The **survey** method was used firstly to collect quantitative data from the e-learning practitioners about their personal attributes, and secondly to collect the job characteristics and requirements of the e-learning job. According to Trochim (2002), survey research, includes measurement procedures such as the use of questionnaires and interviews.

Survey research has changed dramatically in the last decade, for example automated telephone surveys that use random dialling methods, computerised kiosks in public places that allow people to ask for input, or electronic focus groups in online communities. Kitzinger (1995) explains that "focus groups are a form of group interview that capitalises on communication among research participants in order to generate data" and these groups use group interaction as part of the method. As Kitzinger (1995) points out, this method is particularly useful to examine the 'what', 'why' and 'how' of the way that people think.

The expert consensus group used to create the human job requirements for the e-learning job is an application of focus group interviewing. According to Fucella and Pizzolato (1998:1), "the easiest, most cost-effective means for collecting audience definition data is to conduct an active or passive survey". They describe the focus group, the electronic focus group and the scenario building focus group as forms of group interview that capitalise on communication among research participants in order to generate data. Electronic focus groups are a form of group interview where both the participants and the moderator communicate through electronic "discussions" in order to generate data (Fucella & Pizzolato, 2000:2). Scenario building is a "relatively inexpensive and quick method for collecting requirements and task information" (Fucella & Pizzolato, 1998:5), and was applied in the expert consensus group to create a user context for the requirements assigned to the e-learning job (Fucella & Pizzolato, 1998:5).

The main purpose of the survey is to obtain information, characteristics or attributes about the population. The survey method is concerned with two decisions, namely the construction of the interviewing schedule or questionnaire, and the target group that will answer these questions. This implies defining the study population, the sampling procedure and the size of the sample. However, for this study the whole population of e-learning practitioners at TUT was included, and therefore no sampling techniques were applied. Procedures for and construction of the interviewing schedule for the e-learning practitioners are described in section 3.8.1.6.3.

In traditional ethnographic research the ethnographer “spends extended time in the research setting, getting to know the local culture’s traditions and rituals, beliefs and value systems” (Irons, 2003:12). He continues by saying that “in contrast, rapid ethnography narrows the focus of field research, employs multiple observation and recording techniques, and also uses collaborative data analysis strategies with other team members” (Irons, 2003:12). The team members from the expert consensus group, the Centre for Continuous Professional Development, and the analysts from Thomas International were instrumental in analysing the data from the HJA. Rapid ethnography escalates the research process by using established sources of information from the members of the online knowledge-building community interacting in their web community situated on their particular website to target research questions (Irons, 2003:9). Online communication data sources, such as discussion forums and weblogs, provided rich data to complement the quantitative data provided by the PPA. Rapid ethnography escalates the research process further by targeting observations at times and locations in which the participants in the sample chosen are engaged in the activities of interest (Irons, 2003:9). One example in this study is the use of information sources from the online e-moderating course conducted between 5 October and 18 November 2004 in which all the Partners, as well as the instructional designers from TUT, including the researcher, were involved. The group, acting as a knowledge-building community, played the roles of online learners, participating in a variety of e-tivities, acting in the fast-moving environment of an online course. Records of online communication and information provided by the participants were archived on CD. A textual analysis of the electronic discussions on the WebCT discussion board was done to understand the participants’ ‘learner’ behavioural styles as revealed in the online environment. The learner role is one of the five roles that the Partners in the P@W Programme had to fulfil. But is it also relevant in the e-learning world of work where the e-learning practitioner acts as life-long learner?

Data collected included primary and secondary data. Methods used to collect **primary data** were surveys, interviews, participant observation, an expert consensus group, documentation, archival material and self-reported feedback. **Data collection instruments** included PPA and HJA protocols, interview schedules, consent forms, and textual information sets such as

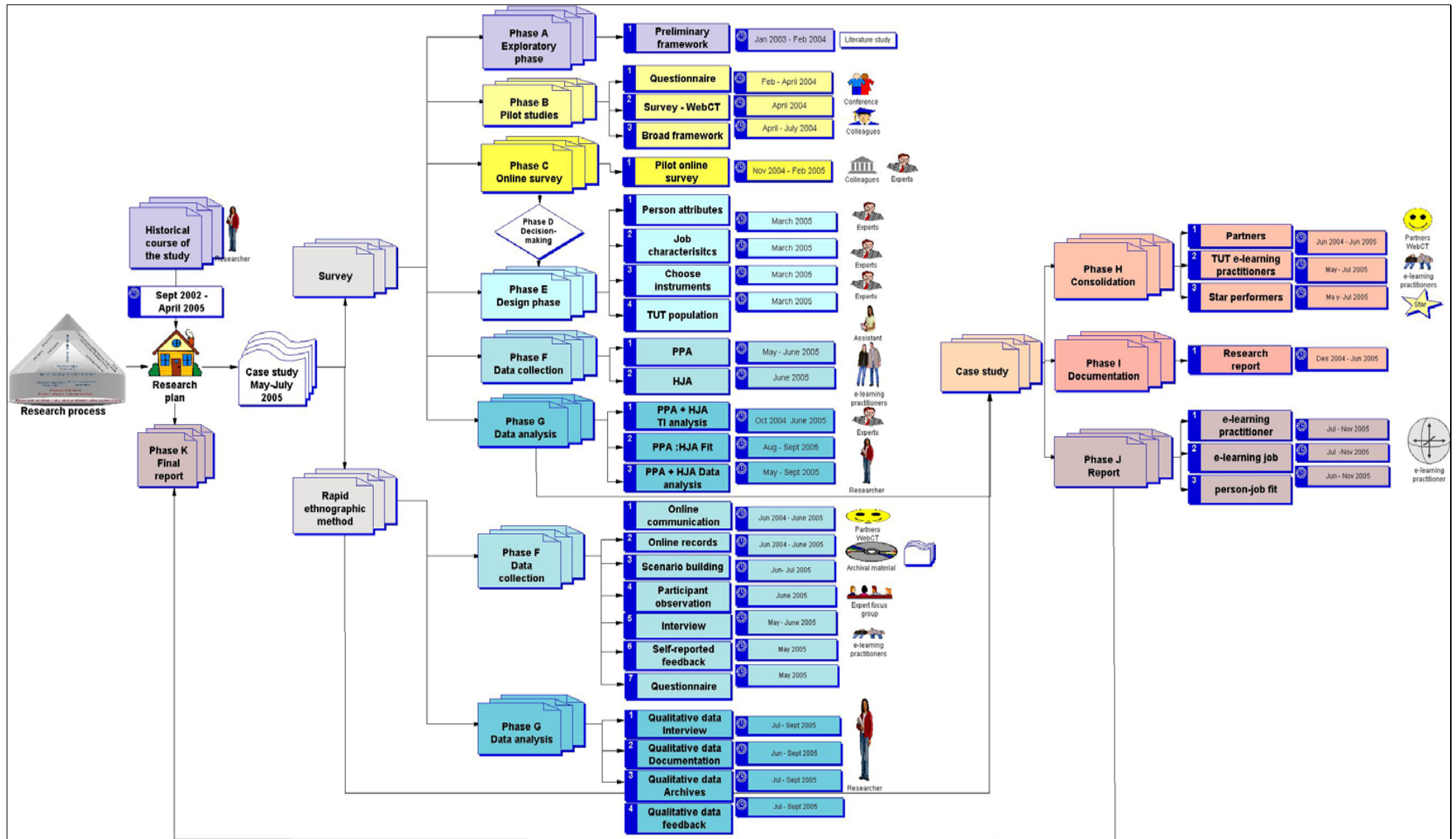
essays, bloggers, research summaries and questionnaires. Member checking, triangulation and crystallisation were used as **verification methods** for this study.

Secondary data was collected from literature sources pertaining to the characteristics of e-learning practitioners. The data gathered was supplemented by primary data obtained from the application of a **screening survey** and a **pilot survey**. The results from the data analysis of these data sources culminated in a preliminary taxonomy for the characteristics of e-learning practitioners and a questionnaire was developed on "What is an e-learning practitioner?". As pointed out in the discussion on the historic course of the study, this questionnaire was discarded. The preliminary taxonomy was used as a foundation for the HJA on the international profile of the human job requirements for e-learning practitioners.

Various sources, for example Klein and Myers, (1999), McLeod (1999), Frechtling and Sharp, (1997) and Qualidata, (2003), indicate that study designs increasingly employ mixed methods, and that findings will integrate those from alternative data collection approaches such as focus groups, online surveys, in-depth interviews and observation. This approach, also called triangulation or bricolage, provides deeper, richer and more valid insights into participants' behaviours and attitudes than any single method and also incorporates rigor into the research process (Klein & Myers, 1999, McLeod 1999; Qualidata, 2003:1). Qualitative researchers look for multiple forms of evidence (bricolage) to support interpretations: "... the bricolage is concerned not only with divergent methods of inquiry but with diverse theoretical and philosophical understandings of the various elements encountered in the act of research" (Kincheloe 2001:1).

The **bricolage** created in this study consists of a variety of methodologies, methods, tools and techniques woven together in an interpretive paradigm based on the phenomenological hermeneutic philosophy. Theoretical and methodological determinants from the research problem dictate the selection and choices for the content of the bricolage that guides the research process. The latter commences with a conceptual framework based on relevant literature, which allows for a definition of the research questions and objectives. Following this, mixed methods are used to address the research problem, resulting in different phases of research namely: (A) the exploratory phase, (B) the pilot phase, (C) the survey phase, (D) the decision-making phase, (E) the design and development phase, (F) the implementation and data collection phase, (G) the data analysis phase, (H) the consolidation phase, (I) the documentation phase, (J) the reporting phase, and (k) the closure of the study. A short summary of these phases is graphically presented in Figure 1.2.

Figure 1.2: Bricolage used to address the research problem



1.12 The research activities

The original research project started in May 2002 and the electronic support system for e-learning practitioners (TESS) subsequently developed was completed in February 2004. The current research study, which emanated from the original project, was conducted over a period of three years (January 2003 to December 2005). The time frame for the case study was a three-month period from May 2005 to July 2005.

Role players involved in the research study were the researcher; the e-learning practitioners, including the Partners from the P@W Programme at TUT; instructional designers from the Department of Telematic Education at TUT; a psychologist from the Centre of Continuous Professional Development at TUT, analysts affiliated to Thomas International, an administrative assistant who collected some of the PPA forms, and delegates from the WebCT Conference in Stellenbosch, held in April 2004. Table 1.4 presents the research timetable followed in this study.

Table 1.4: Research timetable

Methods & tools	Activity	Participant	Responsibilities	Date
Survey	<p>Phase A Exploratory phase</p> <ol style="list-style-type: none"> 1. In-depth literature review over a period of 12 months. 2. An exploratory phase for gaining insight and depth in the field of study. 3. Define the term e-learning practitioner. 4. Identify the indices, categories, dimensions and character attributes of the e-learning practitioner. 5. The aim of this literature evaluation is to identify a possible set of characteristics of the e-learning practitioner. 	Researcher	Complete the activities. Create a preliminary taxonomy of the characteristics of the e-learning practitioner	Jan 2003 - Feb 2004

Table 1.4: Research timetable (continued)

Methods & tools	Activity	Participant	Responsibilities	Date
Survey	<p>Phase B Pilot studies</p> <ol style="list-style-type: none"> 1. Use preliminary taxonomy to develop pilot questionnaire with statements on e-learning practitioner characteristics. . 2. Pilot survey at the WebCT Conference, 5-6 April 2004, Stellenbosch. Sixty six questionnaires were distributed, 20 were completed. 3. The aim of this pilot study: to make contact with e-learning practitioners to screen for possible characteristics of e-learning practitioners to add contributions from e-learning practitioners to the literature information. 4. Development of initial framework <p>Indicators of characteristics of practitioners derived from experts as well as the literature study. The aim is to develop a framework for characteristics of e-learning practitioners.</p>	<p>Researcher</p> <p>WebCT conference delegates</p>	<p>Complete the questionnaire</p> <p>Complete survey</p> <p>Complete broad framework</p>	<p>Feb - April 2004</p> <p>April 2004</p> <p>April – July 2004</p>
Survey	<p>Phase C Online survey</p> <ol style="list-style-type: none"> 1. Use the framework for developing the questionnaires. 2. Test and evaluate an online questionnaire. 3. The aim is to validate the questionnaire. 4. Conduct online survey by using Perception for Web. 5. Participants: Partners from P@W Programme and instructional designers from TUT. 6. The aim of the survey is to obtain self-stated importance statements and expert opinions from practitioners. 	<p>Researcher</p> <p>Members of the Centre for Continuous Professional Development</p> <p>Instructional designers from the department of Telematic Education at TUT.</p> <p>Partners from P@W Programme</p>	<p>Complete the activities</p>	<p>July 2004 – Feb 2005</p> <p>Nov 2004 - Feb 2005</p>
Survey	<p>Phase D Decision-making phase</p> <ul style="list-style-type: none"> • If < 300 respondents do: <ul style="list-style-type: none"> ○ Multivariate analysis: Factor- and cluster analysis • If > 300 respondents do: <ul style="list-style-type: none"> ○ Taxometric analysis • If response rate is poor do: <ul style="list-style-type: none"> ○ Alternative routes 	<p>Researcher</p>	<p>Data analysis</p>	<p>Feb 2005</p>

Table 1.4: Research timetable (continued)

Methods & tools	Activity	Participant	Responsibilities	Date
Survey	Phase E Design phase: Narrow focus <ol style="list-style-type: none"> 1. Identify person attributes 2. Identify job characteristics 3. Choose instruments 4. Focus on TUT population 5. The aim is to narrow focus on person attribute of e-learning practitioners focus on work-style behaviour focus on human job requirements 	Researcher Industrial Psychologist	Complete activities	March 2005
Case Study	Phase F Data collection <ol style="list-style-type: none"> 1. PPA protocol 2. HJA protocol 3. The aim is to collect data on work behavioural styles of e-learning practitioners collect data on human job requirements for e-learning job. 	Researcher Administrative assistant Industrial Psychologist	Complete activities	May – June 2005
Case Study	Phase G Data analysis <ol style="list-style-type: none"> 1. PPA and HJA analysis 2. PPA:HJA fit 3. Enriched PPA and HJA analysis 4. The aim is to create personal profiles of e-learning practitioners create human job structure for e-learning job determine person-job fit use qualitative data to enrich personal profiles and human job analysis. 	Researcher Analysts from Thomas International	Complete activities PPA Partners in Oct 2004	June 2005 Aug – Sept 2005 May – Sept 2005
Case Study	Phase F Data collection from Partners in WebCT knowledge-building community <ol style="list-style-type: none"> 1. Online communication data sources 2. Online records data sources 3. Self-reported feedback Data collection from Expert consensus group <ol style="list-style-type: none"> 1. Participant observation 2. Scenario building exercise Data collection from e-learning practitioners <ol style="list-style-type: none"> 1. Interview 2. Consent form questionnaire 3. The aim is to collect qualitative data on work behavioural styles of e-learning practitioners collect qualitative data on human job requirements for e-learning job. 	Researcher Researcher Expert consensus group Researcher	Complete activities	June 2004 - June 2005 June 2005 May – June 2005

Table 1.4: Research timetable (continued)

Methods & tools		Activity	Participant	Responsibilities	Date
Case Study	Rapid Ethnography	Phase G Qualitative data analysis <ol style="list-style-type: none"> 1. Interview 2. Documentation 3. Archival material 4. Questionnaires 5. The aim is to enrich personal profiles of e-learning practitioners enrich human job structure for e-learning job 	Researcher	Complete activities	Jul - Sept 2005
Case Study		Phase H Consolidation of findings <ol style="list-style-type: none"> 1. Partners in P@W Programme 2. TUT e-learning practitioners 3. Star performers 4. The aim is to weave qualitative and quantitative data into a holistic whole describe the e-learning practitioner system describe the latent structure of the e-learning practitioner construct in terms of a classification framework 	Researcher	Complete activities	June 2004- June 2005 May – Jul 2005 May – Jul 2005
	Documentation	Phase I Documentation of <ol style="list-style-type: none"> 1. Literature review 2. Research methodology 3. Data collection activities 4. Data analysis activities 5. Research findings 6. Recommendations 7. The aim is to prepare documents for research report. 	Researcher	Complete activities	Jan 2003 - Sept 2005
	Report on research findings	Phase J Report on the latent structure of the e-learning practitioner construct <ol style="list-style-type: none"> 1. Characteristics of e-learning practitioner 2. characteristics of e-learning job structure 3. Goodness of fit between person and job 4. The aim is to report on the latent structure of the e-learning practitioner construct. 	Researcher	Complete activities	Jul - Nov 2005
	Research study report	Phase K Report on research study <p>Closure The aim is to write the research report.</p>	Researcher	Complete activities	Jun - Dec 2005

1.13 Structure of thesis

The structure of this thesis is outlined in Table 1.5 below, which lists the chapters and gives an overview of each chapter.

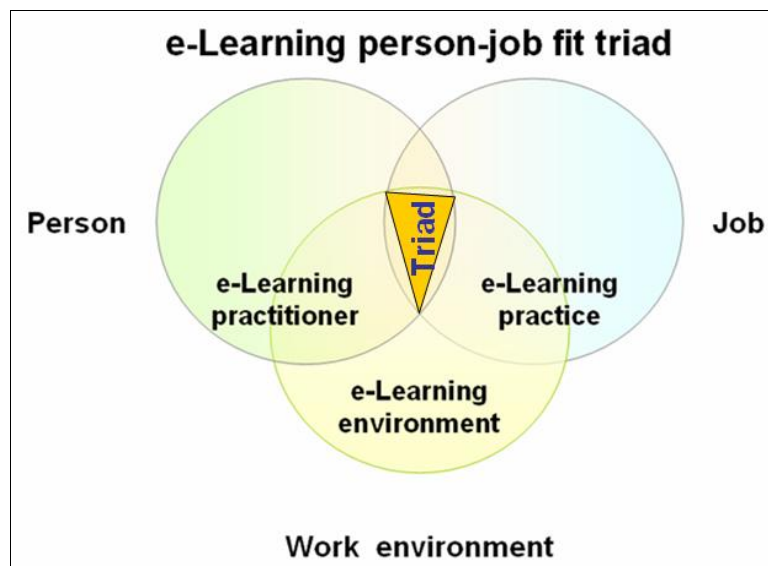
Table 1.5: Structure of thesis

Chapters	Content overview
Chapter 1 Framework for study	In this chapter the historical background and the research problem regarding person-job fit in terms of the relationship between the e-learning practitioner and the e-learning practice were discussed. The research framework presented the study approach, scope, context, and a summary of the research design and activities. Ethical considerations and the value of the research were also discussed.
Chapter 2 Literature study	Chapter 2 reviews literature relevant to the research questions, and critically analyses four topics: e-learning; e-learning practice; e-learning practitioners and person-job fit. Each topic is approached in terms of defining the topic, discussing the trends, issues, controversies, policies and current research in the field. The theoretical and conceptual frameworks for the study are highlighted.
Chapter 3 Research approach and methodology	Chapter 3 positions the study in terms of philosophical and methodological approaches, outlines the research design considerations and also focuses on the quality criteria relevant to this study.
Chapter 4 Research findings	Chapter 4 includes a detailed discussion of the results of the data analysis and the research findings. A holistic presentation of the research findings culminates in a classification scheme for the e-learning practitioner construct.
Chapter 5 Reflections and recommendations	Chapter 5 concludes the research report with a summary of the findings and results in terms of the research questions. It includes a section on methodological, substantive and scientific reflection. Further, it provides recommendations for e-learning practice, suggestions for practical interventions to enhance person-job fit in e-learning and further research.

Chapter 2: Literature Study

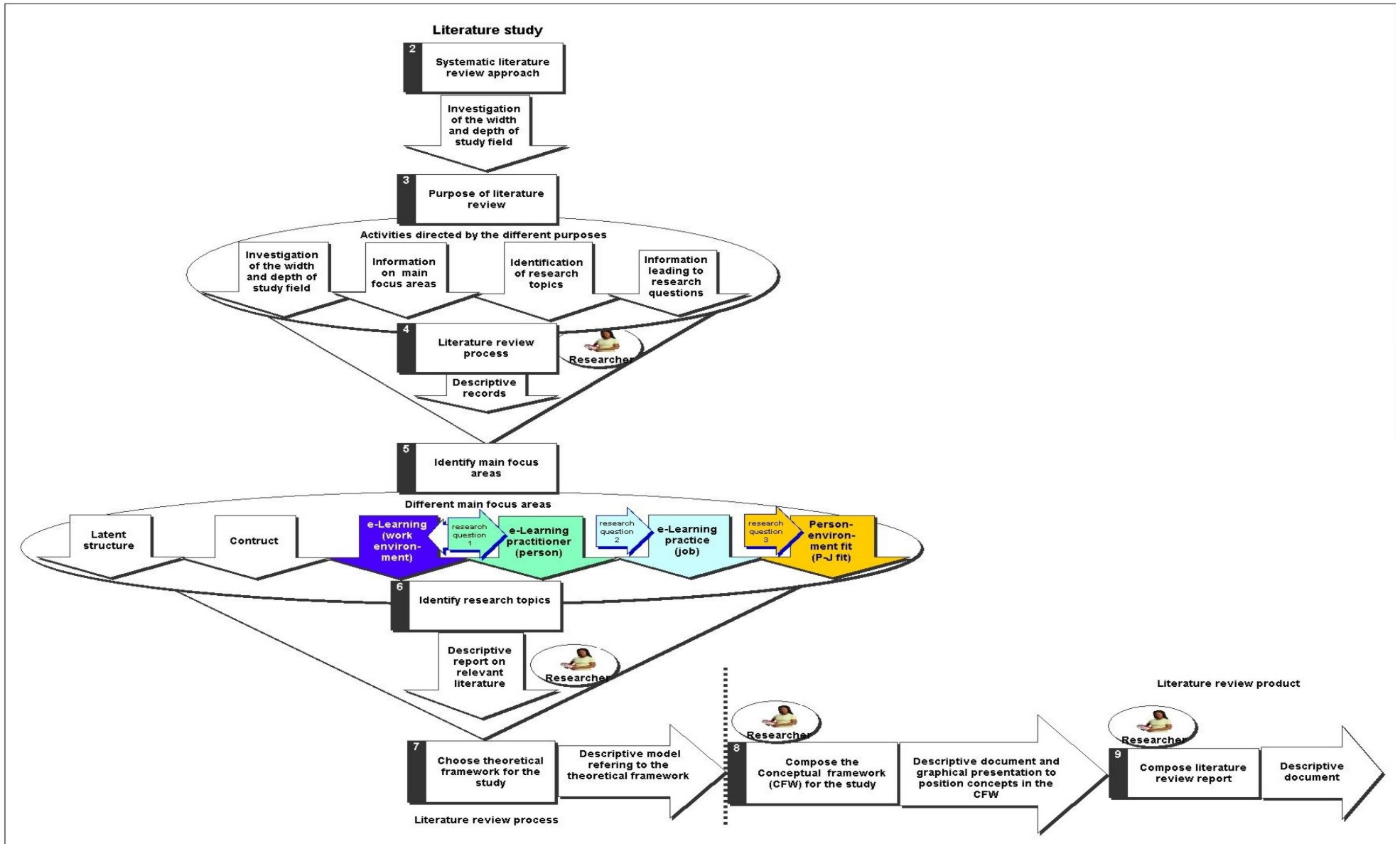
In Chapter 1 the research problem and questions were stated, and the research study outlined. The study reports on efforts to develop a classification scheme for the e-learning practitioner construct, and explore the interaction between the different building blocks of this construct. In this chapter a systematic literature review approach attempts to review the literature relevant to the study of the **e-learning person-job (P-J) fit triad** in the higher education e-learning environment. Relevant building blocks were identified as the e-learning practitioner, e-learning practice and the e-learning work environment. Each of these building blocks is discussed in separate sections of this chapter, following similar **layout structures** for each section in terms of concept clarification, issues related to the particular topic, research trends, and emerging issues and challenges. A number of activities aimed at specific literature review purposes (section 2.3) are followed by a formalised literature review process (section 2.4) to investigate the study field and six main focus areas (section 2.5). Guided by the three research subquestions the literature review concentrates on existing research in terms of the e-learning environment (**work environment**; section 2.6.3) for the e-learning practitioner (**person**; section 2.6.5) practising (**job**; section 2.6.4) in the sphere of higher education. The section on **person-job fit** (section 2.6.6) investigates the complexity of the way in which the e-learning practitioner and e-learning practices fit together in terms of 'goodness of fit' in the ever-changing e-learning work environment. Figure 2.1 is a graphical presentation of the e-learning P-J fit triad.

Figure 2.1: e-Learning person-job fit triad



The chapter continues with a description of the dynamic interactionist model of the e-learning practitioner system. This model is based on an eclectic application of theoretical principles from systems theory, P-J fit theory and interactionist theory, and is grounded in the conceptual framework for this study. The conceptual framework sets the stage for putting theory into practice as described in Chapter 3. Figure 2.2 is a graphical representation of the structural layout of Chapter 2 and provides a bird's eye view on the process and product of the literature review.

Figure 2.2: Structural layout of Chapter 2



2.1 Introduction

Disappointment and disillusionment about the inability of technology to deliver envisaged dividends has led to some introspection on what has happened in this regard (see Zemsky & Massy, 2004 and commentary by Twigg, 2004). Contrary to expectations about learning as a given outcome after the implementation of technology was the realisation that technology on its own cannot deliver the necessary results (Kruse, 2002). Unfortunately, technology, and not the human factor, has been rated most important and therefore realisation that this is a false assumption has spurred new approaches (Beetham, 2004b). Current interest in the e-learning domain is shifting away from emphasis on technology towards human aspects and the social nature of learning (Beetham, 2004b). As a result, social software, communication tools and online communication spanning time and space are becoming more important in the e-learning environment (Beetham, 2004b; Shin, 2004). For this reason this literature review will include some of the existing conceptual **literature on the (1) e-learning work environment** and the issues involved in the application of new teaching and learning approaches in this environment.

Efforts by researchers in the United Kingdom, Europe, Australia and New Zealand to enhance the existing body of knowledge in the field of e-learning practice have not only triggered interest from the scientific research community, but also inspired e-learning practitioner communities to participate in practice research (Browne & Jenkins, 2003; JISC, 2004a; Beetham, 2004b; STEP, 2005). The focus has shifted from *technology and what technology can do for you, to me and what I can do with technology to enhance teaching and learning*. The development of a number of new practice models is the result of **new trends in e-learning practice** and I will focus on the literature pertaining to these trends and the resulting **changes** in the characteristics of the **(2) e-learning practitioner's job**.

Research studies on e-learning report on learner aspects such as the learner's perceptions of e-learning, learner needs in the online environment and diversity in learning styles (Brennan, 2003b; Pebble, Hargraves, Leach, Naidoo, Suddaby & Zepke, 2005). In contrast, I found fewer studies available on teacher aspects such as the teaching styles of the online teacher, changing roles, new competencies and skills needed for the new e-learning environment, new communication strategies and new pedagogical/androgogical/heutagogical approaches to suit the online environment. Person attributes needed to cope with these changes were only touched on in the literature (Fuller, Norby, Pearce & Strand, 2000).

Despite the change in focus to a more humanistic approach, the literature review revealed that very little empirical research is available on the subject of the e-learning practitioner as a person in a changing world of work (Kearsley, 1998). The renewed emphasis on human beings as part of the

online teaching and learning process assumes that e-learning practitioners are important role-players in the e-learning environment.

However, one the most important features of individuals in the work environment, namely their person attributes, is not illuminated by research initiatives. Although some authors (Kearsley, 1998; Gunn, 2001; Palloff & Pratt, 2001b; Salmon, 2003) identify some important person attributes, a dearth of empirical research on this subject is evident from the literature. A scan of the literature revealed only one study on profiling the online teacher using the Myers Briggs inventory (Fuller *et al.*, 2000) and one other study focusing on specific personality characteristics, namely cognitive playfulness, innovativeness and belief in essentialness (Dunn, 2004). For this reason a literature review on the **(3) characteristics of the e-learning practitioner also included broad topics such as personality research in the workplace.**

Research on the use of staff development programmes to promote effective teaching are prominent in the literature (Sparks & Loucks-Horsley, 1998; Bennett, Priest & Macpherson, 1999; Hyde, 2002; Oliver & Dempster, 2002) and it is repeatedly emphasised that the e-learning practitioner needs to be empowered to cope with work demands. The implication of this is a learner role for the practitioner. However, in spite of a vast number of research studies done on the importance of recognising diverse learning styles in the teaching and learning process (Sparks & Loucks-Horsley, 1998; Fuller, *et al.*, 2000; Oliver, Sharpe, Duggleby, Jennings & Kay, 2004), no evidence could be found for transfer of knowledge to the domain of the e-learning practitioner acting as learner. Covert learner preferences and behavioural styles need to be uncovered before teachers will be able to capitalise on learners' strengths and preferences. Surely this is also applicable for e-learning practitioners acting as learners? The literature review done for this study revealed **no reference to studies done** explicitly on the preferences of teachers, or for that matter e-learning practitioners as learners. The **lack** of studies on the learning styles or work behavioural styles of these "learners" as part of a holistic approach to professional development or as part of self-awareness programmes for e-learning practitioners is evident from the literature review.

Professional development and staff training is a major issue in the e-learning work environment (Attwell, 2004:61); however, one of the most important aspects in the striving to empower practitioners and to enhance sustainable e-learning environments, namely the preferences and work behavioural styles of the e-learning practitioners who are the subjects of the development and training initiatives, is not mentioned in staff development and training programmes. Furthermore, criteria for selecting or recruiting e-learning practitioners are, with the exception of Salmon (2003), not mentioned in the literature. No reference to P-J fit in terms of the e-learning practitioner and the e-learning job could be found.

Implications for this study

A changing teaching and learning environment focusing more on the social side of e-learning certainly implies an in-depth focus on the person practising the job: not only in terms of the changing roles, competencies and skills needed for the job, but also, most importantly, in terms of the work behavioural style of the person adapting to an ill-defined job that is sometimes completely new to them. Therefore another important aspect, the **(4) relationship between the e-learning practitioner and the e-learning practice** and how the **person and the job fit together in the higher education work environment**, directed the focus of the literature review towards topics in the person-environment fit domain, aiming at a critical analysis of the existing research in this field.

2.2 Literature review approach

In an article on the use of the research process to improve professional practice, Hemsley-Brown and Sharp (2003:499) describe the systematic approach to the literature review as “attempts to identify the best available evidence to answer specific questions”. Their suggested systematic approach to a literature review was applicable in this study and included the use of a **funnel** approach as a narrowing technique. The funnel is a metaphor for an approach that is used to **filter** relevant research literature aimed at addressing the research questions (Munro, 2004) and to **trigger, generate** and **refine** further research ideas. The contextualisation of the research forms the top part of the funnel. In narrowing the context by defining the **field** of the research, the **main focus areas** and the specific **research aspect/topic**, the **research problem** can be defined (Munro, 2004). These activities not only culminate in the substantiation of the research choices of the topics, conceptual framework and methodology, but also provide a sound theoretical foundation for the study. The literature review report is the product of the literature review process.

2.3 Literature review purpose and activities

Creswell (1994:20) refers to a number of purposes accomplished by the literature in a research study as: (1) “It reports results from other related studies”; (2) “[I]t relates the study to the larger ongoing dialogue in the literature about a topic, filling gaps and extending prior studies”; (3) “[i]t provides a framework for establishing the importance of the study”; and (4) “provides a benchmark for comparing study results with other findings.” In addition to these, the literature review in this study added another fourfold purpose, namely to scan the available literature resources to investigate the width and depth of the study **field**, to determine the **main focus areas** and research **topics** for the study and to review and analyse the literature in terms of the research **questions**. Activities involved in attaining these purposes are described in the following paragraphs, and will become clearer through the discussions that follow.

2.3.1 Investigation of the width and depth of the study field

The first literature review activity aimed at attaining the first purpose is to scan the available literature resources to investigate the width and depth of e-learning in the higher education field. The historical course of this study, already mentioned in Chapter 1 and Appendix A1, involved a broad departure and four turning points. An extensive literature review was done to investigate the width and depth of the study field pertaining to the e-learning practitioner in higher education, for example the e-learning work environment, the e-learning practice, the organisational environment of e-learning practice, the e-learning practitioner and support systems for the e-learning practitioner, including those of electronic support and staff development and training support.

Studying the literature resources available in the study field elicited a number of questions:

- What is the nature of e-learning practitioners?
- What is the nature of their job environments?
- What is the influence of the organisational infrastructure on e-learning practitioners and their practice?
- How can e-learning practitioners be supported in the work environment to complement both the job and the person?
- What are the key factors that come into play in the triad of person, job and environment?
- How can staff development and training influence the goodness of fit between the person and the job?
- Why are the majority of staff training programmes planned without taking the person attributes of the trainees in account?

These questions were thought provoking and stimulating, but the focus areas were too broad for this particular study and had to be narrowed down using the **funnel approach** in order to define the boundaries of the field of research for the main focus areas.

Implications for this study

Available resources were scanned, evaluated for credibility and assessed for inclusion or exclusion before adding them to the electronic database in theme categories. Aspects such as e-learning, e-learning practice, e-learning practitioners, the higher education work environment, organisational infrastructure and support systems for the e-learning practitioner were identified as relevant.

2.3.2 Information on the main focus areas of the study

The second purpose of the literature review is to identify the main focus areas of the study. The repetitive nature of the funnel approach implies a repetition of the funnelling process, which narrowed the focus down to e-learning practitioners practising in the higher education e-learning

context. The issues of how these practitioners are supported by organisational infrastructure, and staff development and training support systems, are on the periphery of the study area and tend to be more relevant for putting theory into practice through practical interventions in the work environment. Therefore a critical analysis of these practical interventions will **not** be included in this study.

Implications for this study

Six main focus areas were identified and relate to the study title, namely (1) latent structure, (2) construct, (3) e-learning in higher education, (4) e-learning practice, (5) the e-learning practitioners, and (6) their relationships in terms of P-J fit in the work environment. Exploring and defining these aspects of the study guided by the research questions provided a framework for the third literature review purpose.

2.3.3 Identify research topics to frame the research problem.

This involved exploring and defining the main focus areas of the study, crystallised in a number of research aspects/topics that framed the research problem.

Implications for this study

In each of the six main focus areas a number of research topics were identified. Topics identified in the first two main focus areas (latent structure and construct) were the clarification of the concepts 'latent structure' and 'construct' and approaches for uncovering the latent structure. Topics addressed in the four other main focus areas were definition and clarification of topic; "relating the study to the larger ongoing dialogue in the literature about the specific topic, filling gaps and extending prior studies" (Creswell, 1994:20); historical aspects relevant to the topic; issues and controversies regarding the topic; global and national research trends and reports from other related studies; policies and related issues; and emerging issues and challenges.

2.3.4 Review and analyse literature resources

The fourth purpose of the literature review is to review and analyse the literature in terms of the research questions. According to Creswell (1994:22), "quantitative studies include a substantial amount of literature to define the research problem and to provide direction for the research questions". Qualitative studies use the literature inductively in an exploratory way to build a picture based on a variety of ideas (Creswell, 1994). Both qualitative and quantitative approaches were used in the mixed methodology design of this study. Theory was used in the beginning of the study (Creswell, 1994) as a framework for inductive and abductive reasoning to position the study.

Implications for this study

Literature resources were selected from a wide range of national and international academic books and journals (both in printed and electronic format), electronic databases, conference proceedings and Internet resources from renowned authors, universities and companies. Using the funnel approach, available resources were filtered into useful entities. These actions are of a repetitive nature and the repetitiveness will depend on the purpose of the specific action. For example, for the purpose of investigating the width and depth of the study field, a broad literature scanning process would be sufficient. For a more detailed investigation of the study focus areas, these activities would be more selective and focused using an in-depth reading approach to identify relevant data sources. Exploring and defining the main focus areas and relevant topics of the study, guided by the research questions, provided a framework for the fourth literature review purpose. The following paragraphs will describe these activities in the literature review process.

2.4 Literature review process

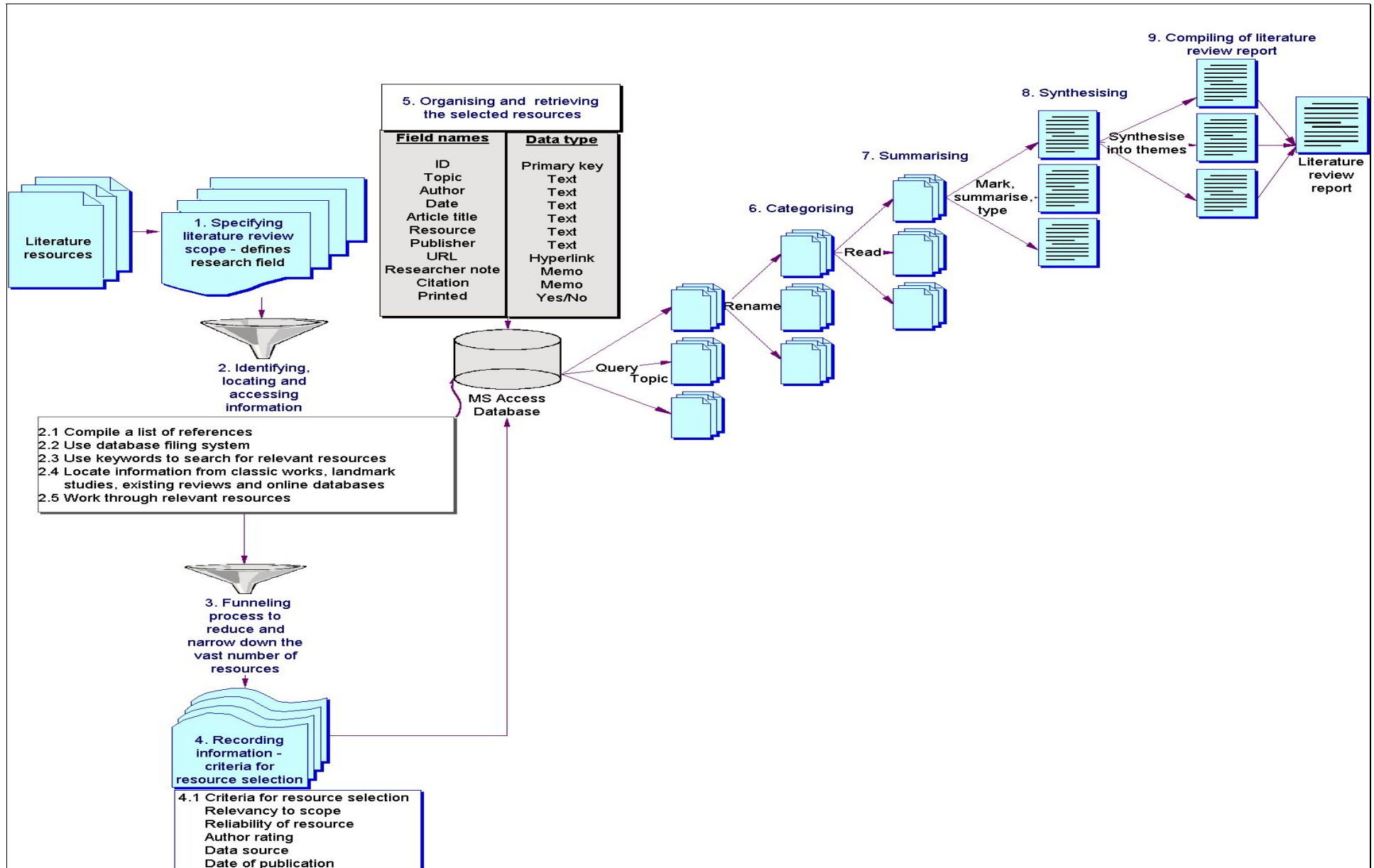
The literature review is both a process and a product (Green & Bowser, 2003). Generally speaking the literature review process aims at finding research evidence to answer research questions and the literature review product aims at the synthesis of the evidence into a benchmark for comparing existing research findings with the findings of this study. The literature review process illustrated in Figure 2.3 includes a number of steps that are not necessarily sequential, but may involve moving backwards and forwards between the steps (Rutledge, DePalma & Cunningham, 2004; Rapple, 2005). The steps involve the following:

- Specifying the literature review scope (#1). It is essential to outline the research field and to define the precise scope into manageable and appropriate main focus areas. For this purpose, e-learning focusing on the e-learning practitioner and e-learning practice in the higher education field were examined.
- Identifying, locating and accessing information (#2) involved searching relevant resources, for example existing literature reviews, bibliographies, printed indices, online databases, classic and landmark studies. A list of resources was compiled using a database index system created in MS Access. The database consisted of a data table and 11 data fields of varying types. Included were fields for data ID, topic, author, date of publication, article title, resource, publisher, URL, researcher notes, citation and printed status. The computerised index system allowed for the tracking of resource details using the topic field to filter specific queries. The database was populated with data retrieved from external databases and resources. Extensive literature searches were conducted using a variety of keywords dictated by the main focus areas. Review and analysis of these resources were **guided** by the main research question: *What is the latent structure of the e-learning practitioner construct?* and the three subquestions: *What is the latent structure in terms of the work*

environment and in terms of person attributes and How do the job and the person characteristics fit together in the structure of the e-learning practitioner construct?”

- A funnelling process (#3) was used to reduce and narrow down the vast number of resources for the main study focus areas, namely latent structure; construct; e-learning, e-learning practitioners, e-learning practice and person-job fit.
- Recording of the relevant information (#4) was guided by a set of assessment criteria for resource selection. The credibility of literature resources was assessed in terms of resource reliability and the rating of the author as an expert in the specific field. Other criteria used to either **include or exclude** studies were based on the scope of the study as well as the source and date of publication.
- Organising and retrieving selected resources were simplified by using the MS Access database (#5). Furthermore, an electronic file and folder structure for the relevant topics was created and the different resource files were sorted and saved in the relevant folders. These files were renamed and printed using the same identifying ID for both the file and the printed copy.
- The printed files were categorised (#6) according to topic and each topic was studied and read as a unit. Relevant information was marked, summarised and typed as word documents.
- Summarising (#7), combining and synthesising (#8) information across different studies into themes (main focus areas) resulted in the identification of research topics, for example trends, issues, research trends and gaps in the literature, recorded in Word documents. These data summaries were used to compile (#9) the literature review report (literature review product). Figure 2.3 illustrates the literature review process applied in this research study.

Figure 2.3: Literature review process



2.5 Main focus areas relevant for this study

The following main focus areas were identified as being relevant for this study. The first main focus area covers the meaning of **latent structure** in terms of clarifying the concept and identifying the different approaches for uncovering latent structure. Reference is also made to the application of classifying systems in expressing latent structure.

The second main focus area covers defining and clarifying '**construct**' as research term.

The third main focus area covers research on **e-learning** and deals with the "what", "where", "who", "how" and "why" questions for clarifying the concept. A historic overview of e-learning development, supported by a snapshot of global research initiatives and policies, contributes to contextualising the current trends and issues in the e-learning field in higher education.

Emerging issues and challenges that were identified from the literature review are change, sustainability, professional development and training and a new appreciation for the human side of e-learning.

Solutions suggested by various authors ranged from skills training for e-learning practitioners to changing organisational strategies, structures and management processes to staff development programmes focusing on more holistic approaches.

The fourth main focus area covers research on **e-learning practice** focusing on understanding the complexities and the intertwined issues and challenges of e-learning practice, personality trait-based interactionist models of job performance, personality-orientated job analysis and models for job redesign.

The fifth main focus area covers research on **e-learning practitioners** focusing on identifying the nature, roles, competencies, skills and attributes of the e-learning practitioner. It reviews research on personality in the work environment with an emphasis on personality traits, assumptions and controversies on personality, occupationally orientated personality theories, attributes in terms of behavioural styles and the assessment of these styles.

The last main focus area covers research on **person-environment (P-E) fit** and **P-J fit theories**. It reviews the research on P-E fit (person-organisation and person-job fit), but no research studies were available on the fit between e-learning practitioners and e-learning jobs in higher education. One research article (Shin, 2004) gave a useful P-E fit model for virtual organisations, which may contribute transferable attributes applicable for higher education organisations.

2.6 Discussion of main focus areas

Discussion of the above-mentioned six main focus areas will follow similar layout structures in terms of concept clarification and the highlighting of burning issues and controversies in the e-learning domain relevant to the understanding of the e-learning practitioner construct. Research gaps in the literature will be pointed out and arguments in favour of possible contributions from this study will be presented.

2.6.1 Latent structure

The first main focus area covers the meaning of **latent structure** using the taxonomic and systems approaches to clarify the concept.

In the domain of psychology, the concept 'latent structure' suggests statistical approaches using taxometric or factor analysis methods and latent structure models to determine the latent or **unobserved structure (organised building blocks)** of a construct. The unobserved structure of a construct can be expressed in the form of a taxonomy or classification scheme (Pulakos, Arad, Donovan & Plamondon, 1997). The systems theory approach suggests "the [latent] or underlying structure providing a view of the interactions between the elements of the system responsible for producing the patterns of behavior" (Bellinger, 2004), whilst the interpretive approach adds another dimension by suggesting that "many possible realities, each of which is relative to a specific context or frame of reference, may be produced by the latent structure of a construct" (Chiang, 1998). Following suggestions by these approaches may **lead us to wonder about the patterns of behaviour that might be produced by the e-learning practitioner system to reveal its latent structure, providing various possible realities of the e-learning practitioner construct.**

Before we can address questions about the latent structure of the e-learning practitioner construct, clarification of possible approaches is necessary. The next paragraphs will elaborate on aspects such as the usefulness and functions of taxonomies and the use of systems theory to understand the meaning of latent structure.

2.6.1.1 Latent structure – the taxonomic approach

According to TechTarget Network (2004) "taxonomy (from the Greek taxis meaning arrangement or division and nomos meaning law) is the science of classification according to a pre-determined system". The concept is further explained by adding that classification systems provide "conceptual frameworks for discussion, analysis or information retrieval" (TechTarget Network, 2004) and function like roadmaps for information and for a particular purpose. Some authors define a taxonomy as a theoretical study of classification or a scheme that partitions a body of knowledge and defines the relationships between the pieces (Simpson 1945; ANSI, 1986; WEBOL, 1998).

For this reason I have chosen the **DISC taxonomy** as a conceptual framework for classifying, analysing and relating the information pertaining to the characteristics of e-learning practitioners and the e-learning practice (see section 3.8 for a detailed description of the DISC profiling instruments).

Therefore, in my opinion, because of their **classification strengths**, taxonomies are most **useful** in the **study of the latent structure of constructs** (Ruscio & Ruscio, 2002). Those that are simple, easy to remember and easy to use (TechTarget Network, 2004) in particular contribute to elegant frameworks for analysis and discussion.

The development of taxonomies with the **aim of classifying and understanding** is traditionally done in the domains of the biological sciences. According to TechTarget Network (2004), Carl Linnaeus's classification for the plant and animal kingdom is one of the best-known taxonomies and is still widely used. Recent focuses for taxonomy development are in the fields of business intelligence and knowledge management (Cody *et al.*, 2002; Spangler, & Kreulen 2002; Pohs & McCarrick, 2003), technical industry (Drejer & Leiponen, n.d.), information sciences (Conway & Sligar, 2002), human intermediation (Miwa, 2000) and website and web portal design (Adams, 2000; Morrison, 2003). Various applications in the field of education include, for example, instructional design (Bloom, Englehart, Furst, Hill & Krathwohl, 1956; Nelson, 1998), learning objects (Wiley, 2002), curriculum development (Darzentas, Nicolle, Romero, Strobbe & Velasco, 2003), electronic portfolios (AAHE, n.d.), instructional strategies (Forger, Franklin & Perez-Franco, 1999; Forger, Franklin & Knight, 2002) and asynchronous learning environments (Blignaut & Trollip, 2003). Although the forms of taxonomic structures are rooted in the works of Aristotle and Darwin (Conway & Sligar, 2002), the meaning of the term 'taxonomy' has been expanded especially in the digital environment to create metadata, facilitate information retrieval and provide schemes for web page layout.

Taxonomy development has historically accompanied numerous classification schemes in the field of psychology, for example the well-known personality trait factor/Big Five Factor theories, the Myers Briggs Type Inventory and Kolb's learning style typology (Pervin & John, 1997; Tett & Burnett, 2003).

Principles from the trait factor and occupational-orientated personality theories are used in a variety of personality-related taxonomies and numerous research studies use the Big Five taxonomy as a framework for conducting construct validity studies on various personality factors (Tett & Burnett, 2003).

Well-known taxonomies, such as the Big Five-Factor Model (Pervin & John, 1997), Holland's RIASEC Model, Chatman and Caldwell's taxonomy of eight organisational cultures (Tett & Burnett, 2003), and typologies such as Myers Briggs (Pervin & John, 1997) and the DISC behavioural style indicator (Thomas DISC, n.d.), are used to describe and classify different aspects of personality. Although Holland's Theory of Vocational Choice (Holland, 1992) makes a connection between six personality types and corresponding work environments, the researcher could **not find any formal description of an existing e-learning practitioner characteristic taxonomy**. Therefore, neither Holland's typology nor the well-known and frequently utilised Big Five taxonomy for personality assessment were selected for this study. The main reason behind the decision in favour of the DISC personality assessment instruments lies in the strength of this system to combine the personal profile analysis with a human job analysis to determine goodness of fit between the person and the specific job. Furthermore, by using an eclectic qualitative approach, a variety of descriptive characteristics regarding the person as well as the job can be analysed to enrich insight into the latent structure of the subjects under investigation.

Taxometric research on the other hand is prominent in quantitative approaches and Meehl (1999) explains the term '**taxonomic**' as referring to the theory or method of classification, whilst '**taxometric theory**' may be thought of as a set of equations relating a set of latent parameters to a set of manifest parameters. He continues by saying that **taxometrics** is a **statistical procedure** for determining whether relationships among observables reflect the existence of a latent taxon (type, species, category and disease entity) (Meehl, 1999:165). An essential feature is multiple consistency tests that will not be satisfied if the latent structure is not taxonic. Common misconceptions highlighted by Meehl (1999) are that "the taxon must be "sharply" distinguished, quantitative indicators must be bimodal and that adopting a taxon is a mere matter of convention or preference" (Meehl, 1999:165).

Methods to detect latent taxa may include cluster, inverse or latent class analysis and the taxometric method (Meehl, 1999:169). Taxometrics, like factor analysis using procedures such as MAMBAC and MAXCOV, are important tools in construct validation research (Meehl, 1973; 1995; 2001; Meehl & Yonce, 1996). The absolute minimum sample size for conducting a taxometric analysis is around 200 with valid indicators, but sample sizes of 300 or more are preferred (Meehl, 1992:161).

A question that often emerges in discussions about taxometrics research is: "Who cares?" What does it matter whether a trait or disorder reflects a distinction in kind or a difference in degree? Beauchaine (2003:504) answers these questions by saying "identifying taxa enables us to establish nonarbitrary cut-offs that distinguish between those with and without a trait". Although the

strength of taxometric approaches lies in their application in the field of construct validity, the static nature of these approaches has a **limiting effect** on usability for this study.

2.6.1.2 Latent structure – systems thinking approach

The systems thinking approaches, adding a **dynamic feature to the static classification** approaches used by taxometrics, suggest that ***underlying structure provides a view of the interactions between the elements of the system*** (Bellinger, 2004). Understanding these interactions and relationships contributes to our understanding of the systemic whole.

Implications for this study

Systems thinking principles are **useful** for analysing the underlying structures of the personal and job profiles, as well as determining goodness of fit patterns between the person and the job to contribute to our understanding of the e-learning practitioner system.

The human individual system is composed of interpersonal content variables (influences), including age, gender, self-concept, beliefs, personality, values and skills. Patton and McMahon (1999:10) and Bergh and Theron (2001:310) define the study of personology as the study of consistent and repetitive behavioural patterns functioning in an environmental context. Personology and the study of personality are relevant for this study in terms of personal profiles and person attributes being part of personality.

In applying systems theory to the field of personality, personality can also be seen as a living system contained as interpersonal content or essential element in the individual system. The **structure** of personality refers to the basic building blocks that constitute personality and how they are organised (Bergh & Theron, 2001:321) – in other words, the building blocks in the personality system are related and configured in patterns. A variety of personality theories and taxonomies, for example factor or trait theories, cognitive theories, learning theories and occupational-orientated (P-J fit) theories, provide paradigms for explaining and describing human behaviour using different concepts (e.g. traits, cognitive constructs and behavioural responses) as examples of personality structure. According to Revelle (2002) a number of researchers directed taxonomic work towards “categorizing the infinite ways in which individuals differ in terms of a limited number of latent or unobservable constructs. This is a multi-step, cyclical process of intuition, observation, deduction, induction and verification that has gradually converged on a consensual descriptive organization of broad classes of variables as well as on methods for analyzing them” (Revelle, 2002).

Studying the latent structure of the e-learning practitioner construct involves not only the identification of the characteristics of the different “building blocks” but also revealing the relationship between these concepts. The DISC behavioural style indicator, as a measuring

instrument, provides a taxonomic approach for identifying the characteristics of the e-learning practitioner and the e-learning practice, as well as their interaction, which is responsible for producing specific patterns of behaviour.

Implications for this study

Systems thinking principles derived from the systems theory paradigm are useful in the study of latent structure because they provide a framework for enquiry in the study of the interactions between the characteristics of the e-learning practitioner and the e-learning practice. The e-learning practitioner construct is seen as a living system consisting of two subsystems, namely the e-learning practitioner (person) and the e-learning practice (job) and the interlinking relationship between the two subsystems in the e-learning practitioner system.

If the e-learning practitioner construct is seen as a living system, how should we define the research term '**construct**' in this regard? The second main focus area covers the definition and clarification of this term.

2.6.2 Construct

Conveying an objectivistic approach, Cronbach and Meehl (1955:3) define a construct as some "postulated attribute of people, assumed to be reflected in a test performance"; and a "construct is defined implicitly by a network of associations or propositions in which it occurs. Constructs employed at different stages of research vary in definiteness" (Cronbach & Meehl 1955:20). In a more constructivist approach "constructs" can be defined as "theoretical creations that are based on observations but cannot be observed directly or indirectly" (Babbie, 2005:124). Constructs are not "real" but they are useful in providing the researcher with a **way to organise, communicate about and understand** things that are real. "They help us make predictions about real things" because they have a definitive relationship to things that are real and observable (Babbie, 2005:125). Babbie (2005) continues by defining "the bridge from direct and indirect observables to useful constructs as the process of conceptualization" (Babbie, 2005:125). Conceptual frameworks are frameworks for structuring concepts or constructs in terms of definitions, hypotheses, propositions and so forth. Scientific structures such as typologies, theories and models that have classificatory, heuristic and explanatory functions are examples of conceptual frameworks (Mouton & Marais, 1992:139). Elaboration on the latter will follow in the discussion on the conceptual research framework in the last section of this chapter.

According to Meyen, Aust, Gauch, Hinton, Isaacson, Smith and Tee (2005:4) formulating a systematic approach to e-learning research and the "framing of constructs to guide needed research" are research challenges. We can ask the questions: How should we approach and frame the e-learning practitioner construct? Would it be fair to argue that the research construct should

be viewed as a work in progress and is not intended as an all-inclusive model of the e-learning practitioner system? As already pointed out in the discussion on latent structure, the focus on the latent structure of the e-learning practitioner construct presents a dichotomy in terms of a narrowed focus on latent structure on the one hand, and a variety of possible realities on the other. Guided by the literature review it is possible to set a few parameters on the definition of the construct, which may help us to refine its dimensions. The term 'e-learning practitioner' is not explicitly defined in the literature, and terms such as 'online teacher', 'online facilitator' and 'e-moderator' are used in this regard. For this study the term 'e-learning practitioner' refers to individuals who create, use and maintain e-learning and teaching environments. They are involved in a number of job roles, defined by their job description, which suggest a variety of competencies, skills and person attributes needed to fulfil the various job tasks (Brennan, McFadden & Law, 2001; Adendorff, 2004; Smith, 2005). Therefore for the purpose of this study the e-learning practitioner construct should be viewed as comprising the greater domain of the e-learning work environment, which includes the person doing a job in this environment. Three interdependent dimensions, namely the e-learning work environment, the e-learning practitioner (person) and the e-learning practice (job), provide the primary parameters and frame for this construct. Translating this P-J fit triad into systems thinking means that the two subsystems of e-learning practitioner and e-learning practice, nested in the e-learning work environment, interact as a systemic whole to constitute the e-learning practitioner system.

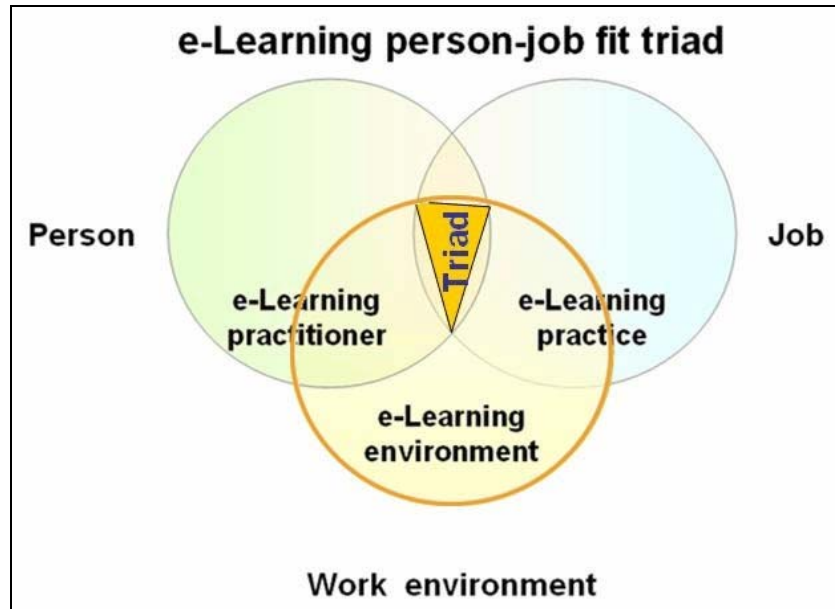
Implications for this study

To contextualise the e-learning practitioner construct, it is essential to take cognisance of the trends, issues and controversies in the e-learning domain in higher education. The following discussion will highlight some of the current trends in the e-learning field. Trends provide important directives for research initiatives and may also contribute to our understanding of issues relevant in the field of study.

2.6.3 *e-Learning work environment*

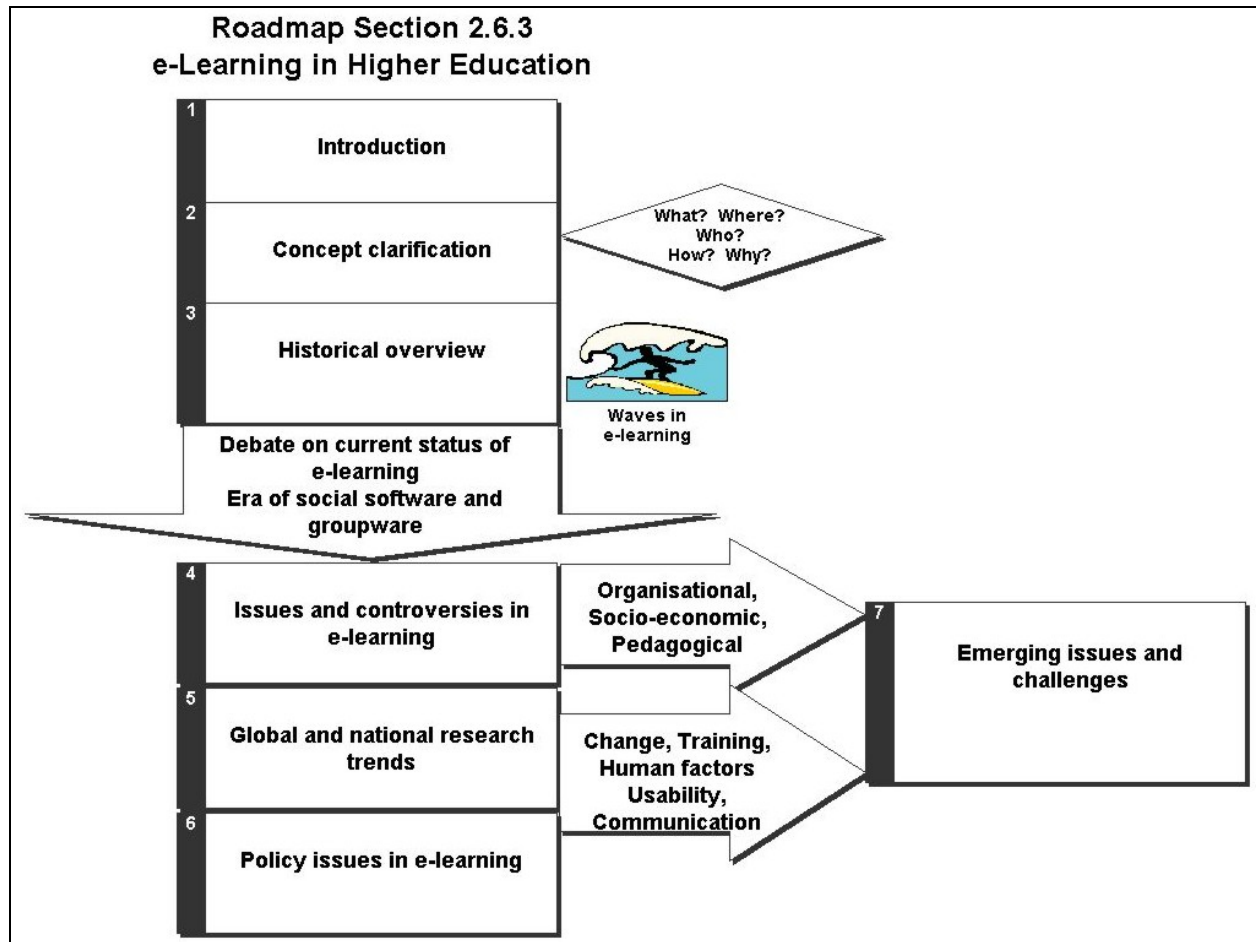
The third main focus area identified as relevant for this study is the e-learning work environment in higher education. As already mentioned the e-learning work environment is also one of the dimensions of the person-job fit triad, its position is graphically represented in Figure 2.4.

Figure 2.4: e-Learning work environment in person-job fit triad



This section is structured in terms of the section layout structure proposed: (1) introduction (2) clarification of the concept, (3) historical overview of the evolution of e-learning, (4) issues and controversies in the field of e-learning, (5) global and national research trends and reports on research done in this field, (6) policies on e-learning, (7) and emerging issues and challenges in e-learning (see Figure 2.5 for a graphical presentation of the layout structure of the section on e-learning).

Figure 2.5: Layout of the sections on the e-learning work environment



2.6.3.1 Introduction

Trends and issues that emerged from the literature review on e-learning in higher education are clustered around the themes of ongoing change in the e-learning environment, sustainability pertaining to e-learning and e-learning practice; professional development and training to cater for the increasing demand for empowered e-learning practitioners; and a new appreciation for the human side of e-learning (Collis & van der Wende, 2002; Attwell, 2004; Beetham, 2004a; Nichols & Anderson, 2005). Oliver and Dempster (2002) also include skills training for e-learning practitioners, formal accreditation programmes, special units for online course curricula, as well as informal training, as important trends and issues in e-learning. They add that organisational approaches such as focusing on e-learning strategies, organisational structure, management processes, roles and skills of practitioners and the nature of technology itself, staff development programmes that focus on binding the concerns of pedagogy, economy, technology and administration within structures directly supporting this, are important considerations in e-learning (Oliver & Dempster, 2002). The latter are important for this study in terms of **providing a holistic view on the main e-learning focus area**, and also to accomplish the four literature review purposes as proposed by Creswell (1994) (see section 2.3).

Studying the above-mentioned trends and issues also revealed a number of assumptions, errors of reasoning and probing questions regarding the main e-learning focus area. My observations in this regard are presented in Table 2.1.

Table 2.1: Observations on trends and issues in the e-learning work environment

What are the assumptions inherent in trends and issues in the e-learning work environment?
<p>e-Learning practitioner support is embedded in the particular higher education organisation.</p> <p>e-Learning practitioners need different and new skills for e-learning practice.</p> <p>Teaching online differs from traditional teaching.</p> <p>e-Learning practitioners should possess special personality characteristics.</p> <p>To accommodate e-learning and the e-learning practitioner, higher education organisations should make certain adaptations.</p> <p>Training and staff development to empower e-learning practitioners should be done by staff development departments.</p>
What are the errors of reasoning?
<p>Current teachers become online teachers:</p> <p>Although the important differences between traditional teachers and e-learning practitioners (online teachers), their respective jobs and the knowledge and skills needed to perform these jobs are repeatedly stated in the literature (Brennan <i>et al.</i>, 2001; Brennan, 2003a) the assumption is made that traditional teachers will transform to become online teachers. The expectation is that the transformation and migration processes from being a traditional teacher to becoming an online teacher will occur naturally and that the person will grow into the new role provided the necessary support measures are in place in the organisation. Therefore solutions for enhancing this migration process are to provide the necessary training to empower the e-learning practitioner for the new roles. The transformation process is supported by organisational support systems, staff development and training efforts. Surely this is one acceptable solution for the changing e-learning work dilemma?</p> <p>However, there are certain contradictions in this line of reasoning. Stated in the literature is the importance of the special characteristics needed by e-learning</p>

**Table 2.1: Observations on trends and issues in the e-learning work environment
(continued)**

practitioners to successfully practice e-learning (Kemshal-Bell, 2001; Palloff & Pratt, 2001b; Salmon, 2003;). These characteristics are inherent and stable attributes of their personalities that will not necessarily be changed by the type of training offered by training programmes focusing on technological skills or knowledge acquisition about e-learning and e-learning approaches. No reference in the literature is made to training and staff development programmes that accommodate the special person attributes needed by the e-learning practitioner in terms of either the learning style preferences of the e-learning practitioner as learner, or the importance of recognising or identifying the special characteristics needed by the e-learning practitioner.

Current teacher jobs become online teacher jobs:

Authors (Zemsky & Massy, 2004) explicitly agree that the transformation process and the transfer from the traditional to the e-learning environment are not always successful and may result in endless frustration for practitioners. The main questions here are:

“How did the person become involved in e-learning practice?” “Did the practitioner become involved as result of his/her own interest, as a result of selection processes or as a result of being told to do the job in a top-down approach from the organisation?” (Donnelly & O’ Brien, 2005; Nichols & Anderson, 2005). Each of these scenarios may impact differently on the interaction between the person and the job – resulting in a variety of outcomes. A more detailed discussion on the theory of technology adoption cycles will follow in subsequent sections (Mackintosh, 2004).

Some organisations may implement e-learning using informal, ad hoc approaches (Oliver & Dempster, 2002; Nichols & Anderson, 2005), with the effect that frustrations experienced by the e-learning practitioner may result in a movement back to previous comfort zones to avoid further discomfort and frustration. If the e-learning approach is more formal and commitments of the e-learning practitioner cannot easily be disregarded, the mismatch between the person and the job may lead to frustration, stress, loss in productivity and job dissatisfaction (Tziner, 1987; Tett & Burnett, 2003; Westerman & Cyr, 2004). Remediation in terms of staff development and training programmes providing a variety of knowledge and skills training may alleviate some of the discomforts (Attwell, 2004), but the cardinal issue in the world of the living organisation paradigm – the person-job fit – is ignored.

Table 2.1: Observations on trends and issues in the e-learning work environment (continued)

<p>Although teaching and principles from the teaching profession form the foundational point of departure for discussing e-learning practice and the e-learning practitioner, there is a distinct difference between traditional and e-learning teaching and learning practices. Errors in reasoning about these practices emanate from the premise that the one is just a continuation of the other in an online environment. In other words, the assumption is that existing input influenced by new processes would produce new output thus ignoring the call from various researchers (Brennen, 2003a; Gray, Ryan & Coulon, 2003) that the “input” in terms of the person attributes needed are different from the current requirements.</p>
<p>The question remains ...</p>
<p>If we need new roles, new pedagogical approaches, new knowledge and skills and new online environments for the e-learning practice, should we not also look at new attributes for the person performing the job? Or do we apply cosmetic remediation strategies without looking at the core of the matter? Does the answer lie in the field of personnel selection, personnel development, training and self-awareness programmes or in changing the job? What is the career path envisaged for the e-learning practitioner – that of a specialised teacher or an entirely new career path? Would the implementation of e-learning be more successful if e-learning is valued as a new career path? Current research on e-learning does not provide sufficient answers to these questions and seems to overlook human work style behaviour as an important aspect of the world of work. Furthermore, the literature review revealed a gap in the literature regarding formal studies done on the characteristics of the e-learning practitioner or the e-learning job, the person-job fit in terms of the e-learning environment or the selection criteria for a formal e-learning job.</p>
<p>In this study I will argue that knowledge about the characteristics of e-learning practitioners and e-learning practice (the job), and how these characteristics fit together in terms of goodness of fit in various e-learning work environments, may contribute to our understanding of the e-learning practitioner construct in terms of a number of possible person-job fit scenarios (research question 3).</p>

Central to our understanding of the e-learning practitioner construct is the concept of e-learning. The following paragraphs will clarify the e-learning concept and highlight historical aspects relevant to topics of trends, issues and controversies in the e-learning work environment, global and national research trends, and reports from other related studies; policies and related issues; emerging issues and challenges.

2.6.3.2 Clarification of the e-learning concept

Looking at the e-learning concept may provoke a number of “what”, “where”, “who”, “how” and “why” questions. Because of the complex nature of this concept, these questions are difficult to answer in simple terms. Views on e-learning differ greatly and are generally coloured by the interpreter’s conceptual framework. To provide the reader with a frame of reference, concepts relevant to e-learning are defined in the next paragraphs.

2.6.3.2.1 What is e-learning?

A variety of definitions, some contradictory, is typical of the confusion inherent in describing the phenomenon “e-learning”. Views are largely influenced by the question “why” – in other words understanding comes with understanding the purpose of e-learning.

After a Google search on the question: “What is e-learning?”, various definitions reflecting different viewpoints were found. Frequently mentioned aspects were utilisation of networks for delivery; Internet learning activities; synchronous, asynchronous, instructor-led or computer-based learning; automated test questions providing instant trainee feedback; and any technologically mediated learning using computers – whether from a distance or in a face-to-face classroom setting.

At **TUT the concept of e-learning** is best described as “learning facilitated and supported through the use of information and communications technology” (JISC, 2004a:10),

...which

“covers a wide set of applications and processes such as web-based- and computer-based learning, virtual classrooms and digital collaboration”
(Northeastern Illinois University, n.d.).

...it may include

“the delivery of content via Internet, Intranet, audio and videotape, video conferencing, CD-ROM and mobile technology” (Northeastern Illinois University, n.d.). Communication tools, include email, discussion boards, chat facilities, virtual learning environments (VLEs) and learning activity management systems (JISC, 2004a). Therefore the term ‘e-learning’ is an umbrella concept that includes applications such as analogue video as well as digital applications. “Digital learning is the educational approach that integrates technology, connectivity, content and human resources. When implemented correctly, it builds on the unique, dynamic characteristics of digital content to create

productive and engaging learning environments” (CEO Forum on Education and Technology, 2000).

...e-learning activities may cover a

range of activities from actions to support learning, from blended- or multimode learning, to learning delivered entirely online (JISC, 2004a:10).

...e-learning is no longer

“simply associated with distance or remote learning, but forms part of a conscious choice of the best and most appropriate ways of promoting effective learning” (JISC, 2004a:10).

...where

the “e” is usually written in lower case, supplementary to “learning”. Although some authors translate the “e” to enhance to move to “enhanced learning” (JISC, 2004a:10), the majority of authors use the “e” as an abbreviation for “electronic”, adding a technological edge to the learning part but keeping the focus on learning as the vital element.

Morrison (2003:4) underlines this very important key concept by saying “e-learning is the continuous assimilation of knowledge and skills by adults stimulated by synchronous and asynchronous learning events and sometimes Knowledge Management outputs – which are authored, delivered, engaged with, supported and administered using Internet technologies”.

“E-learning has a responsibility to stimulate the learner by providing explicit knowledge but the responsibility of transforming explicit knowledge into tacit knowledge – taking personal ownership of it – can only ever be the learner’s” (Morrison, 2003:6).

Salmon (2003:4) summarises the many definitions and applications of e-learning by stating that the main difference is “between those who see online as based on instruction and transmission and those who see the learner’s experience as central to knowledge construction”.

Although social constructivism (Jonassen, 1995) is in line with the assumptions used in this study, recognising the learner as one of the main role players in the e-learning environment, the investigation of learner aspects will not be included in this study. This study will only concentrate on the **e-learning practitioner** and **e-learning practice** in higher education as embedded concepts in the **e-learning practitioner construct**.

Why is e-learning needed?

Recurring arguments in the literature about the “advantages” of e-learning highlight the underpinning differences in point of departure. Debates about “e-learning hype or hope?” (Rice Knowledge Bank, n.d.b) and “[g]ood teaching is good teaching, no matter how it's done” (World Wide Learn, 2005) are ongoing but not relevant for this study. Depending on the purpose of e-learning implementation, a specific application may prove cost-efficient or cost-effective in a given situation but cannot be assumed to be of advantage under different conditions (Rice Knowledge Bank, n.d.a). Looking at the unique features of e-learning may illustrate the diverse application of technologies in a number of settings. Considering the fact that e-learning practitioners practise in such a diverse environment, it would be valuable to highlight some of these unique environmental features.

One unique feature of e-learning in higher education is that the online, networked e-learning hubs may provide opportunities for (a) self-paced learning, 24/7 accessibility, communication and collaboration spanning distance, time and space (Shin, 2004), availability of diverse and extensive online resources, flexibility and portability to choose technologies and content according to style (CEO Forum, 2000); (b) new pedagogical/androgogical/heutagogical approaches (Hase & Kenyon, 2000) and (c) innovative learning design to engage a more diverse learner body (Mayes & de Freitas, 2004).

Another important feature is a combination of blended learning and face-to-face contact with online, networked e-learning hubs (Skills and Education Network, 2004), which may provide opportunities for (a) personal lecturer-learner and learner-learner contact, (b) the successful use of applications such as multimedia and electronic testing that are sometimes problematic to use in pure online settings and (c) continuous action research and development evaluation to improve practice and the adoption of improved technologies and approaches.

Where does e-learning take place?

e-Learning is about the application of electronic and Internet technologies to facilitate and enhance learning and may be one or a combination of online methods with no face-to-face meetings; blended learning – a combination of online and face-to-face, synchronous, asynchronous, instructor-led group; self-study; self-study with subject matter expert; and web-based or computer-based -CD-ROM (World Wide Learn, 2005). Choices about the application of the different technologies in e-learning influence the nature of the e-learning environment, which has an impact on the way e-learning practice is conducted and is therefore relevant and important to note.

How is e-learning practised?

Different theoretical and androgical approaches influence e-learning practice and will be reflected by the e-learning course or programme and, in the broadest sense, “effective learning is likely to occur when opportunities to learn involve the right resources, ...mode of delivery, ...context, ...learners with the right level of support” (JISC, 2004a:11). My experience as an instructional designer for e-learning environments has taught me that the following aspects may be part of e-learning courses and programmes:

- Learning management systems and content management systems to provide structures for administrative and course management activities such as student tracking and presenting students’ grades.
- Course content in formats such as e-lectures, resource repositories and online textbooks. Different multimedia applications may be added to illustrate important concepts.
- Communication may be formal and informal using discussion forums, e-mail, chat rooms and cell phones. Asynchronous or synchronous online communication is most important in the e-learning environment to provide courses with the dynamics for interaction and to make courses “come alive”.
- Support systems are crucial for the sustainability of e-learning and may include support from facilitators, online tutors, assistants, and electronic support systems, for example toolkits, frameworks and models.
- Assessment systems using e-testing, self tests, e-portfolios and online assignments are important for continuous and summative student evaluation as well as for conducting surveys pertaining to course and e-learning practitioner evaluation by the students.
- Activities to engage students in the teaching and learning process are vital and may include e-tivities, games and simulations for individual students as well as for online collaboration groups. Groupware including the use of bloggers and wiki’s are becoming powerful collaboration tools.

Effective e-learning practice is a complex and creative process involving elements of analysis, planning, design, development and evaluation with the aim to identify *inter alia* learner’s needs, learning outcomes, e-tivities and delivery modes. A detailed discussion on e-learning practice follows in the section on e-learning practice (see par. 2.6.4).

Who practises e-learning?

For this study the term ‘e-learning practitioner’ captures the characteristic profile of teachers/lecturers/instructors who create, use and maintain electronic teaching and learning environments for themselves and their learners for androgical purposes. These instructors are professional educators and subject matter experts and may also include instructional

designers and conceptual designers of curricula. Team members such as facilitators, e-moderators and mentors, online tutors, assistants, learning technologists, IT specialists and organisational support may collaborate with the e-learning practitioner (Oliver & Dempster, 2002). A detailed discussion on the e-learning practitioner follows in section 2.6.5.

2.6.3.3 Historic overview of e-learning development

Comprehension of the historic origin of current trends will contribute to an understanding of the dynamics involved in the e-learning environment that impact on the e-learning practitioner and the e-learning practice. The history of e-learning development is described in Appendix B1 and presents a brief description of the various 'waves' in e-learning, which may provide the reader with an additional roadmap to contextualise the TUT environment in an e-learning setting.

Please note the following

The following discussions on issues, controversies and trends in the e-learning work environment and research trends in this field are relevant to the study in terms of the 'structuredness continuum' in the e-learning work environment. For example, formal vs. laissez faire organisational approaches, change management and efforts to retain sustainability impact on the 'structuredness' of the e-learning work environment. Many of the unique policy issues in e-learning relate to e-learning environmental changes that once again impact on the 'structuredness' of the e-learning work environment. The latter is a primary dimension in the person-job fit triad.

2.6.3.4 Issues and controversies regarding e-learning

Meta-evaluation and analysis of innovation in European e-learning practice reports three main themes reflecting the issues in e-learning, namely organisational/institutional socioeconomic and pedagogical issues (DELPHI, 2002). As was also reported by a number of authors and reports (Gunn, 2001; Twigg, 2001; Browne & Jenkins, 2003; Salmon, 2003; Attwell, 2004; Vuorikari, 2004; Nichols & Anderson, 2005; Thompson, 2005), a number of issues cluster around the three main themes mentioned in the DELPHI (2002) report. To summarise such issues, Table 2.2 presents a synthesis of the most prominent issues mentioned.

Table 2.2: Summary of current issues in e-learning

(summarised from Gunn, 2001; Twigg, 2001; Browne & Jenkins, 2003; Salmon, 2003; Attwell, 2004; Vuorikari, 2004; Nichols & Anderson, 2005; Thompson, 2005)

Organisational and institutional issues
<p>Cost-effectiveness:</p> <p>Standardisation, resource sharing and reuse of resources are seen by some as ways to ensure cost-effectiveness and cost reduction, while others are of the opinion that quality, access and cost are intertwined and that the cost of online learning depends more on context.</p>
<p>Accessibility and bandwidth:</p> <p>Without technological support to enable and service e-learning facilities, e-learning would become extremely difficult. Crucial aspects for successful e-learning, such as access to online teaching and learning services, information and support, need a backbone of adequate bandwidth for execution. Bandwidth is a major issue for e-learning, affecting not only the instructional design of course content but also the design of applications and platforms and, consequently, selection of these by institutions.</p>
<p>Quality:</p> <p>The importance of effective e-moderation as underpinning the delivery of quality online education is well cited by various authors.</p>

Table 2.2: Summary of current issues in e-learning (continued)

Socio-economic issues
<p>e-Learning standards:</p> <p>Despite huge investment in platforms such as LMS systems and great effort in producing learning materials, continuous and rapid changes in the field have “rendered much of the expense and effort redundant” (Attwell, 2004:4). Interoperability between different learning systems and platforms has become increasingly important. Interoperability through content and technical standardisation as visualised by the introduction of learning object repositories has created high expectations for a more streamlined approach, but has also triggered many debates regarding usability, contextualisation, communities of practice, metadata standards and so on.</p>
<p>Hardware and software:</p> <p>Infrastructure, technical support and considerable expenditure on software, hardware and networks are major issues in the e-learning environment. The availability of open source software (OSS) opens different venues for educational software but, due to uncertainty about standards and lack of knowledge amongst policymakers, the debate about the advantages and disadvantages of OSS have led to the failure to fully exploit the potential of OSS.</p>
<p>Globalisation and competitiveness:</p> <p>“There is an urgent need to make the current training systems better available, more effective, accurate and flexible in order to enable true training on-demand services for the individuals and their work organisations ... and most importantly to make this practice of professional development a continuous one” (DELPHI, 2002:28). Higher education institutions need to cope with rapid changes as well as international competition, which demand new conditions for finances, staff qualifications and staff time. The DELPHI (2002:29) report points out that globalisation is one of the key factors driving the new European learning economy/learning society.</p>
<p>Intercultural differences:</p> <p>Networking and sharing are becoming buzzwords in the e-learning environment; however intercultural differences and language barriers especially in the European, African and Asian countries are issues that need to be addressed with sensitivity.</p>
<p>Funding:</p> <p>Higher education institutions are investing heavily in technological and networked systems. One of the main problems and a considerable barrier for many institutions is the fast pace of software development, the release of endless new versions and the expense of upgrades.</p>

Table 2.2: Summary of current issues in e-learning (continued)

Pedagogical issues
<p>Teaching and learning philosophies:</p> <p>Trends in the e-learning environment are recognition of the change <i>from a teacher-centred to a learner-centred approach</i>, changes from pedagogy to andragogy and even to heutagogy (“self-determined learning”) (Hase & Kenyon, 2000:1) and challenges for the way in which learning can be facilitated and managed effectively. There is an ongoing debate as to what constitutes effective practice and how pedagogical approaches can cater for the needs of particular subjects, different learners and varying contexts or situations for learning.</p>
<p>Teaching techniques, methods and devices:</p> <p>Through new communication and interaction technologies, the availability of networked computers raises challenging issues including complex partnerships and “networked learning” (Salmon, 2003:10). Networked computers offer possibilities for the development of online knowledge building and learning communities.</p>
<p>Teacher workloads</p> <p>Workload demands on e-learning practitioners are considerably greater than those in regular everyday teaching practice. Although attitudes towards e-learning, varying between technophobia and technophilia, will always influence the job approach and involvement of the e-learning practitioner, it is widely recognised that institutions need policies and benchmarking procedures to accommodate changing job structures.</p>
<p>Staff development, teacher training, and teacher collaboration:</p> <p>Changes in the traditional higher educational environment are accompanied by changing roles and training for new job profiles to provide for new attitudes, knowledge and skills in e-learning practice. However, the most important issue is to provide support and scaffolding for staff members in the changing pedagogical/androgical roles. Various roles, such as online facilitator or e-moderator, course developer, researcher, learning technologist or subject specialist, suggest not only enormous pressure but also vast possibilities for the training and professional development of the e-learning practitioner. Attwell (2004) points out that professional development programmes tend to focus too narrowly on the technology and do not always see the big pedagogic picture. He emphasises that the roles of teachers, and strategies for supporting, their new roles are major issues in e-learning.</p>

2.6.3.4.1 e-Learning issues in Southern Africa

Issues relating to e-learning as outlined in the preceding paragraphs are also applicable in the Southern African region. However, this region has a number of very specific geographical, economic and social issues that influence e-learning implementation (Gumbe, 2004: slide 4; Czerniewicz & Carr, 2005:2). Participants in e/merge 2004, a recent online conference, debated issues regarding the application of information and communication technologies (ICT) in education, and agreed that access to ICT is a key issue that both “restricts and enables learners’ changing literacies” (Czerniewicz & Carr, 2005:5). Although globalisation alters regional homogeneity, there are still real, stark differences between the North and the South in terms of access to ICT, Internet bandwidth and connectivity and e-readiness (Czerniewicz & Carr 2005:2). Comparing Internet users from Africa and North America reveals the lowest percentage (2,7%) population penetration in Africa and 68,1 percent in North America (Internet usage and population statistics for Africa, 2005). Although Africa has the second largest population percentage in the world, it has the second lowest percentage of Internet users; however it has an enormous Internet user growth rate of 428,7 percent (see Table 2.3) (Internet usage and population statistics for Africa, 2005).

Table 2.3 Internet users and population statistics for Africa

INTERNET USERS AND POPULATION STATISTICS FOR AFRICA						
AFRICA REGION	Population (2005 est.)	Pop. % in world	Internet users, latest data	Use growth (2000-2005)	Penetration (% Population)	% Users in world
<u>Africa</u>	896,721,874	14.0 %	23,867,500	428.7 %	2.7 %	2.5 %
<u>Asia</u>	3,622,994,130	56.4 %	327,066,713	186.1 %	9.0 %	34.2 %
<u>Europe</u>	731,018,523	11.4 %	273,262,955	165.1 %	37.4 %	28.5 %
<u>Middle East</u>	260,814,179	4.1 %	21,422,500	305.4 %	8.2 %	2.2 %
<u>North America</u>	328,387,059	5.1 %	223,779,183	107.0 %	68.1 %	23.4 %
<u>Latin America/Caribbean</u>	546,723,509	8.5 %	70,699,084	291.31 %	12.9 %	7.4 %
<u>Oceania / Australia</u>	33,443,448	0.5 %	17,655,737	131.7 %	52.8 %	1.8 %
WORLD TOTAL	6,420,102,722	100.0 %	957,753,672	165.3 %	14.9 %	100.0 %

Internet usage and population statistics for Africa was updated on 30 September 2005. ©Copyright 2005, www.InternetWorldStats.com (Miniwatts International, n.d.).

A comparison of Internet usage in the different regions in Southern Africa shows South Africa as the country with the most Internet users but the lowest use growth rate of 99 percent. Zimbabwe and Zambia have use growth rate figures of more than 1000 percent (see Table 2.4).

Table 2.4 Internet usage statistics for Africa

INTERNET USAGE STATISTICS FOR AFRICA						
AFRICA	Population (2005 est.)	Internet users Dec/2000	Internet users, Latest data	Use growth (2000-2005)	% Population (Penetration)	(%) Users in Africa
Angola	12,918,595	30,000	172,000	473.3 %	1.3 %	0.7 %
Botswana	1,820,498	15,000	60,000	300.0 %	3.3 %	0.3 %
Egypt	69,954,717	450,000	4,200,000	833.3 %	6.0 %	17.6 %
Mozambique	19,416,143	30,000	138,000	360.0 %	0.7 %	0.6 %
Namibia	1,994,816	30,000	75,000	150.0 %	3.8 %	0.3 %
Nigeria	156,468,571	200,000	1,769,700	784.9 %	1.1 %	7.4 %
South Africa	48,051,581	2,400,000	4,780,000	99.2 %	9.9 %	20.0 %
Swaziland	1,121,937	10,000	36,000	260.0 %	3.2 %	0.2 %
Zambia	11,015,072	20,000	231,000	1,055.0 %	2.1 %	1.0 %
Zimbabwe	12,095,233	50,000	820,000	1,540.0 %	6.8 %	3.4 %
TOTAL AFRICA	896,721,874	4,514,400	23,867,500	428.7 %	2.7 %	

Internet usage and population statistics for Africa were updated on 30 September 2005. ©Copyright 2005, www.InternetWorldStats.com (Miniwatts International, n.d.).

According to Czerniewicz and Carr (2005:2), the “explosive growth of wireless connectivity across developing countries has only started to impact on Southern Africa”, however, in terms of e-readiness South Africa ranks the highest of the African countries. Rural/urban separations are typical of many African countries including South Africa and may result in the uneven distribution of teaching and learning infrastructure and resources. Although South Africa is often regarded as part of the Third World, there are “pockets of first world education facilities” (Kistan, n.d.:4). Kistan (n.d.) is of opinion that the disparity between different higher education institutions presents complex challenges in terms of the implementation of e-learning. Issues such as lack of comprehensive infrastructure, insufficient bandwidth and financial support, few trained e-learning practitioners, computer illiteracy, lack of technical skills to maintain systems and the cost of e-learning mentioned earlier are also prominent in the South African context (Kistan, n.d.:5; Czerniewicz & Carr, 2005:9). Are these issues and challenges important in the e-learning work environment at TUT? How do these issues, if relevant in the e-learning work environment at TUT, influence the ‘goodness of fit’ between the e-learning practitioner and e-learning practice at TUT?

Gumbe (2004: slide 4) is of the opinion that these issues and challenges are “definitely not insurmountable” and could be met by greater state intervention, partnerships between state, business, donors (local and international) and civil society, and the willingness to give e-learning a chance.

Although different strategies for promoting access to ICT in South Africa exist, the promotional efforts are directed more towards community development and schools and not at higher education per se (Schoolnet, 2005), they may provide fertile ground for progress to the higher education level in terms of skills and knowledge competencies for learners and teachers alike. The Commonwealth of Learning (COL) has established partnerships with a number of countries including South Africa (Commonwealth of Learning, 2005). One of the partnership initiatives is to develop a toolkit for developing schoolnets in Africa. According to Halse (2002), the partnerships between SchoolNet SA and a number of other companies and organisations have resulted in a good support network, including computer and network infrastructure. Will this also be the case if a HigherEducationNet is developed in South Africa? Although interventions such as support systems may influence the dynamics in the e-learning practitioner system (see interactionist model in Figure 2.18) and may contribute to changes in the e-learning work environment, the question remains whether these changes are experienced by the individual e-learning practitioners as demands, distracters or releasers for their e-learning practice?

2.6.3.5 A snapshot of global and national research trends in e-learning

Current e-learning research trends are mostly directed by the e-learning issues mentioned in section 2.6.3.4, as well as developments in the fields of social software and groupware (Browne & Jenkins, 2003; JISC, 2004a; Zemsky & Massy, 2004; Elgort, 2005). Such developments highlight the importance of human factors and communication in the technology-driven e-learning environment (Beetham, 2004b).

Implication for this study

The following paragraphs will give a synoptic account of the status of current research trends in e-learning. These trends are of importance for the study in terms of contextualising the e-learning practitioner and the e-learning practice.

A comparative research study conducted by Collis and van der Wende (2002) studied the use of e-learning in higher education in countries such as the Netherlands, Germany, Norway, the United Kingdom, Australia, Finland and the USA. Findings from this study include the following observations:

- (1) change in the e-learning environment is slow, and not radical,
- (2) ICT in teaching and learning is widespread but part of a blend;
- (3) Instructors are gradually doing more, but with no reward;
- and (4) Instructors are not changing their ways of teaching even though they use ICT in different ways (Collis & van der Wende, 2002:7-8).

The researchers summarise their findings as the following: institutions are moving to a stage where e-learning participation is encouraged, pedagogical use of this infrastructure is in many

cases still in development (Collis & van der Wende, 2002: 16) and the “main challenge for both institutions and governments is how to develop more strategic policies on how ICT can be used for the different target groups that higher education is expected to serve in the knowledge economy in the 21st century” (Collis & van der Wende, 2002:65). They conclude by stating that institutions need to develop strategic policies for accommodating diverse learner groups, improving pedagogical use of ICT, adapting technology to different needs and providing instructor incentives to do all the required work (Collis & van der Wende, 2002:72).

Some of the issues mentioned by Collis and van der Wende (2002) are also reflected in comparative research studies done in the United Kingdom by Browne and Jenkins (2003). Research reports and survey studies by, for example UCISA and JISC in the UK, reveal a number of issues relating to virtual learning environments (VLEs), such as choice of VLEs and their implementation, technical support and training, and pedagogic issues relating to their use (Browne & Jenkins, 2003). The picture given by such reports is one of “evolutionary consolidation” (Browne & Jenkins, 2003:3), where “**centralisation** is increasing on matters considered strategic, development is occurring for a range of **support activities** [and] there is a markedly **greater use of VLE’s**” (Browne & Jenkins, 2003:3).

One notable conclusion from the UCISA report is that “the career implications for academic staff spending time exploring the use of a VLE in their learning and teaching are not perceived to be very positive” (Browne & Jenkins, 2003: 34). This report underlines the view of the researcher that there is a general lack of appreciation amongst higher education institutions for the different career paths and the possible career development scope for e-learning practitioners. However, research initiatives by various groups (CeLP, 2005) to certify e-learning professionals (Training Foundation, 2004c) and to develop job descriptions, for example the learning technologist as proposed by Oliver and Dempster (2002), are steps towards defining new e-learning career paths (Oliver & Dempster, 2002; Oliver *et al.*, 2004). Oliver and Dempster (2002) state that “e-learning practices can develop in isolation from other teaching practices but must be educationally sound. That is not to say the IT infrastructure and technical expertise dependencies can be underestimated but simply that progress is often held back not by infrastructure constraints but by issues like **motivation, skills and staffing**”. Should we not also add to this list person attributes and diverse work behavioural styles? Oliver and Dempster (2002) continue by suggesting that e-learning development should receive the same incentives that reward teaching, for example performance rewards and accreditation.

The European Commission eLearning Initiative launched in May 2002 aimed to accelerate the integration of e-learning in the educational systems of Europe and, in a report titled ***A world of learning at your fingertips***, lists 43 pilot projects that ran between 2001 and 2004 and another

70 projects that were launched in 2004. Snapshots from these projects reveal that five international universities participated in a project running from 2001-2003 to strategise for a future European Virtual University (DELPHI, 2002). Reports from this project reiterate the importance of professional development for e-learning practitioners and propose a shared framework for teachers' professional development as a tool for harmonising European Union policies and practices (European Commission eLearning Initiative, n.d.). Other key findings pertain to **sustainability**, scalability and transferability of innovations and once again point out the importance of these key issues (DELPHI, 2002).

Organisations such as the Advanced Learning Infrastructure Consortium (ALIC) in Japan and the e-Learning Competency Centre (ECC) in Singapore focus their efforts on **e-learning standardisation**. The ALIC's primary focus is on "activation of the e-learning industry", whilst the ECC's mission is to "foster excellence in e-learning by driving the adoption of **standards** and developing the **competencies of professionals** in order to establish Singapore as a renowned e-learning hub in the Asia-Pacific region" (Friesen, 2003).

Quality and standards are highlighted by Thompson (2005) as prominent challenges in e-learning research in the United States of America (US). Her analysis of the research context in the US was based on research studies published in 2004. Findings pertain to organisational challenges in terms of policy research, finances, competition, faculty support and quality assurance; faculty experience and pedagogy in terms of changing roles and resistance to online teaching; student experience/outcomes in terms of course design and support factors; learner retention; and contextual issues in terms of change management; and ethical issues relating to access, integrity and changing roles. Faculty and learner issues were the most prominent focus of research, whilst context and ethical issues lagged behind (Thompson, 2005). Thompson (2005) identifies a number of research gaps, for example barriers to participation in teaching online; institutional responses to faculty needs; and research focus on context and ethics.

The eLearning Guild, with a worldwide membership of 18 500 and focusing on the latest trends, best practices and pressing issues of interest to e-learning professionals, released their latest report in March 2005. Although a number of issues are addressed in their report I will highlight below only the survey statements and results relevant to this study.

1. Learning experiences in terms of knowledge acquisition and transfer: Respondents confirm the 80/20 rule when it comes to the balance between informal and formal learning.

Relevance to this study

Training is one of the most cited issues in e-learning today (e-Learning Guild, 2005), formal training programmes are more likely to succeed when supported by informal communities of e-learning practice supporting each other and sharing their experiences and best practices, thus catering for diverse work behavioural styles.

2. Trends in the design and delivery practices of e-learning point to usability. Ninety-two percent of respondents strongly agree that usability is an essential consideration when designing e-learning. Yet the respondents also indicated that about 35 percent of respondents' organisations do not test for the usability of their e-learning courses or programmes and that many of those who do test only do so sometimes. Ranking the reasons for this situation they amounted to "lack of know-how and competency; testing is too expensive, testing takes too much time and there's no reliable methodology" (e-Learning Guild, 2005).

Relevance for this study

Underpinning usability in terms of design and delivery are the issues of training, professional support and sustainability. Attwell (2004) argues that the sustainability of teacher and trainer skills and of e-learning materials development are two of five critical issues in e-learning. He links two major issues in e-learning by stating that: "For policy to be effective it requires changes in practice. Equally effective practice has to be generalised to develop sustainable responses to the challenge of e-learning" (Attwell, 2004:3).

3. It was found that a significant majority, 93 percent, define e-learning as a combination of the traditional classroom with any form of e-learning.

Relevance to this study

Change is another important issue in the e-learning environment. Not only has the traditional role of the "teacher" changed, but the practice environment is also constantly changing dramatically. Referring to Russell's compendium of more than 355 comparative research studies suggesting that learners in technology-based (typically distance learning) courses learn as well as their on-campus, face-to-face counterparts, Twigg (2001:5) summarises the current dilemma as "the problem with applying old solutions to new problems in the world of online learning is that these applications tend to produce results that are 'as good as' what we have done before – that is often referred to as the 'no significant difference' phenomenon". She continues by saying that new approaches that go beyond producing no significant difference are needed and that as long as we "continue to replicate traditional approaches online – and continue to treat all learners as if they were the same – we will once again find the 'no significant difference' phenomenon" (Twigg, 2001:11).

According to Morrison (2003:9) the key differentiator is time-critical and he quotes Wayne Hodgins as saying:

Human attention is our most valuable and scarce commodity. When our time is what we have to offer the world, we look at technology differently. We aren't distracted by the sheer novelty of what it can do. We want to know how quickly it can help us get where we want to go, do what we need to do (Hodgins, 2000:6).

In **South Africa** a dynamic and fast-moving development in the e-learning field pertains to the implementation of mobile technologies (Minges, 2004:9). Although the term m-learning might be applicable in this regard, for this discussion I include mobile technologies under the umbrella e-learning concept. According to Minges (2004:9), cell phone use in Africa has increased at an annual rate of 62.5 percent, which is the world's fastest growing mobile market. He continues by saying that the mobile telecommunication sector is one of Africa's success stories (Minges, 2004:9). The enormous potential of mobile technology in the e-learning environment was illustrated by the DEEP project (DEEP IMPACT, 2004). Although this project was done in the primary school context, the results achieved may have a ripple effect on teacher training and professional development. The UK Department for International Development (DfID) in collaboration with the University of Fort Hare, South Africa and the Programme, Planning and Monitoring Unit, Cairo, Egypt, launched a research and development project involving 48 teachers and over 2000 children from primary schools in the Eastern Cape Province, South Africa (DEEP, 2005; Jordaan, 2005). A combination of laptop and hand-held computers was used by the teachers to implement and evaluate a school-based professional development programme. Teachers and learners successfully utilised the available technologies in their class activities, and it was evident that the users could quickly develop a range of ICT skills (DEEP, 2005).

2.6.3.6 Policy issues in e-learning

e-Learning in higher education triggers unique policy issues, which include the major policy areas of funding, intellectual property, quality assurance, transfer and articulation, and tuition and fees (EduTools, n.d. a). Priorities listed are *inter alia* **good quality training and support packages for practitioners** (Palloff & Pratt, 2001a; Department for Education and Skills (DfED), n.d.; 2003; 2005); **sustainable e-learning futures** and e-learning needs for a foundation of **sound pedagogical approaches** (Mackintosh, 2004:14); to **enhance research into technological change and innovation** (Finnish Technology Policy, 2003; Kirkman, Osorio & Sachs, 2005; Network Readiness Index, 2005); to **improve teacher training**, support e-learning and virtual schools, encourage broadband access, move towards digital content and

integrate data systems (Education: the promise of America, 2004; National Education Technology Plan, 2004).

With the exception of Botswana, few regional countries in Southern Africa have specific educational technology policies (Czerniewicz & Carr, 2005:8). Countries such as Mozambique view ICT as a driver for the economy and not as an important priority in education (Czerniewicz & Carr, 2005:5). During the past decade, higher education in South Africa has undergone transformational mergers and structural **changes**. Structures such as the South African Qualification Authority (SAQA) and the Council on Higher Education (CHE) were established to assist with the implementation of various education policies (Kistan, n.d.). The National Qualification Framework (NQF) has been published to support the drive towards uniform **quality standards** in the higher education sector (Kistan, n.d.:3). This framework aims specifically at compliance requirements, responsibilities and implementation mechanisms in terms of “standards of teacher development, accessibility and usability of electronic content, interoperability, connectivity, flexibility of hardware and software and community engagement” (Draft White Paper on E-Education, 2003:27). A set of broad principles reported in the Framework for Teacher Education in South Africa include the “right to quality education for all; schooling seen as a public good, for which public funding is provided and **teachers are key agents** in the quality of the educational system” (Department of Education, 2005:3). From its e-Education policy goal it is clear that the Department of Education recognises the importance of ICT (Surty, 2005).

Every South African learner in the general and further education and training bands will be ICT capable (that is, use Information and Communication technologies confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013 (E-Education Draft White Paper, 2003:19).

Teacher and learner training as well as **research linked practice** are mentioned under the proposed strategies for reaching the goals of the Education Draft White Paper (2003:21). Another notable issue is the digital divide, which is not only about connectivity and infrastructure disparities but also about local language content development, sharing knowledge, capacity building and professional training for teachers (Education Draft White Paper, 2003:7). Although the E-Education Draft White paper is primarily about e-learning in schools, the role of higher education in the e-learning environment is recognised in terms of teacher training and collaborative research (Education Draft White Paper, 2003:21).

2.6.3.7 Emerging issues and challenges in e-learning

Evident from the preceding discussion on e-learning issues, research trends and policies is the importance of **change, sustainability, professional development and training and a new appreciation for the human side of e-learning** as emerging issues and challenges in the e-learning work environment. The following sections will comment on these.

These issues are particularly important in a discussion on the e-learning work environment as they impact differently on the nature of this environment. For example, frequent changes may influence the e-learning work environment in such a way that it becomes more chaotic and unstructured. On the other hand, formal training and support programmes may influence the e-learning work environment to become more structured. Therefore influences that impact on the nature of the e-learning environment will affect e-learning practice and the e-learning practitioner in the e-learning person-job triad.

2.6.3.7.1 Change – a challenge in e-learning

Changes in any of the three dimensions of the person-job fit triad would naturally influence the relationships and interaction in the triad. Therefore changes on the 'structuredness' continuum, pace of technological innovation and degree of 'virtualness' in the e-learning work environment may impact on the 'goodness of fit' in the triad.

An important issue that Mackintosh (2004) elaborates on is that the pace of technological innovation outstrips the ability of society to absorb new innovations (Christensen, Aaron & Clark, 2003), thus if we want to be successful with e-learning we need to do things differently. Pedagogical effectiveness for "promoting human interaction and communication through the modelling, conveying and building of knowledge and skills" (Salmon, 2003:4) is at the core of 'doing things differently'. Mackintosh (2004:6) believes that "e-learning on its own is not a force that changes the way we teach", teachers still teach the way they were taught. Therefore in the words of Zemsky and Massy (2004:iii), "[e]-learning will become pervasive only when faculty change how they teach – not before". Mackintosh (2004), Zemsky and Massy (2004), and Christensen *et al.* (2003) are some of the authors that highlight change as being a major issue in e-learning.

Implications for this study

Changes in the e-learning work environment in terms of structuredness may influence the interaction between the subsystems of the e-learning practitioner system.

Changes in the e-learning work environment in terms of the pace of technological innovation may influence the interaction between the subsystems of the e-learning practitioner system.

Changes in the e-learning work environment, in terms of changing the degree of 'virtualness', may influence the interaction between the subsystems of the e-learning practitioner system.

Change in terms of adopter categories (Rogers, 1995), e-learning adoption cycles (Mackintosh, 2004; Zemsky & Massy, 2004) and S-curve patterns (EDS, n.d., Mackintosh, 2004) is important for this study in terms of contextualising the e-learning work environment at TUT.

The following paragraphs briefly illustrate the concepts 'adopter categories'; 'e-learning adoption cycle' and 'S-curve patterns'.

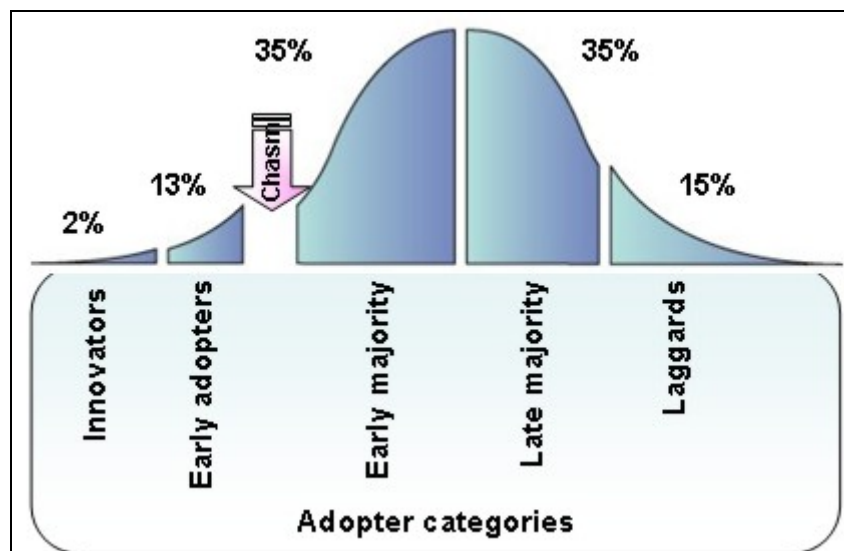
Adopter categories

Rogers (1995) in his book *Diffusion of innovations* categorises the potential users of technology based on normal distribution and standard deviation. His diffusion model proposes five adopter categories, namely innovators, early adopters, early majority, late majority and laggards (illustrated in Figure 2.6).

Figure 2.6: Adopter categories defined by Rogers (1995)

(available at

http://www.stuart.edu/courses/EBUS514/Summer2004/Classfiles/s%20curve%20in%20technology_adoption.pdf)



Moore, in his book *Crossing the chasm* (1991), uses the term 'chasm' to describe the time gap between the early adopters and the early majority, arguing that this is so because of their different expectations (Wikipedia, 2005; Wikipedia, 2006a). These adoption categories are widely used in the business and marketing environment (EDS, n.d.) and some authors, for example Zemsky and Massy (2004:9), used these categories to illustrate e-learning's pattern of innovation and change. The categories may be summarised as:

- **Innovators** (2%) – they love to explore new ideas and are driven by intrinsic motivators.
- **Early adopters** (13%) – they adopt once the concept is proven, they are viewed as opinion leaders and decision makers who have the vision to adopt an emerging technology to a opportunity and they are driven by extrinsic motivators.
- **Early majority** (35%) – eventual users who do not like to take the risks of pioneering, but see advantages of tested technologies are driven by usability and success of the technology and they are the beginning of the mass market (Beshears, n.d.).
- **Late majority** (35%) – adopt when half of the population has already done so, they are followers who dislike the disruptions of new technologies.
- **Diehards (Laggards Rogers, 1995)** (15%) – resist adopting new innovation, but says Beshears (n.d.), "they perform the valuable service of pointing out regularly the discrepancies between the day-to-day reality of the product and the claims made for it".

e-Learning adoption cycles

Zemsky and Massy (2004:10) distinguish four e-learning adoption cycles within the higher education sector. Each of these adoption cycles "represents a different stage of innovation, that also require[s] a different level of change in the existing instructional culture".

According to Zemsky and Massy (2004:11) the four levels of e-learning innovation are the following:

1. Enhancements of traditional course/programme configurations.
2. Course management systems.
3. Imported course objects.
4. New course/programme configurations currently in different stages of their adoption cycles.

The first three levels of the adoption cycles in e-learning represent one-to-many technologies and the last one any-to-any technologies (Mackintosh, 2004:13). He continues by saying that one-to-many technologies implies that the systems and teaching are defined by the designer (Mackintosh, 2004:13). Any-to-any technologies implies networks functioning as self-organising systems, where a combination of self-directed autonomous learning with multimode learning is

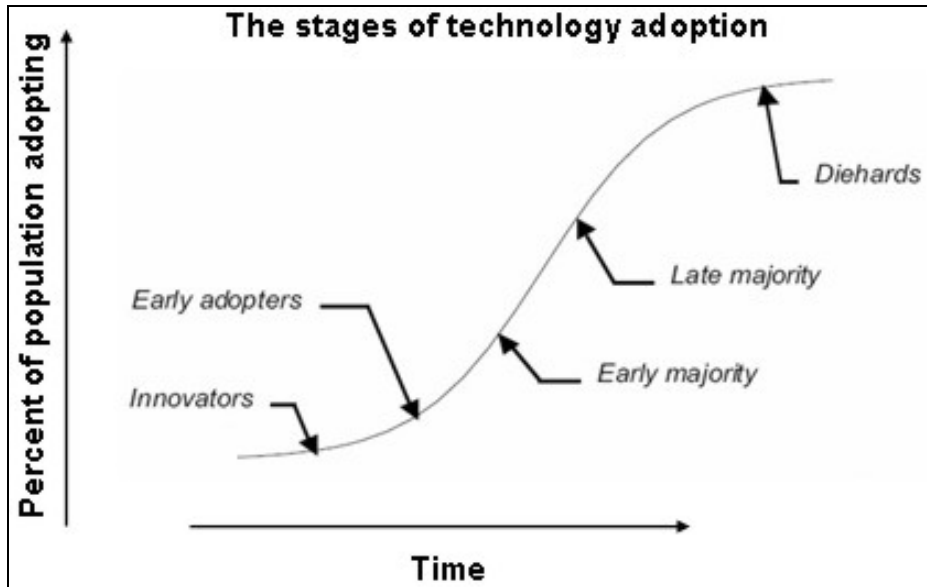
embedded in a social context (Mackintosh, 2004:13). According to Zemsky and Massy, (2004:11) the first cycle represents technology enhanced face-to-face teaching using e-mail, Internet, multimedia, e-testing and so on to enhance classroom presentations. The second cycle represents the acceptance of learning management systems to support the learner and lecturer with administrative tasks, for example test marks, schedules, study guides, access to course materials and a platform for synchronic and asynchronic communication (Zemsky & Massy, 2004:11).

The third cycle includes the adoption of learning content management systems and the importing and use of learning objects (Zemsky & Massy, 2004:11). The fourth adoption cycle represents the any-to-any technologies stage of innovation, where new configurations of teaching and learning processes develop (Mackintosh, 2004:13). E-learning practitioners and learners adopt new roles taking full advantage of the new technologies and new ways of interacting and communicating. Mackintosh (2004) prefers “new pedagogy” to “new course/program configurations” (Zemsky & Massy, 2004:11) for describing this adoption cycle, whilst Leinonen (2005) refers to this stage of innovation as the era of social software and free and open content.

These cycles may follow different paths, for example they may sometimes build upon each other, follow parallel tracks or may work against each other. Mackintosh (2004) uses the concept of sustainable and disruptive technologies that may result in new S-curves. Taking cognisance of the innovation S-curve categories is important for illustrating the current e-learning pattern of innovation and change.

S-curve patterns

According to Zemsky and Massy (2004:9) “e-learning’s pattern of innovation, change and adoption follows the classic S-curve” (see Figure 2.7).

Figure 2.7: S-Curve (as illustrated by Zemsky & Massy, 2004:9)

Technology adoption can be presented as an S-curve graph showing how many users have adopted a technology over time (EDS, n.d.:1). The speed of adoption is influenced by the amount of infrastructure required for implementation; if no new infrastructure is needed the technology will be adopted more rapidly and will be presented by a steep S-curve (EDS, n.d.:1).

Mackintosh (2004) links the idea of different phases of e-learning adoption occurring in parallel with each other to the S-curve analysis of pedagogical structure in e-learning. He uses Christensen's comparison of sustaining and disruptive technologies to illustrate that "pedagogical structure of campus-based pedagogy differs from the pedagogical structure of distance education" and argues further that the "pedagogical structure of multi-mode, multimedia pedagogy will also differ from the preceding forms of delivery" (Mackintosh, 2004:10). Mackintosh (2004:10) also believes that the first stage of technology adoption does not necessarily result in pedagogic adaptations, but fourth cycle adoption, resulting in new teaching and learning roles that alter the pedagogical structure of teaching.

Zemsky and Massy (2004) differentiate between four distinctive e-learning adoption cycles displaying "different phases of e-learning adoption that are occurring in parallel with each other" (Mackintosh, 2004:7). He adds "new" pedagogy as the last of the four adoption cycles and says that it is necessary for organisations to realise that the implementation of technology does not necessarily bring about pedagogical adaptations. Pallof and Pratt (2001b) agree with this by saying that teaching in cyberspace involves more than clothing traditional models with new clothes. Pedagogical structure changes would be the result of new roles that new learning technologies assume (Mackintosh, 2004). Breaking the constraints of time and space, the relationships between faculties, institutions and learners and how education is delivered and

learning happens (Pallof & Pratt, 2001b) will alter so that things can be done differently. Mackintosh (2004) further argues that although e-learning has yet to deliver on its hidden potential, emerging technologies have the potential to advance e-learning in unprecedented ways.

The researcher is of the opinion that new trends in e-learning focusing on social aspects, such as online communication, e-moderating, learning design in terms of e-tivities and a movement away from content-based platforms towards knowledge-building communities and communities of practice, changing the emphasis on technologies to a focus on people in the teaching and learning environment, might prove to be the trigger for changing the slope of enlightenment and the plateau of production in the next e-learning network hype cycle (see Appendix B1 for a description of Gartner's Technology Hype Cycle for e-learning (Kruse, 2002)).

2.6.3.7.2 e-Learning sustainability

In this section sustainability is discussed in terms of (1) ways to ensure that new reforms and initiatives are sustainable; (2) how to change practice; and (3) sustainability of investment in infrastructure. Sustainability is the ability of a system, "facility, project or resource to continue operating in a useful way over the long term" (SchoolNet Toolkit, 2005:86). Various authors (Attwell, 2004; Macintosh, 2004; Nichols & Anderson, 2005) refer to sustainability as a major issue in e-learning. Different sustainability elements for e-learning development have been identified, for example economic, social (acceptance by users), political (policy support), technological and educational sustainability (Schoolnet Toolkit, 2005:87). Attwell's (2004) broader categorisation includes elements such as pedagogy, hardware and infrastructure, "software and platforms, e-learning materials development, sustainable teacher and trainer skills", evaluation of e-learning and sustainability in terms of policies and may well fit into the SchoolNet's Toolkit classification (Attwell, 2004:6). The issue is how to exploit and use such resources to ensure maximum **usefulness over time**. One of the keys to sustainable and innovative e-learning practice is the provision of support particularly for e-learning practitioners (Attwell, 2004). Other keys are cost-effective financing of e-learning programmes, buy-in from the different stakeholders, change management to lower resistance to change, choice of technologies that will be effective over a long period, consistency between pedagogical and curriculum changes (SchoolNet Toolkit, 2005:88) and cycles of formative evaluation and research to learn from the results what are the best options and practices, informing further development and review of strategic plans (Attwell, 2004:63).

Why is sustainability of such importance in the e-learning work environment?

As discussed in section 2.6.3.7.1, change adopter categories are used to illustrate e-learning's pattern of innovation and change represented as an S-curve on four levels of the e-learning

adoption cycle (Zemsky & Massy, 2004). Organisational infrastructure influences the speed of technology adoption, therefore if no infrastructural sustainability is envisaged, few adopter categories beyond the innovators will be interested in getting involved (EDS, n.d.:1). Therefore it would be fair to say that e-learning practitioner groups that dislike disruptions and prefer a structured, predictable work environment will not be keen to venture into a work environment that may offer little security and support. If perceived usefulness of the e-learning work environment is negative, the majority of practitioners will not risk involvement. Technology adoption categorisation, in terms of the five adopter groups of practitioners/non-practitioners, may also be applicable in the e-learning context at TUT. Although the focus of this study is the work behavioural profiles of e-learning practitioners and their e-learning practice, categorised in terms of the DISC dimensions, the sustainability of the e-learning work environment influenced the e-learning practitioner system significantly, the reason being the impact of sustainability on the 'structuredness' continuum. If the e-learning work environment becomes unsustainable, with a lack of infrastructure, external motivators are diminished and intrinsic motivators become the drivers in the person-job interaction. This implies that people who are most influenced and motivated by external motivators may experience a mismatch with job demands.

2.6.3.7.3 Teacher training and professional development

Attwell (2004) is of the opinion that "staff development and training is central to successful and sustainable e-learning" (Attwell, 2004:61) but as long as we continue to replicate traditional approaches online and continue to treat all learners as if they were the same – we will once again find the "no significant difference" phenomenon" (Twigg, 2001:5).

Teacher training and professional development themes are identified as key elements in e-learning by a number of research reports on e-learning (A world of learning at your fingertips, 2002; Browne & Jenkins, 2003; JISC, 2004a; National Education Technology Plan, 2004; Sharpe, 2004; Nichols & Anderson, 2005, STEP, 2005/07; Tertiary Education Reforms, 2005). In a study on the attitudes of university e-learning lecturers (adopters) about e-learning practice, Elgort (2005) identified three e-learning challenges, that is, "that e-learning adoption benefits the most from one-to-one support" (Elgort, 2005:2) but is too costly to be viable. In response to this challenge, Oliver (2004:33) indicates that it might be worthwhile for institutions to invest in one-to-one support for e-learning because it proves so much more effective. Another challenge identified by Elgort (2005:2) is that teachers acquire theories and beliefs about teaching early in their careers, which they carry through when they become university lecturers and they do not change their set ideas easily. If their beliefs are based on an "information transmission model of learning they will choose technologies that support that way of learning" (Elgort, 2005:2). A changing teaching and learning environment requires new ways of thinking about practice and many teachers may find this a difficult transition. Pebble *et al.* (2005) suggest in their report on

staff development in higher education that staff development programmes may act as change agents in “transforming teachers’ beliefs about teaching and teaching practice” (Pebble *et al.*, 2005:48). In contrast, short training courses are not so useful in this regard but tend to be more effective for training staff in discrete skills and techniques.

Various research studies, for example Elgort (2005), JISC (2004a) and Oliver and Dempster (2002), indicate that it would be beneficial to raise the profile of e-learning practice as well as create opportunities to specialise in different focus areas (change the job). Accreditation for learning technologists has already been proposed in the UK (The Training Foundation, 2004c). Elgort (2005:2) identifies “raising the profile of e-learning without divorcing it from normal teaching and learning practice” as another e-learning challenge. The researcher agrees with Oliver (2004) about directing e-learning as a mainstream activity and not as something separate from other modes of learning. In the researcher’s view, it would benefit the status of e-learning practice tremendously if formalised certification for this career path could be the norm rather than the exception. In the practical situation at TUT there is no formal career path for the e-learning practitioner and the current community of e-learning practitioners evolved from the existing teaching corps. The assumption for this study would then be that the e-learning practitioners at TUT are appointed teachers who for various reasons are involved in a variety of roles in the e-learning environment.

Salmon (2003) describes the world of the e-moderator in her book *e-Moderating: the key to teaching and learning online*. She highlights the different work roles and characteristics that the e-moderator needs for effective practice. Her point of view is that the e-moderator need not be a subject matter expert which, in my opinion, gives the e-moderator a different niche for the e-learning practitioner addressed in the work done by JISC in the UK to support e-learning practitioners who are mainly focused on teachers and learning technologists (Beetham, 2004a). The demand from the communities of practice for more support was, according to JISC, triggered by the work of Salmon and the emphasis on the role of the e-moderator (Beetham, 2004a:1).

Security and support provided by staff development and training programmes contribute to the empowerment of e-learning practitioners. These practical interventions impact on the e-learning person-job fit triad and may act as positive drivers in a structured e-learning work environment.

2.6.3.7.4 Shifting the focus ...

Current movements in e-learning have shifted from an emphasis on technology to an appreciation of human aspects and the social nature of teaching and learning (Beetham, 2004b). Social software, communication tools and online communication are becoming more

important in the e-learning environment resulting in renewed research interest in the importance of social aspects for effective teaching and learning in the virtual environment (Beetham, 2004b). On the one hand the focus is on the learner, learner needs and learning styles (Pebble *et al.*, 2005) and, on the other, on the teacher, focusing on the teaching styles (Grasha, 1996), changing roles and new competencies and skills needed for the new environment, new communication strategies and new pedagogical/androgical approaches (Kemshal-Bell, 2001).

Staff development programmes and research on how to promote effective teaching are prominent in the literature (Oliver, 2004; Elgort, 2005).

However, there is a gap in the research literature in terms of the changing focus. As already pointed out in previous paragraphs, the emphasis on human beings in the teaching and learning process fails to recognise the importance of the some of the most important human features, namely the person attributes of the e-learning practitioner.

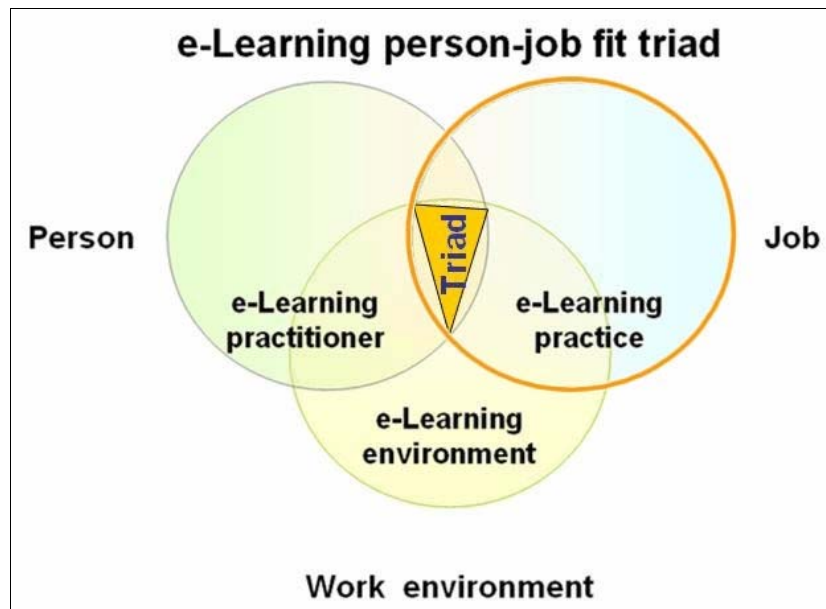
In **conclusion** it would be fair to say that e-learning is a complex and diverse field offering various options for practice in a variety of contexts. Organisations are on different levels with regard to the implementation of and innovation in e-learning, depending on the status of their technology adoption cycle. Therefore, the implications for this study are to position TUT in terms of the technology adoption cycle, and to describe the TUT e-learning context in terms of structuredness (see Chapter 1).

The next section provides an overview of the literature review on the fourth main focus area, namely e-learning practice, and will highlight relevant features of the e-learning practitioner system.

2.6.4 *e-learning practice*

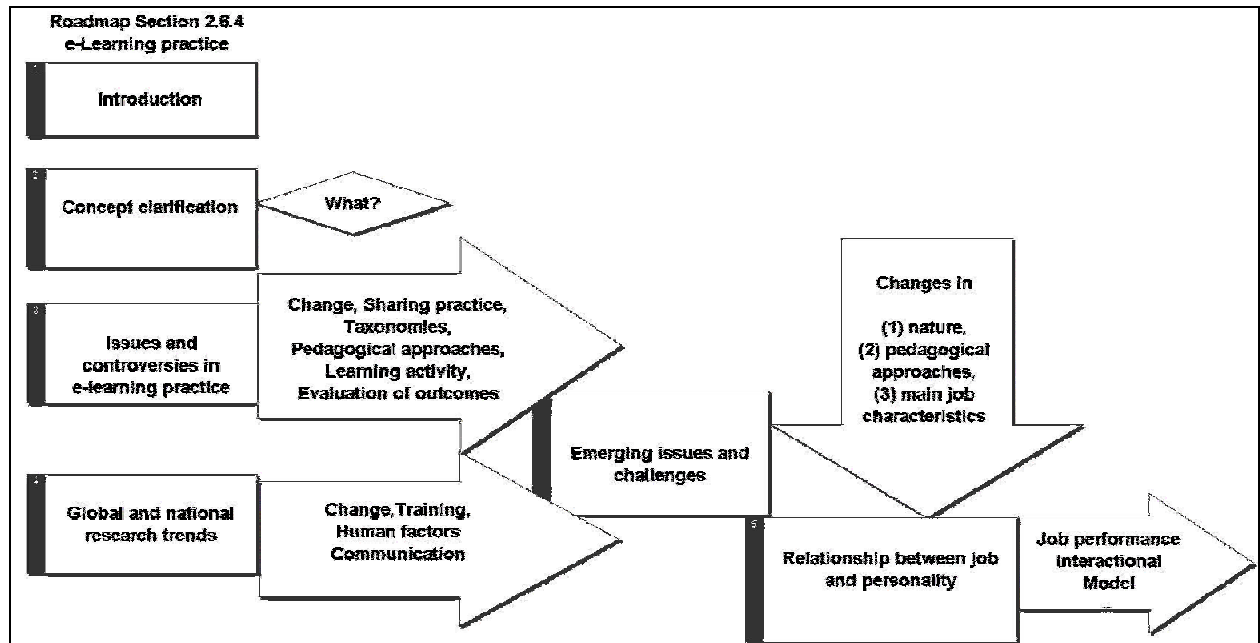
The fourth main focus area identified as relevant for this study is e-learning practice (e-learning job). Figure 2.8 graphically represents the position of e-learning practice in the e-learning person-job fit triad, which will be discussed in the following section.

Figure 2.8: e-Learning practice in the person-job fit triad



This section is structured in terms of the set layout structure for the sections as (1) introduction, (2) clarification of the concept, (3) issues and controversies in e-learning practice, (4) global and national research trends and reports on research done in this main focus area, (5) emerging issues and challenges, and (6) relationship between job and personality in e-learning (see Figure 2.9 for a graphical presentation of the layout structure of the section on e-learning practice).

Figure 2.9: Layout of the section on e-learning practice



2.6.4.1 Introduction

Trends and central issues that emerged from the literature review on e-learning practice in higher education relate to those identified in the e-learning domain (discussed in section 2.6.3.4), but show distinct clusters around the topics on the impact of continuous change on e-learning practice, practice development approaches, designing for effective learning and benchmarking of e-learning practice (Bennet *et al.*, 1999; Archer, 2002b; Bacsich, 2005). The importance of coping with change and the implementation of professional development and staff training as supportive measures for e-learning practitioners to cope with the increasing and changing job demands is evident from previous discussions. These issues are also prominent in the e-learning practice literature (Brennan *et al.*, 2001; Donnelly & O'Brien, 2005).

The use of practice models, case studies and scenarios by communities of practice are suggested as practical interventions for alleviating pressure from job demands on e-learning practitioners (JISC, 2004a). Another suggestion for enhancing effective learning is an adaptation strategy that provides for different pedagogical approaches with an emphasis on designing for learning (JISC, 2004a; JISC, 2004c). Complying with job demands from a job that is fast changing may sometimes result in output that lacks the required standards, therefore benchmarking becomes a crucial intervention in e-learning practice. This is not only important for maintenance of quality standards on service output but also for job positioning during the process of job redesign. Although various models, for example the Job Characteristic Model (Hackman & Oldham, 1975), the Two-Factor Model (Iacocca, Schumacher & Li, 1995:1) and socio-technical systems (Badham, Clegg & Wall, 2000), are available for job analysis and job redesign and are frequently mentioned in the sphere of organisational psychology (Parker &

Wall, 1998), the researcher found that research studies pertaining to job analysis in the domain of e-learning are few and far between. Job analysis and redesign in the e-learning environment are fast-changing, dynamic processes and therefore the researcher is of the opinion that there is a need for frequent revisiting.

The above-mentioned trends and issues are important for this study in terms of **providing a holistic view on the main e-learning practice** focus area and also for accomplishing the four literature review purposes as proposed by Creswell (1994:20) (see section 2.3).

Studying the above-mentioned trends and issues also revealed a number of assumptions, errors of reasoning and probing questions regarding the main e-learning practice focus area. My observations in this regard are presented in Table 2.5.

Table 2.5: Observations regarding trends and issues in e-learning practice

What are the assumptions of the trends and issues in e-learning practice?
e-Learning practitioner support is needed to empower e-learning practitioners to cope with changing job demands.
Interventions such as professional development and staff training programmes may meet the support needs of e-learning practitioners.
Interventions such as professional support provided by colleagues as members of communities of practice may contribute to the development of e-learning practice.
Adaptive strategies for pedagogical approaches may enhance learning but will also impact on the nature of the e-learning job practice.
What are the errors of reasoning?
Support interventions are sufficient to combat job demands: The importance of professional development and staff training as support interventions for e-learning practitioners is stated in the majority of studies on e-learning practice (Salmon, 2003; Oliver, 2004; Sharpe, 2004; Elgort, 2005). Job demands and job characteristics are mentioned as important influences on the e-learning practitioner (Nichols & Anderson, 2005). However, there are certain contradictions in this line of reasoning. Little reference in the literature is made to ways in which training and staff development programmes accommodate the special job demands and job characteristics of the e-learning practice in their programmes. Evidence of recognition of the importance of the influence of motivational

**Table 2.5: Observations regarding trends and issues in e-learning practice
(continued)**

<p>characteristics of the job or the effect of interactional personality trait activators on e-learning practice was not available. I also could not find any evidence of acknowledgement of the dynamic characteristics and changing profiles of e-learning practice interacting as a subsystem in the e-learning practitioner system. These aspects are usually ignored by developers of professional and staff training programmes. Few research studies (Sharpe, 2004; Oliver, 2004) mention formal job analysis as part of their intervention planning strategies. This may result in support programmes lacking certain important training components.</p> <p>Different models for job analysis and redesign suggest different approaches, for example the socio-technical approach to job redesign will follow a systems approach or the human job analysis will focus primarily on human aspects of the job. Therefore, aligning changing job demands, job analysis approaches, current e-learning trends and philosophical approaches becomes a daunting task. Following an integrated, holistic approach to e-learning practice redesign suggests team work and collaboration between organisational stakeholders. In the researcher's opinion, support programmes developed through the joint efforts of human resource management, staff development and e-learning support departments might be more successful than isolated, uncoordinated programmes.</p>
<p>The question remains ...</p>
<p>If we need job redesign in e-learning practice, should we not think holistically to accommodate the complexities of e-learning practice in a number of alternative job scenarios? Such an approach may well cater for the diverse job role distribution and the variety of work behavioural styles from the e-learning practitioners. Current research on e-learning does not provide sufficient answers to this question and seems to overlook the importance of human job analysis as an important aspect in the world of work. Furthermore, the literature review revealed a gap in the literature regarding formal studies done on the characteristics and profiles of the e-learning job.</p> <p>In this study I will argue that knowledge about the characteristics of e-learning practice (the e-learning job) and how these characteristics fit together in various profiles and job structures may contribute to our understanding of the e-learning practitioner construct (research question 2).</p>

It is important to note that the concept of 'e-learning practice' is covered by the umbrella concept of 'e-learning' discussed in the previous sections of this chapter, therefore the following paragraphs will not reiterate the e-learning story, but will only highlight the specific e-learning practice research trends, issues and controversies important for this main focus area.

2.6.4.2 Clarification of the e-learning practice concept

Looking at the **e-learning practice** concept may provoke a number of "what" and "how" questions; however, because of the complex nature of this concept answers to these questions are also complex. Conceptualisations of 'e-learning practice' differ widely given the different target groups, aims, functions, learning theories, models applications and e-learning tools involved. However, the fundamental concept universally applicable is 'learning'. Beliefs and theories about learning will colour views on e-learning practice, therefore the discussion on the nature of e-learning practice will only touch on the most important aspects taken the fact that it is beyond the scope of this study to give a comprehensive account of the various learning theories and models that influence thinking on e-learning practice. The researcher drew ideas from the extensive research work done by the Joint Information Systems Committee (JISC) in the United Kingdom to illustrate some of the concepts under discussion. JISC promotes the development of national and international standards for effective e-learning in collaboration with partner agencies (JISC, 2004a:ii). Another valuable source in this regard is the work done by the National Centre for Vocational Education Research (NCVER) in Australia. One of its aims is to provide quality, independent information about vocational education and training (VET) in Australia.

2.6.4.2.1 What is e-learning practice?

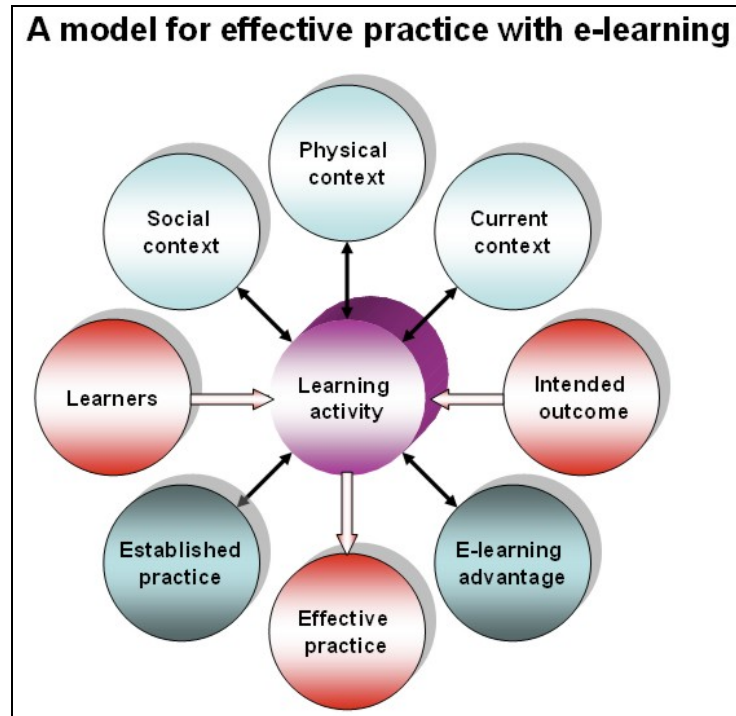
Combine e-learning options with the best of established practice and the practitioner has greater capacity to create an exciting and meaningful learning experience (JISC, 2004a:19).

Established e-learning practice applies e-learning tools to "demonstrate pedagogically sound, learner-focused and accessible activities" (JISC, 2005). Defining e-learning practice, JISC (2004a) states that the art of e-learning practice implies the e-learning practitioner as a creative role player, who engages in a process which involves "identifying objectives, recognising the needs of the learners, selecting the most suitable approach and then striking a balance between e-learning and other modes of delivery" to guide the learner to (1) become 'engaged in the learning process'; (2) develop 'learning skills'; (3) 'develop [their own] skills and knowledge'; (4) become a life-long learner' (JISC, 2004a:10-11). Therefore the e-learning job has to do with how one teaches in the e-learning work environment.

2.6.4.2.2 How is e-learning practised?

Taking a step towards define effective e-learning practice and to demonstrate the 'how?' of e-learning practice, JISC (2004a:49) presents a model that illustrates effective practice (see Figure 2.10).

Figure 2.10: A model for effective practice in e-learning (adapted from JISC, 2004a:49)

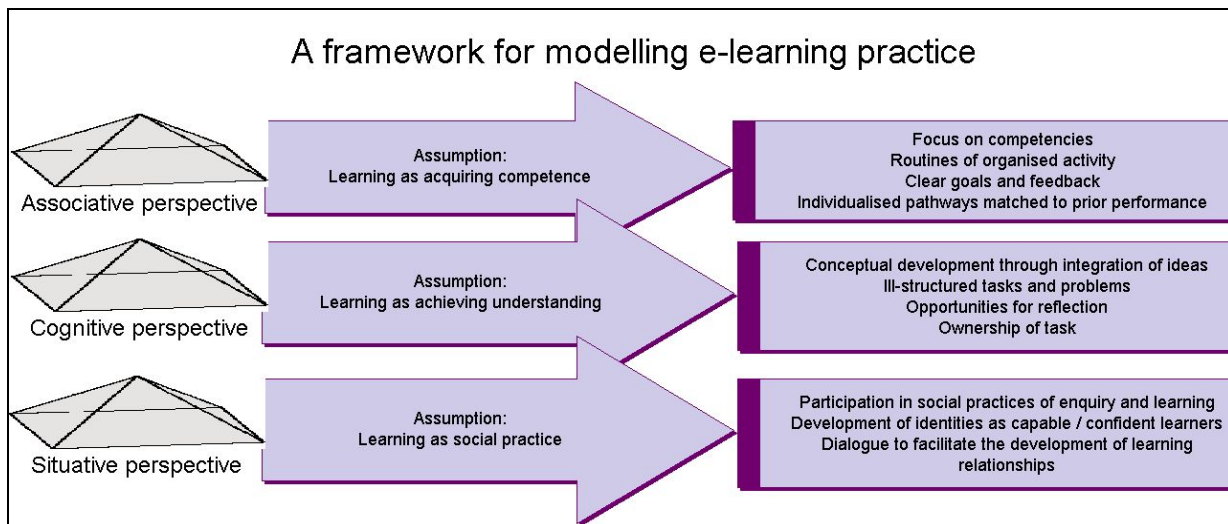


“A model for e-learning would need to demonstrate on what pedagogic principles the added value of the ‘e’ was operating” (Mayes & de Freitas, 2004:4), therefore the application of e-learning models suggests careful consideration of the specific e-learning advantage in a given situation. By combining a variety of e-learning choices with established practice, the capacity to create stimulating and meaningful learning experiences will be enhanced (JISC, 2004a:19). According to Mayes and de Freitas (2004:4), “models of e-learning [are] only enhancements of models of learning” and in their review of e-learning theories, frameworks and models, they are of the opinion that when e-learning approaches are implemented one has to take the underlying perspectives into account.

Embracing the theme ‘designing for learning’, the pedagogy strand of JISC’s (2004d) e-learning programme developed a framework to guide and support e-learning practitioners in the application of new e-learning tools for designing and delivering their own learning activities (JISC 2004d:2). Mayes and de Freitas (2004) used the developed framework and followed the approach of Greeno, Collins and Resnick (1996) to identify three broad theoretical perspectives on the nature of learning. Assumptions that they outlined were: “Associative (learning as activity); Cognitive or Constructive

(learning as achieving understanding) and Situative (learning as a social practice)” (Mayes & de Freitas, 2004:7). They propose a “mapping matrix which links the associative, cognitive, and situative perspectives with implied pedagogies, teacher and learner roles, learning tasks and learning activities” (Smart, 2005). e-Learning practitioners “could use the matrix as a planning tool where teachers could be guided from the theoretical approach through the associated pedagogies to detailed plans about delivering a particular teaching session” (Smart, 2005). Figure 2.11 summarises the framework example of Mayes and de Freitas (2004), showing how they mapped theoretical perspectives onto formal descriptions of practice approaches (practice models) to develop the framework for modelling e-learning practice.

Figure 2.11: A framework for modelling e-learning practice (adapted from the work of Mayes & de Freitas, 2004:13; JISC, 2004a:13; JISC, 2004d:4)



The movement away from traditional approaches and the emphasis on the social aspect of e-learning is apparent from this framework. As described in previous paragraphs on the evolution of e-learning (see Appendix B1), the ‘what’ and ‘how’ of e-learning practice have changed, which has implications for e-learning practice in terms of adapting to job changes, new pedagogical approaches and new skills and knowledge needed to fulfil the job tasks.

Implications for this study

Understanding the changing nature of e-learning practice and consequent changing job characteristics is most important in the study of the e-learning job as a living subsystem in the e-learning practitioner system. These changing job characteristics may impact directly on the interrelationships between the job and the person subsystems. Likewise, these dynamic interactions are influenced by environmental e-learning input, culminating in a variety of output scenarios.

Therefore, to gain a holistic view on the possible outcomes of these interactions, it is important to start not only with a critical analysis of complementary and relevant research studies, but also to conduct a thorough investigation regarding the characteristics of the job (input system) to frame and contextualise these job characteristics. The following paragraphs will comment on important contextualising research trends, issues and controversies regarding e-learning practice.

2.6.4.3 Issues and controversies regarding e-learning practice

Institutions should develop frameworks for professional development in which the skills and knowledge to develop e-learning plays an integral part of everyday practice (Attwell, 2004:61).

A number of key issues for **effective e-learning practice** are highlighted by authors such as Beetham (2004a) and Mayes and de Freitas (2004) as: (1) keeping up the momentum of innovative change (momentum may be enhanced by describing and sharing effective practices by using scenarios and case studies); (2) the use of standards-based representations; (3) the development of metadata and taxonomies; (4) the use of a variety of pedagogical approaches, therefore choosing and supporting different pedagogical approaches and design practices to accommodate different teaching and learning needs; (5) consideration of implementation issues such as “efficiency vs. effectiveness; costs; quality assurance; tutor/student ratio; staff development; student support; technical support and management support” (Mayes & de Freitas, 2004:23).

Judging e-learning practice as effective or not can be based on the same criteria as judgements about effective practice in learning generally; however, in a survey done by Brennan (2003a) the participants felt that e-learning practitioners should transfer principles of good practice to the online environment (Brennan, 2003a:42). Examples of ‘good’ practice cited by JISC (2004a) and Brennan (2003a) suggest themes such as (1) student learning; (2) Interpersonal skills; (3) organisational principles; and (4) practical networking (Brennan, 2003a:45) and that the practice should

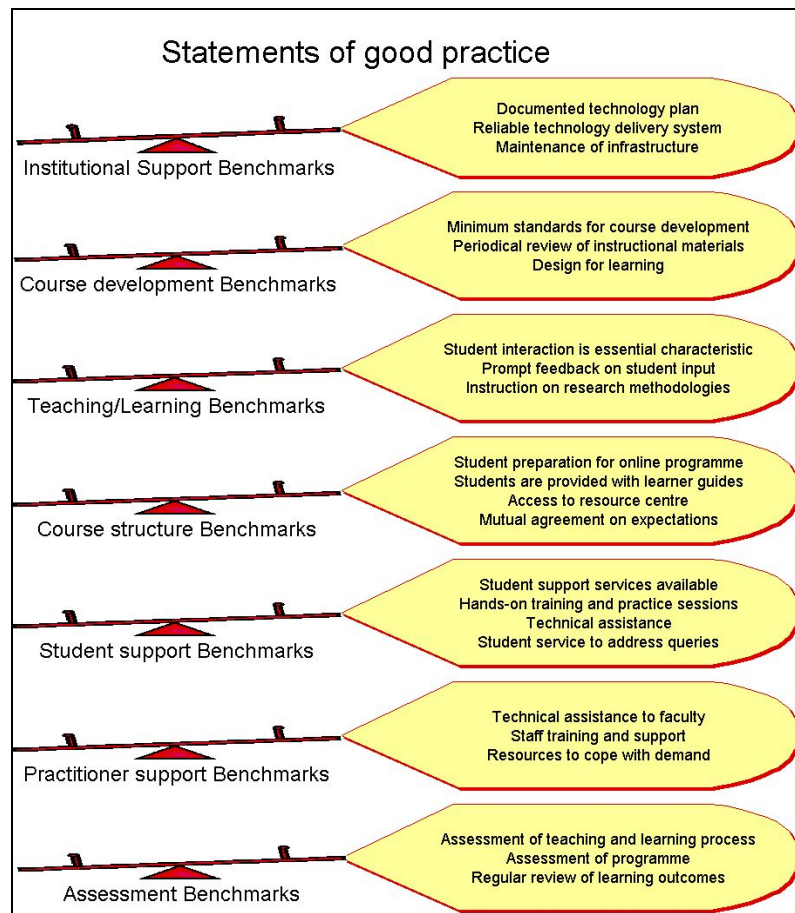
- “engage learners in the learning process” (JISC, 2004a:10), encouraging them to taking personal responsibility for their learning;
- begin with pedagogical considerations;
- focus on communication and interaction;
- engage in continuous improvement, innovation and evaluation;
- “encourage independent learning skills” (JISC, 2004a:10);

- develop learners' skills and knowledge, and
- “motivate further learning” (JISC, 2004a:10).

Evident from the above-mentioned themes is the central assumption that effective e-learning practice is a social event and that if e-learning options are combined with best practices the practitioner has the opportunity to create stimulating teaching and learning environments for the learners (JISC, 2004a). However, benchmarking e-learning best practices is still in a development phase and is not globally established at present. Initiatives in this regard focus mainly on work done in the UK, US, Europe, Australia and New Zealand (Bacsich, 2005:1-2). Bacsich (2005) has developed a benchmark taxonomy that includes factors such as adoption phase (Roger, 1995); virtual learning environment stage; information learning technology-like phase; tools use; accessibility; instructional design/pedagogy; training; organisation; technical support and staff recognition for e-learning.

Frameworks such as the one illustrated in Figure 2.11, direct “practitioners towards examples of good practice” (JISC, 2004d:6). Consultation with e-learning practitioners reveal that they experience the need for not only a “common framework for describing practice”, but also “guidance tools to support designing for learning”, the support from “communities of practice” and “good practice examples” (JISC, 2004d:6-7). A number of success indicators in this regard are listed in a literature review on ‘Theory of benchmarking for e-learning’ by Bacsich (2005:29). He lists 24 statements of good practice from a study done by C (2000) as *inter alia* practitioner support and teaching and learning benchmarks (see Figure 2.12).

Figure 2.12: Statements of good e-learning practice (adapted from the work of Phipps & Merisotis [2000] in Bacsich, 2005:29)



Although work on quality and good practice can be transformed and set up into benchmark criteria (Bacsich, 2005:1), adaptations in this regard are not relevant for this study and therefore will not be discussed here. Likewise, development opportunities for e-learning practitioners complimented by a number of practical interventions, for example 'professional learning', 'communities of practice', and 'learning design' (JISC, 2004d:8) will not receive detailed reports in this particular study.

Controversial issues cluster around the problem of (1) "applying old solutions to new problems in the world of online learning" and the view that (2) these applications tend to produce results that are "as good as" what we have done before (Twigg, 2001:5). "Effective e-learning, however, requires rethinking of the traditional teaching and learning paradigms in a way that allows teachers to create effective environments to facilitate learning" (Elgort, 2005:2). The issue of change always provokes a number of opposing views and, as already discussed in section 2.6.3.7.1, changing e-learning practice is not a seamless process. Sharpe (2004) has reviewed interventions that have proved to be successful in changing practice and one of her recommendations is "to train more staff developers as e-learning specialists to encourage dialogue within the context of their own institution" (Oliver, 2004:2). Oliver (2004) elaborates on

this line of thought and comes to the conclusion that “different forms of support are needed in response to varying patterns of need, interest and institutional pressure and that it is important that institutions develop a broad repertoire of approaches to support so that staff can gain access to what they need, when they need it” (Oliver, 2004:33).

Nichols and Anderson (2005) raise the concern that e-learning environments at many institutions are ad hoc in the sense that the early-adopters may utilise learning management system applications whilst the majority of academic staff lag behind. This results in a “strategic challenge to tertiary institutions in terms of how to engage the large majority in appropriate e-learning practice without restricting the early-adopters and innovative approaches” (Nichols & Anderson, 2005). To address this issue, Nichols and Anderson (2005) suggest a coordinated approach to development and change in the system, and propose a model of “core and custom pedagogies”. The adoption of core practices may cater for the large majority, whilst custom practices may provide the flexibility needed by the innovative group of practitioners.

Important for this study

The above-mentioned issues are relevant for this study in terms of the e-learning context at TUT. The e-learning environment is a major role player in the triad of person-job-environment fit. At TUT the e-learning work environment consists of a combination of ad hoc (unstructured) and structured (P@W programme) environments.

Trying to keep up the momentum of innovative change, sharing effective practice and applying a variety of pedagogical approaches and design practices to accommodate different teaching and learning needs are some of the challenges that are also prominent in the TUT e-learning practice environment. A variety of environmental “job” scenarios at TUT implies a variety of relationships in different contexts influenced by different situational features.

2.6.4.4 A snapshot of global and national research trends in e-learning practice

In this study the literature review of current global research interest in the e-learning practice domain revealed a number of major trends, namely (a) **e-learning practitioner support, training and staff development**; (b) **developing e-learning practice**; (c) **designing for e-learning**; and (d) **benchmarking e-learning practice** (Brennen, 2003a; Mayes & de Freitas, 2004; Oliver, 2004; Sharpe, 2004; JISC, 2004a; Bacsich, 2005). These will now be discussed.

Australian e-learning practitioners agree with the practice models designed by Mayes and de Freitas (2004) in terms of their assumptions that online learners are self-regulated, self-motivated, confident with the medium, have strong levels of persistence and high levels of

critical information literacy (Brennen, 2003a:6-7). Therefore to cope with demands from these learners and e-learning practice, the need for e-learning practitioner **support, training and staff development** is not only cited in numerous e-learning teaching and learning strategies, reports and articles, but is also voiced by practitioners themselves (Beetham, 2004a:1). The plea for practitioner support in their everyday practice is a universal need noted by numerous authors, researchers, official reports and policies (Oliver, 2002; Browne & Jenkins, 2003; LTRI, 2004; Sharpe, 2004; Beetham, 2004a; Education: the promise of America, 2004; Nichols & Anderson, 2005; ICT06, 2005). In response to their plea, proposed frameworks for describing e-learning practice, such as the one from Mayes and de Freitas (2004), could be useful to practitioners. Other support strategies may include building knowledge and practice communities, sharing best practices and using e-learning practice case studies and scenarios as examples from which to learn (JISC, 2004d).

Research done by the e-learning and pedagogical strand of JISC identifies three key processes that needed to be supported, namely “representation and sharing knowledge, supporting people to do something new or different, and supporting change in communities of organisations” (JISC, 2004d:8). They also propose a set of six principles for effective interventions in practice (JISC, 2004d:8). These principles were identified as usability, contextualisation, professional learning, communities, learning design and adaptability (JISC, 2004d:8). Using these principles, Sharpe (2004) created a typology in an attempt to identify effective interventions that support e-learning practice. The typology maps the principles of effective interventions onto the three key processes mentioned above (Sharpe, 2004). Application of such typologies and taxonomies may prove useful in the design and development planning of interventions to support e-learning. However, further investigation of the application of practical interventions to support e-learning practice will not be included in this study but may be explored in future research initiatives.

Developing e-learning practice also involves the evaluation of new approaches. Dempster (2004) proposes a framework for reflection to share practice and to develop good practice. Dempster (2004) states that hopefully “e-learning will [eventually] become a normal part of university practice over time and that [learners] will arrive expecting e-tools and practices to be in place to enhance and support their learning”. Martin Oliver of the University of London argues that as long as e-learning is treated as an add-on, rather than a mainstream activity, teachers will not eagerly engage in e-learning activities (Oliver & Dempster, 2002).

e-Learning should be seen as part of the total pedagogic approach of the organisation, rather than as an add-on or alternative to traditional teaching and learning practices (Attwell, 2004:62).

Research initiatives in the UK, Europe and Commonwealth countries (Salmon, 2003; JISC, 2004a; LTRI, 2004; Elgort, 2005) have intensified focus on e-learning practice, the use of social software and **designing for e-learning**. To bring about effective learning, the learner has to be actively engaged in the teaching and learning process and the practitioner has to make choices about learning activities and the design of these activities. Salmon's (2003) research on *e-tivities* and *e-moderating*, which resulted in a five-step model for e-learning practice, is an excellent example of merging theory and practice. Practice models can be described as approaches to implement pedagogical principles in everyday practice (Mayes & de Freitas, 2004; Beetham, 2004a) and have proved to be instrumental in the successful implementation of e-learning (Gunn, 2001; JISC, 2004a).

Using the technology adoption cycle framework of Zemsky and Massy (2004) and Mackintosh (2004) to **benchmark e-learning practice** in the UK, it is evident that there is widespread adoption of VLEs and tools (Browne & Jenkins, 2003 (UCISA), 2004; DfED, 2004). The huge financial, research and teaching and training investments in the field of designing for learning suggests that e-learning practice in the UK is moving towards the third and fourth adoption cycles. My observation is supported by Elgort's (2005:3) reflection on research studies and statistics, stating that universities in New Zealand, Australia and the UK have passed the 16 percent threshold of early adoption of e-learning technologies. She is of the opinion that one reason for the rapid pace of adoption is the introduction of learning management systems, home grown systems or open source such as Moodle. Easy-to-use learning management systems have reduced the steep learning curve and opened up usability beyond the levels of the innovators and early adopters. In the early 90s the majority of teachers involved in e-learning were innovators and early adopters (Elgort, 2005:3). In contrast, the JISC report (JISC, 2004a:1-2) states that inability of VLEs to support innovative learning activities, the demand from e-learning practitioners and the strategic push from formal programmes have created a climate for innovative change in terms of designing for learning and a movement towards the use of social software and the development of communities of practice.

Although taxonomies, frameworks/models and guidelines are essential to support practice, benchmarking of e-learning as a self-evaluation, self-improvement process is of the utmost importance in enhancing quality standards. In a recent study on benchmarking in e-learning, Bacsich (2005:4) found that few higher education organisations have done much work on benchmarking. His study titled *Theory of benchmarking for e-learning: a top-level literature review*, includes data from the higher education and further education sectors in the US, Australia and the Commonwealth countries (Bacsich, 2005). Findings from Bacsich's study reveal that benchmarking in higher education institutions is (1) aimed more at administrative

processes; (2) that useful work has been done in the further educational sector in the UK; and (3) that a considerable amount of higher education work in the US has been done on quality and good practice in e-learning which can be transformed into benchmark criteria (Bacsich, 2005:1). Bacsich (2005) comments on a number of methodologies available for benchmark development and concludes by presenting (in my opinion) an extremely useful taxonomy titled 'Benchmark taxonomy'. Using this taxonomy the user is enabled to acquire a profile of the e-learning practice by plotting the relevant data on a matrix. Although this taxonomy was not utilised for this study, benchmarking may be considered a useful tool for the analysis of effective e-learning practice.

Implications for this study

Good e-learning practice illustrating the 'how' of doing the job is important for this study in terms of benchmarking human job analysis. Benchmarking criteria were used to identify the star performer group at TUT (see sections 3.8.1.8 and 3.8.4).

Research findings pertaining to e-learning practice on a national level reveal that studies done at the Universities of Stellenbosch and Pretoria benchmarked them in terms of the e-learning adoption cycles. Van der Merwe (n.d.) concludes that the implementation of WebCT at the University of Stellenbosch was a "huge success as an evolutionary process driven by mainly innovators, the early adopters and the early majority user groups as defined in Rogers' theory". She further reports that although faculty members and top management are convinced that e-learning is already a priority on campus, there is a need for support structures, as well as appropriate teaching and learning strategies, to be in place to gain sustainability.

The Department of Telematic Education and Innovation at the University of Pretoria, South Africa, implemented WebCT in 1997 as a learning management system. Le Roux (n.d.:1) uses a hype cycle to describe the implementation path that the University followed to reach a certain level of productivity on the pedagogical and technical levels. Different challenges are mentioned, for example the use of online tutors to complement online facilitation and action research on best practices in terms of innovative learning design to attain meaningful productivity. These challenges concur with situations in Southern African as well as other regions worldwide (Czerniewicz & Carr, 2005:3). Czerniewicz and Carr (2005:3), from the University of Cape Town in South Africa, suggest that the "effectiveness of educational researchers and practitioners in our region requires the growth of effective communities of practice".

The e/merge 2004 is an excellent example of capacity-building initiatives. This online conference aimed at "strengthening communities of practice" in the Southern African region by

creating a platform for sharing good practice and knowledge about e-learning innovation within the tertiary and secondary educational sectors (Czerniewicz & Carr, 2005:8). Sharing case studies and scenarios as examples of e-learning practice is becoming a useful support tool for communities of practice to build capacity towards effective e-learning practices and to give new perspectives for research.

2.6.4.5 Emerging issues and challenges in e-learning practice

After an intensive review of the literature on e-learning practice, I came to the conclusion that most of the issues and controversies in this field, as is the case for the e-learning work environment, are underpinned by the fundamental issues surrounding 'change'. To illustrate this, changes in the nature of e-learning, in pedagogical approaches, and in the relationship between the job and personality are briefly described in the following paragraphs.

2.6.4.5.1 Changes in the nature of the e-learning job

Given the rapidity of change in programs, techniques and equipment, it is not surprising that we find it hard to deal with. We simply don't have the skills to deal with such big changes so quickly (Brennan, 2003a:29).

As mentioned in preceding paragraphs, the provision of practice models, frameworks and taxonomies to support e-learning practitioners is one of the current challenges for e-learning practice. Practitioners' decision making is influenced by usability; "environmental aspects; educational effectiveness and personal engagement" (Collis, 2000), therefore the modelling frameworks should be useful to practitioners in making key decisions about the overall approach to learning and the choice of learning activity (JISC, 2004d:2). Although different teaching and learning representation forms, for example datasets, guidelines, pro-formats, standard vocabularies and taxonomies, are available in the e-learning environment, there is a need for representation in a variety of contexts (JISC, 2004d:2). The "art of teaching" has not changed in terms of the teaching practice being underpinned by "intuition, sensitivity and care" but definitely in terms of new skills needed and rapid technological changes (Brennen, 2003a:7). Furthermore, the availability of a vast number of different technologies and the pace of technological change may discourage e-learning practitioners who may feel **unable to cope with change**. What are the consequences if the job is characterised by frequent change, but the profile of the person doing this job is one of 'resistance to change'? Is there a way to influence the job profile so that the effect of change or the unstructured nature of the job can be minimised?

2.6.4.5.2 Changes in pedagogical approaches

According to Hase and Kenyon (2000), adult online education (androgogy) is now moving into a learning space called heutagogy, meaning self-determined learning (Hase & Kenyon, 2000:2). Approaches embracing these applications are rooted in the humanistic paradigm, which emphasises the humanness in human resources. Hase and Kenyon (2000) pose the question as to whether learners are ready to take this responsibility and whether teachers are prepared for such a shift. Changing approaches to teaching and learning and specifically e-learning will always impact on the educational process and the challenge for e-learning practitioners is to make their theories and beliefs explicit, to critically evaluate them and to test different approaches (Elgort, 2005:2). Staff development programmes can provide the necessary support to empower e-learning practitioners (Sharpe, 2004:1).

2.6.4.5.3 What are the main job characteristics of e-learning practice?

Brennen (2003a:27) identifies some of the e-learning practice characteristics important for effective practice as technological acumen, active learners, flexibility, high levels of intrinsic motivation, high levels of teacher 'goodwill', problem-based learning, independent learning, adult learning and teaching styles, literacy skills beyond a functional level and persistence. The level of effectiveness of teaching and learning styles in the online environment is determined by four factors: (1) "practitioner and student experience; (2) the availability of time; (3) online teaching practices e.g. teaching styles based on interaction; and (4) literacy skills" (Brennen, 2003a:26). Responding to a question about the nature of their everyday online practices, Australian practitioners' answers included the development of content, instructional design, use of email, bulletin boards, listserv, chat rooms, the use of case studies, role plays, games, lecture notes, online assessment, providing feedback and mentoring, and web surfing (Kemshal-Bell, 2001:36).

Under the title *Understanding your practice*, JISC (2004a) gives a sample guide to e-learning practice. Included in this guide is a list categorising (1) "learning activities, (2) established practice, (3) examples of e-learning practice and (4) e-learning advantage" JISC (2004a:44-47). A number of "job" characteristics are prominent on this list, namely the "practitioner

- facilitates learning pathway chosen by learner;
- as expert scopes the learning domain and provides essential resources;
- as facilitator stimulates and mediates discussion generated by learners in reaction to online resources;
- as facilitator creates and manages resources for learners;
- and learners share role of assessors of learning;
- acts as content developer and facilitator of learning;

- instigates discussion to be taken over by learners and extended beyond class contact time;
- may still act as monitor and assessor;
- facilitates learning by devising interactive learning activities;
- inducts learners in the use of software and identifies learners who require additional one to one support, and
- devises tests and activities and provides supporting resources” JISC (2004a:44-47).

Important for this study

Although the job characteristics listed above (Kemshal-Bell, 2001; Brennen, 2003a; JISC, 2004a), represent a wide range of choices by participants in that particular study, it is important to keep in mind that the concept 'job characteristics' used for this study focuses on the human job in terms of work behaviour styles, which suggests a very specific approach emphasising the relationship between job and personality attributes. However I could not find any studies in this regard.

2.6.4.6 Relationship between job and personality

To introduce the concept of '**job characteristics**', a brief discussion on the relationship between job and personality may contribute to the contextualisation of the concept. Meta-analyses have shown that personality measures can predict job performance fairly well under certain conditions (Salgado, 1997:30; Tett & Burnett, 2003:500). Investigations and research in this area are largely due to the emergence of the five-factor structure of personality motivated by the discovery of traits related to performance in selected jobs (Barrick & Mount, 1993; Tett & Burnett, 2003:500). During the late 1980s trait-versus-situation debates crystallised “understanding of how to predict behaviour from traits” and resulted in personality research involving the “specification of a personality taxonomy, a job performance taxonomy and hypothesised relationships between them” (Johnson, 2003:84), illustrating the advantage of using personality taxonomies as organising frameworks to reveal personality-performance relationships.

During the 1990s the focus was on meta-analysis of the relationship between personality and performance (Johnson, 2003:84). Arguments about the validity influence of personality on job performance and job satisfaction and the relationship between them have “moved beyond the search for significant correlations between the Big Five dimensions and general measures of job performance” (Johnson, 2003:84). The current focus is directed more towards understanding the nature of personality and job performance, and how they are linked, and issues about the influence of moderators and mediators on these relationships (Barrick & Mount, 1993; Johnson, 2003:84; Ruijter, 2005).

Important for this study

Although the study of job performance, job satisfaction and personality traits is not the focus of this study, clarification and understanding of these concepts in terms of their relevance to work personality, work behavioural styles, job analysis and job redesign are important to (1) contextualise the discussion on the relationship between the e-learning practitioner, e-learning practice and the e-learning environment and (2) to enhance understanding of situational trait activation.

Different views on job performance reflect a number of approaches, for example Johnson's (2003:88) taxonomy of job performance, which contains three levels, namely "task performance", "citizenship performance" and "adaptive performance" (Johnson, 2003:94-95). Campbell's view on job performance is described by Johnson (2003:97) as a function of three determinants: declarative knowledge, procedural knowledge, and skill and motivation. Different combinations of these determinants have a direct influence on performance in a job dimension. Reward systems, training and management practices are examples of indirect determinants provided by the organisation, whilst personality is an indirect determinant that the individual brings to the organisation (Johnson, 2003). Different models on performance determinants provide explanations of "how individual differences in personality translate to individual differences in job performance on a particular dimension" (Johnson, 2003:98). Motowidlo, Borman and Schmidt (1997 in Johnson, 2003:101) use the concept 'work habits' to replace the motivation component generally used in job performance models as an "important mediating variable between personality and job performance". They define work habits as "stylistic ways that people handle different kinds of situations that occur on the job, learned as their basic tendencies/personality traits interact with their environment" (Motowidlo *et al.*, 1997, in Johnson, 2003:101).

Although the personality traits 'self-esteem', 'neuroticism' and 'locus of control' have been the subject of more than 50 000 studies, limited attention has been given to the relationship between these traits (Bono & Judge, 2003:S6-S7). In recent years a growing body of literature has examined the relationships between core self-evaluations with the aim of describing their relationship to job satisfaction and job performance (Bono & Judge, 2003:S8). Findings by the authors mentioned indicate that the core self-evaluation traits show "patterns of relationships with other Big Five traits" and are predictors of both job satisfaction and job performance (Bono & Judge, 2003:S13). They conclude that the traits mentioned are interrelated and therefore research on these traits should be integrated.

Various researchers have identified moderator variables that may influence the extent to which personality predicts performance. A meta-study of the relationship between personality measurement and job performance in South Africa by Van der Walt, Meiring, Rothmann and Barrick (2002) identifies the level of education as a moderator. In a notable study by Barrick and Mount (1993), they investigated the moderating role of autonomy on the relationships between the Big Five personality dimensions and job performance. One of their findings was that autonomy and situational strength are not identical constructs but the amount of job autonomy is a “reasonable proxy for conditions that permit (weak situations) or inhibit (strong situations) individual differences in personality to be expressed” (Barrick & Mount, 1993). Interactionist theories developed in reaction to the “trait *versus* situation debate” recognise that individual behaviour is influenced by both personal traits and situational context (Haaland & Christiansen, 2002). Barrick and Mount (1993) cite various researchers who argue that situational strength, either weak or strong, moderates the relationship between personality characteristics and behaviour. “Weak situations are those in which there are few demands to conform to the situation and strong situations is the opposite where persons are restricted in the range of behaviours to exhibit” (Barrick & Mount, 1993).

Strength as well as relevance to the situation of the trait of interest are two distinct situational characteristics useful for understanding how traits relate to patterns of behaviour (Haaland & Christiansen, 2002; Tett & Burnett, 2003:502). Trait activation theory suggests that “situations activate the expression of traits when they provide trait-relevant cues” (Wilson & Witt, n.d:9) and the trait activation process follows when individuals express their traits when presented with “trait –relevant situational cues” (Tett & Burnett, 2003:502). Tett and Burnett (2003) propose a model that distinguishes between five situational features relevant to trait expressive work behaviour pertaining not only to relationship strength but also to direction. The person-situation interactionist model of job performance may be useful for specifying the “conditions under which particular personality traits will predict performance in particular jobs” (Tett & Burnett, 2003:500). The relevance and usefulness of their model to this study are discussed in the following paragraphs.

2.6.4.6.1 Personality trait-based interactionist model of job performance

Application of the person-situation interactionist model of job performance targets a more **useful utilisation of personality information** in the work environment and offers a “framework for further study of personality traits in practical pursuits” (Tett & Burnett, 2003:501). Tett and Burnett (2003) define personality traits as “intraindividual consistencies and interindividual uniqueness in propensities to behave in identifiable ways in light of situational demands” (Tett & Burnett, 2003:502). From this definition, which is consistent with person-situation interactions, a number of points relevant for this study are:

- “intra-individual consistencies [work behavioural styles] – allow predictions about future behaviour on the basis of past behaviour;
- as propensities, traits [person characteristics] are latent potentials residing in the individual; understanding what triggers them is critical for understanding the role of personality in the work place;
- trait [person characteristic] inferences are interpretations of overt behaviour;
- understanding trait [person characteristic] expression calls for consideration of relevant situational features” (Tett & Burnett 2003:501);
- person-job fit can be moderated by certain personal or job characteristics, and
- the person-situation interactionist model of job performance provides a framework for investigating situational issues in person-job relationships under study.

Shifting the focus to the **process** of person-situation interaction, the model proposed by Tett and Burnett (2003) integrates several relevant assertions, for example traits are expressed in work behaviour as responses to trait-relevant cues; sources of cues can be grouped into task, social and organisational levels and trait-expressive work behaviour is distinct from job performance. This implies that work behaviours suitable for one job may not be ideal for another. The consequence of this assertion in terms of e-learning practice is firstly to know **what** work behaviours are suitable for the job and secondly to **differentiate** between the different job roles and career paths to optimise and utilise person-job fit to the advantage of the person and the organisation.

2.6.4.6.2 Situational features relevant to personality expression at work

Tett and Burnett (2003) mention “five situational features relevant to personality expression at work, these include job demands, distracters, constraints, releasers and facilitators” (Tett & Burnett, 2003:500). These situational features mentioned by Tett and Burnett (2003) are very important for this study, and are relevant in terms of **enrichment of the human job analysis**. They define job demands as generally formal job descriptions that may include informal group and organisational features (Tett & Burnett, 2003:505), for example an e-learning practitioner, who prefers a steady work pace and needs time to complete tasks, receives 60 e-mails from students to reply promptly to; job distracters that “interferes with job performance” (Tett & Burnett, 2003:505) for example during an online WebCT training session the Internet connection goes down and the e-learning practitioner who prefers stability needs to react to sudden changes; job constraints that restrict cues for expression (Tett & Burnett, 2003:505), for example the sociable e-learning practitioner who needs face-to-face contact with the students might be constrained in the expression of sociability if face-to-face contact with students is limited; job releasers that counteract constraints (Tett & Burnett, 2003:505), for example new knowledge about different online teaching and learning strategies activates the e-learning practitioner who needs to research every aspect of a situation and consider every possibility

before making a decision; and “[j]ob facilitators make existing personal characteristics more salient” (Tett & Burnett, 2003:505), for example personal support by the support team is energising for the e-learning practitioner who is concerned about relationships and teamwork.

Tett and Burnett (2003) provide a useful comparison of trait-relevant features along the three dimensions of activation status, behavioural value and frequency. They view “job demands, distracters and releasers as trait activators, constraints as de-activators and facilitators as amplifiers” of the effects of the other features (Tett & Burnett, 2003:505).

Implications for this study

As mentioned in the preceding paragraphs, understanding what triggers latent characteristics is critical for understanding the role of personality in the workplace (Tett & Burnett 2003:501). Investigating the e-learning practitioner construct involves not only the identification of the characteristics of the building blocks (person and job), but also the relationships between these building blocks to reveal the underlying structure. However, the e-learning practitioner construct structure has no meaning if it is not embedded in a context.

Furthermore the relationships of the person-job context are influenced by situational interaction. What becomes evident from the above discussion on interactionist theory and the person-situation interactionist model is the role of situational features in triggering responses. Aiming at a human job analysis for the e-learning practitioner, this study focused on three trait activators only, namely job demands, distracters and releasers, studied as positive and negative influences on person-job interaction. Job demands may vary across the different job roles, for example the task of writing scholarly articles may be a job demand for the e-learning practitioner playing the role of researcher but is not so prominent in the designer role: it may be at the high end of the compliance factor for the role of researcher but at the low end for the designer. The methodicalness (i.e. the detailed planning) desired for the role of manager may not be desired for the role of the innovator. To address the complexities of situational specificity and to make the most of person attribute data, one needs to know when these attributes “are desirable and undesirable within, as well as across job types” (Tett & Burnett, 2003:509). The rich job structure and the different types of job assignment in e-learning practice challenge us to use our creativity to apply “quantum solutions” (Shelton, McKenna & Darling, 2002) for the simultaneous optimisation of behavioural style diversity, job structure diversity and person-job fit.

Using the person-situation interactionist model provides a formal process for personality-oriented job analysis. Identifying on the task, social and organisational levels the “cues that the job provides for traits which expression is of some value to the organisation” (Tett & Burnett, 2003:509) provides definition for this process. Valuable input on job demands, distracters and

releasers by the e-learning practitioners themselves enriches the formal human job analysis process.

2.6.4.6.3 Personality-orientated job analysis

Job analysis has come a long way from an emphasis on task analysis to descriptions of systematic procedures for data collection on work behaviours that can be task or worker related (Harvey, 1991:72). Job analyses use positions and jobs as units of analysis, whereas the job holder frequently serves as a source of information about the position or job the person is not the unit of analysis (Harvey, 1991:80-81).

Specific orientations may direct the job analysis process towards selected job foci, for example personality- or trait-orientated job analysis to link job descriptions and the type of person expected to perform a job well. After the purpose of the job analysis has been defined, the next step in the job analysis process is to identify the core issues about the work to be done. Different taxonomies of job analysis methods, focusing on “nominal or dimensional categories” (Harvey, 1991:81), and “task- or person-oriented approaches” (Robinson, 2001) can be applied to assist in the choice of job analysis method (see Appendix B2 for a more detailed description of job analysis and job redesign).

In the fast changing world of work, job redesign is becoming more important to organisations and the focus is shifting towards customer satisfaction and empowering employees (Grobler, Wörnich, Carrell, Elbert & Hatfield, 2004:104). “The success of the organisation depends on its employees” (Grobler *et al.*, 2004:104) and therefore organisations should optimise on workforce benefits such as the behavioural style diversity of the workforce, person-job fit and cultural cohesion (Shelton *et al.*, 2002). This has the implication of recognising the individual’s needs and reinforcing positive motivational influences (Grobler *et al.*, 2004:105).

According to Boonzaier, Ficker and Rust (2001:14) and Parker and Wall (1998:13), the Job Characteristic Model (JCM) is considered the most influential, well-known and widely discussed theory of job redesign. Research initiatives pertaining to the JCM are more focused on quantitative analysis techniques not relevant for this study; however it has **triggered a process of analogue thinking**, with consequent job analysis and redesign implications that will be discussed in subsequent paragraphs.

Implication for this study

- Theme focuses evident from the empirical research on the JCM relate to “factor structure of the job characteristics and subjective, objective and additional job characteristics” (Boonzaier *et al.*, 2001:14).
- “Subjective ratings of job incumbents can be regarded as a sufficient and valid indicator of the extent of the job characteristics present in their jobs” (Boonzaier *et al.*, 2001:16).
- Energy wasted on frustrating environmental factors, negatively influences the relationships between the job characteristics and work behaviour (Oldham, 1976 in Boonzaier *et al.*, 2001).
- Depending on the purpose and context, job descriptions may vary from broad to precise descriptions applied in various situations by human resource professionals (Grobler *et al.*, 2004:89-90).
- “The success of the organisation depends on its employees” (Grobler *et al.*, 2004:104) and therefore organisations should optimise on workforce benefits such as the behavioural style diversity of the workforce, person-job fit and cultural cohesion (Shelton *et al.*, 2002). This implies recognising the individual’s needs and reinforcing positive motivational influences.
- Commenting on the research review conducted by Boonzaier *et al.* (2001), the authors conclude by saying that “according to these criteria, three dominant sets of variables constitute the world of work, namely the characteristics of the job, characteristics of the worker and characteristics of the work environment” (Boonzaier *et al.*, 2001:23).

The ideas embodied in the above statements have inspired various reasoning and thinking processes. Analogue thinking was applied to link the human job analysis (HJA) and the person-situation interactionist model to the JCM resulting in the conceptualisation of an enriched HJA.

- HJA techniques were selected for analysing a job that does not formally exist: the resulting job description provides a broad holistic overview of the job scope, characteristics and structure. The aim of the study is not to design a job description for e-learning practitioners but to explore the job characteristics and their relationships in the job structure.
- The enriched HJA used the HJA technique to identify job characteristics and factor structure of e-learning practice.
- The HJA used subjective and objective ratings from different sources. Various groups of people, for example an expert focus group, specialist groups and e-learning practitioners, were ask to participate in the analysis process and to give their subjective opinion on e-learning practice job characteristics. The outcome of these analyses was an enriched HJA.

- It used descriptions of trait activators as perceived by job incumbents.
- It presents the outcome as a broad narrative job description.
- It used the PPA to identify diverse behavioural styles from the participant group.
- The HJA is applied to results of the PPA to determine person-job fit.

With respect to the second research question, HJA in terms of the DISC dimensions is important for this study to describe the (1) characteristics of the e-learning job, (2) the job profiles and (3) the job structures.

2.6.4.7 Choices and research questions

e-Learning practice at TUT is diverse and may be on different levels of implementation and different levels of the technological innovation cycle. Currently most practitioners are on the second level, but small groups are moving towards the third and fourth levels of the innovation cycle. However, changing the job environment from structured to unstructured provides ample scope for role differentiation in e-learning practice. The P@W Programme, for example, offers five main roles, namely instructional designer, learner, e-moderator, researcher and manager. Formalising these roles into formal career paths may be beneficial not only for career development but also for the development of specialist e-learning practice communities.

Thomas, Buboltz and Winkelspecht (2004) are of opinion that only by isolating job characteristics that are most important for an individual can we enhance jobs in a way that would lead to satisfaction for that individual in that job. Therefore the question remains: What are these important characteristics and how can they be isolated?

Based on the concepts explained and the research, the research objective and consequent subsidiary questions are the following:

- What is the latent structure of the e-learning practitioner construct in terms of the work environment? (**Research question 2**).
 - What are the characteristics of the e-learning practitioner's job at TUT?
 - What is the job profile for the e-learning practitioner at TUT?
 - What are the job demands for the e-learning practitioner as have emerged from the Partners@Work Programme?

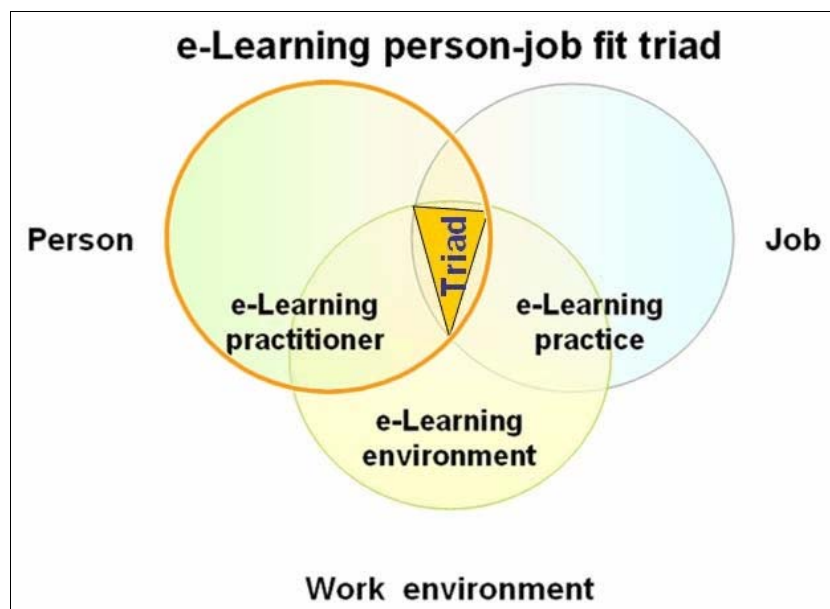
The next section will give an overview of the literature review on the fifth main focus area, namely e-learning practitioners, and will highlight relevant features of the e-learning practitioner system.

2.6.5 *e-Learning practitioner*

Teachers' conceptions about the nature of teaching and learning are the most important influences on how they teach. Intensive and comprehensive staff development programmes can be effective in transforming teachers' beliefs about teaching and learning and their teaching practice (Pebble, et al, 2005).

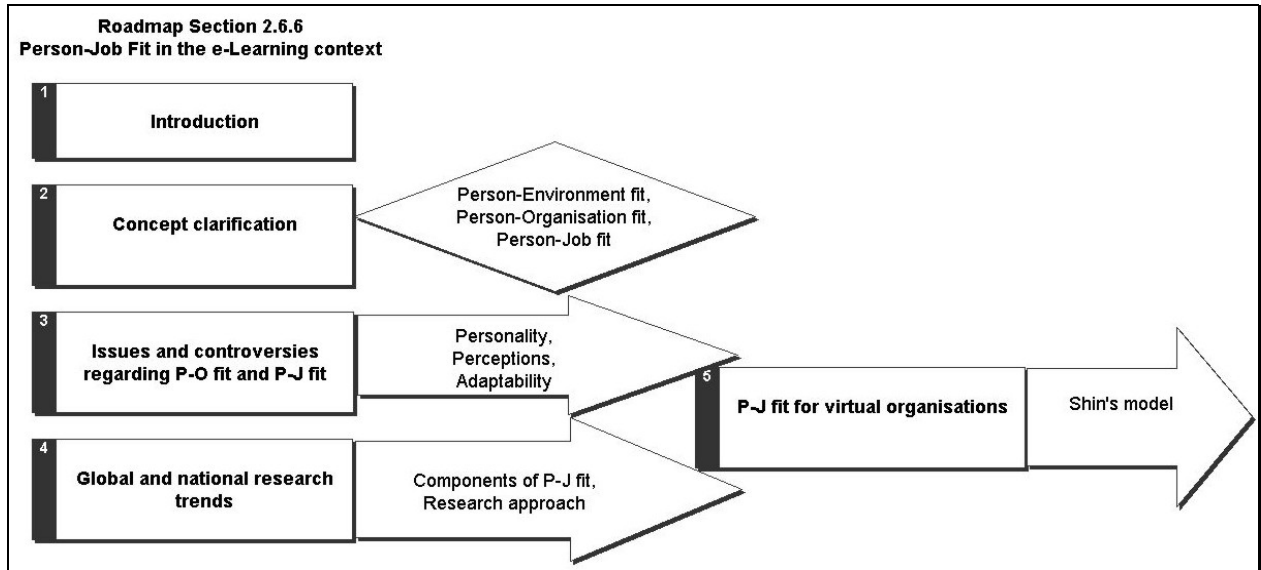
The fifth main focus area identified as relevant for this study is that of the e-learning practitioner. Figure 2.13 graphically represents the position of the e-learning practitioner in the e-learning person-job fit triad, which is discussed in the following section.

Figure 2.13: e-Learning practitioner in the person-job fit triad



This section is structured in terms of the layout structure for sections set as (1) introduction (2) clarification of the concept, (3) issues and controversies in the e-learning practitioner main focus area, (4) global and national research trends and reports on research done in this main focus area, (5) emerging issues and challenges, (6) personality in the work context (see Figure 2.14 for a graphical presentation of the layout structure of the section on the e-learning practitioner).

Figure 2.14: Layout of the sections on the e-learning practitioner



2.6.5.1 Introduction

The term 'e-learning practitioner' refers to individuals who create, use and maintain e-learning and teaching environments. They are involved in a number of job roles, which suggests a variety of competencies, skills and person attributes needed to fulfil the various job tasks. Specific person attributes are important for effective job performance (Bono & Judge, 2003:S5). The study of personality in the workplace offers numerous theories and models for understanding work behaviour but is also wrapped in controversies and issues (Tett & Burnett, 2003:502). Some of these issues pertain to the inherent limitations of different personality theories and models, for example the static nature of the Trait Factor Theory, or controversies about the optimal application of individual differences vs. being prejudiced and discriminating (Patton & McMahon, 1999:19). General assumptions about personality characteristics and the structure of personality provide useful possibilities for comparison and differentiation between different personality theories (Pervin & John, 1997; Dawda, n.d.).

The above-mentioned trends and issues are important for this study in terms of **providing a holistic view of the e-learning practitioner field**, and also to accomplish the four literature review purposes as proposed by Creswell (1994) (see section 2.3).

Studying the above-mentioned trends and issues also revealed a number of assumptions, errors of reasoning and probing questions regarding the e-learning practitioner main focus area. My observations in this regard are presented in Table 2.6.

Table 2.6: Observations regarding trends and issues in e-learning practitioner main focus areas

What are the assumptions of these trends and issues?
<p>e-Learning practitioners may be involved in a number of job roles.</p> <p>e-Learning practitioners need different competencies and new skills for e-learning practice.</p> <p>e-Learning practitioners should possess special personality characteristics.</p> <p>A variety of assessment tools are available to assess personality attributes.</p> <p>Person characteristics and the way in which they are organised define the structure of personality.</p> <p>Training and staff development to empower e-learning practitioners are needed.</p>
What are the errors of reasoning?
<p>Staff development and training programmes will equip e-learning practitioners with the competencies and skills needed to fulfil their e-learning job.</p> <p>Special knowledge, competencies and skills needed to perform as an e-learning practitioner are repeatedly stated in the literature (Kemshal-Bell, 2001:13; Salmon, 2003:214; Smith, 2005:5). Assumptions about the usefulness of staff development and training programmes to equip these practitioners are clearly stated in research articles (Ellis, O'Reilly & Debreceeny, 1998:191; Kearsley, 1998; Stehlik, n.d.) and although a change from technological to pedagogical approaches for these programmes is recognised by these programmes, there are certain missing links in this equation. Stated in the literature is the importance of the special characteristics needed by e-learning practitioners to successfully practice e-learning, but no evidence of e-learning training programmes accommodating the diversity of e-learning trainees in terms of their different person attributes could be found. Furthermore, no evidence could be found of screening or assessment procedures applied to identify the personal characteristics of these trainees prior to implementing the training programme. This implies that interventions through e-learning training programmes which do not take these very important human aspects into account may, firstly, fail to deliver successfully and, secondly, may lack the flexibility to identify specific niche areas based on personal profiles to accommodate these e-learning practitioners.</p>

Table 2.6: Observations regarding trends and issues in e-learning practitioner main focus areas (continued)

<p>The importance of identifying the characteristics and personal profiles of e-learning practitioners relates to two assumptions:</p> <p>Firstly, teaching and learning activities based on knowledge about the diversity of learning styles, customised to the preference of individual learners, offering multimode, individualised learning opportunities, may actively engage learners to a greater extent.</p> <p>Secondly, awareness of the personal profiles and characteristics of e-learning practitioners may be beneficial for determining compatibility with job demands and requirements or to guide worker placement in suitable jobs.</p>
<p>The question remains ...</p>
<p>Can anyone teach online? Would we be able to optimise professional development and staff training programmes for e-learning practitioners if the personal profile and characteristics of the e-learning practitioner are known and this knowledge applied to customise these programmes? Would we be able to give advice, support and guidance to e-learning practitioners on the utilisation of personal strengths in the workplace? Current research on e-learning practitioners does not provide sufficient answers to these questions and seems to overlook human work style behaviour as an important aspect of the world of work.</p> <p>Furthermore, the literature review revealed little research literature on formal studies done on the person attributes of the e-learning practitioner in terms of the e-learning work environment.</p> <p>In this study I will argue the case that knowledge about the characteristics and how these characteristics fit together in various profiles and person attribute structures may contribute to our understanding of the e-learning practitioner construct (research question 1).</p>

2.6.5.2 Clarification of the e-learning practitioner concept

The following paragraphs will highlight and elaborate on the 'who' and 'what' questions about e-learning practitioners.

2.6.5.2.1 Who are e-learning practitioners?

A variety of terms are used relating to online teaching and learning, for example 'online teacher', 'e-teacher', 'online professor', 'cybertechnician', 'e-moderator' and 'online facilitator'. Salmon (2003:214) lists 17 titles but suggests that further discussion between practitioners is needed to contextualise the role of the e-moderator (referring to online teaching and facilitation roles) in different contexts.

Terms such as 'tutor', 'trainer' and 'professor' are in common use and adding 'e-' in front of them suggests an electronic element in the teaching and learning environment. The terms 'tutor' and 'trainer' also suggest roles more inclined to facilitating than referring to subject matter experts. JISC (2004b) defines different practitioner communities as "learning and teaching practitioners, whose role is to support and direct learner learning; educational developers and learning technologists, whose role is to work with or alongside practitioners to enable and enhance e-learning; researchers into e-learning and developers of e-learning relating software, systems and standards" (JISC, 2004b:1).

For this study the term 'e-learning practitioners' is an umbrella term referring to practitioners who teach and facilitate in an online environment and who **create, use and maintain** electronic teaching and learning environments for themselves and their learners for pedagogical purposes. These instructors are not only professional educators, but also subject matter experts. The term 'e-learning practitioner' may include conceptualisations such as **online facilitator** (Adendorff (2004), **e-moderator** (Salmon, 2003), **online instructor** Hootstein (2002), and **online teacher** (Kemshal-Bell, 2001).

2.6.5.2.2 Roles of the e-learning practitioner

The variety of terms such as online facilitator (Adendorff (2004), online teacher / instructor Hootstein (2002) and e-moderator (Salmon, 2003) for describing the e-learning practitioner, reflects the vast number of roles that he or she may engage in. Defining 'e-learning practitioner' is a difficult task and is done best by linking specific roles to specific definitions. Different categories for the roles of the e-learning practitioner are presented in the literature, for example Berge (1995) suggests four main areas namely, "pedagogical, social, managerial and technical". Different authors use different categories to describe the different roles of the e-learning practitioner. for example Hootstein (2002) agrees with Berge but use different terms, namely, 'instructor', 'social director', 'program manager' and 'technical assistant'. Using Blignaut and Trollip's (2003) taxonomy, Adendorff (2004:217) categorises the roles of the online facilitator as "administrative, social supporter, instructor, guide and mediator". Some authors use the main task focus of the practitioner to clarify their definition, for example, e-moderator for the practitioner who facilitates and guides the online teaching and learning process, online facilitator

to describe the managing of communication online (Backroad Connections, 2002:3) or online tutor to describe the person who is more focused on the training aspect (Salmon, 2003:51). Teachers were asked to describe their role as online teacher and their descriptions related to facilitating, motivating, mentoring and guiding students' learning, whilst others felt differently and describe their role as difficult, exhausting and time-consuming (Kempshal-Bell, 2001:42).

There is "reasonable consensus in the literature about the changing and challenging role of the online teacher" (Backroad Connections, 2002:3). Changing from an expert authority to those listed above, is well described in the literature and well summarised by Collins and Berge (1996) as online teachers becoming "designers of learning experiences" rather than content providers; working in a team, sharing control of the learning environment with the learners, and the e-moderators' main role to "engage the participants so that the knowledge they construct is usable in new and different situations" (Salmon, 2003:52).

Adendorff (2004:71) identifies 23 different roles that the online facilitator, being the manager of learners and the learning process through an online medium (Backroad Connections, 2002:6) could fulfil. Some of the roles listed were those of learner, administrator, change agent, coach, communication expert, instructor, knowledge navigator, learning catalyst, listener, manager, mediator, mentor, moderator, social supporter, subject matter expert and tutor (Adendorff, 2004:71). As she points out, 23 roles are too many for an online facilitator to manage and therefore she limits the essential roles to those that facilitators play in order to be visible in the online environment. Using Blignaut and Trollip's taxonomy as a model, the roles that were identified were the following:

- "Administrator who conducts timeous course administration";
- "Social supporter who maintains social and emotional support in the group";
- "Instructor who facilitates the learning process";
- "Guide who encourages interactivity", and
- "Mediator who ensures fair play within the group" (Adendorff, 2004:217-218).

2.6.5.2.3 Effect of e-learning on the roles of the practitioner

Answers to a question about the effect of e-learning on the roles and skills of the e-learning practitioner in a study done by Brennen (2003a) indicate 10 items, namely "(1) new definitions of time and work patterns; (2) new levels of institutional support; (3) higher levels of teacher accountability; (4) lack of clarity about teacher roles online; (5) new rules for interaction, security and privacy; (6) pace of change contributing to 'de-professionalisation'; (7) assessment processes to be re-conceptualised; (8) higher levels of course planning; (9) varying levels of efficacy influencing self-perception and (10) application of what is known in a new context" (Brennen, 2003a:31-32).

It is clear from the above statements that the impact of e-learning on the practitioner calls for repositioning in the work environment, re-evaluation of existing practices, staff training and development to support and build capacity in the fast changing technological, sociological and pedagogical spheres, open communication between the organisation and the e-learning practitioner to establish clear guidelines, as well as streamlined job descriptions for e-learning practice. Besides the effect that all these changes have on the e-learning practitioner, the day-to-day challenges of e-learning practice have a profound impact on the e-learning practitioner. Although the “teacher manages discussions and learning activities in the traditional classroom, so it is online” (Backroad Connections, 2002:2): the e-learning environment has some special challenges that have to be addressed.

2.6.5.3 Challenges and key issues for e-learning practitioners

Smith (2005:4) believes that “learner-centered advising” is most important in student retention in higher education, therefore the e-learning practitioner should pay attention to students’ needs and make sure that teacher and students are visible to each other through communication in the virtual classroom. His views are in agreement with Adendorff’s (2004:75) namely that the demands on e-learning practitioners are different from those of face-to-face teachers and states that the e-learning practitioner faces, apart from other challenges, a dual challenge to “present course content and promote learning in the virtual environment” and “to foster development of a community of learners” (Smith, 2005:5). This is not an easy task as most of the learners have not met one another or the teacher and communication is mostly done in written format. Online learning and communication challenges are mentioned by various authors (Backroad Connections, 2002:4; Vrasidas, 2004:913; Adendorff, 2004:32) as the following:

Making effective use of

- interaction – for example, the desirability of compulsory as apposed to voluntary participation, degree of teacher control in online settings;
- communication – for example, avoiding misinterpretation of text, dealing with silences, finding the balance between private and public discussion, dealing with overwhelming e-mail messages, facilitating meaningful cooperation among learners during asynchronous discussions, and
- tools – for example, to support authentic assessment, to track student’s progress, to cater for individual differences and student diversity.

Other key issues for e-learning practitioners mentioned by Salmon (2003:59) are appropriate numbers of participants in a discussion, work or conference group; time spent online; the complexity of emails, discussion board and conference messages, and the development of professional online communities.

2.6.5.3.1 What do the e-learning practitioners need to carry out their duties?

There is a general awareness that e-learning is not merely “another medium for transmission of knowledge but that it changes the relationship between the teacher and learner” (Gray *et al.*, 2003). These authors also underline the need for the “development of innovative practices and the generation of new competencies in e-learning” to address key issues for e-learning practice, e-learning practitioner training and staff development initiatives (Gray *et al.*, 2003).

2.6.5.3.2 Competencies and skills of the e-learning practitioner

Salmon (2003) is of the opinion that few people are available with the abilities to fulfil the required roles as e-moderators. She suggests a selection process starting with a focus on those applicants who show “empathy and flexibility in working online plus willingness to be trained as e-moderators” (Salmon, 2003:53). She lists a number of e-moderator competencies in terms of characteristics under the themes of understanding of online process; technical skills; online communication skills; content expertise and personal characteristics (Salmon, 2003:53-55).

According to Salmon (2003) certain competencies can be acquired through training and others may develop during active engagement in practice. However, she is somewhat vague about assessment of the items listed under the category ‘personal characteristics’. Discussions on characteristics of the e-learning practitioner are largely influenced by the participants’ definition of practitioner. For example, Salmon (2003) describes e-moderators as specialist tutors who deal with online participants but who are not necessarily subject matter experts, but Burke’s (1999) description of the e-learning practitioner includes the characteristic of subject matter expert. However, during a conference debate the audience discussing these issues did not agree with Burke and felt that teaching skill was more important than knowing the subject area. One could argue that the term ‘online facilitator’ implies someone who guides and facilitates online learning, but a set of basic criteria for successful online facilitation includes “current knowledge of practice within the subject matter being taught is expected to be a key part in providing usable education” (Illinois Online Network, 2003:1). It is therefore important to clarify the scope of practice before comparing the different job roles and the competencies and skills needed to fulfil these roles.

Several meanings of the term ‘competencies’ have evolved but Hoffmann’s (1999) description of “referring to outputs or results of training – that is competent performance” and referring to “inputs or underlying attributes required of a person to achieve competent performance” is useful in the context of this study (Hoffmann, 1999:275). Smith (2005) proposes a competency model to illustrate how several competencies for online instruction might be woven into an integrated whole. The main sources used for this model are Ko and Rossen (2001), Palloff and

Pratt (2001b), Phipps and Merisotis, (1999) and Coghlan (2002). Competencies are divided into:

- Those needed prior to start of a course, for example the instructor should be “clear about course requirements” (Palloff & Pratt, 2001b:28); “communicate high expectations” Coghlan, 2002:bullet 9); “select appropriate technologies for course delivery” (Palloff & Pratt, 2001b:26-28).
- Those needed during the course, for example giving “prompt feedback” (Phipps & Merisotis, 1999:17); “modelling good participation” (Palloff & Pratt, 2001b:24); “promote reflection” (Palloff & Pratt, 2001b:33); “maintain momentum of the course” (Coghlan, 2002); “have fun and be open to learning from students” (Palloff & Pratt, 2001b:36).
- Those needed after the course, for example “reflect on the course as a whole, student evaluation of course and instructor” (Palloff & Pratt, 2001b:33).

Both Smith (2005:10) and Salmon (2003:53) are of the opinion that levels of competence should be recognised and that e-learning practitioners may either be on an entry, experienced or specialist level.

Competencies may develop over time but Smith (2005:11) cautions against the assumption that the mastering of online competencies will assure accurate information presented in the online course. Adendorff (2004:252) has a different approach to classifying the competencies of the online facilitator. She argues that the facilitator must play intellectual, social and energising roles and therefore needs people, thinking and energy competencies to fulfil these roles.

Leadership and interpersonal competencies are listed under people competencies and include indicators such as providing direction, motivating others and teamwork flexibility; thinking competencies include *inter alia* management control, written communication, technical skills and innovation; and descriptions such as drive, initiative and execution are typical of energy competencies (Adendorff, 2004:272). Another dimension mentioned by Salmon (2003:53-54) is that of emotional intelligence which includes aspects such as “motivation and intuitiveness (which act as goal drivers) together with resilience and conscientiousness (which curb excess in the drivers)” (Salmon, 2003:53). “Self-awareness, interpersonal sensitivity and the ability to influence” are also important characteristics of the e-moderator (Salmon, 2003:56).

Although Salmon (2003) and Adendorff (2004) differ in their use of terminologies, their conceptualisations of e-moderator and online facilitator show similarities in terms of job roles. However, Salmon’s view on e-moderators’ competencies reflects a developmental approach that implies that some of these competencies should be acquired through training and

experience. Approaches reflecting such views may have a positive effect on staff training and development programmes.

Kemshal-Bell's (2001) categorisation of the skills and attributes needed by the e-learning practitioner to fulfil the different job roles differentiates these into three main task areas namely, "technical, facilitation and managerial skills" (Kemshal-Bell, 2001:12). These may be summarised as:

- Technical skills to use the technology, including the use of e-mail, discussion forums, chat rooms, website development, video and audio conferencing.
- Facilitation skills (Collinson, Elbaum, Haavind & Tinker, 2000), which relate to interpersonal communication and include engaging the learner in the learning process, questioning, listening and feedback skills, the ability to guide and support learners, managing online discussions, building online teams (Geisler, 2002) relationship building, motivational skills and a positive attitude; and an ability to be innovative and experimental.
- Management skills to manage the learners as well as the learning process, that is, time management and planning skills, ability to give structure and guidance to learners, to monitor the learning process and to review the learning process to identify needs and to adapt and change the teaching and learning environment accordingly (Kemshal-Bell, 2001:12-14).

Kemshal-Bell's (2001:40-41) analysis of the rating of the above-mentioned skills and attributes reveals that practitioners view facilitation skills as the most important. Eight of the eleven facilitation skills/attributes were rated as critical and the other three as very important, and only one technical skill (use of email) and none of the management skills were rated critically important (Kemshal-Bell's, 2001:40-41). However, answers to a follow-up question ranked *technical ability* as the fourth most important skill for e-learning practitioners, whilst the most important skills were listed as the ability to engage learners in e-learning; to motivate learners; and to build relationships between the e-learning practitioner and the learners and between learners. From the participating group in "The Online Teacher" study by Kemshal-Bell (2001), 43 percent had less than a year's experience in e-learning and this might be the reason why their views in terms of the importance of technical skills differ from the list that Salmon (2003) proposes. She is of the opinion that after a year in practice the e-moderator should have developed sufficient technical skills to be able to create and manipulate electronic conferences and e-tivities, to generate online environments and to use alternative software and platforms (Salmon, 2003:54).

2.6.5.4 Development of a preliminary taxonomy

For the purpose of this study, the skills and attributes of e-learning practitioners are broadly categorised in a taxonomy that summarises the available international and national literature from the most relevant articles, papers, books and studies between 1996 and April 2004.

2.6.5.4.1 Attributes of the e-learning practitioner

Tables 2.7 to 2.15 provide a summary of the various characteristics of the e-learning practitioner as synthesised from the literature.

Nine main themes have been identified: technical, curriculum, management, teaching skills, personal/affective traits, communication styles, teaching styles, personality traits and learning styles. The characteristics of each theme are referenced and listed.

1. Technical skills relate to the ability to use the technology and not to the skills required to use them as teaching and learning tools.

Table 2.7: Technical skills

Skills	Reference
<p>Basic computer skills</p> <p>Full mastery of the technology being used/techno-literate.</p> <p>Using:</p> <ul style="list-style-type: none"> • Email is the most common method for communication and is an essential tool – in many ways the e-learning practitioner’s voice. • Discussion forums are important as tools for community building as well as asynchronous communication. • Chat rooms are useful but not essential. • Website development tools and a general understanding of HTML for website and instructional design is important, opinion is divided over the importance of webpage writing skills. 	<p>Collins & Berge (1996:15)</p> <p>Sanders (2001)</p> <p>Hootstein (2002)</p> <p>Hamilton & Scandura (2003:389)</p> <p>Hoffmann (2003)</p> <p>Brennan (2003a:21, 43; 2003b:36-37)</p>

Table 2.7: Technical skills (continued)

Skills	Reference
<ul style="list-style-type: none"> • Internet skills are essential. • LMS (VLE) is an essential tool. • Video and audio conferencing are becoming more available and affordable. <p>Coping with new hardware and software applications is also related to a positive attitude and risk-taking.</p>	

2. Curriculum skills refer to the ability to apply the online teaching and learning process in the context of the curriculum development cycle.

Table 2.8: Curriculum skills

Skills	Reference
<p>Programme development from pre-established format to flexible and open structures.</p> <p>Development of course material</p> <p>Assessment competencies</p> <p>Ability to review the teaching and learning process to identify changes and improvements.</p>	<p>Van Sickle (2003:14)</p> <p>Queiroz (2003)</p> <p>Brennan (2003a:37; 2003b:43)</p>

3. Management skills refer to the planning, scheduling and organising activities for the-learning practitioner as well as for the learning process.

Table 2.9: Management skills

Skills	Reference
<p>Time management</p> <p>Planning skills</p> <p>Organisational skills</p> <p>Providing guidelines to learners</p> <p>Capacity to monitor the learning process</p>	<p>Kemshal-Bell (2001:85-97)</p> <p>Berge (1995:15)</p> <p>Hootstein (2002)</p> <p>Van Sickle (2003:12)</p> <p>Australian Flexible Learning (2003:7, 11)</p> <p>Queiroz (2003)</p> <p>Brennan (2003a:41, 53; 2003b:43)</p>

4. Teaching skills refer to the ability to facilitate, motivate, mentor and guide learners through their learning experience.

Table 2.10: Teaching skills

Skills	Reference
Motivating	ITRC (2000:10-11)
Coaching	Kemshal-Bell (2001:85-97)
Listening skills – making learners aware that they are being listen to	Sanders (2001)
Mentoring skills	Australian Flexible Learning (2003:11)
Mediating chat	Stetson University Virtual School teacher profile (n.d.)
Active participant	Kippen (2003:25)
Creative	Brennan (2003b:43)
Reflective	Shepherd (2003b)
Building online teams	
Understanding	
Engaging the learner in the learning process	
Scaffolding, giving direction and support	

5. Personal/affective skills refer to the “soft” side of the e-learning practitioner and the way the person copes as e-learning practitioner in the online environment.

Table 2.11: Personal/affective skills

Skills	Reference
Patience	Burke (1999)
Persistence	Kemshal-Bell (2001:85-97)
Coping with frustration	Hamilton & Scandura (2003:400)
Flexibility	Australian Flexible Learning (2003:11)
Problem solving	Brennan (2003b:44)
Coping with time demands	Stetson University Virtual School teacher profile (n.d.)
Compassion	
Building trust	

6. Communication skills refer mainly to the interpersonal communication skills used in guiding, supporting and encouraging the online learner through their learning experience (Kemshal-Bell, 2001).

Table 2.12: Communication skills

Skills	Reference
Learner support	Berge (1995)
Counselling skills	Kearsley (1997))
Focus on one-to-one communication	Spector & de la Teja (2001:3)
Interpersonal skills	Kemshal-Bell (2001:85-97)
Responsiveness	Hoffmann (2003)
Flexibility	Queiroz (2003)
Continuous feedback – should be constructive	Brennan (2003b:38, 43-44) ADEC (2003)
Active approach	Illinois Online Network (2003)
Be aware of cultural and language differences	Palloff & Pratt (1999)
Relationship building	

7. Teaching styles refer to the e-learning practitioner's way of presenting him/herself as online teacher.

Table 2.13: Teaching styles

Skills	Reference
Grasha's (2004) five teaching styles:	ITRC (2000)
<ul style="list-style-type: none"> • Delegator: concerned with developing learner's capacity to function in an autonomous fashion 	Kemshal-Bell (2001:86) ADEC (2003) Brennan (2003b:52)
<ul style="list-style-type: none"> • Formal authority: possesses status amongst learners 	Hamilton & Scandura (2003:397) Queiroz (2003)
<ul style="list-style-type: none"> • Facilitator: emphasises the personal nature of teacher-learner interactions 	Salmon (2003:53-56) Gracha (2004)
<ul style="list-style-type: none"> • Personal/role model: believes in "teaching by personal example" 	Indiana State University (2004) Shepherd (2003a)
<ul style="list-style-type: none"> • Expert: possesses knowledge and expertise that learners need using questioning styles, flexibility, adaptability. 	

8. Personality/person attributes refer to the inherent traits that the e-learning practitioner possesses.

Table 2.14: Personality attributes

Skills	Reference
Take chances	Burke (1999)
Prompt	Kemshal-Bell (2001:97)
Does not need a lot of sleep	Australian Flexible Learning (2003:8)
Good sense of humour	Queiroz (2003)
Perceptive	Brennan (2003b:48)
Collaborative	Illinois Online Network (2003:17)
Adventurous/risk-taking	Shepherd (2003b)
Creative/innovative	Kippen (2003:28)
Motivated	Stetson University Virtual School teacher profile (n.d.:9)
Adaptable	
Reflective	
Enthusiasm is critical	
Teacher "goodwill"	
Openness	
Sincerity	
Positive attitude	
Assertive	
Proactive	

9. Learning styles refer to the preferred way of learning. To optimise the teaching and learning experience the online teacher has to accommodate own learning style as well as the learning styles of learners.

Table 2.15: Learning styles

Skills	Reference
Understanding of learning styles of learners	Sanders (2001:2)
Understanding of own learning styles	Kippen (2003:10)
Prefer to	Brennan (2003b:38, 58)
<ul style="list-style-type: none"> • read, write and tell stories • do experiments and figure things out • draw, build design and create things 	Illinois Online Network (2003:17)
Learns best by	Stetson University Virtual School teacher profile (n.d.:9)
<ul style="list-style-type: none"> • rhythm, melody and music • touching, moving and processing 	

Table 2.15: Learning styles (continued)

Skills	Reference
<ul style="list-style-type: none"> • knowledge through bodily sensations • studying natural phenomena in their natural settings, learning how things work • sharing, comparing, relating and cooperating • working alone, self-paced instruction 	

An interesting observation is that the list of e-learning practitioner skills and characteristics synthesised from the literature shows a remarkable resemblance to a list compiled by teachers themselves who participated in the NCVER project "One size doesn't fit all: pedagogy in the online environment" reported by Brennan (2003b:48).

They listed the characteristics of a good online teacher as: "active, communicative, facilitative, adventurous, prepared to 'have a go', knowledgeable about content and medium, possesses a vision for the future, good manager/planner, organised, patient, creative, motivated, positive, emphatic, supportive, prompt, persistent, technically competent, someone who monitors student progress, pedagogical adept, compassionate, perceptive, collaborative, confident, committed to learning, adaptable, someone who doesn't need sleep and has a good sense of humour" (Brennan, 2003b:48). Although technical skills were identified as critical for successful online teaching and learning, these skills were not mentioned by the participating teachers as crucial elements of 'good teaching' (Brennan, 2003a). This observation agrees with reports from Kemshal-Bell (2001:82) stating that technological skills were not rated as critical skills for the e-learning practitioner (Kemshal-Bell, 2001:41). These findings raise questions about the difference between 'successful' and 'good' teaching. Brennan (2003b) is of opinion that 'good' teaching is characterised by attitudinal characteristics and technical skills, although critical to successful teaching, do not assure 'good teaching' (Brennan, 2003b:49).

Based on the themes and characteristics listed under each theme, the resulting preliminary taxonomy was used as a framework for constructing a short pilot survey. The survey, titled 'The characteristics of the e-learning practitioner', was conducted at the WebCT conference in April 2004 at Stellenbosch. The majority of participants were lecturers at higher education institutions who were involved with e-learning practice. Statements for the survey were not directed at 'good' or 'effective' e-learning practice but were broad indices of skills, styles and characteristics of the e-learning practitioner. Participants were asked to select alternatives from a predefined list with an invitation to add commentary and more options.

Indices such as professional knowledge and skills, technical, curriculum and teaching skills were frequently selected. Management and personal affective indices were not regarded as very important and brain preference was not selected at all. Specific skills and characteristics that were selected as important were instructional design and the development of course material; using the bulletin board; assessment competencies; teaching skills such as motivating, mentoring, active participation and creativity; personal/affective skills such as patience, flexibility and problem solving; communication skills such as continuous feedback and support for students; a facilitative teaching style; and a preferred learning style for the practitioner as one of sharing and experimentation.

The most frequently selected personality attributes indicated a practitioner who is motivated, creative and adaptable. Although this group did not select management skills as an important index of the characteristic e-learning practitioner, the majority of the participants indicated time management, planning and organisational skills as important management skills. According to the participants *listening skills* were only moderately important, which is an interesting observation seeing that they felt that student support and continuous feedback were very important. According to Kemshal-Bell (2001), skills needed for e-learning that differ from those needed for face-to-face teaching relate to communication skills pertaining to synchronised communication, fast and real time communicative feedback and responses between e-learning practitioner and learners, as well as the technical skills needed in a fast changing environment (Kemshal-Bell, 2001:61).

Implications for study

Debates on questions such as: "Do online teachers have to have certain characteristics?" (Burke, 1999); "Are these basic personality traits or ones that can be taught?" (Burke, 1999); "Are all teachers capable of being online instructors?" (Simon, 2004:5) and issues about new roles, competencies and skills needed by practitioners for carrying out their jobs are frequently cited in the literature, as discussed in previous sections. Moving back to 'real world' practice, I am of the opinion that higher education institutions sometimes assume that all teachers can integrate smoothly into e-learning practice, that 'practice makes perfect' and that e-learning practice is an additional 'add-on' to a normal workload.

It may sometimes happen therefore that teachers are practising e-learning not because they are interested in doing so, but because they were told to do so. According to Salmon (2003:9), e-moderators need special qualities and Palloff and Pratt (2001b:21) are of the opinion that introverted online teachers are more successful than those with charismatic personalities (Shepherd, 2003a). Research studies on the personal characteristics of e-learning practitioners are scarce and sometimes intertwined with aspects such as competencies and

skills, and most authors do not differentiate clearly between personal attributes, skills or styles when describing e-learning practitioners (Palloff & Pratt, 2001b:21; Schall, Schmidt, Stewart-Burns & Stiverson, 2004).

On the other hand a wealth of information is available pertaining to quantitative studies and factor analysis of specific personality traits such as Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience, the five factors used in the Five Factor approach (Barrick & Mount, 1993; Salgado, 1997:30). Many research studies are also available focusing on the technological adoption cycle and the five types of adopters (Zemsky & Massy, 2004; le Roux, n.d.; van der Merwe, n.d.;;) but there is a **gap** in the research literature regarding the specific personal characteristics of these adoption types as well as the specific personal characteristics of the effective or successful e-learning practitioner.

The definition of the e-learning practitioner construct implies not only the characteristics of the person and the job involved in e-learning, but also the context of practice. Which directs the study investigation towards the selection of personality indices relevant to **work behaviour?** To streamline my research focus I narrowed the personality characteristics down to **work style behaviour**, therefore excluding characteristics defined as competencies and skills.

The research literature refers to the evaluation of online teaching and learning in terms of quality, standards of teaching materials and assessment of online teachers' performances by peers and students (DfED, 2003; Mayes & de Freitas, 2004; Bacsich, 2005). I could find only one research study done by Fuller *et al.* (2000) on the personality type and teaching style preferences of the *online professor*. They used the Myers-Briggs Type Indicator (MBTI) and Anthony Gregorc's Transaction personality assessment instruments to profile the online professor.

Di Petta (1998) describes the use of psychological type differentiation as a "group process 'tool' for moderators of on-line discussion groups". He highlights a number of key recommendations and ideas that emerged from this research as: "Type awareness can have a positive effect on an on-line group's ability to deal with change; knowledge of type can help create and maintain a positive on-line environment; type can be used as a meta-analysis, communication and leadership tool; type can be used as a process and group checking or evaluation tool". One observation made was the initial view of the moderators that type theory was "fun to do but that would have little practical application to their work". According to Di Petta (1998), the value of using psychological type as a tool for dealing with the complexities of the online environment, its potential to help moderators focus online communication to the specific preferences of

individuals or groups and to facilitate the moderator's work in establishing connections between and among the members of an on-line group, quickly became evident to the users. "However, learning how to use type as a tool for on-line work requires further research and testing to establish what specific roles type can or should play in a moderator's work" (Di Petta, 1998).

Shifting focus away from group processes, such as interpersonal communication and self-awareness, towards work relationship and interaction between the individual practitioner and e-learning practice, reveals another research gap. I could not find any studies done on the work behavioural styles of e-learning practitioners. Focusing on specific personality attributes, Dunn (2004) conducted a study titled: "Cognitive playfulness, innovativeness and beliefs of Essentialness: characteristics of educators who have the ability to make enduring changes in the integration of technology into the classroom environment". She investigated the way in which the personality characteristics mentioned in the study title relate to a sustained high level of information technology use in the classroom and found a significant correlation between these characteristics and the individual's sustained ability to use technology at a high level (Dunn, 2004:i). Dunn (2004) refers to yet another gap in current research on adoption of innovation, namely the "focus on factors affecting immediate change, with few studies referring to enduring or lasting change" (Dunn, 2004:i). As with many other researchers in this field, however, her study focuses on specific characteristics and not on characteristic personality profiles or behaviour types. Opinions voiced by practitioners themselves were captured by Joy (2004) in a qualitative study on "Instructors transitioning to online education". Comments on the question "what personality characteristics are needed for the e-learning practitioner?" vary from "online teaching is not for everyone; takes a certain type of person to teach online and matter of style and personality" to "Online is reflection and listening and teacher is receiving, not giving" Joy (2004:209, 210, 216, 224).

It is clear from the above discussion that the characteristics of personality may include a variety of personal attributes and are described, classified and analysed according to the preferred approach of the researcher. Therefore to clarify the fuzziness surrounding the characteristics of the e-learning practitioner, the following paragraphs will focus on defining personality in the work context, assumptions and controversies regarding personality, approaches to personality in the work context, personality attributes in terms of behavioural style, and assessment of personality.

2.6.5.5 Definition of personality in the work context

Pervin and John (1997:4) provide a definition of personality as "those characteristics of a person that account of consistent patterns of feeling, thinking and behaving". From a work perspective, personality might be seen as those characteristics that "fit the demands of the working

environment” (Bergh & Theron, 2001:320). According to Patton and McMahon (1999), empirically related models such as the Big Five and the Five Factor Model are changing views on personality at work and offer much for the understanding of the construct of personality (Patton & McMahon, 1999:19). The static trait-and-factor theory has evolved to more developmental and dynamic approaches that assume that the principle of give and take is a feature of the person-environment fit approach (Patton & McMahon, 1999:19). Chartrand (1991) in Patton and McMahon (1999:19) proposes that “the greater the congruence between personal characteristics and job requirements, the greater the likelihood of success” (Chartrand, 1991:250, in Patton & McMahon, 1999). Furthermore, the person and the environment change continuously (Patton & McMahon, 1999:19), therefore the importance of ongoing personality assessment and job redesign is evident (see Appendix B3 for a more detailed description of assumptions and controversies on personality).

2.6.5.5.1 Personality attributes in terms of behavioural styles

Mapping individual types of people is as old as the belief of the ancient Greeks that the human body contained four “humours”, namely blood, yellow bile, phlegm and black bile (Synergi, n.d.). These humours, based on the four elements of fire, air, water and earth, influenced a person’s behaviour and were each responsible for different types of behaviour (Axiom DISC, n.d.). Modern tetralogies are numerous and perhaps Carl Gustav Jung’s description of the four functions that a person uses to adapt to the world, namely, Sensing, Intuition, Feeling and Thinking, is one of the best known. The Myers-Briggs Type Indicator, based on Jung’s psychological types and functions, is an example of a measuring inventory based on Jung’s personality typology and is one of the most popular personality tests around (Buchanan & Huczynski, 2004:58).

In the early 1920s, William Moulton Marston, an American psychologist, tried to describe people’s emotional responses (Thomas Disc Systems, n.d.). He published his findings in a book entitled *Emotions of Normal People* in 1928 and theorised that “human behaviour was a function of the environment of that individual” (Thomas Disc Systems, n.d.). The individual’s behaviour was described on a “scale from antagonistic to favourable reactions within this environment and measured as active or passive” (Thomas Disc Systems, n.d.). He developed a test to measure the personalities he was trying to describe using the two limits as baseline and chose four typical patterns of interaction between the individual and his environment as important behavioural factors to measure. The four factors are **D**ominance, **I**nfluence, **S**teadiness and **C**ompliance, from which the **DISC** Personal Profile Analysis derives its name (Thomas Disc Systems, n.d.).

2.6.5.5.2 Personality assessments

Personality-related attributes necessary for any job are established by job analysis techniques and psychological testing, whilst the necessary competencies to perform the job successfully are listed in the job specification (Bergh & Theron, 2001:510). Assessment instruments such as questionnaires and self-report inventories are usually applied to determine attributes that will contribute to the best fit between the person and the job (Bergh & Theron, 2001:510-511).

Implications for this study

The definition of personality in the work context for this study relates to the definitions of Allport (1961:28), which state that personality is “the dynamic organisation within the individual of those psychophysical systems that determine his characteristic behaviour and thought” and Pervin and John (1997:4) who state that “personality is those characteristics of a person that account of consistent patterns of feeling, thinking and behaving” and Bergh and Theron (2001:316) who view personality from a work perspective as those characteristics that “fit the demands of the working environment” (Bergh & Theron, 2001:320).

For this study the DISC profiling instrument was used to determine work behaviour style. The scope of such profiling is narrowed to dimensions of “work” personality and does not include measurement of job competencies and skills or cognitive aspects such as intelligence, memory, reasoning or problem solving.

With respect to the first research question, work behavioural styles in terms of the DISC dimensions are important for this study to describe the (1) characteristics of the e-learning practitioners, (2) their work behavioural profiles and (3) work style patterns.

Based on the explained concepts and research, the research objective and consequent subsidiary questions are to identify the latent structure of the e-learning practitioner construct in terms of person attributes (**research question 1**):

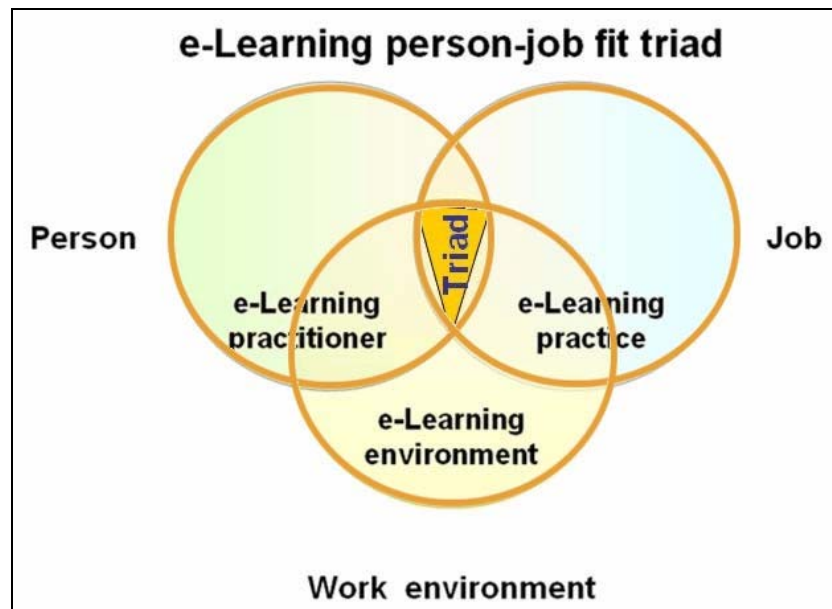
- What are the characteristics of e-learning practitioners in terms of work behavioural styles at TUT?
- What are the descriptive personal work style profiles of e-learning practitioners at TUT?
- What is the structure of the personal work style patterns of e-learning practitioners at TUT?

The next sections will give an overview of the literature review on the sixth main focus area, namely person-organisation fit and person-job fit models and theories as relevant features of the e-learning practitioner system.

2.6.6 e-Learning practitioner–e-learning practice fit in the e-learning context

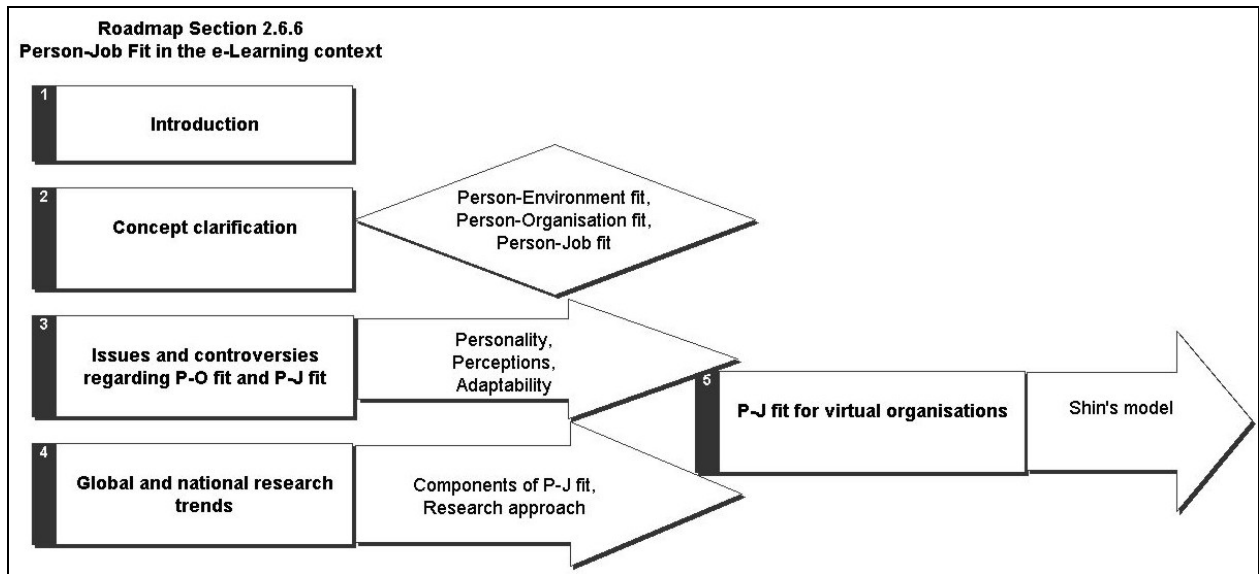
The last main focus area relevant for this study is the fit (P-J fit) between e-learning practice (the job – section 2.6.4) and the e-learning practitioner (the person – section 2.6.5) in the e-learning context (sections 1.8 and 2.6.3). Figure 2.15 graphically presents the position of the e-learning practitioner, e-learning practice and the e-learning work environment in the e-learning person-job fit triad discussed in the following section.

Figure 2.15: Position of the three legs in the person-job fit triad



This section is structured in terms of the layout structure for sections set as (1) introduction, (2) clarification of the concept, (3) issues and controversies in the P-J fit main focus area, (4) global and national research trends and reports on research done in this main focus area, and (5) person-organisation fit for virtual organisations (see Figure 2.16 for a graphical presentation of the layout structure of the section on the fit between the e-learning practice and the e-learning practitioner in the e-learning work environment).

Figure 2.16: Layout of the sections on P-J fit



2.6.6.1 Introduction

The management and development of human resources in organizations depend on the ability a) to identify individual differences in employees' personalities and b) on determining how congruent these are with the organizational attributes. The reason for this is that the organization effectiveness is dependent on the collective personality profile which employees attribute to the organization. One of the goals of personality research in the work context is to facilitate a good fit between the employee and the organisation (Bergh & Theron, 2003 in Momberg, 2004:36).

A number of authors, for example Lau and Shaffer (1999) and Westerman and Cyr (2004), indicate a significant relationship between person-organisation (P-O) fit and job performance. Congruence between the person and the organisation results in a number of positive outcomes for both the person and the organisation. Therefore it is not surprising that P-O fit and person-job (P-J) fit, being subsets of the overarching concept of person-environment (P-E) fit, are most prominent in the employee selection context (Sekiguchi, 2004:179). A simplistic definition of P-E fit boils down to the "degree of congruence or match between the person and the environment", whereas P-O fit refers to the compatibility of the "person and the organisation" and P-J fit refers to the match between the "attributes of the person and the attributes of the job" (Sekiguchi, 2004:179).

A number of scholarly works in the field of P-E fit have been published on the use of multidimensional approaches and models in P-O fit research; multiple fit measures; and the use of different environmental levels to examine P-E relationships in applications such as employee

selection, vocational choice and staffing processes (Judge & Ferris, 1992; Jansen & Kristof-Brown, 1998; Parkes, Bochner & Schneider, 2001; van Vianen, 2001; Shin, 2004; Westerman & Cyr, 2004). Issues that emerged from the work done by these researchers are *inter alia* (1) “questions regarding the true content domain of P-O fit; (2) how fit should be measured and operationalised; (3) which approach or combination of approaches most accurately predict outcomes” (Weterman & Cyr, 2004); (4) “questions regarding the criteria for choosing the fit components” (van Vianen, 2001); (5) questions regarding a variety of ‘within-level’, ‘cross-level’, and ‘temporal’ factors that contribute to an overall perception of P-E fit (Jansen & Kristof-Brown, 1998). Furthermore, Ryan and Kristof-Brown (2003) list four relevant issues in P-O fit assessments, namely (1) the relevance of personality in P-O fit; (2) positive and negative influences of P-O fit on personality; (3) accuracy of fit perceptions and (4) fit related to adaptability. These issues are important points of departure for this study in terms of **providing a colourful background of the diversity and complexity of the theory on P-J fit, also applicable in the e-learning context**. This also accomplishes the four literature review purposes as proposed by Creswell (1994) (see section 2.3).

Studying P-J fit as a main focus area revealed a number of assumptions, errors of reasoning and probing questions. My observations in this regard are presented in Table 2.16.

Table 2.16: Observations regarding trends and issues in P-J fit in the e-learning context main focus area

What are the assumptions following these trends and issues?
The greater the congruence between the personal characteristics and job requirements the greater the likelihood of success.
P-E fit assumes an environmental context for the fit.
Personal characteristics and job characteristics form a triad with the environment.
The management and development of human resources in organisations depend on the ability to identify individual differences in employees’ personalities and on determining how congruent these are with organisational attributes.
P-O fit assumes that personality congruence is a direct predictor of employee intention to remain with the organisation.
Because of the stability and visibility of personality over time, assessment based on personality should not change dramatically over time.

Sometimes perceptions of misfit may lead the person to become more self-aware and he/she may even perceive the misfit as an opportunity for self-development.

Accuracy of fit perceptions relate to subjectivity and willingness to change.

Modern organisations are dynamic and fluid – thus a good fit depends on the adaptability of the person in terms of their ability and motivation to adapt (change) to fit the situation.

Individuals should place high value on autonomy, flexibility and diversity to achieve P-O fit in virtual organisations.

What are the errors of reasoning?

Teacher-job fit becomes online teacher-virtual job fit.

Traditional congruence between teachers and their teaching jobs resulting in a good fit is not directly transferable to the e-learning environment (Shin, 2004). The sets of person and job characteristics needed for each environment differ from each other and congruence between one set in a traditional teaching and learning environment will not transfer seamlessly to the e-learning environment. Therefore the identification of the relevant set of person and job characteristics for a given environment is most important for matching the sets.

The question remains ...

What are the characteristics of the e-learning practitioner and the e-learning job needed to enhance P-J fit in the e-learning environment? Current research on e-learning and P-E fit in higher education (Lindholm, 2003) does not provide sufficient answers to these questions and seems to overlook the importance of a well-recognised principle in the human resource management domain. Furthermore, the literature review revealed a gap in the literature on formal studies done on matching the characteristics of the e-learning practitioner, the e-learning job and the e-learning environment. Shin (2004:725) calls for a focus on “individual characteristics necessary for employees to be effective” in virtual organisations.

In this study I will argue that **knowledge about the characteristics of e-learning practitioners and e-learning practice (the job), and how these characteristics fit together in terms of goodness of fit, may contribute to our understanding of the e-learning practitioner construct in terms of a number of possible person-job fit scenarios** (research question 3).

The following paragraphs will highlight the meaning of P-E fit and discuss interactionist theories as integrative models.

2.6.6.2 Conceptualisations of P-E fit

Sekiguchi (2004:179) reviews various conceptualisations of **P-E fit**, which is an overarching concept of **P-O fit** and **P-J fit**, “the two most extensively studied fit constructs in the employee selection context”, and I agree with Kristof (1996) that P-O fit is complex and multidimensional in nature and is “the compatibility between people and organizations that occurs when: (a) at least one entity provides what the other needs or (b) they share similar fundamental characteristics or (c) both” (Kristof, 1996:4-5). The essence of P-E fit theories is “a matching process between self-knowledge and world-of-work knowledge” (Patton & McMahon, 1999:33) that leads to either congruent or incongruent interactions. The P-E fit perspective assumes that individuals seek out congruent environments and that a process of ongoing adjustment takes place between the individual and the environment. Theories on work adjustment emphasising these dynamic interactions are also included in the broad framework of P-E fit theory (Patton & McMahon, 1999:34). This reflects a shift from the trait factor approach introduced in the early 1900s by Frank Parson to the modern dynamic approach of P-E fit (see discussion on ‘Occupational-orientated Personality theories’ in Appendix B3).

Brown, as one of the most recent P-E theorists, addresses and extends the concept of discordance of incongruence by accepting contextual influences in the work setting and by considering work in the context of life (Patton & McMahon, 1999:35). His work relates to trends in the development of career theory (Patton & McMahon, 1999:28), but is also relevant to this study in terms of his thinking on broadening the base, and enrichment of trait factor and P-E fit approaches. This allows for a holistic approach in my thinking about the relationships between the e-learning practitioner and e-learning practice interacting in the e-learning environment. Using the broader P-E fit approach to understand these interactions also relates to the interactionist theory most relevant to this study (see discussion on ‘Relationship between job and personality’ in section 2.6.4.6).

The frequently cited conceptualisation of P-E fit by Kristof (1996) assumes that “human behaviour is a function of the person and the environment and that the person and the environment need to be compatible” (van Vianen, 2001).

Within organisational psychology, P-E fit approaches have been used widely in the study of

- personnel selection (Haaland & Christiaansen, 2002; Lievens, De Fruyt, & Van Dam, 2001; Lievens, Chasteen, Day & Christiansen, 2005);
- trait activation theory used for evaluating the construct validity of assessment centre ratings (Haaland & Christiansen, 2002);
- individualism/collectivism across cultures (Parkes, Bochner & Schneider, 2001);

- human resource staffing processes (Judge & Ferris, 1992), and
- models and theoretical frameworks for understanding various vocational processes and work behaviour (Holland, 1992).

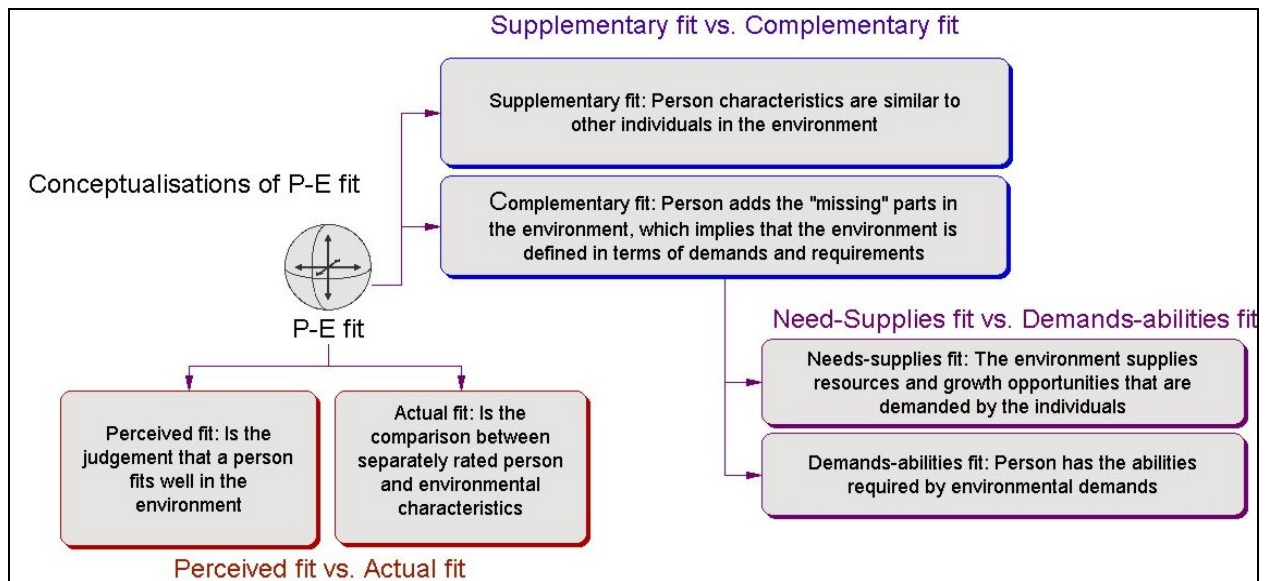
However, the multidimensional nature of the P-E fit construct suggests a variety of identifiable types, for example person-vocational fit (Holland, 1992); person-organisational fit (Sekiguchi, 2004); person-group fit (Jansen & Kristof-Brown, 1998; Hollenbeck, 2000); person-job fit (Shin, 2004); person-person fit (Jansen & Kristof-Brown, 1998).

Different type combinations are frequently categorised under the overarching concept of P-E fit (Judge & Ferris, 1992). Although studies of P-E fit are prevalent in the literature the focus is on fitting single levels of the environment to the individual, resulting in one-dimensional descriptions (Jansen & Kristof-Brown, 1998:F1). The current movement towards a multidimensional approach to P-E fit studies heightens awareness that a number of within-level, cross-level and temporal factors contribute to a more holistic perception of P-E fit (Jansen & Kristof-Brown, 1998:F3-F5).

As mentioned earlier, the concept of P-E fit is grounded in the interactionist theory of behaviour, assuming that neither “personal characteristics nor situational context explain the variance in behavioural and attitudinal variables but can be explained by the interaction between the personal and situational variables” (Sekiguchi, 2004:180). P-E fit conveys the idea that for “optimal occupational performance employee characteristics must be congruent with the characteristics of the work environment” (Bergh & Theron, 2001:316) and that the degree of congruence will determine the satisfaction of both the employee and the employer. Sekiguchi (2004) further explains the multidimensional nature of P-E fit as (a) “*supplementary vs. complementary*”, (b) “*needs-supplies vs. demands-abilities*” and (c) the “*perceived vs. actual distinction*” (Sekiguchi, 2004:180-181) (see graphical presentation in Figure 2.17).

Figure 2.17: Conceptualisation of the multidimensional nature of P-E fit

(adapted from Sekiguchi, 2004:181)



Sekiguchi defines "actual or **objective fit as the comparison between separately rated person and environmental characteristics**" (Sekiguchi, 2004:181), which is particularly relevant for this study in terms of the fit of the PPAs and HJAs. Jansen and Kristof (1998) are of the opinion that a great deal of knowledge regarding fit with various levels of the environment is available, but little is known about the dynamic interaction between these levels that creates the person's overall experience of fit or misfit (Jansen & Kristof, 1998:F1). In an attempt to take a more holistic approach, they propose a multilevel model of perceived P-E fit. Although their model includes pre-recruitment, requirement, selection/job choice, socialisation and long-term tenure as temporal stages in the employees' working relationship with organisations (Jansen & Kristof, 1998:F5), the absence of stages such as development stages including staff training, staff development and the design of learning environments to suit *learner's* (incumbent's) profiles, are notable omissions. Fit assessments operating at multiple levels of the environment should also include a temporal stage (for example development) that caters for fast changing work environments, and the training and development needs of the individual in coping with the changing work environment.

2.6.6.2.1 Person-job fit defined

P-J fit seen as a separate dimension of P-E fit refers to a match between a person and the job. This is usually based on the competencies and attributes of the person and the demands of the job and deals with two relationships: firstly, person skills and attributes to meet the job demands, and secondly, whether the job meets the needs of the person (Sekiguchi, 2004:179). The e-learning practitioner “job” at TUT has different environmental scenarios and P-J fit may thus imply a variety of relationships in different contexts influenced by different situational features.

Increasingly more sophisticated measuring instruments are being used to determine the match between the person and the job (Sekiguchi, 2004:183), and these applications are most relevant in the employee selection process. Operationalisations of P-J fit typically “include needs-supplies and demands-abilities perspectives” (Edwards, 1991 in Sekiguchi, 2004:184), which implies components such as “desires and motivational aspects of the individual and characteristics and attributes of the job” (Sekiguchi, 2004:184). Kristof (1996, in Sekiguchi, 2004:180-181) is of opinion that demand-supply fit and needs-supply fit are two contrasting constructs, viewing demand-supply fit as the individual’s capacity to provide what is necessary for successful completion of the job vs. needs-supply fit that equates the attributes of the job with the individual’s needs. Elements of both of these perspectives capture the essence of the P-J fit conceptualisation for this study. On the one hand, a combination of the individual’s needs and his/her capacity to satisfy job demands is characterised by the person’s work behavioural styles and, on the other hand, a combination of job demands and attributes are characterised by the job structure. P-J fit reflects the interaction and relationship between the work behavioural style of the individual and the job structure.

Implication for this study

The most important key issue in person-environment fit is in determining the relevant ‘P’ and ‘E’ characteristics for that particular environment or situation (Shin, 2004:735)

The following assumptions from P-E fit and P-J fit are important for this study:

- The greater the congruence between the personal characteristics of the e-learning practitioner and the job requirements, the greater the likelihood of success and of positive outcomes for the e-learning practitioners.
- P-E fit assumes an environmental context for the fit, therefore the TUT e-learning environment is relevant in terms contextualisation of the study.
- Personal and job characteristics form a triad with the environment, resulting in interactional relationships.

- Understanding the structure of the e-learning practitioner construct will depend on identifying the person characteristics of the e-learning practitioner and measuring their congruence with the e-learning practice attributes to determine goodness of fit.
- Because of the stability and visibility of personality over time, assessment based on personality should not change dramatically over time and therefore person attributes expressed as work behavioural styles would be useful, observable entities for this study.
- A holistic “quantum thinking” approach may enable the researcher to integrate and fit e-learning practitioner characteristics, the characteristics of the e-learning practice and the e-learning environment, resulting in a deeper understanding of the e-learning practitioner construct.
- Complementary fit divided into demands-abilities fit and needs-supplies fit is achieved when the person characteristics of the e-learning practitioner and the job characteristics of e-learning practices match in a complimentary fit.
- Misfits may lead the person to become more self-aware, may provide opportunity for self-development or may prove to be a good match in a different situation.
- Operationalisation of P-J fit includes the measurement of the characteristics of the e-learning practitioner and the job requirements using valid and reliable measuring instruments such as the Personal Profile Analysis and Human Job Analysis instruments from the Thomas International system.

2.6.6.3 Person-job fit research

General research initiatives pertaining to P-J fit traditionally focused on employee selection practices (Sümer, Sümer & Demirutku, 2001; Lievens, Van Dam & Anderson, 2002; Jenkins & Griffith, 2004) and researchers demonstrated the validity of structured selection techniques and the valuable contribution of P-J fit applications in selection and recruitment practices (Ruijter, 2005). Much of the current selection research focuses on the role of personality as a predictor of employee effectiveness and identifies agreeableness and conscientiousness as important predictors of performance (Wright & Boswell, 2002).

Research evidence shows a number of outcomes, for example job satisfaction, adjustment and organisational commitment, to be positively affected by a high level of P-J fit (Sekiguchi, 2004:183). Some researchers have examined the simultaneous impact of P-O fit and P-J fit types on different outcomes and found that these fit types have “independent effects on job satisfaction, commitment and intentions to quit”, stress and turnover (Sekiguchi, 2004:185). Sekiguchi states that, with the exception of Kristof-Brown’s (2000) study, little empirical research has investigated the simultaneous effects of P-O fit and P-J fit in the employee selection context (Sekiguchi, 2004:188).

Some researchers argue that P-J fit based on job analysis is founded on outdated ideas about jobs (Carson & Stewart, 1996). These arguments are based on assumptions about the changing nature of jobs, the existence of learning organisations, organisational flexibility, the technological innovation cycle and the adoption curve. However, selection practices should never use personality or person attribute assessment in isolation. Results of measurements should be viewed as one contribution to a holistic picture of the incumbent. South African law in terms of the Employment Equity Bill Notice 1840 of 1997, page 23, prohibits unfair discriminatory practices and regulates that no person may unfairly discriminate against an employee. Modern P-J fit applications in industry and in the business world use P-J fit techniques increasingly to enhance worker placement for training and selection of employees. The HJA – PPA assessment combination from Thomas International is an example of such a technique, focusing on person attributes and not on specific job tasks. Shelton *et al.* (2002) highlight the organisational leadership dilemma and challenge to simultaneously optimise behavioural style, P-J fit and cultural cohesion in an attempt to maximise effectiveness in organisations. They suggest a “quantum thinking” approach that may enable leaders to integrate the three organisational success factors – style diversity, P-J fit and cultural cohesion.

Using “right brain functions to explore organizational paradoxes” may result in surprising realisations, for example opposite organisational objectives can coexist (Shelton *et al.*, 2002). Sharing the same vision, mission and values does not mean everyone should act or think the same:

Quantum leaders use an inspirational purpose and timeless values to create strong, cohesive organizational cultures that transcend diversity.

Quantum leaders deploy innovative organizational development processes that enable other members of the organization to make a similar quantum leap. Working together they discover shared values and a shared purpose that transcend their differences and in so doing, they create quantum organizations where behavioural style diversity, job/person fit and cultural cohesion simultaneously co-exist (Shelton *et al.*, 2002).

This implies that leaders/workers and the work environment will contribute to the “speed, pace, pattern and endurance of work performance” (Bergh & Theron, 2001:482) and if the ongoing process of adapting to each another can be maintained, the four main ingredients for work adjustment, namely correspondence, satisfaction, satisfactoriness and job tenure, will be present (Bergh & Theron, 2001).

As Sekiguchi points out, despite the vast amount of P-E fit studies, there are still several research questions yet to be explored and he refers to issues relevant to the international and cross-cultural perspectives and the dynamic process of promoting P-E fit as possibilities for future research (Sekiguchi, 2003:190).

2.6.6.4 Person-organisation fit for virtual organisations

Among existing models of P-O fit, Shin's (2004) is particularly useful in helping to clarify the inherent complexities in conceptualising P-O fit for virtual organisations (see Appendix B4 for a detailed discussion on person-organisation fit issues and research). As discussed in preceding sections, the world of work for the e-learning practitioner includes the virtual teaching and learning work environment, which may also be part of a virtual organisation. Shin (2004) points out that recent studies have started to pay attention to human resource aspects of virtual organisations but have not focused on the "individual characteristics necessary for employees to be effective" Shin (2004:725). Findings from studies pertaining to virtual organisations report contradictory results in terms of job performance, productivity and satisfaction, whilst other report that the workers in the virtual organisation have feelings of isolation and dissatisfaction (Shin, 2004:727-728). Virtual work environments are not appropriate for everyone and it would be to the advantage of organisations to "determine the characteristics of virtual employees that would allow for a good fit to virtual organisations" (Shin, 2004:726).

Characteristics of virtual organisations are that they "possess internal structures of virtual teams and members" who are "located remotely" from each other, a flat structure as opposed to the steep hierarchy of traditional organisations and display dimensions of "space, time, culture and boundary" (Shin, 2004:726). "The degree of virtuality will depend on the extent to which an organisation takes on more of these four characteristics" (Kraut, Steinfield, Chain, Butler & Hoag, 1999, in Shin, 2004:727). Shin (2004:730) illustrates this with the following example. If employees work in a virtual organisation with an extreme degree of spatial and temporal dispersion, they would work remotely from one another without fixed time frames. A flat organisational structure would further imply that workers are not supervised very closely by their managers and that they would be able to work autonomously in a self-directed and self-motivated way. Thus, individuals who value autonomy highly will experience greater P-O fit in virtual organisations with a high degree of spatial and temporal dispersion than in virtual organisations with a low degree of spatial and temporal dispersion Shin (2004:730). Therefore in organisations low on virtuality, autonomy may become less important for P-O fit.

Shin (2004) proposes a P-O fit model for virtual organisations, mapping person attributes valuable on organisational, social and individual levels to virtual environmental dimensions and types of P-E fit to contribute to outcomes such as job performance, job satisfaction,

organisational commitment and turnover intentions. It is posited that these attributes are “salient and pivotal in achieving fit in virtual organisations” (Shin, 2004:728). Individuals should value autonomy; flexibility and diversity highly to achieve P-O fit in virtual organisations.

Trustworthiness, willingness to trust, virtual communication and lateral skills are characteristics that employees need in order to be compatible with the virtual team group to achieve person-group (P-G) fit (Shin, 2004:728). Shin (2004) continues by saying that domain knowledge, computer literacy, ability to work autonomously and time management skills are important characteristics of the individual to match the virtual job for achieving a good fit. All three types, P-O , P-G, and P-J fit are moderated by the degree of virtuality of the organisation and Shin supports Kristof’s (1996) view that achieving a good fit should result in positive individual outcomes (Shin, 2004:729).

Shin (2004:737-738) points out that his proposed model for P-E fit for virtual organisations may be useful to P-E fit research in terms of four distinct theoretical implications namely, (1) taking account the different degrees of virtuality in P-E fit research; (2) attempting to examine P-O, P-G and P-J fit simultaneously; (3) delineating the simultaneous effect of different types of fit and their antecedents, and (4) specifying the moderating effect of organisational dispersion on the relationship of the three types of fit and individual outcomes.

Important for this study

Taking cognisance of degrees of virtuality is especially important for positioning e-learning at TUT. Understanding the e-learning practitioner construct clearly calls for recognising the importance of environmental and situational influences. The nature of these influences, characterised by varying degrees of virtuality, will become evident through discussions in subsequent chapters.

Although this study may address Shin’s (2004:738) call for further research on aspects such as “degrees of virtuality” and “the examination of employee qualities that are important for achieving a good fit”, it also contributes to the understanding of another dimension not noted by Shin’s model, namely that of environmental structuredness. The importance of degrees of structuredness in the virtual teaching and learning environment for P-J fit research will become evident through discussions in subsequent chapters.

Implications for this study

With respect to the third research question, P-J fit in terms of the DISC dimensions is important for this study to describe the relationship between the e-learning practitioner and e-learning practice in terms of goodness of fit at TUT.

Based on the explained concepts and research, the research objective and consequent subsidiary question are:

- To identify the latent structure of the e-learning practitioner construct in terms of fit between the e-learning practitioner and e-learning practice (**research question 3**):
- What is the relationship between the e-learning practitioner and e-learning practice in terms of goodness of fit at TUT?

The challenge for this study is therefore to try and uncover the characteristics of the e-learning practitioner as well as the characteristics of their e-learning practice and to identify relationships between the person and the job within the context of the e-learning environment in higher education. The resulting patterns of relationships may provide me with insight into the structure of the e-learning practitioner construct. To enable me to do so the literature study focused on **studying e-learning practice** to get insight into the job of the e-learning practitioner (**research question 2**) and on studying the **e-learning practitioner** to get insight into the characteristics of the person doing this job (**research question 1**) and concluded with a focus on the relationship between the person and the job in terms of **goodness of fit (research question 3)** within the **e-learning context** at TUT.

2.7 Theoretical integration of the study

In applying a **systems theory framework** to an integrated combination of **P-J fit** and **interactionist theories**, the researcher aims to create a theoretical foundation to position this study and to use as an approach to investigate the research problem and questions. The design of P-E fit theory, including P-O fit and P-J fit theories, allows for a generally applicable model useful in any organisational context (Shin, 2004:729). Whereas systems theory offers the potential to focus on different theories as being parts of a whole (Patton & McMahon, 1999:136) and also provides a basis for integration whereby the researcher can view the interaction between the e-learning practitioner and the e-learning job. Assumptions from traditional systems theory are that the world operates in much the same way as a machine and that parts within the structure function in cause-and-effect actions in such a way that outcomes are generated (Patton & McMahon, 1999:143). Newer thinking is more focused on the patterns of functioning, analogue reasoning and spontaneous change (Patton & McMahon, 1999:144) and, according to Patton and McMahon (1999:135), human systems are viewed as “purposive, ever-changing and evolving toward equilibrium”.

Various researchers, for example Capra (1982), Bateson (1979) and Ford (1987), contribute to a better understanding of the key concepts of systems theory. Related to Capra's work in quantum physics are the notions that all things are interconnected and that no object can be studied in isolation. Furthermore, Capra became aware of the limitations in language for describing experiences independent of our senses (Capra, 1982; Patton & McMahon, 1999:136-137).

The relevance of systems theory for this study becomes clear in the words of Senge (1990), who says that "systems thinking offers a language that can restructure how we think" and can therefore be useful in providing a discipline for "seeing structures that underlie complex situations" (Senge, 1990:69), and Patton and McMahon (1999:141), who say that "the wholes and relationships that can more readily foster an understanding of complexity" (Patton & McMahon, 1999:141).

Systems thinking was used to understand the e-learning practitioner construct as a living system within the context of the e-learning and P@W Programme environments in the TUT organisation. The e-learning practitioner system consists of two subsystems, namely the e-learning practitioner (person) and the e-learning practice (job) subsystems. The identification of the interaction styles and the movement of the influences within and between the systems (recursiveness) is an attempt to give a "snapshot" of the dynamic interaction between the person and the job within the context of the work environment.

Systems theory offers a framework for a qualitative approach to a problem that is traditionally more quantitative in nature. The systems-interactionist model assumes that an organisation functioning as a whole is formed to achieve objectives that cannot be achieved by individuals on their own. Likewise, individuals join an organisation to achieve objectives that would be difficult on their own (Bergh & Theron, 2001). The main premise is that individuals as self-systems can best be understood by first examining their functioning in the context of the wider and hierarchical systems that surround them (Bergh & Theron, 2001:476).

Using these theoretical viewpoints, the human system is viewed as a "complexity of interrelated subsystems", interacting with other living and non-living subsystems (Patton & McMahon, 1999:136). The human system tries to maintain a state of homeostasis and equilibrium through purposeful actions that are ever changing to support the system. The premise of this study, that **person attributes** being elements of **human personality as a living system interacts with the environment** and there is a **feedback loop between responses ("behaviour") and resulting stimuli from the environment**, aligns with Huitt's (2003) proposed model for human behaviour. The view of personality as a living system is also suggested by other authors, for

example Bergh and Theron (2001), in their description of work-related personality attributes and processes, as well as Ford's living systems framework, which emphasises that "human behaviour is a function of the interaction of the person and context", as described by Patton and McMahon (1999:139). More contemporary writers contribute to complexity theory by their assumptions that "human beings are complex adaptive systems and that traditional explanations limit our potential to understand human behaviour" (Patton & McMahon, 1999: 141).

As Capra (1996) pointed out in *The Web of Life*, one has to look at the pattern, the processes and the structure of the system to understand it. Personality seen as a living system has specific characteristics which are combined in different patterns of types. According to Berens (1999), humans are born with a tendency for particular behaviour patterns (a True-Self), but interaction with the environment results in the development of an "Adapted Self". The "Contextual Self" represents current behaviour (Berens, 1999) and depends on what the situation at the time requires. When trying to understand personality, all we have to judge a person by is outer behaviour and the patterns of interaction that are both contextual and innate, and which determine behaviour in the relationship with the job, organisation and fellow employees. Therefore an organisation's culture and environment provides input that will "determine the type of contact with the individual and also the kind of behaviour and process that can be expected" (Bergh & Theron, 2001:477).

In the work environment, the human job, as a subsystem of the organisation, is a living system with certain characteristics combined in different patterns of types. These characteristics will determine the type of interaction and relationships with the person practising the job. The practitioner as a subsystem of the organisation also has certain characteristics, combined in various patterns, related to each other as well as to the other systems in the organisation. Through a process of interaction, reacting to influences and drivers (motivators and demotivators) the two subsystems form a living system in the organisation. The interactions between the two subsystems (person attributes and the specific job) define certain types of relationships and a particular climate. This leads to certain behavioural outputs by the person, which in turn results in certain consequences for the person and the organisation. Bergh and Theron (2001) further reason that the consequences reveal the extent to which individual and organisational objectives, needs and expectations have been satisfied. It is crucial to be aware of what is happening in all the aspects of interaction between employees, organisation and environment, and what the outcomes of these interactions are. This understanding is most important for the planning and implementation of interventions at the right place and time. (Bergh & Theron, 2001). However, for this study the focus will be on the interaction between the patterns of person characteristics (e-learning practitioner) and the patterns of job characteristics

(e-learning practice), resulting in relationships (P-J fit) in the work context (unstructured and structured work environments). The planning of interventions will not be a study focus, but will be mentioned in the discussion on the practical implications for training and career development for the e-learning practitioner.

Various approaches to personality in the work context use different foci, and schools of thought include *inter alia* psychodynamic or psychoanalytic, behaviourist or learning, factor or trait, and occupation-orientated personality theories. The main premise of this study is that in the work environment individual personal attributes have no meaning outside the context and that human job characteristics come to life in their relationship with the individual person. (Parts have meaning only in reference to the whole which is greater than the sum of its parts.) This relationship has an emphasis on maintaining ongoing change through negative and positive feedback loops. When energy flow in the system becomes too complex it results in a positive feedback loop that causes reorganisation and resultant growth and development in the system (Patton & McMahon, 1999:146).

Patton and McMahon (1999) also point out that Vondracek and Fouad (1994), who were influenced by systems theory philosophy, propose a developmental-contextual approach to career development, suggesting that intervening at different levels of context can change the relevance of a particular variable. These ideas are relevant for this study in the sense that changes in the work context in terms of structuredness affects the personal profile needed for a good fit. Thus interventions in terms of more or less structuring of the environment for the e-learning practitioner may have a positive congruence result.

Bergh and Theron (2001:510-511) are of the opinion that in the work context employees' competencies and occupational adjustment are primarily based on the direct and moderating effects of personality variables. Furthermore, the scientific and optimal management and development of human resources in organisations depend on the ability to determine individual differences in employees' personality attributes and their congruence with organisational attributes. Organisational culture and organisational effectiveness are also dependent on the collective "personality profile" which employees attribute to the organisation" (Bergh & Theron, 2001). Both the personality and the job systems are driven to operate in certain ways: if we can understand the inherent operating principles (e.g. behavioural styles and human job requirements) and work with them, we can save energy (Berens, 1999). If, however, there is incongruence between the two systems and they are forced to work together, energy is wasted and stress and resistance are triggered. These operating principles, or attractors (Berens, 1999), attract certain processes within the system, and knowledge about these attractors is vital for understanding the system.

To gain knowledge about a vague ill-defined construct such as the e-learning practitioner construct in terms of personal attributes is a daunting task. However, if the field of attention is narrowed to focus on personal behavioural styles in a work environment as “operating principles for the system” it becomes more manageable. The Thomas International Profiling System provides measuring instruments for measuring personal behavioural styles and human job requirements.

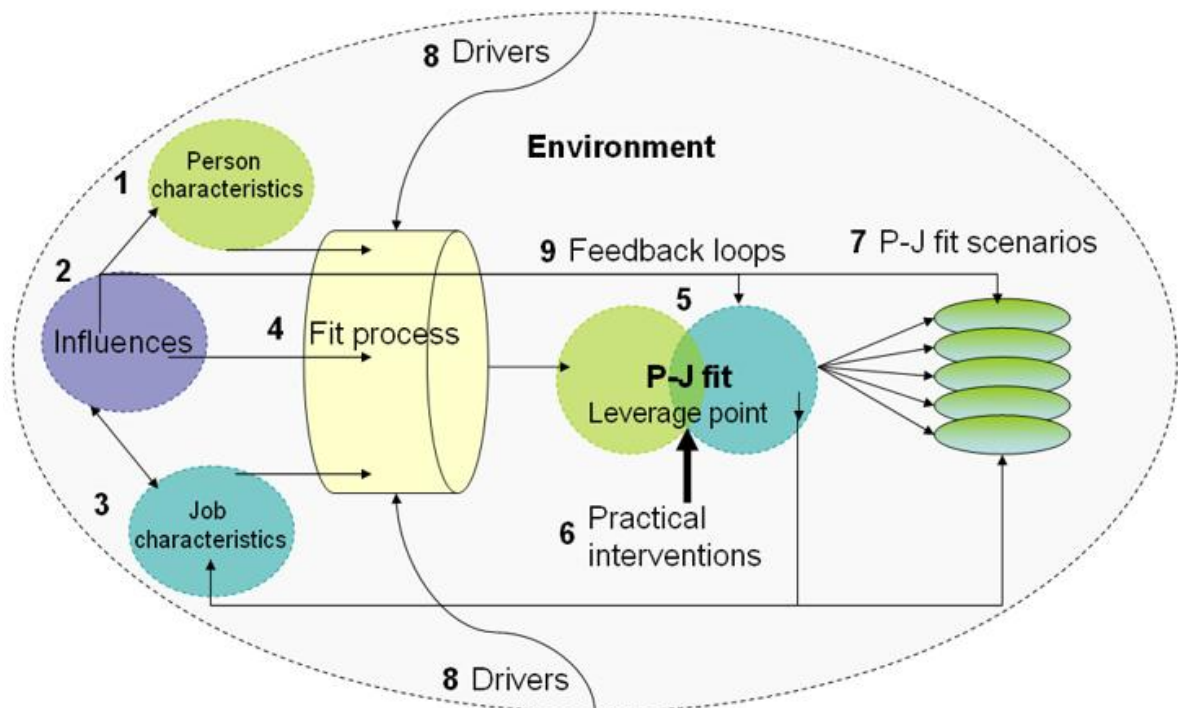
The Thomas Profiling System was founded by Dr Thomas Hendrickson in the early 1960s and has since gained widespread recognition as one of the most successful methods of determining human behavioural styles in the working environment. These are described in terms of four DISC factors, and different style types can be displayed as profile shapes. Best-fit type means that the themes and preferred processes of two types fit each other the best. A DISC test produces three distinct profile shapes: “the Internal, the External and the Summary”. These profiles “are based on analyses of different sets of answers, and each describes a different aspect of a person’s behaviour. Each profile shape will come to the fore in a certain type of situation” (Axiom n.d.). The Summary profile is a combination of the other two profiles describing a person's likely normal behaviour. The Internal profile, sometimes called the *Underlying* or *Pressure* profile, reflects the person’s true motivations and desires. This is the type of behaviour that often appears when an individual is placed under pressure. Also known as the *Mask* or *Work* style, the External shape usually represents the type of behaviour that an individual will typically adopt at work. The HJA as an integral part of Thomas International Systems is designed to specify the behavioural requirements of any job function in terms of the DISC structure (Dominance, Influence, Steadiness and Compliance). The match of the personal profiles to the requirements of the position can be obtained by means of a computerised fit between the PPA profiles and the HJA.

Various researchers describe personality as a living system and a number of different concepts are used to describe the personality system’s structure, for example “Cattell and Eysenck used traits as examples of structural concepts; Kelly referred to structure in terms of cognitive constructs and Roger utilised the self-concept of behaviour responses as an integrative structural concept” (Bergh & Theron, 2001:321). The researcher used work behavioural styles expressed in terms of DISC language to describe a particular aspect of work personality structure. A personality-orientated job analysis, namely the Human Job Analysis, was used to identify and describe job characteristics and job structure. Person characteristics from the individual (Figure 2.18#1) and characteristics from the job (Figure 2.18#3) are the inputs into the e-learning practitioner system, and through a process (Figure 2.18#4) of reciprocal interaction lead to certain outputs e.g. P-J fit (Figure 2.18#5), moderated by environmental influences (Figure 2.18#2) and constantly monitored by feedback systems (Figure 2.18#9). Environmental

changes act as drivers (Figure 2.18#8) in the system and practical interventions (Figure 2.18#6) such as the implementation of support programmes, job redesign and career development may be applied as leverage points to change the output for example to create a number of P-J fit scenarios (Figure 2.18#7).

The input-output is illustrated in Figure 2.18 in terms of a dynamic interactionist model of the e-learning practitioner system.

Figure 2.18: A dynamic interactionist model of the e-learning practitioner system



Questions about “knowing reality” and the underlying ontological and epistemological positions of systems theory hold that the only reality is the reality construed by the observer in interaction with the observed. This perspective is related to that of constructivism, “which explores multiperspectival data to gain richer knowledge from many perspectives” (Patton & McMahon, 1999:142). Within systems theory, validity is attained through interobserver reliability (Patton & McMahon, 1999).

This observer agreement needs an agreement in the language of expression, thus shared meaning is socially constructed. Through stories, individuals make meaning of their lives and actively construct their lives (Patton & McMahon, 1999:148). Bateson (1979), quoted in Patton and McMahon (1999:148), explains the concept of “story” in systems theory as “stories represent communications about patterns that connect all living things”. Therefore narrative approaches were used as a research tool to gain understanding of the work style behaviour of

the e-learning practitioner interacting with their world of work. Useful in this regard were the stories from the e-learning practitioners as reflected in their bloggers, Yahoo and face-to-face communications.

In an attempt to understand the structure of the e-learning practitioner construct, meaning was constructed by applying a matching process between self-knowledge and world-of-work knowledge, as perceived by e-learning practitioners within the context of the e-learning work environment. **P-J fit theory**, enriched by **interactionist theory** and guided by **principles of system theory**, provided a broad theoretical framework for this process. Relevant principles of systems, interactionist and P-J fit theory will be integrated in the following paragraphs.

2.7.1 Principles of systems theory relevant to this study

The following constructs will be described as key elements of systems theory: wholes and parts, abduction, open systems, environments, ongoing change, patterns and rules, structure, purpose, causality and recursiveness.

The study of systems focuses on the dynamics of the **whole system, which is greater than the sum of its parts** – instead of a reductionist analysis of the parts of the system (Senge, 1990:69). A system is an interactive unit consisting of two or more parts or objects. These objects can be described as input, process, output and feedback and the different attributes of these objects and their relationships are the focus of investigation. The relationship and arrangement between attributes are defined as patterns. Systems are not concretely visible but are organised **patterns of relationships** (Berens, 1999). Fritjof Capra (1996), in his book *The Web of Life*, wrote that to understand a living system you have to look at the pattern, the processes and the structure of the system.

I have come to believe that the key to a comprehensive theory of living systems lies in the synthesis of two approaches (Capra, 1996:154) to our understanding of nature that have been in competition throughout our scientific history – the study of pattern (or relationships, order, quality) and the study of structure (or constituents, matter, quantity) (Capra, 1997).

Berens (1999) adds “purpose” to the list and describes purpose as the holistic theme of the pattern. Pattern is the interrelationships within a system. Every system, including personality, is defined by essential characteristics. These are interrelated and the configuration of relationships is the pattern. Processes tell us the activities the system engages in and structure is how the pattern is physically expressed. Capra (1997) further states that the study of relationships and patterns in a system also involves the surrounding larger systems as well as its environment.

The context is the relationships between the system and its environment and “implies the idea of a web weaved together”... “to characterize systems thinking as a whole” (Capra, 1997). For the pattern of organisation to be visible, it needs to be embodied in a structure that, in living systems, is linked together by an ongoing process. “So system thinking means both contextual thinking and process thinking” (Capra, 1997). This manner of reasoning matches the key principles in P-J fit theory, namely that the process of fitting or matching the patterns of the person and job characteristics and how these interactions are expressed in a P-J fit structure.

Initial analysis of the parts and the relationships between the parts of a system is necessary to differentiate between the system under investigation and other systems. Systems thinking is less concerned with searching for the causes of human activity and reasoning by analogue replaces inductive and deductive reasoning. In contrast with inductive and deductive reasoning, which are both linear in their application, abductive reasoning involves processes of lateral thinking and is concerned with patterns and relationships. According to Kokinov (1994) a widespread (and broadly accepted) definition of analogy is that it is a mapping between elements of a source domain and a target domain. Gentner (1989:201) states that "analogy is a mapping of knowledge from one domain (the base) into another (the target) which conveys that a system of relations that hold among the base objects also holds among the target objects in Kokinov, 1994:3). **Abduction** or **abductive reasoning** is reasoning based on the principle of inference to the best explanation, that is, reasoning in which explanatory hypotheses are formed and evaluated (Thagard & Shelley, 1997). Abduction according to Peirce is about creating new rules – not checking which of the known ones might fit a situation! (Thagard & Shelley, 1997; Wikipedia, 2006b).

As described in previous paragraphs the e-learning practitioner construct is viewed as a system consisting of the e-learning practitioner and the e-learning practice subsystems. These systems are living systems functioning as **open systems** in the e-learning environment. Closed systems have rigid, impenetrable borders, whilst open systems can only be understood in relation to their environments, maintaining penetrable borders between themselves and their supra systems (Patton & McMahon, 1999). The description of **environment** is influential in the development of conceptual frameworks. Conceptualisations influenced by systems theorists such as Bronfenbrenner include the hierarchical organisation of environmental components, different levels of context and the “**nested arrangement of structures each contained within the next**” (Bronfenbrenner, 1977:514). The latter is particularly relevant for this study. The e-learning practitioner construct system, consisting of the two subsystems of e-learning practitioner and e-learning practice, is embedded in the e-learning environment (virtual organisation) at TUT, embedded in the domain of higher education, embedded in the South African environment as part of the global international context. Bergh and Theron (2001) agree that individuals as self-

systems in all their domains of behaviour (biological, cognitive, social and psychological) can be best understood by first examining their functioning in the *context* of the wider and hierarchical systems that surround them. Environmental drivers impact on the functioning of the system and are important influences on the system.

Systems theory emphasises **ongoing change** and makes the assumption that systems regulate themselves to maintain stability. It is the system itself that organises itself around some sort of operating principle driven to operate in certain ways (Berens, 1999). Berens further points out that knowing and understanding these operating principles and working with them saves energy but, by contrast, “if we try to force a system to behave in ways inconsistent with its nature, we spend energy and encounter resistance” (Berens, 1999). She refers to the operating principles (forces) as attractors, which attract certain movements or processes within the system. Understanding these attractors is the foundation of understanding the self of the self-organising system.

These key elements are also highlighted in the Living Systems Framework (LSF) proposed by Ford in 1987. Patton and McMahon (1999) describe this framework as a complex and comprehensive theory of human functioning and development that emphasises that change in the individual occurs to maintain stability and that human behaviour is a function of the interaction between the person and the context. Notions of causality and recursiveness are relevant in this regard. Plas (1986:62, quoted in Patton & McMahon 1999) uses the term *recursive* to describe nonlinearity as:

A recursive phenomenon is the product of multidirectional feedback, which occurs as functional and arbitrarily identifiable parts of a system emerge in transaction across time and space. A recursion is nonlinear; there is mutuality of influence. Any event that can be identified within a recursive human network can be viewed as the product of experience and anticipation. That is, any isolated movement or moment can be seen as influenced by events in the past, present and future (Plas, 1986:62, in Patton & McMahon, 1999).

Interaction between the e-learning practitioner and the e-learning job are influenced by a number of situational features. The focus of trait activation theory on person-situation interaction distinguishes this theory as an attractive and useful theoretical framework for studying situational features relevant to trait expression. Interactionist theory focuses on person-situation interaction on the premise that “trait activation is the process by which individuals express their traits when presented with trait-relevant situational cues” (Tett & Burnett, 2003:502).

Tett and Burnett (2003:500) propose a personality trait-based interactionist model of job performance that frames linkages between situational taxonomies (for example the RIASEC model) and the Big Five. Their aim is to contribute to a theoretical basis for personality trait-performance linkages and to “specify the conditions under which particular personality traits will predict performance in particular jobs” (Tett & Burnett, 2003:500). Application of interactionist theory in this study contributes to understanding the influence of situational features, such as job demands, distracters and releasers as positive and negative cues, on the activation of person attributes in e-learning practitioners, resulting in varying degrees of goodness of fit between the e-learning practitioner and the e-learning job. Practical interventions may change the leverage point to achieve positive or negative adaptations of the P-J fit.

The adoption of an integrated theoretical framework based on systems theory, P-J fit and interactionist theory described in previous sections can give coherence to this study by providing a comprehensive conceptualisation of the theories and concepts relevant to understanding the e-learning practitioner construct. The next section synthesises the literature review, linking together the theoretical framework and relevant conceptualisations into a conceptual framework for this study.

2.8 Conceptual framework

The conceptual framework is a consistent and comprehensive theoretical framework emerging from an inductive integration of previous literature, theories and other pertinent information. A conceptual framework is usually the basis for reframing the research questions and formulating hypotheses or making informal tentative predictions about the possible outcome of the study (Boston Glossary of Mixed Methods Terms/Concepts, 2003).

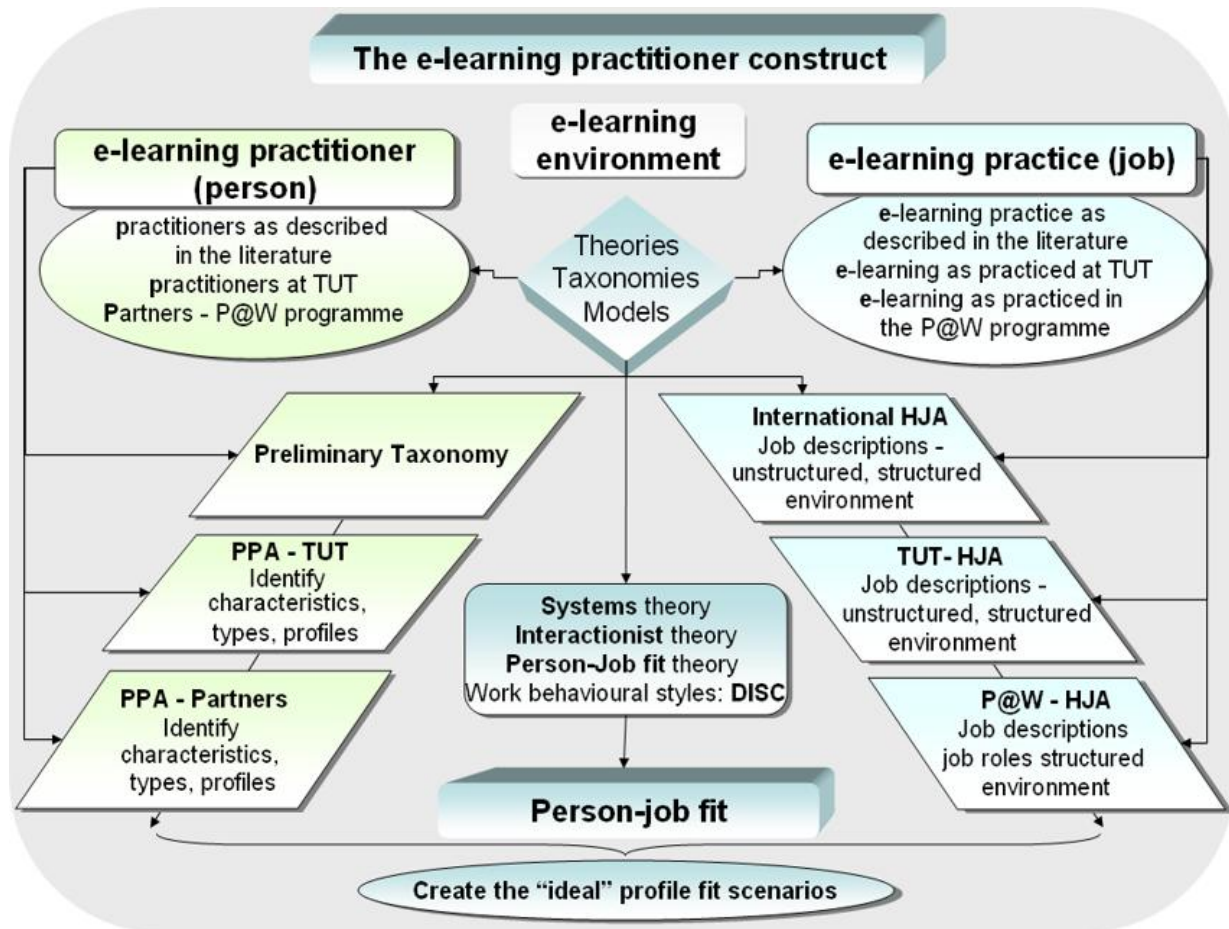
To investigate the structure of the e-learning practitioner construct, a number of structural concepts need to be positioned in a conceptual framework. The literature review in this chapter started with a critical analysis of the main concepts relevant to the construct under investigation. Conceptualisation of e-learning, e-learning practice and the e-learning practitioner, being the building blocks of the structure of the e-learning practitioner construct, attempts not only to clarify these concepts but also to deepen understanding of their interrelationships. Aspects such as the distinct characteristics of each of these main research concepts and the interplay of these characteristics establish the conceptual framework for this study.

P-J fit theory offers a general model for the measurement of P-J congruence applicable in a variety of contexts, therefore complying with the principles of usefulness and simplicity, and this was the reason for choosing this model. Strengthened and complimented by the principles of interactionist and systems theory, this model provided capacity for the building of a conceptual framework for this study. System theory principles offer a broad framework, in terms of input, process and output, for analysing the complex e-learning practitioner system, its constituent parts and the way in which they interact. Principles of interactionist theory enrich our understanding of these interactions by focusing on situational influences that impact on the process.

The systems thinking principle of "nested arrangement of structures, each contained within the next" is applied to the organisation of the e-learning environment in terms of international, organisational and programme environment levels. Characteristics of structured and unstructured e-learning environments on all three of these levels contextualise the systemic process of interaction. A graphical presentation (see Figure 2.19) is used to illustrate the relationship between these conceptualisations.

The DISC model will be applied to identify and describe person and job attributes from the two subsystems in the e-learning practitioner system. This model focuses on work behavioural styles and human job requirements as embodiments of person and job characteristics and offers an elegant classification scheme that partitions information about characteristics both of the person and the job, and defines the relationships among the pieces. For this reason I choose the DISC approach to classify, analyse and relate information pertaining to the characteristics of e-learning practitioners and e-learning practice. Operationalisation of these concepts by using the PPA, the HJA and P-J fit measures will be discussed in Chapter 3.

Figure 2.19: Conceptual framework



2.9 Summary

Chapter 2 reviewed literature dealing with e-learning, e-learning practice and the e-learning practitioner as building blocks for the structure of the e-learning practitioner construct. It investigated the literature on each of the research questions in this study and focused on studying **e-learning practice** to gain insight into the job of the e-learning practitioner (**research question 2**) and on studying the **e-learning practitioner** to gain insight into the characteristics of the person doing this job (**research question 1**). It concluded with the focus on the relationship between the person and the job in terms of **goodness of fit (research question 3)**. These topics were explored from various angles, including conceptualisations, issues and challenges in the respective fields, theoretical foundations and research initiatives, and policies and current trends in the research fields.

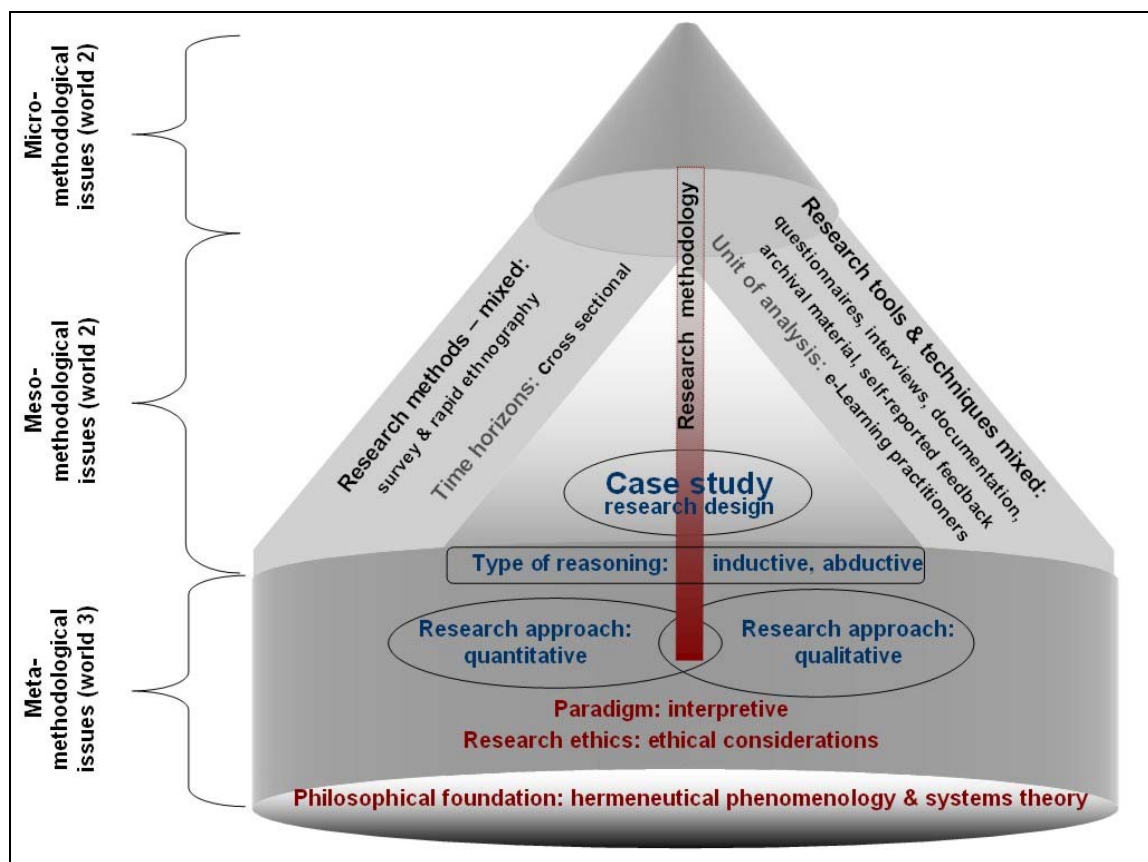
The theoretical basis for this study was presented and embraces P-J fit theory, enriched by integrationist theory within a systems theory framework. These theories were applied to the study to guide the research focus on the main research question: What is the latent structure of the e-learning practitioner construct?

The chapter ended by presenting the conceptual framework that guided this study. Operationalisation of the concepts presented in the conceptual framework, the research design and the methodology will be discussed in Chapter 3.

Chapter 3: Research approach and methodology

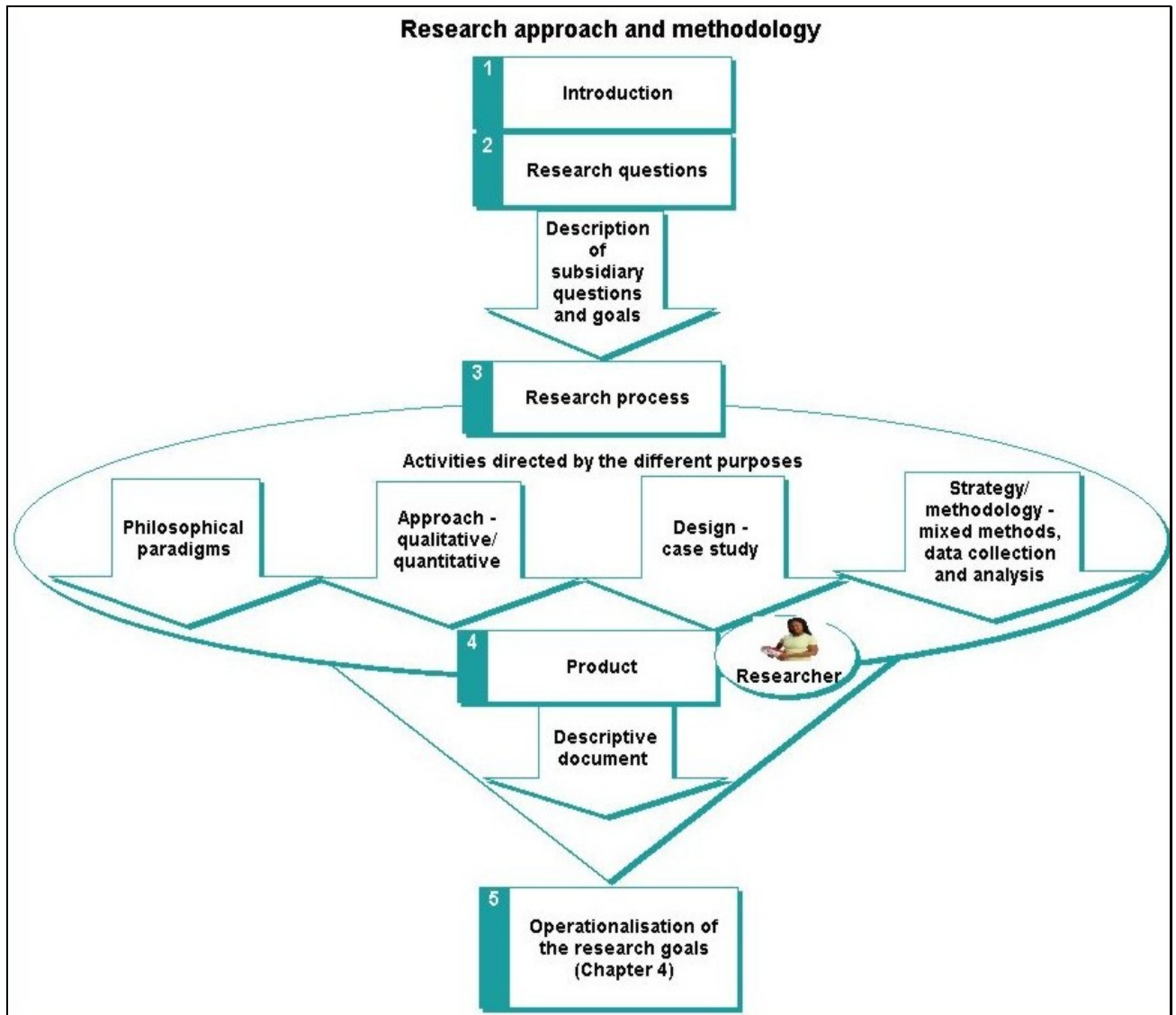
In Chapter 1, the research **problem**, **rationale** and **purpose** were discussed, and the **research questions and objectives**, and **research design** mentioned briefly. This chapter presents the research process and an outline and justification for the design and methodological choices made to answer the research questions. The focus of the first section is on the explanatory detail of the subsidiary research questions, the specific research objectives (goals) and considerations in this regard (Tables 1 and 2). This is followed by a discussion of the different components of the research process (see Figure 3.1 for graphical presentation).

Figure 3.1: The research process



The research process includes the research philosophy (section 3.3.1), research approach (section 3.3.2), research design (section 3.4) and strategy/methodology (section 3.5). The latter is described in terms of methodological protocol, mixed research methods (section 3.6), data collection, sources of data and data analysis techniques and instruments for operationalising the research goals. The chapter concludes with a report on quality criteria and the ethical considerations adhered to in this study. Figure 3.2 provides a graphical representation of the layout structure of Chapter 3 and provides a bird's eye view on the process and its product.

Figure 3.2: Graphical presentation of the layout structure of Chapter 3



3.1 Introduction

Figure 3.1 presents a macro-overview of the methodology, methods, tools and techniques used to create a comprehensive picture of the e-learning practitioner construct and focuses on how the study was conducted as well as the reasons for doing so. The following sections will expand on these and also sketch the research design that linked the research questions and the methodology for this study.

3.2 The research question

The purpose of this research study is to uncover the latent structure of the e-learning practitioner construct in order to answer the question:

What is the latent structure of the e-learning practitioner construct?

3.2.1 Research subquestions

The following research subquestions were formulated to answer the main research question.

What is the latent structure of the e-learning practitioner construct in terms of person attributes? (Chapter 4.3)

What is the latent structure of the e-learning practitioner construct in terms of the work environment context? (Chapter 4.4)

How do the work environment- and person attributes fit together in the structure of the e-learning practitioner construct? (Chapter 4.5)

Tables 1.1 and 1.2 provide explanatory detail of the subquestions and the research goals. Action plans for operationalising the research goals are outlined and discussed in section 3.4 on research design, and the general research plan is set out in the sections on research methodology (section 3.5) and research methods (section 3.6). A description of the research process contextualises these elements.

3.3 Research process

The integrated model of social research (Mouton & Marais, 1992:21) positions the research process in a three-subsystem framework. The framework distinguishes between intellectual climate (the nature of reality/ontological assumptions), the cost of intellectual resources (the nature of knowledge/epistemic status of knowledge doctrines) and the research process itself (nature of how one comes to know/methodology). Figure 3.1 illustrates the research process in

terms of the macro, meso and micro methodological issues. The research process included 11 phases, which have been indicated with letters for easy reference to Figure 1.2, namely (A) the exploratory phase, (B) the pilot phase, (C) the survey phase (D) the decision-making phase, (E) the design and development phase, (F) the implementation and data collection phase, (G) the data analysis phase, (H) the consolidation phase (I) the documentation phase, (J) the reporting phase and (k) the closure of the study (see Figure 1.2).

On a macro level, assumptions from hermeneutical phenomenology and systems theory philosophy form the philosophical foundations for this study. This implies that the research paradigm and the approaches, reasoning, design, and strategy/methodology were coloured and influenced by these philosophical assumptions. The research design is the **action plan** that links the macro, meso and micro levels, focusing on the logic of the research, in other words it is “the logical sequence that connects the empirical data to the study’s initial research questions and ultimately, to its conclusions” (Yin, 1998:236). The research methodology/strategy is the **general plan** that focuses on the steps in the research process and includes the methods, tools and techniques to be used (Mouton, 2002:56).

Therefore the contextualisation of the research means that a framework for the research is built not only in terms of the information that the researcher is going to include or eliminate, but also in terms of choices about the foundation of the research, the **point of departure**, the **research approaches** and the **methodology** to use. These choices are presented in the paragraphs below. In order to make informed choices about the philosophical and methodological approaches, the researcher has to stand back and examine his/her own stance on these issues. In particular, if the focus is on qualitative and mixed method research, the researcher has to clarify ontological, epistemological and methodological issues in his/her own mind to avoid confusion. Walsham (1995:80) calls on researchers to “reflect on their own philosophical stance, which should be stated explicitly when writing up their work”. I conducted an extensive literature review on research as a scientific process. I studied various views and explanations of the research process, including the possible approaches, research philosophies, paradigms and methodologies, in order to position my own research. Some of the important aspects that guided my choices in this regard are discussed in the following paragraphs.

3.3.1 *Research philosophical and paradigm issues*

The world of lived reality and situation-specific meanings that constitute the general object of investigation is thought to be constructed by social actors. That is, particular actors, in particular places, at particular times, fashion meaning out of events and phenomena through prolonged,

complex processes of social interaction involving history, language and action (Schwandt, 1994:118).

A combination of hermeneutics and phenomenology was chosen as a philosophical underpinning for this study. Combining hermeneutics and phenomenology provided me with a foundation not only for understanding, but also for interpreting the phenomena under study. To defend my choices in this regard I will briefly discuss the characteristics of phenomenology and hermeneutics, whereafter I will defend my choice.

In the Phenomenology Inquiry online Max van Manen outlines phenomenology as the study of our experience, or as Martin Heidegger states, “the structure of everydayness”, or “being-in-the-world” (Phenomenology, n.d.; Van Manen, 2002a; van Manen, 2002b). **Different perspectives** were added to this study by “understanding behaviour from the participants’ own subjective frames of reference” (Bradford University Online, 2005:6). Assuming that people place their own meanings on events adds further **enrichment** value.

Elements of phenomenological focus as described by the *Stanford Encyclopaedia of Philosophy*, (n.d.) also characterised this study:

... studies the structure of various types of experience ranging from perception, thought, ... social activity, including linguistic activity. Thus, phenomenology develops a complex account of awareness of one's own experience (self-consciousness, in one sense), self-awareness (awareness-of-oneself), the self in different roles (as thinking, acting, etc.),. social interaction and everyday activity in our surrounding life-world (in a particular culture).

In seeking to determine the ‘latent structure of the e-learning practitioner construct’, the study not only described the **experiences** of e-learning practitioners at TUT, but also focused on their **interpretation** of their e-learning **environment** as demonstrated by their own communications. Adding a hermeneutical approach therefore meant that the experiences were interpreted because, as explained by Ross (2002), hermeneutics is the “theory and practice of textual interpretation”, taking an approach that will communicate and “articulate the knowledge embedded in our practice” (Byrne, 2001). The stories of the e-learning practitioners as presented by the practitioners themselves were described and interpreted in their different contexts.

Combining hermeneutics and phenomenology means that **hermeneutical phenomenology** is concerned with understanding through the description of lived experience, with the addition of

an interpretive (hermeneutical) element that is applied to the phenomena described (*Stanford Encyclopaedia of Philosophy*, n.d.). Hermeneutical phenomenology attempts to build a “full interpretive description of some aspect of the world” (van Manen, 1990); this includes the art, skill and theory of understanding and classifying meaning (*Oxford English Reference Dictionary*, 1996). As **these considerations are most important for this study, this was the philosophical point of departure that was chosen.**

A short summary of the scope of hermeneutical phenomenology may help to clarify the philosophical foundation of this study.

Hermeneutical phenomenology originated from the method described in Heidegger's *Sein und Zeit*, according to which human existence is interpretative but also emphasises hermeneutics or the “method of interpretation” (Centre for Advanced Research in Phenomenology, 2005). He dissociates from the notion of objectivity as proposed by Husserl and assumes that understanding mounts up from fore-knowledge accumulated from experience, an assumption that was built on by Gadamer, who assumed that pre-understanding involves the use of one's preconception before interpretation can begin (Mallery, Hurwitz & Duffy, 1986:5-6). I concur with Mak and Elwyn (2003) that “[r]ather than considering this pre-understanding as potential bias, it is a pre-condition to the truth” (Mak & Elwyn, 2003:396). I further agree with the beliefs of Heidegger and Gadamer in that the focus of understanding **depends on language as well as history** (past experiences) (Quigley, 1998). My research goals caused me to focus on both these “essential components of understanding, [because] they create the **environment** within which human understanding is made possible “ (Schwandt, 1994:121). This study describes the e-learning practitioners' experiences through their language communications to provide both understanding and knowledge (Byrne, 2001). Therefore the inquiry becomes a “dialogue” (Mallery *et al.*, 1986:12) which creates meaning through interaction between me and the text (Quigley, 1998).

However, to ‘understand’ one needs pre-understanding: “have a stance, an anticipation and a contextualisation, this is what is known as the hermeneutic circle” (Lye, 1996). Schwandt (1994) expands on the ideas of Bleicher (1980 in Schwandt (1994:121)) by saying that the hermeneutical circle here is an “ontological condition for understanding” and that it is concerned with the participants' viewpoint verified against etic and emic perspectives. I have therefore chosen hermeneutic phenomenology for this study because it provides a philosophical grounding for the interpretive approach that was applied not only in telling the stories of the e-learning practitioners and their e-learning practice, but also in understanding the deeper structure beneath them.

Important for this study

Assumptions from hermeneutical phenomenology are relevant to this study in terms of the research participants' **being-in-the-world** which is connected by their **work environment** and the specific **roles** that they played in that environment. This study uses the hermeneutic method of interpretation to interpret the participants' descriptions of their 'selves' and their environments.

Textual descriptions of '**lived experience**' by the e-learning practitioners in their '**world of work**' (e-learning practice) at TUT focus on the use of language to **communicate meaning** from the e-learning practitioners to the researcher. Knowing comes from interpretation, thus the "primary aim of textual analysis is **understanding**, [and] not explanation" (Quigley, 1998). The model for communication is **dialogue** between the e-learning practitioners and the researcher, brought about by the "sharing of an author's thoughts expressed through the text" (Quigley, 1998). For a successful process of dialogue, the grammatical and context aspects of **interpretation** are important here. Grammatical aspects are important for understanding the individual words in order to understand a sentence, but the individual words are understandable only in the context of the sentence (Applied Hermeneutics, 1999 ; Quigley, 1998). Furthermore, the expression of a subjective experience implies that "we can not understand the thought or concept of an author without understanding the general biographical and historical context in which the thought or concept arose" (Quigley, 1998). It is not possible to properly understand any one part of a work until one has understood the whole and *vice versa*; we must understand the parts in order to grasp the whole.

Apart from being a philosophical foundation for interpretivism, hermeneutical practice involves the methodology of textual interpretation and explanation as a data analysis technique. The **hermeneutic circle** is an important part of this process and of this understanding. This means that the researcher reads the text (essay, answer to a question etc.) in its entirety to project meaning onto the text, and then goes back to the parts of the text to either confirm or reject that meaning. I followed a process of interpretation suggested by Denzin and Lincoln (2003:37): "The researcher creates a field text, consisting of field notes and documents from the field, moving to research text (notes and interpretations based on field text), recreating the research text to a working interpretive document to try and make sense of what is learned, finally the researcher produces the public text that comes to the reader."

The projected meaning is conditioned by the researcher's background and biases (Applied Hermeneutics, 1999 ; Ross, 2002), as the interpretive process uses pre-understanding and fusion of horizons. If there is no constraint in reality on interpretation, the hermeneutic cycle can spiral out of control (Ross, 2002) or, by contrast, "if the range of hermeneutic interpretation is limited by a text, ... or by anything else, then it is possible for the hermeneutic cycle to narrow

down instead of spiralling out of control. The “limit” of the spiral, whether it is reached or not, is the principle of objectivity and reality” (Ross, 2002).

During data analysis the researcher’s horizon of understanding intersects with that of the text. Successful interpretations involve a “fusion of horizons” (Applied Hermeneutics, 1999 ; Blacker, 1993:3), which means that dialogical hermeneutics is primarily **descriptive** rather than prescriptive (Applied Hermeneutics, 1999) and can be used to understand “what” the characteristics of the e-learning practitioners are, “how” they were influenced by their job environment and “why” they reacted to these influences in the way that they did.

On the other hand, self-reported behavioural styles, as captured by the DISC data collection instruments using the survey method, reflect to some degree the phenomenological assumption that “facts exist prior to, and independently of research, and can be discovered by asking questions and recording answers systematically” (Buckingham & Saunders, 2004:20). Trait theorists agree that human behaviour and personality can be organised into a hierarchy (Pervin & John, 1997:6) where traits can be defined as “consistent patterns of thoughts, feelings or actions that distinguish people from one another, and that these tendencies remain stable across the life span” (Carlton, 2000). These tendencies were captured by the PPA and were communicated to the researcher in the form of computer-generated work behavioural style reports in narrative format.

My position as researcher in this regard is important. As instructional designer I am involved with the e-learning practitioners and their e-learning practice at TUT. In my role as instructional designer and part-time coordinator of the P@W programme, I was also very closely involved with the Partners over the year that they were on the programme. As such I could relate to them in the different roles that they had to play whilst on the programme; I could understand their position, environment, programme demands, ‘history’ and also their ‘language’. I could therefore interpret the material that they generated in the specific context. However, to ensure credibility in the study I used a number of techniques, for example member checking and collecting data from a variety of sources (see section 3.10 for a detailed discussion on applied quality criteria).

Arguments that “advances such as the system theory have only become possible through phenomenology as alternative philosophical model of science to positivism” (Edwards, 2001:4), **align with my reasoning for including systems theory principles in the theoretical integration of this study**, and also to link systems philosophy with hermeneutical phenomenology. Systems theory offered me a useful approach to the analysis of the research problem not just in terms of a philosophical model but also in terms of the systems thinking approach. **Systems inquiry** incorporates three interconnected spheres, namely **systems**

theory, systems philosophy and systems methodology. However, systems methodology, using a formal step-by-step method of inquiry, was **not** applied in this study because case study methodology was the preferred choice. Reasons for this are discussed in section 3.5.

Systems philosophy focuses on a systems view of the world, and “recognises the primacy of organising relationship processes between entities (of systems) from which emerge the novel properties of systems” (Banathy, n.d.). This worldview values the whole as being more than the sum of individual parts (Patton & McMahon, 1999:135). Patton and McMahon (1999) quote Plas’s (1986:3) definition of the underpinnings of systems theory, also relevant for this study:

This newer thinking is much more concerned with patterns of functioning. Searching for the cause of human activity ceases to be important. Inductive and deductive logic make room for other types of rationality, such as **reasoning by analogy**. Understanding human language patterns is critical. Everything is viewed as dynamic rather than static. Spontaneous change can be expected under certain circumstances. Working with wholes instead of pieces of the whole is fundamental (Patton & McMahon, 1999:135).

Systems theory developed from different sources and in different disciplines and is perceived as the basis for constructing a new worldview built on a variety of assumptions about systems themselves and how they are organised (Patton & McMahon, 1999:134). It is important to note that systems philosophy presents the underlying assumptions that provide the “perspectives that guide us in defining and organizing the concepts and principles that constitute systems theory” (Banathy, n.d.). Bellinger (2004) adds that “systems thinking is an approach for developing models to promote our understanding of events, patterns of behavior resulting in the events, and even more importantly, the underlying structure responsible for the patterns of behavior”.

Through the discipline of systems thinking, I attempted an understanding of the influences and interrelationships in the system, perceiving the “system as a whole whose elements ‘hang together’ because they continually affect each other over time and operate toward a common purpose” (Senge, Kleiner, Roberts, Ross & Smith, 1994:90). Interdependencies within the system illustrated by the dynamics in the system suggest more than a single right answer to any question. “The art of systems thinking includes learning to recognize the ramifications and trade-offs of the action you choose” (Senge *et al.*, 1994:91). Some of their thoughts on the practice of systems thinking are:

- “There are no right answers”. The nature of the outcome scenarios is dependent on a specific viewpoint which implies that changes in the one will influence the other. Therefore a number of scenarios, depending on the viewpoint, may present as output of the systemic process.
- “You won’t be able to divide your elephant in half – you can’t redesign your system (the elephant) by dividing it into parts, everyone must look at the whole together.” The three legs of the triad in the e-learning practitioner system cannot be functional if divided into separate independent entities.
- “Cause and effect will not be closely related in time and space” (Senge *et al.*, 1994:91-93). Leverage for improving the match between the person and the job lies partly inside and partly outside the system. Some interventions such as changing the nature of the environment (inside) to customised staff development programmes (outside) may improve the match.

Although Capra (1997) reflects some of these ideas in his view on the key characteristics of systems thinking, his focus is more on system definition, which is also applicable for this study. This definition implies that systems thinking is not only a shift in perspective from the parts to the whole, where the whole is more than the sum of the parts, but also a shift of focus from objects to relationships. If these relationships are mapped, the results display recurring configurations displayed as patterns. This is not a quantitative approach but a qualitative one, as the study of relationships not only includes the system’s components but also its environment.

Capra (1997) highlights three important questions to ask if one wants to define a system. These are: What is the structure of the system?; What is its pattern of organisation?; and What is the process involved? “The process is the activity involved in the continual embodiment of the system's pattern of organization. Thus the process criterion is the link between pattern and structure” (Capra, 1997). Capra (1997) therefore summarises systems thinking as both "contextual and process thinking".

Important for this study

Berens (1999) reiterates Capra’s ideas by defining systems as “patterns of relationships that are organized”; this definition is also applicable for this study:

Patterns are the interrelationships within a system. Every system, including the e-learning practitioner system, is defined by essential characteristics. The characteristics of the e-learning practitioner system reflect the characteristics of the two subsystems, namely those of the e-learning practitioner and the e-learning practice. Each of these subsystems displays its own characteristics, which are uniquely patterned for each subsystem. The configuration of

relationships between these two subsystems forms the patterns in the system. For example, the work behaviour patterns or styles of the e-learning practitioner and the profiles of the e-learning job determine the nature of their interaction and their relationship styles within the system.

The **processes** in the system are the interactional activities that the system engages in. Through a process of interaction the e-learning practitioner and the e-learning job define certain types of relationships in a particular environment. For example, the positive or negative influence of the environment in terms of the structuredness continuum, system drivers, such as motivational influences, or the job demands, distracters or releasers.

Structure is the way in which the patterns in the system are expressed, and reflects the system output. The input contributed by the two subsystems results in an output that reflects the consequences of the interaction within the system. For example, congruence between the e-learning practitioner and the e-learning job results in a good P-J fit. This goodness of match influences the work performance of the e-learning practitioner system as a whole. To enhance the 'goodness of fit' (work performance of the system), knowledge and understanding of leverage points in the system are crucial in order to plan the most efficient interventions. This is an ongoing process of change, growth and development.

This process relates to the **purpose** of the system, which is the holistic theme of striving towards 'best fit'. As already pointed out, the aim of this study is not to plan or report on work performance or practical interventions to enhance P-J fit.

Patton and McMahon (1999:141) point out that systems thinking involves two important themes in systems theory, which need attention. These issues are related firstly to our epistemological stance and secondly to the language that describes our knowledge. Assumptions about knowing and the limitations of language are at the core of understanding systems theory.

Roode (n.d.) writes that assumptions about the grounds of knowledge entail ideas

about what forms of knowledge can be obtained, and how one can determine what is to be regarded as 'true' and what is to be regarded as 'false':

Indeed, this dichotomy of "true" and "false" itself pre-supposes a certain epistemological stance. It is predicated upon a view of the nature of knowledge itself: whether, for example, it is possible to identify and communicate the nature of knowledge as being hard, real and capable of being transmitted in tangible form, or whether "knowledge" is of a softer, more subjective, spiritual or even transcendental kind, based on

experience and insight of a unique and essentially personal nature (Roode, n.d.).

The epistemology of interpretivism advocates the use of a multitude of research methodologies (case study), methods (survey method, focus group), and tools and techniques (questionnaires, interviews, documentation) (Creswell, 1998). The level of analysis for interpretivism is social groups (Vatis, 2002) and interpretivism locates subjects and objects within intersubjective social fields which structure and constrain activity. Vatis (2002) summarises the interpretive paradigm as “seeks to understand the behaviour of different social communities”.

The epistemology of interpretivism believes the best way to know something is through personal experience or interviews with those who have experienced it. Assumptions about the grounds of knowledge pertaining to the interpretive paradigm are that the researcher interacts with that being researched (observer intersubjectivity), therefore the researcher is subjective and empathetic, (Creswell, 1994:5; Myers, 1997; Gough, 2002:6). The interpretive orientation conceives many possible realities, each of which is relative to a specific context or frame of reference (Chiang, 1998).

In education today there are several competing paradigms, but one generally accepted list includes three, namely **post positivism**, **critical theory**, and **interpretivism/constructivism** (Myers, 1997:3; Heinecke, Dawson, & Willis, 2001:295; Gough, 2002:6). Chiang (1998) writes that the interpretive approach as a paradigm for social research is a compilation of diverse philosophical and sociological traditions. Assumptions from the interpretive approach are important for this study, and **include the notion of the internal reality of subjective experience, and that reality is socially constructed and is concerned with meaning, the patterns of meaning and the understanding of a person’s definition of the situation** (Myers, 1997:3; Heinecke, *et al.*, 2001:295; Gough, 2002:6). My research goals directed me towards a number of activities focused on the analysis of *inter alia* documents, archival material, essays and self-reported feedback from e-learning practitioners. One of the aims of these activities was to **construct meaning** from the participants’ social constructions, for example language in the form of texts, and to **understand** the interaction and relationships between e-learning practitioners and their e-learning practice. I therefore adopted a mainly qualitative interpretive approach.

It is important to link the issues mentioned by Patton and McMahon (1999:142) to the paradigm of interpretivism. The interaction between the observer and the observed is coloured by *inter alia* their particular frame of reference, their observational capacity, the contextual environment and the describing language. Knowing comes through interpretation. This may raise questions

about the validity of these observations and therefore is addressed within systems theory by “interobserver reliability” (Patton & McMahon, 1999:142). Furthermore, our knowledge and understanding are linked to the issue of language, and sensitivity and awareness of these may reduce the limitations of each. Section 3.10 provides a detailed account of the measures that were taken in this research study to enhance credibility.

Important for this study

My interpretive research goals for this study are focused on the enrichment of the personal profiles of the e-learning practitioners, the HJA of the e-learning job and the description of the e-learning environment as experienced by the e-learning practitioner population at TUT. Although Burrell and Morgan (1979) point out that the four paradigms for the analysis of social theory are mutually exclusive, my research approach may show at different stages elements of all four quadrants of the sociological paradigm matrix as they propose (Burrell & Morgan, 1979:25). For example, in many of the functionalist theories understanding comes from the use of analogies, such as using systems thinking to understand human beings; asking “why” questions not to explain but to enrich my understanding of the phenomenon under investigation, at the level of interpreting subjective experiences explaining the “What is” questions; and asking “how” questions to explore relationships in an ever-changing environment. As part of the literature review process in particular, enquiries about the scope of the research problem require a number of questions to explore the field, and therefore the researcher will not accept “assumptions associated to only one question, and defy assumptions of all the other questions” (Roode, n.d.).

Different approaches have differing special strengths, and each compensates for the weaknesses of the others. It is often most useful to ‘work both sides of the street’, “tapping into the rich variety of theoretical perspectives that can be brought to bear on the study of human social life” (Babbie, 2005:41). On the other hand, to avoid a broad incoherent mixture of choices it is important to weigh each choice very carefully in terms of its value to and usability in the holistic research approach. For this reason systems theory was chosen to provide **structure** for both the approach to the study problem and for the conceptualisation process, but I adopted a mainly **qualitative interpretive approach** to **understand** the problem.

3.3.2 Research approach

Although quantitative research and qualitative research represent two opposite approaches, a combination of the two was the preferred choice for this study. Combining these approaches provided me with a flexible paradigm that allowed for a multidimensional research study. To defend my choices in this regard I will briefly discuss the characteristics of quantitative and qualitative research, whereafter I will defend my choice.

Olson (1995) cites Wildemuth (1993), suggesting that the “difference between positivist and interpretive paradigms is that the former recognizes an objective reality not dependent on the researcher and the latter views reality as subjective and socially constructed”. Livesey (2003) explains further that the difference lies in the ultimate research aim and says that the quantitative paradigm concentrates on what can be measured. This involves collecting and analysing objective (often numerical) data that can be organised into statistics to **explain**. The qualitative paradigm concentrates on investigating subjective data, in particular the perceptions of the people involved. The intention is to illuminate these perceptions and, thus, gain greater insight and knowledge with the aim to **describe and verstehen** (Livesey, 2003; Chenail, 1997).

My **paradigmatic preference** for this research is multidimensional; richer and more complex than a dualistic paradigm with an either/or dichotomy where research must be either quantitative or qualitative (McKereghan, 1998). Qualitative methodologies for research enquiry, as well as a combination of qualitative and quantitative methods, tools and techniques, were used to collect and analyse data. Although a mixed method design was used in this study, the study displayed a single dominant paradigm, namely the qualitative approach, with only a small component of the study being drawn from the quantitative paradigm. Creswell (1994:177) calls this model of combined designs the “dominant-less dominant design”. Although a number of researchers believe that one cannot be both positivist and interpretivist (Sale, Lohfield & Brazil, 2002:47), others believe that mixed method research takes a pragmatic approach (Rocco, Bliss, Gallagher & Perez-Prado, 2003: 21; Johnson & Onwuegbuzie, 2004:17). Johnson and Onwuegbuzie (2004:17) define mixed method research as

[t]he class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study. It is inclusive, pluralistic and complementary, and it suggests that researchers take an eclectic approach to method selection and the thinking about and conduct of research.

The purpose of such combinations is to complement each of the methods in such a way that it contributes to achieving the optimum answers for the research questions.

Important for this study

The survey method was preferred for the screening and pilot surveys that were conducted in the exploratory phase of this study. This proved to be advantageous in that it (1) allowed for testing on a small scale and (2) did not dominate the paradigm picture. Furthermore, the survey technique was used to gather information for the PPA and HJA and for quantitative analytic procedures in this regard. In focusing on the social reality of the e-learning practitioners at TUT,

qualitative research was used to explore their work behaviour and the perspectives and experiences of the people studied. Behaviour is determined by the way in which people interpret and make sense of their subjective reality (Gittens, n.d.:2) and the case study methodology was chosen to explore the subjective reality of the e-learning practitioner practising e-learning. Qualitative data collection and analysis procedures, for example the rapid ethnographic technique, were used.

Del Siegle (n.d.) presents a summary of the main ideas about qualitative research from the work of Spradley, 1979; Marshall and Rossman, 1980; Lincoln and Guba, 1985; Glesne and Peshkin, 1992; Creswell, 1994 and Merriam, 1998. These ideas are discussed in the context of this study.

Qualitative research is an inquiry process of understanding, based on a threefold purpose of contextualisation, interpretation, and understanding participants' perspectives.

A qualitative approach was followed for this research because the aim was to study the e-learning practitioners in their natural settings in an attempt to interpret the interaction between them and their e-learning practice against the background of the e-learning context at TUT. Holistic understanding of the research phenomena was enhanced by the meaning created and attributed to events by the participants through their communications (texts).

The nature of reality: Realities are multiple, socially constructed and holistic.

As already discussed, the assumption of multiple, socially constructed realities implies that these constructions are the result of participants' experiences and interactions with others. e-Learning practitioners involved in e-learning practice at TUT experienced different realities in different e-learning-related situations and responded to these situations by displaying their own unique work behaviour styles. Interactions between the e-learning practitioners and their e-learning practice (jobs) resulted in a variety of matching patterns that refer to various realities and scenarios (possible future realities).

Qualitative inquiry underpinned by ontological perspectives of systems thinking holds that personality is a living system embedded in the human system (part of a whole). Work behavioural styles are seen as a specific expression of personality within the work context. Unique characteristics of the participants' personalities influence their behaviour in (responses to) different work situations differently because they react differently to different aspects of the same events. Systems thinking promotes our "understanding of the underlying structure responsible for the patterns of behaviour" (Bellinger, 2004).

The relationship of knower to the known: Knower and known are interactive, inseparable.

Qualitative interpretive inquiry assumes that I as the researcher am a participant observer and that the events are understood through the process of interpretation using language to interact – knowing comes through interpretation and therefore the inquiry is value-bound and subjective. Knowledge sources relevant to the study that I used to interact with were informal discussions with e-learning practitioners on the nature of e-learning at TUT, and participation in a process of data collection and analysis to gain insight into the world of work of the e-learning practitioners. The roles that I played as researcher (being part of the world of work) as instructional designer (for e-learning practitioners at TUT) and participant in the P@W programme (instructional designer and part-time coordinator) made me an integral part of the e-learning community at TUT.

The possibility of generalisation: Only time- and context-bound working hypotheses are possible.

The e-learning practitioner case study at TUT is bound by time and context and therefore no generalisations are possible. Furthermore, the small number of participants might affect the overall ability to generalise the results and generalisation is not intended. This study does not include e-learning practitioners from institutions other than TUT.

The possibility of causal linkages: All entities are in a state of mutual simultaneous shaping, so that it is impossible to distinguish causes from effects. Variables are complex, interwoven, and difficult to measure.

The aim of this study is not to investigate causal linkages, but to gain insight in the 'what?'. What are the characteristics of the e-learning practitioner and the e-learning practice and how do they fit together? Further studies may focus on cause-effect consequences as a result of the implementation of certain interventions at leverage points in the e-learning practitioner system.

Type of reasoning involved – usually inductive.

In this study inductive reasoning is used to search for patterns in the research data. The ways in which I looked for patterns included using the **frequencies** of person and job attributes and **structures** by asking questions such as: What are the characteristics of the e-learning practitioner and the e-learning practice? What are the different types of personal profile of e-learning practitioners? and What are the job structures of the e-learning practice?

Another type of reasoning, namely abductive reasoning, was also applied in this study. In contrast to inductive and deductive reasoning, which are both linear in their application, abductive reasoning involves processes of lateral thinking and is concerned with patterns and relationships (Bateson, 1979). See section 3.3.3 for a detailed discussion on the relevance of

abductive reasoning in this study.

Outcome: Illuminates the situation and explores what is assumed to be a dynamic reality.

Qualitative research describes the case as a dynamic reality but does not claim universality.

Researcher roles:

Personally involved

- the researcher is directly and personally involved

Interested in meaning how people make sense of their lives, experiences and their structures of the world

- having a concern for the e-learning practitioners involved

Interested in the process, meaning and understanding gained through words or pictures with the aim to describe

- focusing on trying to understand the e-learning practitioner construct

Using details to build abstractions, concepts, hypothesis and theories, through inductive processes

– using details to build person-job fit scenarios through inductive and abductive reasoning processes.

Approach to validity: Truth seen as context bound (socially constructed).

In this case there were good reasons for choosing the interpretive qualitative orientation. Firstly, it not only conceives many possible realities, each of which is relative to a specific context or frame of reference (Chiang, 1998), but it secondly also advocates an eclectic approach using a multitude of research strategies (case study), methods (survey method), and tools and techniques (questionnaires, reflective diaries, and interviews). Thirdly, because the focus of the research questions was on “what” and “how” to try and describe the phenomena under investigation and not on answering “why” in causal terms.

The French word *bricoleur* describes a handyman using available tools to complete a task (Kincheloe, 2001:680). Since qualitative research involves multiple methodologies, the research itself is often referred to as a bricolage. The researcher is therefore, the *bricoleur*. According to Levi-Strauss (1966:17), being a *bricoleur* means you are "a kind of professional do-it-yourself person". You create the bricolage, that is, a "pieced-together, close-knit set of practices that provides solutions to a problem in a concrete situation" (Denzin & Lincoln, 1994:2). The researcher-as-*bricoleur* analogy necessitates that the product of one's work be "a complex,

dense, reflective, collage-like creation that represents [one's] images, understandings, and interpretations of the world or phenomenon under analysis" (KU Communication Studies, n.d.).

A bricolage of methods, tools and techniques was selected for this study, which, as has already been pointed out, was grounded and guided by the research philosophy, the theoretical integration of P-J fit theory, the principles of the systems and interactionist theories, and the conceptual framework. The relevance of these will be discussed in subsequent sections of this chapter.

3.3.3 *Logic of reasoning*

A combination of inductive and abductive reasoning, a more metaphoric reasoning, was the preferred choice for this study. This mode of reasoning provided me with the scope to generate a number of useful metaphors that helped me to map knowledge from one systems domain onto another. To defend my choices in this regard I will briefly discuss the logic of this type of reasoning, whereafter I will defend my stance.

“Abductive reasoning is the process of generating the best explanation for a set of observations” (Johnson & Zhang, 1995) and it deals with the issue of reasoning toward meaning (Shank, 1998). Shank (1998) continues by saying that when we consider the world as a “lived world”, the things we observe take on significance. To determine their significances these observations need to be ‘read’. This act of reading consists of treating “observations not for themselves, but as signs of other things” (Shank, 1998). He is of opinion that we do not know for sure what they signify, therefore we can only guess, which implies that we see the world not in terms of truth but in terms of significance (Shank, 1998). Shank (1998) continues by saying that we do not experience a world of facts but one of signs and therefore should pursue the notion of semiotics, “which represents a methodology for the analysis of texts regardless of modality” (Wikipedia, 2006b). An example of this process of reasoning is the analysis of written textual data, for example blogger entries, essays or open question responses, to **identify “signs” of work personality characteristics in the e-learning practitioners. These texts are significant not in themselves but as signs of a deeper hidden structure** (Jorna & Smythe, 1998).

Patterns are explored for their relationship to each other and for their relationship to other similar patterns (Patton & McMahan, 1999:144). For example, the relationship between the characteristics of the e-learning practitioner resulting in pattern types of work behavioural style and the relationship between the characteristics of e-learning practice resulting in job structures are explored within each subsystem as well as their relationship to each other within the e-learning practitioner system.

If **abduction**, a more metaphoric reasoning, is accepted on a par with induction and deduction, a new logic – "AID" (**Abduction**, Induction, Deduction) – may enrich the scope of rationality. When logical space is expanded to include abductive logic, the use of metaphor becomes legitimate in inquiry (Sawada, Kieren & Olson, 1990).

Shank (1998) argues for six distinct modes of abductive reasoning, that is, reasoning to the clue, reasoning to the metaphor or analogy, reasoning to the pattern, and reasoning to the explanation. Some researchers also consider the induction step as a consequence of a successful analogy (Kokinov, 1994:3). Kokinov (1994:3) provides a generally accepted definition of analogy saying that "analogy is a mapping of knowledge from one domain (the base) into another (the target), which conveys that a system of relations that holds among the base objects also holds among the target objects".

For this study, analogue thinking was also applied to **systems theory** and the

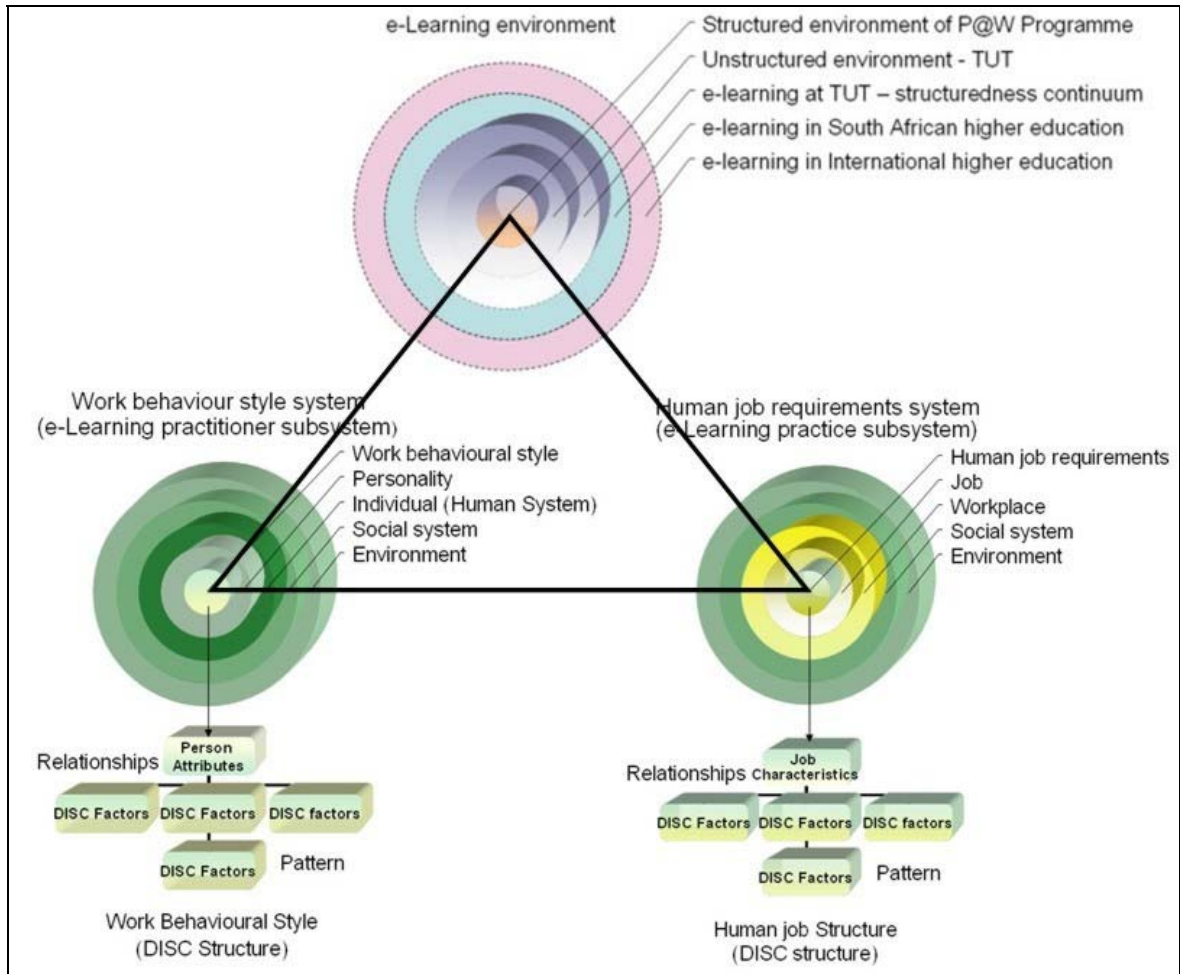
- DISC application to identified **work personality characteristics, relationships and patterns**;
- job characteristics model to stimulate thinking about **job characteristics**;
- P-J fit conceptualisation to identify **pattern matching**, and
- person-situation interactionist model analogy for **conceptualising an enriched HJA**.⁴

Understanding the triad of the e-learning practitioner construct is locked up in understanding the meaning of the words that describe the construct. These were discussed in detail in Chapters 1 and 2 but for this discussion it is important to realise that the three dimensions of the triad, namely the e-learning environment, the e-learning practitioner (person) and the e-learning practice (job), are congruent sides of the triangle. This implies that this is an equilateral triangle, therefore when one wants to investigate the congruence between the person and the job in the work environment, P-J fit theories should be taken in to account. Abductive reasoning involves a process of lateral thinking, and this process directed my thinking towards a systems theory approach to P-J fit theory. Principles of systems theory that may assist in providing a theoretical framework for P-J fit have been studied and applied. Similarly, theories of P-J fit have been studied in detail to understand the patterns and relationships in these theories.

An integration of the above-mentioned thinking processes provides the logic of my study (see Figure 3.3). The following paragraphs will highlight the most important aspects in this regard.

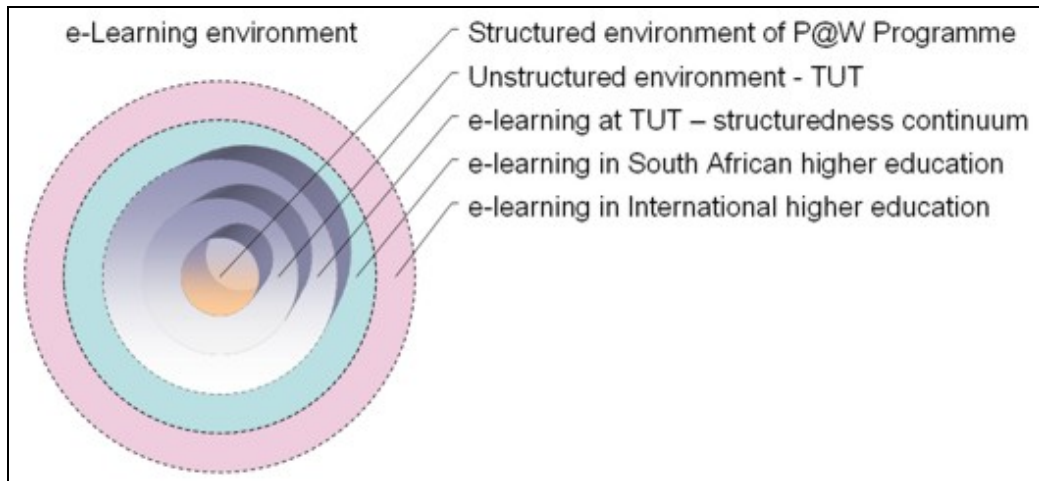
⁴ Read with previous chapter – sections 2.7-2.8

Figure 3.3: Holistic view of the e-learning practitioner system



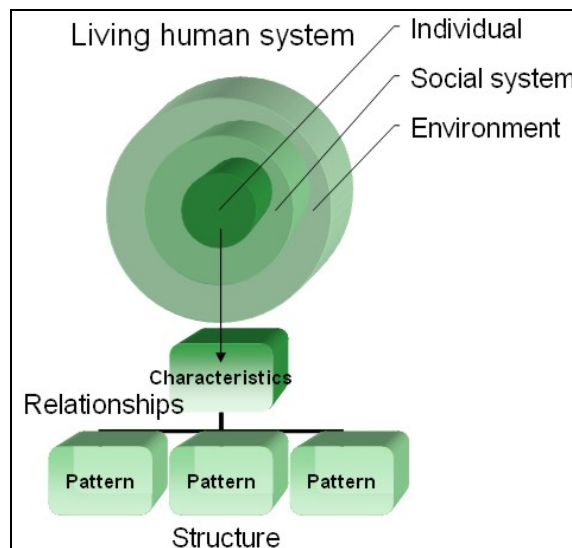
Against the systems theory framework and the view that the e-learning environment at TUT forms one of the pillars in the e-learning P-j fit triad, I argue that environmental components are organised as a **nested arrangement of structures, each contained within the next to provide the context for P-J fit interaction**. The structured and unstructured e-learning environments at TUT are positioned on a **structuredness continuum**, nested in the TUT e-learning environment, nested in the higher education e-learning environment in South Africa, nested in the international higher education e-learning environment (see Figure 3.4). These environments interact with one another and therefore issues relevant to one environment may also be relevant to the others. Various subsystems are embedded in these environments, but those relevant to this discussion are the e-learning practitioner and the e-learning practice subsystems. The following discussion will position them in the e-learning environment.

Figure 3.4: Nested e-Learning environments

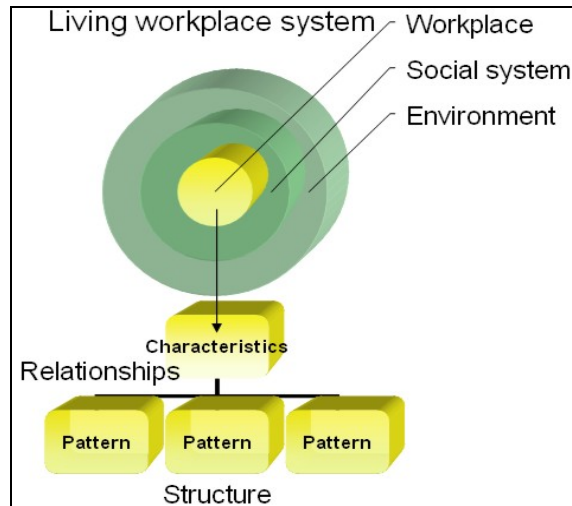


The human individual system, nested in the social system, is also nested in the environmental system (see Figure 3.5).

Figure 3.5: Human individual system



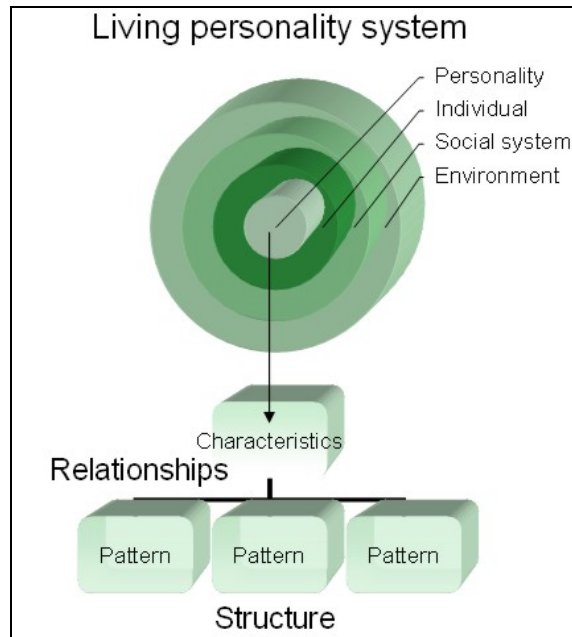
The workplace is nested in the social system and also nested in the environmental system (Patton & McMahon, 1999:160; Bergh & Theron, 2001:324) (see Figure 3.6).

Figure 3.6: Workplace system

There would thus be tangencies between the human system and workplace. This implies that the principles of systems theory are applicable to both the human system and workplace structures. However, the human system is seen as a living system (Bergh & Theron, 2001:476) displaying certain characteristics (relationships between these characteristics expressed as patterns to provide the human system structure) aiming at a specific purpose. Therefore accepting the general definition of analogy (Kokinov, 1994:3), one may say that an analogy is a mapping of knowledge from one domain (the base) to another (the target), which implies that a system of relations that holds for the base objects also holds for the target object, and applying analogous thinking to the workplace as a structure in the social system, defines the workplace as a living system. It will follow then that this system also displays certain characteristics, relationships between these characteristics, expressed as patterns to provide the workplace structure, aiming at a specific purpose. These patterns are explored for their relationship within, as well as to, each structure. The person and the workplace are in reciprocal action in the person-workplace system, embedded in a specific, relevant environment.

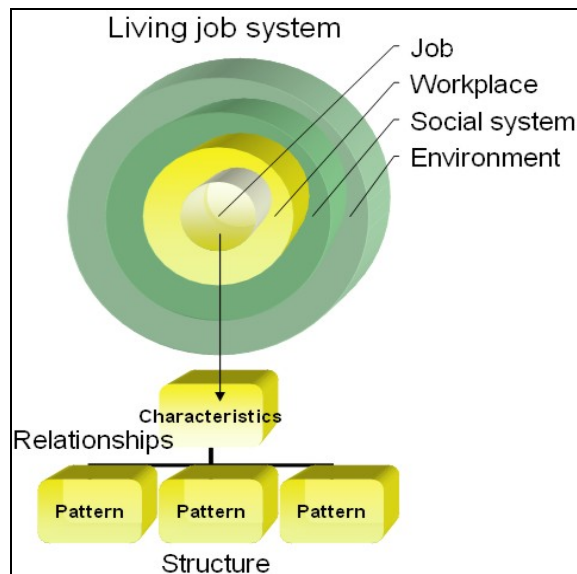
The same argument holds for personality as for a living system (Patton & McMahon, 1999:157; Bergh & Theron, 2001:323) nested in the human system (see Figure 3.7).

Figure 3.7: Personality system



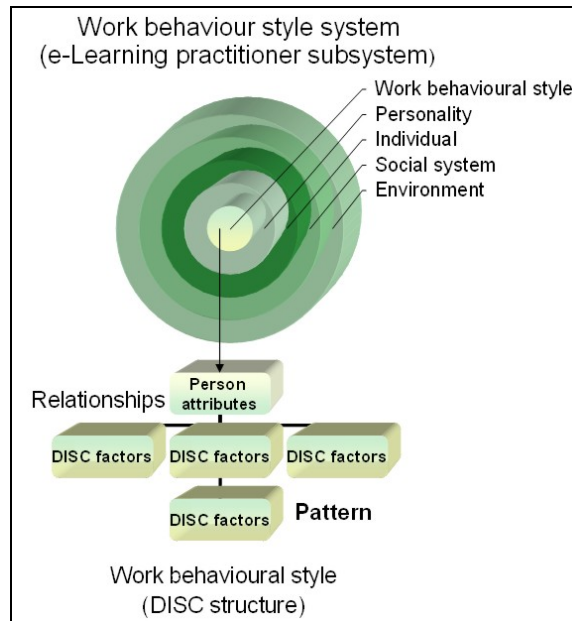
and the job as a living system is nested in the workplace system (see Figure 3.8).

Figure 3.8: Job system



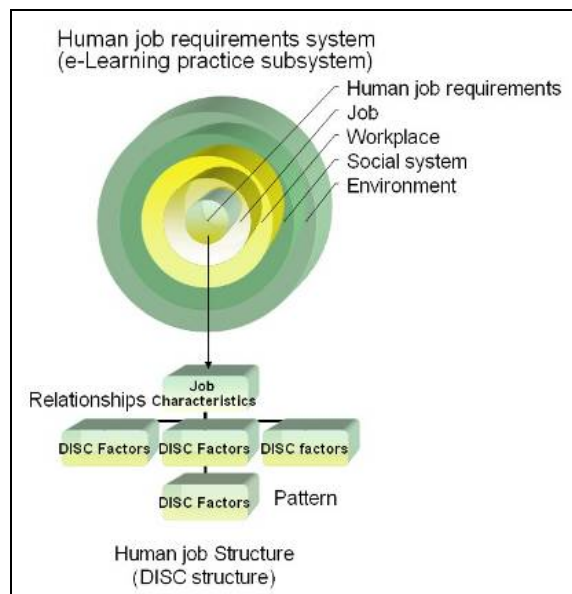
The same argument holds for the DISC work behavioural style system nested in the personality system (see Figure 3.9).

Figure 3.9: DISC work behavioural style system



and the Human Job requirements system nested in the job system (see Figure 3.10).

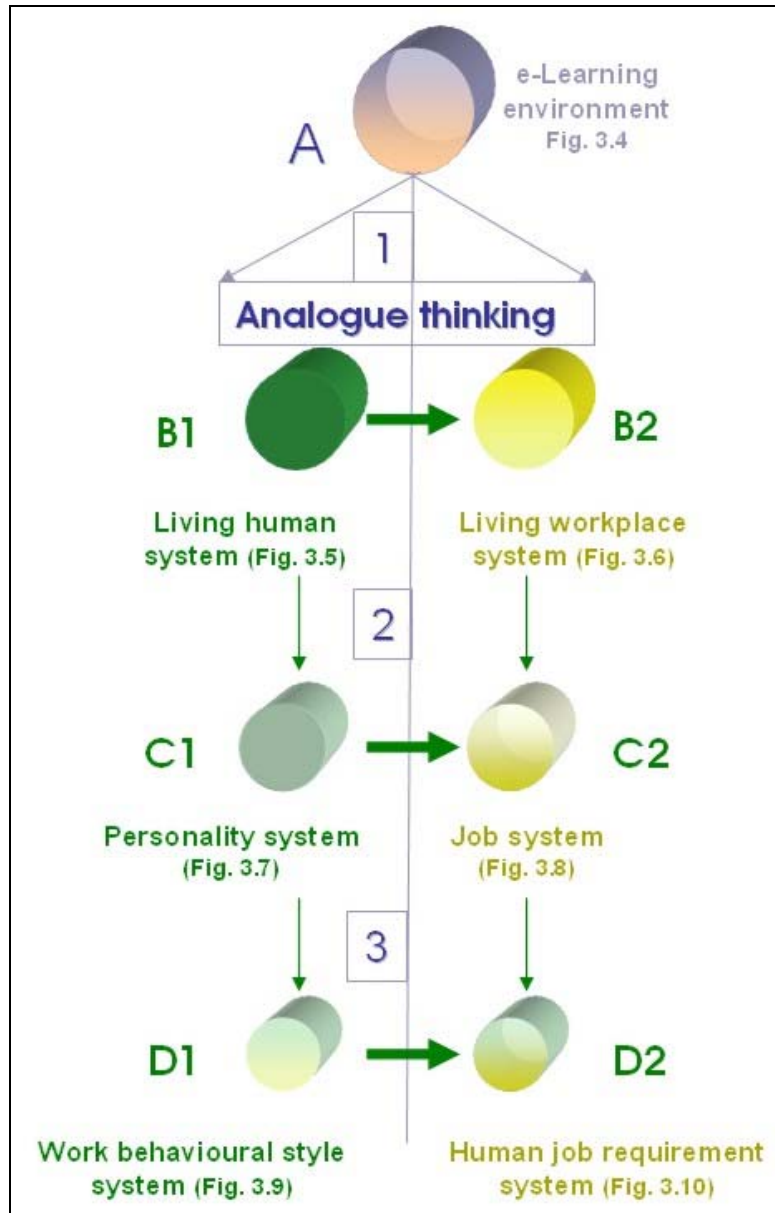
Figure 3.10: Human job requirements system



Personality and job characteristics are organised in patterns, which are the basic building blocks of the respective structures and interact with each other to fulfil a specific purpose. What is more important for this study is the specific interaction and relationships between the work personality and the job. Transferring this argument to the e-learning world of work means that the personality characteristics of the e-learning practitioner will interact with the job characteristics of the e-learning practice, and the organisation of these building blocks will reveal the underlying structure of the e-learning practitioner system. Investigating the e-learning practitioner construct therefore involves not only the identification of the characteristics and

patterns of the building blocks (e-learning practitioner and e-learning practice), but also the relationships between these building blocks in order to reveal the underlying structure. To operationalise these I implemented the DISC system as data collection and analysis instruments. However, the e-learning practitioner construct structure has no meaning if it is not embedded in a context and therefore the influence of the e-learning work environment, being structured or unstructured, should be taken into serious consideration (see Figure 3.11).

Figure 3.11: Logic of reasoning

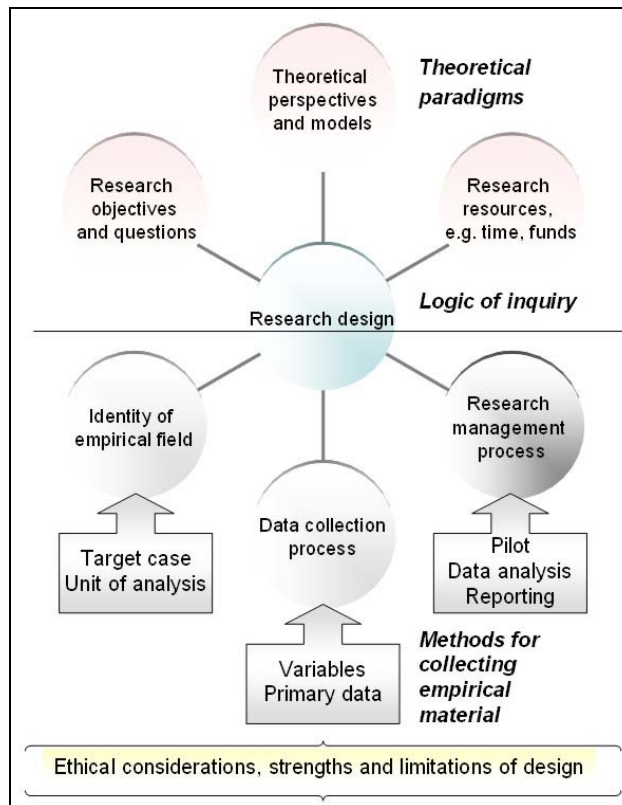


3.4 Research design

Denzin and Lincoln (1994:14) describe research design as “a flexible set of guidelines that connects theoretical paradigms to strategies of inquiry and methods for collecting empirical material”. These guidelines provide an action plan of how the researcher will proceed from the initial set of research questions to the point of answering them. The research design helps the

researcher to keep focused on the initial research questions (Yin, 1998:236; Mouton, 2002:56). The major steps are presented in Figure 3.12.

Figure 3.12: Logical sequence of research design



Source: Adapted from Yin (1998:237)

The research questions (sections 1.6 and 3.2), philosophical assumptions and theoretical propositions (Chapter 2 and section 3.3.1) guided the **definition of the case, unit of analysis** and the **number of cases** selected for this case study, as well as for the data collection process, data analysis and reporting. Other important challenges to consider when working on the research design are to define the specific case study tactics that deal with tests to establish the quality of the research and also to reflect on ethical issues (Yin, 1998:242) (section 3.11).

Research design focuses on the end product, whilst the research strategy/methodology (section 3.5) focuses on the research process and the methods, tools and techniques used to accomplish the research tasks (Mouton, 2002:56). The terms ‘methodology’, ‘method’, ‘tools’ and ‘techniques’ need to be conceptualised because of the confusing use of these terms in the literature. Gough (2002) gives a satisfactory description by stating the following:

- Methodology refers to more than particular techniques, such as doing a survey or interviewing learners; rather it provides “**reasons** for using the techniques in relation to the kind of knowledge or understanding which the researcher is seeking” (Gough, 2002:5).

- Research method is a “**way of proceeding** in gathering evidence” (conducting research enquiry) (Gough, 2002:5).
- Technique implies the “art or craft of performing a particular task”, while “methodology and methods guide research techniques” (Gough, 2002:5).
- Although conceptualisation of these terms is important, the actual ‘doing’ of the case study involves “continued interaction among design, data collection and analysis” (Yin, 1998:230) described in Chapter 4.

In mapping this study onto Mouton’s (2002:57) typology of research designs this study may be categorised as a qualitative case study characterised as an empirical study using primary data ranging from numeric to textual data in a low control field setting. This single case study of the e-learning practitioners at TUT was conducted during the period May to July 2005. The unit of analysis is the e-learning practitioners practising in the e-learning environment at TUT. The unit of analysis in a case study, according to Tellis (1997), “is typically a system of action rather than an individual or group of individuals” (Tellis, 1997). A summary of the research design for this study is presented in Table 1.3. As pointed out in previous sections this case study is linked to the interpretive traditions, using inductive and abductive modes of reasoning. Because the whole practising e-learning population at TUT was included in this study, no sampling methods were implemented. Multiple data sources were used, including questionnaires, expert consensus group discussions, personal communications, interviews, archival material, written documents, and self-reporting feedback from research participants. Quantitative and qualitative analysis were used to analyse these data sources.

This section presents the research design in terms of the guidelines that were followed to connect the qualitative case study approach to methodological issues (described in section 3.5). Research design guidelines and methodological issues presented in Table 1.3 are discussed in detail hereafter.

3.5 Research strategy/methodology: case study

The more we go towards an environment characterised by technology and digitisation the greater the need will be to focus on the human dimension of existence (Schweitzer, 2001).

This section describes the case study as the research strategy chosen for this exploratory study. I will provide a rationale for using the case study approach, highlight some of the special features of case studies, define the case study in question and discuss its application in this study.

The case study methodology was chosen because of its focus on particular events (interaction between the e-learning practitioners and their e-learning practice) in a specific context (e-learning environment at TUT) (Christie, Rowe, Perry & Chamard, 2000:10), seeking contextual meaning within the boundaries of the system (Stake, 1994). The four-stage guidelines for research methodology proposed by Levy (1988), in Tellis (1997), were followed. They are the following:

1. Design the case study protocol.
2. Conduct the case study.
3. Analyse case study evidence.
4. Develop conclusions, recommendations and implications based on the evidence.

One of the important steps when designing a case study protocol is to determine the skills required by the researcher. After considering the specific skills needed for this study, I projected that I would need the following: (1) guidance from an industrial psychologist in setting the questions for the surveys used in the exploratory and survey phases; (2) expert help from the Department of Statistics to screen the questionnaires in terms of validity; (3) training as an accredited PPA and HJA analyst from Thomas International; and (4) expert guidance from the Thomas International consultants for the Thomas International System. Input from these experts was very valuable in enhancing the quality of the study. I also felt comfortable with the level of my PPA and HJA analysing skills. Setting the protocol for the study helped me to approach it in a disciplined manner that positively influenced the advancement and reliability of the study (Tellis, 1997). Important design decisions in terms of the study progress had to do with 'what', 'how', 'who' and 'for how long' questions (Janesick, 1994:211). These included the identification of the boundaries of the case, the unit of analysis and the research participants, and the development of a code of conduct for dealing with the ethical considerations of the study. According to Christie *et al.* (2000:20), pilot studies and a focus on the literature are the first two important stages in the case study methodology, and this was also my experience. As already discussed in Chapter 1, in the section dealing with title clarification, the 'search' process that was part of this study followed diverse paths that hold the promise for further exploration as well as some exciting conclusions. The second step, after the research design and protocol had been developed, was to execute the research action plan.

There are three important tasks involved in executing an action plan, namely the **preparation for data collection**, the **distribution of the questionnaires**, and **conducting the interviews** (Tellis, 1997). Scheduling the research participants, preparing and selecting the data collection instruments and the actual collecting of research data are time-consuming activities that took careful planning.

The next step in this process was to analyse the data. This included reading and rereading, probing and combing, examining, organising, categorising, tabulating and recombining the data to address the initial propositions of the study. Based on the evidence found, the study concluded with a description of the phenomenon studied in the case study, namely the latent structure of the e-learning practitioner construct.

But what were the reasons for choosing the case study methodology for this investigation? The following paragraph will provide answers to this question.

3.5.1 Rationale for using the case study approach

A case study investigates a phenomenon in its real-life context by using multiple sources of evidence (Yin, 1989). Christie *et al.*'s (2000:14) list of definitional components for case studies illustrates some of the features relevant for this study, for example "has a contemporary focus within a real life context, answer 'how' and 'what' questions, little control over events, use multiplicity of data, and has a unique configuration of being". In this study, e-learning practitioners in the e-learning context of TUT were selected as a unit of analysis. The **reasons** for this choice were, *inter alia*, the diverse and multidimensional nature of the e-learning context at TUT, the availability of multiple data sources and the unique focus on Partners in the P@W programme presenting examples of the multiple nature of reality. This case study therefore offered an opportunity to study the e-learning practitioners on a continuum of structured to unstructured environments (structuredness continuum) in order to answer questions such as "What are the characteristics ...?" and "How does it fit together...?" and to understand the phenomenon under investigation. One of the strengths of case study research is that it is a holistic approach that uncovers the richness of detail, patterns and interactions (Tellis, 1997). Using a case study as methodology therefore offered me a rich context for understanding the entire system. The time slot available for conducting this study was dictated by the academic activities and duties of the e-learning practitioners at TUT and the schedule of the P@W programme. These considerations bounded the case study in terms of time available and context. However, care was taken to maximise what could have been learned in the time available. In agreement with Tellis's (1997) view, I focused on issues vital for understanding the system being examined using multiperspectival analyses. Case study methodology provides the scope to do this.

Critics of the case study method question the reliability or generality of findings on the grounds of small numbers of cases not being reliable and contamination of findings through researcher biases (Soy, 1996:1). However, as a "form of research, case study is defined by interest in individual cases, not by the method of inquiry used" and "draws attention to the question of what can be learned from this case" (Stake, 1994:236). Cases may differ in complexity, and may be

studied for different purposes; therefore it would be appropriate to highlight a few features of case study research.

Both what is common about a case and the uniqueness of the specific case are important for case study researchers, but this also brings strategic choices to the table in terms of deciding how much and how long the complexities of the case should be studied (Stake, 1994:239). Not everything about the case can be understood and the researcher will make up his/her own mind about this.

The e-learning practitioner case study offers scope for a wide range of further investigations, for example the influence of P-J fit on job satisfaction in the e-learning environment, or the application of interventions such as staff development and training relating to job performance or quality of e-learning practice. In this study, I chose to limit the scope to describing and understanding the characteristics of e-learning practitioners and their jobs, as well as the relationships between the person attributes of e-learning practitioners and their e-learning practice in the e-learning environment, with the aim of uncovering the underlying structure of these relationships. This case study will therefore focus only on aspects relevant to these relationships in the person-job-environment triad. As pointed out in the discussion on issues in e-learning in Chapter 2, I concentrated on issue-related observations and the interpretation of patterns of data (Stake, 1994:239) to organise my study. The study was also guided by Stake's (1994:239) examples of issue development, asking the following questions:

- To treat the case as exemplar, [I asked], Which issues bring out the dominant theme?
- To maximise understanding of the case, [I asked], Which issues seek out compelling uniqueness?
- For evaluation of the study, [I asked], Which issues help reveal merit and shortcoming?
- In general [I asked], Which issues facilitate the planning and activities of inquiry, including inspiring and rehabilitating [myself]?

Specific issues are therefore deliberately chosen for their perceived importance for the study and also for the value that they contribute to our knowledge and understanding of the phenomenon under study (Stake, 1994:239). Stake continues by saying that in reporting the story of the case the researcher will decide what is necessary for understanding it. Learning from the case implies that we construct meaning in terms of what we learn and understand through the revelation of others' experiences and, therefore coming back to triangulation, needs to "validate both the observation and generalisation" (Stake, 1994:241).

3.5.2 Case study features

Case study research, being qualitative in nature, displays a number of associated characteristics referring to a design that is holistic, looks at the larger picture and seeks to understand the whole. This relates to another case study design feature, namely that it looks at relationships within the system, meaning that the characteristics of the e-learning practice and the e-learning practitioner subsystems are related not only in terms of relationships within each subsystem, but also between the subsystems, to contribute to relationships and patterns in the systemic whole.

Another important design feature refers to the personal, the face-to-face and the immediate, suggesting a particular participation from the subjects themselves in a given social setting and demanding that the researcher stay in this setting for a given period of time (Janesick, 1994:212). Janesick adds further design feature demands on the researcher as

- developing a model of what happened in the social setting, for example the P-J fit model to determine the match between the e-learning practitioner and the e-learning practice in terms of goodness of fit;
- sharpening skills to interpret face-to-face communication and written feedback from the participants;
- incorporating informed consent decisions and sensitivity to ethical concerns;
- sensitivity to and acknowledgement of own bias, preferences and subjectivity to minimise researcher judgement as the main source of error (Mouton, 2002:150), and
- *ongoing analysis of data* (Janesick, 1994:212), including using multiple data sources to record the characteristics, relationships, and pattern types of the e-learning practitioner and the e-learning practice subsystems. A particular strength of case study design is high construct validity (Mouton, 2002:150).

Statistical analysis and quantitative data analysis of a large number of data sources, resulting in the generalisation of research findings, was not the aim of this study and therefore it was decided to use a single case study that included the whole population of e-learning practitioners at TUT. This decision has the advantage that the results from the PPA and HJA could be enriched with in-depth and specific overall analysis.

3.5.3 Case study applications

According to Yin (1994) the case study model may include applications to

- explain complex causal links in real-life interventions;
- describe the real-life context in which the intervention has occurred;
- describe the intervention itself, or

- explore those situations in which the intervention being evaluated has no clear set of outcomes (Yin, 1994, cited in Tellis, 1997).

This study will only report on the **second** and **last** application, that is, the e-learning P-J fit triad in the e-learning environment at TUT will be described and analysed regarding its relationship in terms of its characteristic profiles and structures (Chapter 4). Conclusions, recommendations, and implications will be based on the collected evidence (Chapter 5).

3.5.4 *The case study in question*

This investigation is an instrumental case study of e-learning at TUT. The e-learning environment at TUT consists of unstructured e-learning practices, semi-structured e-learning projects and a structured e-learning programme, the P@W Programme. The unit of analysis is the e-learning practitioners at TUT, including all e-learning practitioners who are involved in e-learning activities as well as the Partners in the P@W Programme. According to statistics for 2005, provided by the Department of Telematic Education at TUT, 108 lecturers at the University were actively involved in telematic projects and 76 were using WebCT as a learning management system (Table 3.1). Numbers shown in Table 3.1 may include multiple counts for students and e-learning practitioners because students may be enrolled for more than one subject and practitioners may present more than one subject simultaneously. All students registered for WebCT courses are also registered for the Life Skills course presented by the Department of Student Development, as well as for PlanetS, which is an online tutorial on WebCT. e-Moderating in these courses is kept to a minimum because the aim is to support the student with information and **not** to create online communication via discussion forums.

Table 3.1: Summary of WebCT activities for 2005

	Faculty	Number of subjects	Number of students	Number of e-learning practitioners
1	Agriculture, Horticulture & Nature Conservation	33	1331	2
2	Arts	6	145	3
3	Economic Sciences	9	526	4
4	Education	2	7	1
5	Engineering	88	4,769	28
6	Health Sciences	22	365	6
7	Information & Communication Technology	6	406	4
8	Management	17	7,902	6
9	Natural Sciences	10	3,207	3
10	Social Development Studies	29	1,299	10
11	Tourism, Journalism & Hospitality	25	587	9
12	Other: Life skills	1	21,210	3
	Other: PlanetS	1	25,176	0
	Other: general	1	213	3
	Other telematic projects			29
	Total	248	41,754	108

Apart from the online learning management system (WebCT), other technologies, for example electronic testing, multimedia and Wimba presentations, CD ROMs, animations, audio, video, and video conferencing, are available to practitioners, who combine the different applications and technologies creatively in their projects.

This case study involved the Partners in the P@W Programme as well as the active e-learning practitioner population at TUT, during the period **May to July 2005**. The inclusion criterion was active involvement in either the P@W Programme or e-learning practice at TUT. Exclusion criteria were e-learning practitioners who are not practising at TUT and who refused to give informed consent to participate in the research.

The two groups experienced different e-learning practice conditions. The **Partner group** was involved in a structured capacity building programme, spanning a time period of one year from June 2004 to June 2005. During this period the researcher was involved in the programme as a coordinator and co-presenter of the programme, as well as in her capacity of instructional designer at the Department of Telematic Education. The Partners in the P@W Programme are part of an online knowledge building community in a WebCT environment at TUT. Online communication is one of the activities in the programme and the Partners used the communication tools available in the programme to comment voluntarily on their experiences as e-learning practitioners. With their consent these comments were logged as part of the documentation process of the P@W Programme and were archived in printed format at the Department of Telematic Education at TUT.

For this study the Partners were requested to give permission to use quotations from their written reflections as research data to enrich the PPA and the HJA. All the Partners agreed to participate in this study and with their consent archived material was used to enrich the quantitative data obtained from the PPAs and HJAs administered. The enriched data from the PPAs and HJAs were used to create style profiles of the participants but no individual was implicated or named in these profiles. The Partners' reflections were used to highlight some aspects of the style profiles and were used anonymously to enrich the data.

The TUT **e-learning practitioners** who participated voluntarily in the study were involved in various e-learning projects ranging in length from a few months to five years. Their experience as e-learning practitioners varied from novice to expert status (Table 3.2) and personal, financial and organisational support structures for these practitioners varied from structured, semi-structured to unstructured environments.

Table 3.2: Experience as e-learning practitioner at TUT

Experience as e-learning practitioner (months)	Number of participants
1-6	5 + 12 Partners
7-12	7 + 1 Partner
12+	4
13-18	4
19-24	3
24+	1 + 1 Partner
25-36	8
More than 36	14
Total number of participants	46 + 14 Partners

The e-learning practitioner's involvement in this case study was voluntary and with their consent quantitative and qualitative data provided by them were used to enrich the quantitative data obtained from administered PPA's and HJA's. Detail regarding the ethical considerations for this study are presented in section 3.11.

The researcher, in her capacity as instructional designer was involved in some of the e-learning practitioners' projects and therefore has first-hand experience of the e-learning environment at TUT and is also acquainted with most of the e-learning practitioners. These projects were not relevant for this case study, although they did shape the e-learning practitioners' views and attitudes towards e-learning and contributed to a variety of experiences in the e-learning field,.

3.5.5 Application and participants

The case study in question involved the total e-learning population at TUT, summarised in Table 3.3.

Table 3.3: Total e-learning population at TUT

Composition of TUT e-learning practitioner research group			
	TUT	TUT practitioners excluding	Partners
Total population	108	94 (100%)	14 (100%)
React on call for participation	74 (69%)	60 (64%)	14 (100%)
Lost interest	7 (6%)	7 (7.6%)	0 (0%)
Promised but did not deliver	7 (6%)	7 (7.6%)	0 (0%)
Completed	60 (56%)	46 (49%)	14 (100%)
Invalid forms	2 (2%)	2 (2%)	1 (7%)

Two groups, the expert consensus group and the group of instructional designers from the Department of Telematic Education, were also involved in the study. The four instructional designers were asked to define the star performers amongst the e-learning practitioners. (see Appendix C7). The relevance of the star performer group in this study will become clear after the discussion on the PPA and the HJA in sections 4.3 and 4.4 of Chapter 4.

The expert consensus group played an instrumental role in the e-learning job analysis described in section 4.2 of Chapter 4. This group consisted of a manager from the Department of Telematic Education, two successful Partners from the P@W Programme and two star performers from different faculties at TUT. I also included myself under the supervision of the Thomas International analyst at TUT.

Lack of rigour is one of the major concerns of case studies, but can be enhanced by using triangulation. Triangulation can occur with data (1) data to remain the same in different contexts, investigators (2) several investigators examine the same phenomenon, theories (3) different viewpoints interpret the same results, and even methodologies (4) one approach is followed by another to increase confidence in the interpretation (Janesick, 1984:214-215), and is used to induce rigour in the research process and to establish the validity of the research process (Stake, 1994:241). A more detailed discussion on triangulation and crystallisation will follow in a next section. The following section describes the mixed research methods used in this case study to address the research problem, resulting in different research phases. A short summary of these phases is graphically presented in Figure 1.2.

3.6 Research methods: mixed method approach

This study includes a quantitative and a qualitative phase in a mixed method application. It is important to note here that mixed method research is more than just a collection of quantitative and qualitative data, and suggests that there will be also a process of data integration. According to Creswell, Fetters and Ivankova (2004:7) “the underlying logic of mixing is that neither quantitative or qualitative methods are sufficient in themselves to capture the trends and details of the situation”. The appropriateness of mixed methods is measured against their complementary strengths and usability in answering the set research questions. Specific techniques based on the research objective may be part of a quantitative–qualitative continuum. Examples here are the **survey and rapid ethnography** methods used in this study.

Survey studies are usually quantitative in nature and their main purpose is to provide a broad overview of a representative sample of a large population by presenting statistical analysis of data applied in the positivist paradigm in order to ascertain information, characteristics or attributes of the population. The survey method is concerned with two decisions: the construction of the interviewing schedule or questionnaire and the target group that will respond to the questions. This implies the definition of the study population, the sampling procedure and the size of the sample. However, for this study the entire population of e-learning practitioners at TUT was included in the study and therefore no sampling techniques were applied. The procedures for and construction of the interviewing schedule for the e-learning practitioners are described in section 3.8.2.

The survey method was applied in the first three research phases, namely the exploratory, pilot and survey phases. **Quantitative** approaches were used to collect and analyse data on the characteristics of the e-learning practitioner. These activities are discussed in detail in section 3.6.3.7.

Survey research has changed dramatically in the last decade, for example using automated telephone surveys that use random dialling methods, computerised kiosks in public places that allow people to ask for input, or using electronic focus groups in online communities. Kitzinger (1995) explains that “focus groups are a form of group interview that capitalises on communication among research participants in order to generate data” and use group interaction as part of the method. This is a **non-quantitative** survey technique. As Kitzinger (1995) points out, this means that instead of one-on-one questioning, a group of people is encouraged to engage in conversation about a topic. The method is “particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think but how they think and why they think that way” (Kitzinger, 1995). The expert consensus group used to create the human job requirements for the e-learning job is an application of focus group interviewing. According to Fuccella and Pizzolato (1998:1) “the easiest, most cost-effective means for collecting audience definition data is to conduct an active or passive survey”. They describe the focus group, electronic focus group and the scenario building focus group as forms of group interview that capitalise on communication among research participants in order to generate data.

Electronic focus groups are a form of group interview where both the participants and the moderator communicate through electronic “discussions” in order to generate data (Fuccella & Pizzolato, 2000:2). Scenario building is a relatively inexpensive and quick method for collecting requirements and task information (Fuccella & Pizzolato, 1998:5), and was applied in the expert consensus group to create user context for their requirements assigned to the e-learning job (Fuccella & Pizzolato, 1998:5).

Wortham (2002) describes **ethnography** as useful for providing “interpretive and descriptive analyses of the symbolic and other meanings that inform the routine practices of everyday life” (Wortham, 2002:1), and requires a “common cultural, social, and economical framework regarding the subjects and 'objects' of research” (Lang-Wotjasik, 2002). Complementary to this is the view that ethnography “is a holistic research method founded in the idea that a system's properties cannot necessarily be accurately understood independently of each other” (Wikipedia, 2006c), and therefore are a preferred method for “contextual inquiry” (Irons, 2003:7).

Combining these ideas with the virtual world means that researchers are prompted to experiment with up-and-coming inexpensive tools for exploiting digital data (Paccagnella, 1997).

Mason (2001) comments further on issues of **virtual ethnography** by saying that “virtual communities are essentially groups of people interacting through computer-mediated communication” and that the group exists because its members create communications that bind it together (Mason, 2001:62). Mason (2001) continues by saying that virtual communities are characterised by groups of people that share a common language of communication and that virtual ethnography fully immerses the ethnographer in the reality experienced by the virtual community. The virtual persona of the participants becomes the main focus of the ethnographer. An interesting idea put forward by Mason is that “generally, researchers have wanted to focus on the person at the keyboard, a virtual ethnography reverses this and works instead with the persona that has been projected into cyberspace by the typist” (Mason, 2001:63).

Another important emerging practice, capitalising on virtual ethnography, is **rapid ethnography**. According to Irons (2003), “rapid ethnography narrows the focus of field research, employs multiple observation and recording techniques, and uses collaborative data analysis strategies with other team members” (Irons, 2003:9). Rapid ethnographers readily turn to quantitative data sources, for example registration data, or qualitative data sources, for example emails, blogs and online discussions. More focused discussions in the form of scenario building activities are a “relatively inexpensive and quick method for collecting requirements and task information” (Fuccella & Pizzolato, 1998:5). Irons (2003:9) points out that although rapid ethnography escalates the research process, combining qualitative and quantitative data, the task becomes more difficult for the researcher as rapid ethnography does not permit long time scales for collecting and analysing data.

For this study, online communication data sources, such as weblogs, provided rich data to complement the quantitative data provided by the PPA. Rapid ethnography escalates the research process further by targeting observations at times and locations in which the participants in the sample chosen are engaged in the activities of interest (Irons, 2003:9). One example in this study is the use of information sources from the online e-moderating course conducted between 5 October and 18 November 2004. All the Partners, as well as the instructional designers from TUT, including the researcher, were involved in this course. The group, acting as a knowledge-building community, role-played online learners, participating in a variety of e-tivities and acting in the fast moving environment of an online course. Records of online communication and information provided by the participants were archived on CD. A textual analysis of the electronic discussions on the WebCT discussion board was done to

understand the participants' "learner" behavioural styles as revealed in the online environment. The learner role is one of the five roles that the Partners in the P@W Programme had to fulfil. However, is it also relevant in the e-learning world of work in which the e-learning practitioner acts as life long learner?

In my position as e-learning instructional designer at TUT, I have become closely involved with the TUT e-learning practitioners over the last five years and with the Partners from the P@W Programme (June 2004 till June 2005), However, for the purposes of this case study a short cross-sectional time period stretching from May to July 2005 is relevant. Being an instructional designer and programme presenter in the P@W Programme offered me the position of participatory researcher. I could therefore interpret and contextualise the feedback from the participants more profoundly than would have been the case if I had been an outsider. This may also be a limitation in terms of my subjective opinion, which is an inevitable feature of ethnographic research techniques, but can be moderated by using multiple sources of data, for example reflective diaries (bloggers), questionnaires and survey feedback, and written documents (essays).

Implications for this study

The Partners in the P@W Programme are part of an online knowledge building community in a WebCT environment at TUT. Online communication is one of the activities in the programme and they used the communication tools available in the programme to comment voluntarily on their experiences as e-learning practitioners. With their consent these comments were logged as part of the P@W Programme process and they were archived in printed format at the Department of Telematic Education at TUT. The data format included email messages, saved text entries on the discussion forums (e.g. e-moderation course) and entries in the online bloggers.

The scenario building technique was used by the expert consensus group to create requirements for the job structure of the e-learning practitioner at TUT. Rapid virtual ethnographic techniques such as email communication were used to engage the group in further discussions and verification of the constructed job structure. A virtual group consisting of instructional designers from the Department of Telematic Education, including the researcher, generated criteria for star performer selection.

The researcher, in her capacity as an instructional designer and coordinator of the P@W Programme, was an integral part of the knowledge building community at TUT. However the data sources that were used as research data for this study reflected on the participants' experiences as e-learning practitioners in the P@W Programme in general. Except for the self-

reported feedback, which was directed specifically at this study, their communication and reflections were aimed at the P@W Programme and not at this research study.

The ethnographic method was applied in the data collection and analysis research phases.

Qualitative approaches were used to collect and analyse data on the characteristics of the e-learning practitioner and the e-learning practice, job demands, positive and negative motivators and so forth. These activities are discussed in detail in sections 3.8.2 to 3.8.8.

3.6.1 Survey method – exploratory phase

The first research goal, *to identify indices, categories, dimensions and person attributes of e-learning practitioners*, was addressed during the screening survey phase of the study. The initial focus of this goal was very broad, aiming at uncovering general characteristics of e-learning practitioners. Two data collection methods, namely a **literature review** and a **screening survey**, were used to collect the data. The results of the data analysis culminated in the formulation of a preliminary taxonomy of the characteristics of e-learning practitioners and a questionnaire was developed on “What is an e-learning practitioner?” The following paragraphs will report on these events.

3.6.1.1 Uncovering the characteristics of e-learning practitioners from the international domain

The literature review (Chapter 2) for this study demonstrated that the e-learning practitioner construct is elusive, complex and multifaceted. It is apparent from the literature that there are a vast number of characteristics listed as important personal attributes for the e-learning practitioner. A meta-analysis of e-learning practitioner characteristics as described in the literature uncovered some important personal attributes.

3.6.1.2 Meta-analysis of e-learning practitioner characteristics as described in the literature

A preliminary taxonomy of categories and indices (see Chapter 2, tables 2.7-2.15 for a summary) of the characteristics of e-learning practitioners listed eleven main categories. The nine categories on which the preliminary taxonomy is based are technical skills, curriculum skills, management style, teaching skills, personal/affective traits, communication style, teaching style; personality traits, and learning style. However, these categories are very broad, ill-defined and fuzzy, spanning a broad spectrum of person characteristics. In trying to understand this picture and to prevent it from becoming a few superficial brush strokes I realised that it was necessary to choose a focus area and also to refine the taxonomy in terms of definition.

3.6.2 Survey method – screening survey

Based on the categories and indices identified, a screening survey was developed aimed at refining the existing preliminary taxonomy. The resulting preliminary taxonomy was used as a framework for constructing a short screening survey of the characteristics of the e-learning practitioner, and this survey was conducted at the WebCT conference in April 2004 at Stellenbosch. The majority of the participants in this conference were lecturers at higher education institutions who were involved with e-learning practice. Statements for the survey were not directed at 'good' or 'effective' e-learning practice but were broad indices of the skills, styles and characteristics of the e-learning practitioner. Participants were simply asked to make choices from a predefined list with an invitation to add comments and more options. Indices such as professional knowledge and skills, technical, curriculum and teaching skills were frequently selected. Management and personal affective indices were not regarded as very important and brain preference was not selected. Specific skills and characteristics that were selected as important were instructional design and the development of course material; using the bulletin board; assessment competencies; teaching skills such as motivating, mentoring, active participation and creativity; personal/affective skills such as patience, flexibility and problem solving; communication skills such as continuous feedback and support for students; a facilitative teaching style; and the preferred learning style for the practitioner being one of sharing and experimentation.

The most important personality attribute selected indicated a practitioner who is motivated, creative and adaptable. Although this group did not select management skills as an important index of the characteristic e-learning practitioner, the majority of the participants selected time management, planning and organisational skills as important management skills. According to the participants *listening skills* were only moderately important, which is an interesting observation seeing that they felt that student support and continuous feedback were very important. According to Kemshal-Bell (2001), skills needed for e-learning that differ from face-to-face teaching relate to communication skills for synchronised communication, fast and real time communicative feedback and exchanges between e-learning practitioners and learners, as well as the technical skills needed in a fast changing environment.

3.6.3 Survey method – pilot survey

The results from the screening survey were used as input for the framework for developing a questionnaire on the characteristics of the e-learning practitioner. Only nine from the eleven categories were included. Professional knowledge and skills and brain preference were omitted. Professional knowledge and skills were regarded as an obvious choice, brain preference were discarded as an irrelevant category.

3.6.3.1 Development of questionnaire: “What is an e-learning practitioner?”

Various brainstorming sessions with an industrial psychologist from the Centre for Continuing Professional Development led to the development of a questionnaire focusing on the characteristics of the e-learning practitioner in terms of person attributes, mainly in terms of behaviour style, and excluding skills and competencies. The existing screening survey items were evaluated in terms of their focus and items that focused on skills or competencies were discarded. The remaining items were reorganised and listed as choices that participants needed to rank in terms of importance as characteristics of e-learning practitioners. Critical evaluation of this questionnaire by the researcher and the industrial psychologist from the Centre of Continuing Professional Development revealed that the questionnaire was inadequate. A new draft was therefore written using item chunks to structure the questionnaire.

3.6.3.2 Validation of questionnaire

Through a process of validation by a statistician at the Department of Statistical Support at TUT, the questionnaire was refined. An online version of the questionnaire was developed and colleagues from the Department of Telematic Education and the industrial psychologist from the Centre of Continuing Professional Development were asked to complete and comment on the questionnaire. Revisions were made before a pilot online survey was sent out to the Partners in the P@W Programme.

3.6.3.3 Pilot survey for Partners in the P@W Programme

An online pilot survey with the participation of the Partners in the P@W Programme was conducted in November 2004. However for various reasons, for example workload, pressure to participate in a mini research conference and end-of-the-year syndrome, the response rate was very low. I also realised that no matter what the specific conditions might be, this scenario might be typical for other e-learning practitioners as well. In spite of knowing that a low response rate to online surveys and questionnaires is more the rule than the exception in the online environment, I optimistically hoped for a significant reaction, but after only a few responses to the request for participation I accepted the situation.

This had implications for the study in terms of the proposed taxometric analysis of data. The original research goal was to collect data on the characteristics of the e-learning practitioner from relevant international e-learning communities (e.g. members of the ITForum discussion group). The analysed data would then have been used firstly to identify whether the emerging pattern types were dimensional or taxonomic, and secondly to describe the profiles of each pattern type. Then theory would have been put into practice by mapping the profiles of the Partners in the P@W Programme onto these profiles. To conduct a valid taxometric analysis a

minimum of 300 data sets is needed. I had made provision for the possibility that the response rate might fail to deliver 300 data sets, and thus planned for an alternative factor analysis to cater for a smaller number of data sets. However after the poor reaction to the pilot questionnaire, I decided that it was not worthwhile to follow this route. It also became apparent from the experience of my fellow researchers and colleagues that a low response rate to a call for participation in online questionnaires and surveys is a general limitation to research studies at higher education institutions. I then had to make a decision about the way forward.

3.6.3.4 Discussion on alternative data collection methods

Further brainstorming sessions with colleagues and various experts from the departments of Human Resource Management and psychologists from the Centre for Continuing Professional Development about possibilities for the way forward crystallised in the following:

- Streamlining the process by narrowing the focus to existing taxonomies.
- Using validated, reliable and tested measuring instruments for profiling.
- Narrowing the focus to e-learning practitioners at TUT.

The following paragraphs will elaborate on the choices made.

3.6.3.5 Streamlining the process by narrowing the focus

Through the ages, understanding human behaviour and interaction with the self, and social and environmental systems has been an intriguing and elusive endeavour. In our modern world, steamrollered by the pace and the magnitude of technological advancements, human behaviour and interpersonal communication come under immense pressure to adapt to new and changing environments. Understanding how people behave and deal with their environment, especially their work environment, has become more complex. This is illustrated by the explosion of activity in the research domains of human behaviour and industrial psychology (Wright & Boswell, 2002:255; Borman, Hedge, Ferstl, Kaufmann, Farmer & Bearden, 2003:287).

Research on personality in the workplace has resulted in a vast number of theories, models, taxonomies and typologies of personality types, traits and factors (Barrick & Mount, 1993:111; McCrae & Costa, 1997:509; Revelle, 2002). Bergh and Theron (2001:310) define personology (the study of personality) as, it “is about the consistent and repetitive patterns of behaviour, in both unique and universal aspects, which affect people’s functioning in the context of their environments”. They include all domains of human behaviour in the study of personality and continue by saying that personality theories provide conceptual and integrative systems or paradigms for explaining, describing and predicting human behaviour. Patton and McMahon (1999:10) describe the intrapersonal system of the individual as “composed of several intrapersonal content influences, including gender, age, self-concept, health, ability, disability,

physical attributes, beliefs, personality, interests, values, aptitudes, skills, world of work knowledge, sexual orientation and ethnicity” (Patton & McMahon, 1999:10). Other interrelated systems, for example social and environmental systems, interact with the complex intrapersonal system and the “processes between these systems are explained via the recursive nature of interaction within and between these systems, change over time and change” (Patton & McMahon, 1999:10).

Every system, including personality, is defined by essential characteristics which are interrelated, and the configuration of relationships is the pattern within the system organised from within by rules that govern their behaviour. Furthermore, Berens (1999) states that systems are "driven" to operate in certain ways. Understanding and working with the inherent operating principles can save energy. By forcing a system to behave in ways inconsistent with its nature, we expend energy and encounter resistance.

The e-learning practitioner as a complex system will interact with the work environment system in terms of working practice. Numerous influences will constantly impact on the dynamics of the interacting systems. One “cannot know a complex living system in any definite way, since it is constantly changing, adapting and evolving” (Berens, 1999) and it is not within the scope of this study to make a comprehensive study of human personality or human behaviour as a living system. Systems cannot be measured, but through the use of different lenses of focus they can be mapped (Berens, 1999). Looking at the person attributes/essential characteristics of the e-learning practitioner, contextualised in an e-learning work environment can, for the purposes of this study, best be mapped by measuring behavioural work styles manifesting in behavioural responses in the work environment.

The inquiry process was streamlined by focusing on measuring (1) the work behavioural styles of e-learning practitioners, (2) the job structures in their (3) e-learning practice environment using an existing measuring instrument.

3.6.3.6 Choosing validated measuring instruments for profiling

The Thomas International Personality Profile Analysis (PPA) was selected as measuring instrument. The PPA has been described as “a validated, non-critical, behavioural analysis that will emphasise a person’s strengths and capabilities in the work environment” (Thomas International Resources. n.d.). Human behavioural pattern styles translated into the *DISC language* describe four basic organising principles. Combinations of these factors, expressed in a variety of different ways, provide an assessment of a person’s behavioural style. A DISC profile reports a style or characteristic of behaviour in a work situation. Four factors

(dimensions) or “typical patterns of interaction” (Thomas International, n.d.) of the person in his working environment are important:

- Dominance (an active positive posture in an unfriendly environment), which represents how people react to challenges.
- Influence (an active, positive posture in a favourable environment), which represents how people influence other people to their own viewpoint.
- Steadiness (passive agreeableness in a favourable environment), which represents how people respond to the environmental pace.
- Compliance (a cautious, undecided response to an antagonistic environment designed to calm the degree of antagonism), it represents how people respond to rules and procedures set by others (Thomas International, n.d.).

Each DISC profile shows the relevant importance of the four DISC factors in a person’s behaviour. These four factors have different properties and subtraits and may lead to more than 1400 variations of analysis (Thomas International, n.d.). These combinations facilitate complex interpretations of behaviour style.

3.6.3.7 Narrowing the focus to e-learning practitioners at TUT

Although the PPA is not a clinical instrument and is not intended for diagnosing abnormal behaviour, only trained, registered persons may perform a PPA. In South Africa, Thomas International does not offer its services to individuals but only to business organisations, hence for me to have used the PPA on a wide scale would have been very difficult, if not impossible. I contacted the registered Thomas International analyst (industrial psychologist) employed by TUT, who liaises closely with a consultant analyst from Thomas International, and we decided that it was possible to use the PPA for data capturing and analysis of the characteristics of the e-learning practitioner at TUT.

For this study, the survey technique was used to collect data on the personal profiles of the population of e-learning practitioners (to answer research question 1) and to obtain data on the human job requirements for e-learning practice (to answer research question 2). Tested, standardised questionnaires were applied as data collection instruments. Reliability and validity standards were adhered to by using a formal standardised inventory form provided by the company, Thomas International, and the computerised data analysis was done by an analyst from the same company. Ethical considerations were applied to ensure that the inquiry was conducted ethically. The datasets were integrated to determine the goodness of fit between the person and the job to answer research question3 (see Table 3.4).

3.6.4 *Ethnography method – data collection methods*

Surveys and ethnography can fulfil a dual purpose in research and may be used either as research methods or as tools/techniques for data collection. Table 3.4 positions these techniques in the current study.

Table 3.4: Research techniques with respect to the research questions

Techniques Research questions	Survey PPA	Survey HJA	Rapid virtual ethnography: online communication	Rapid virtual ethnography: recording techniques	Scenario building	Participant observation	Interviewing	Self-reported feedback
Q1	X		X	X	X		X	X
Q2		X	X	X	X	X		X
Q3	X	X	X	X				X
Q1: What is the latent structure of the e-learning practitioner construct in terms of person attributes?								
Q2: What is the latent structure of the e-learning practitioner construct in terms of work environment context?								
Q3: How do the work environment and the person attributes fit together in the structure of the e-learning practitioner construct?								

The PPA and HJA datasets were enriched by qualitative data obtained from rapid virtual ethnographic techniques using data sources such as bloggers and online discussions, as well as from scenario building focus groups (expert consensus group and instructional designers), interviews, direct observation and self-reported feedback and documents (questionnaires, essays and summaries). The following sections will elaborate on the sources of evidence and the data collection and analysis research phases.

3.7 Sources of evidence

One of the most “important elements for doing case studies is the researcher’s ability to handle a variety of evidence derived from the diverse data collection techniques” (Yin, 1998:230). In line with this statement I used seven sources of evidence: **survey** profiles on PPA and human job requirements, **interviews**, **direct observation** of the expert consensus group, **documentation** (e.g. consent form question, essays and summaries), **archival records** (e.g. reflective diaries [bloggers]), and **self-reported feedback** from the participants (e.g. focus group questionnaires). These sources of evidence were tapped during the data collection phase using a variety of methods that ranged from informal conversational interviewing to formal survey methods and are in Table 3.5.

Table 3.5: Sources of data

Source	Clarification	Strengths	Weaknesses	Code	Appendix
Total e-learning population at TUT Survey	<p>PPA: A quantitative data collection method used to inform the study on the characteristics (behavioural styles) of the e-learning practitioner.</p> <p>The HJA defines the requirements for e-learning practice.</p> <p>For the purpose of this study, the PPA and the HJA tools were chosen as data collection and analysis instruments to report on profiles of behaviour styles in a work situation.</p> <p>Data analysis was done by qualified analysts. (For this study the data analysis and accompanying reports were done by a registered industrial psychologist and Thomas International Analyst from the Centre for Continuing Professional Development at TUT and by an analyst of Thomas International Pretoria. Consultation services were rendered by analysts of Thomas International – Pretoria and Cape Town.</p>	<p>The PPA and the HJA complement each other to provide the researcher with a very comprehensive description of the P-J fit.</p> <p>It is a validated reliable instrument supported by international status (see attached Appendix C14 for details).</p> <p>The instrument is customised for the South African work environment.</p> <p>These instruments are elegant, easy-to-use, validated tools instrumental for reaching the research aim, namely the development of a structure that will clarify the e-learning practitioner construct.</p> <p>The PPA and HJA focus on the main research interests namely, the working environment and the person attributes for this environment.</p>	<p>Costly procedures</p> <p>Lack of accessibility for privacy reasons.</p>	<p>PPAs</p> <p>HJAs</p>	<p>C1</p> <p>C2</p>

Table 3.5: Sources of data (continued)

Source	Clarification	Strengths	Weaknesses	Code	Appendix
TUT e-learning practitioners. Interviews	<p>Informal conversational interviews with each of the e-learning practitioners at TUT took place during the first contact session.</p> <p>Very informal conversation, guided by one question: 'Tell me about your e-learning practice.'</p> <p>The aim of this conversation was to acquire information about the e-learning practitioner's feelings about/perceptions of his/her e-learning practice at TUT.</p>	<p>Non-threatening, open-ended question in an informal setting to put the respondent at ease.</p> <p>The conversation was free flowing and no field notes were taken during this conversation.</p>	<p>The fact that field notes were made after the conversations took place might be a weakness in terms of the limitations of the researcher's memory.</p> <p>However great care was taken to keep verbatim quotations.</p>	F2F	C3
Expert consensus group Participant observation	<p>The expert consensus group conducting the HJA protocol was observed by the researcher. Care was taken to use member-checking procedures to verify the procedure and content.</p>	<p>Reality – covers events in real time</p> <p>Contextual – covers context of event</p> <p>Insightful for interpersonal behaviour and motives (Yin, 1998:231).</p>	<p>Time consuming.</p>	PO	C4
Expert consensus group Focus group	<p>The expert consensus group conducted a HJA for the e-learning job protocol was observed by the researcher. Care was taken to use member checking procedures to verify the procedure and content (24-29 June 2005).</p>	<p>Targeted – focus on the study topic.</p> <p>Insightful into interpersonal behaviour and provides perceived causal inferences (Yin, 1998:23).</p>	<p>Time consuming.</p>	ECG	C5

Table 3.5: Sources of data (continued)

Source	Clarification	Strengths	Weaknesses	Code	Appendix
Total e-learning population at TUT Documentation	Consent form question: One question on the consent form asked for information about the time period of the person's e-learning practice. One open-ended question on the consent form asked the participant to name the most important characteristics of e-learning practitioners.	The combination of the consent form and these very short questions was cost-effective in terms of reproduction costs, and saved time and effort on the participants' side. The forms could be retrieved repeatedly – exact and stable (Yin, 1998:231).	Some participants did not complete the question.	Char1	C6
Instructional Designers from Telematic Education at TUT Virtual focus group	A virtual group consisting of the Department of Telematic Education instructional designers, including the researcher, generated criteria for star performer selection (7-17 July 2005).	Documentation is stable and precise.	Some participants did not complete all the questions.	VG	C7
Partners Focus group	Reflective essays written by the Partners on 17 May 2005 to contribute to the corpus of research data required by the P@W Programme, and was not focused on providing information specifically for this study. These documents required the Partners to reflect on their experiences, perceptions and coping strategies regarding their use of new technologies in the P@W Programme.	Documentation is stable, precise and qualitative, providing rich data for analysis.	Reporting bias – reflects (unknown) bias of author (Yin, 1998:231).	Essay	C8

Table 3.5: Sources of data (continued)

Source	Clarification	Strengths	Weaknesses	Code	Appendix
Partners Archival records	Reflective diaries (Blogger entries) written by the Partners over the time period of one year from June 2004 to June 2005. The aim of these Blogger entries was to create opportunities for the Partners to voice their feelings, concerns, perceptions and recommendations regarding the Programme.	As mentioned above.	As mentioned above.	Blog	C9
	Reflective communication between the Partners in the e-moderating module of the Programme, written by the Partners over the time period of six weeks from 5 October to 15 November 2004. The aim of this course was to allow the Partners to experience the world of the e-moderator and to create opportunities for participation in this environment. Partners used online discussions to communicate their views.	As mentioned above.	As mentioned above.	eMod	C10
	Research summaries written by the Partners on 17 May 2005, to contribute to the corpus of research data required by the P@W Programme. Partners had to reflect on their research projects conducted during the P@W Programme.	As mentioned above.	As mentioned above.	RS	C11

Table 3.5: Sources of data (continued)

Source	Clarification	Strengths	Weaknesses	Code	Appendix
Partners Questionnaire for self-reported feedback completed during research day focus group session	As one of the research data collection activities on 17 May 2005, the Partners were requested to complete a questionnaire consisting of 8 questions. One question asked their opinion on the most important characteristics of e-learning practitioners (Char2) and the remaining open-ended questions focused on how they perceived the 5 distinct roles that they played as e-learning practitioners in the P@W Programme and to identify the job demands, distracters and releasers in their e-learning practice.	Answers to questions are easy to retrieve, qualitative, providing rich data for analysis. Open-ended questions create opportunities for creative reporting and uniqueness from the participants.	Although the open-ended questions create unique response opportunities, they may sometimes limit the responses of participants who do not feel comfortable expressing themselves in their second or third language.	Char2 FGQues	C12 C13

The combination of the range of evidence methods is an important aspect when defining the “facts” of the case (Yin, 1998:232), therefore it is appropriate to maintain a balance between the focus on the richness and depth and “the ‘opening up’ of new ideas and interpretations of the phenomenon under investigation”, the focus on the relationship between the unit of analysis and the setting and the focus on “the contextual meaning within the bounded system” (Christie *et al.*, 2000:11). According to Yin (1998:232-233) the “methodological goal is to apply the concept of triangulation to highlight the complementing ideas from different angles, using different sources of evidence”.

One basic definition of case studies is their reliance on multiple sources of evidence (Yin, 1998:230) to “derive through induction a holistic understanding of a particular bounded system, rather than discovering through deduction universal generalizable truths” (ERIC, 2002:7).

3.8 Data collection instruments

The above-mentioned data sources were tapped by a mixture of data collection methods ranging from informal conversational interviewing and direct observation to systematic text and survey analyses.

3.8.1 DISC profiling

3.8.1.1 DISC behavioural style profiling

Marston (see section 2.6.5.5.1), postulates that all four of the DISC dimensions might be displayed in a general behaviour style, but that one or two work behavioural styles are more prominently displayed in the work environment (Thomas DiSC Systems, n.d.). Combinations of the factors that constitute these behavioural styles provide a basis for assessing a person's behavioural style. Development of the 'DISC Graph' or 'DiISC Profile', a graphical presentation of aspects of a person's behaviour, enhances understanding of the complex results produced by a behavioural profile (Discus Online n.d.).

3.8.1.2 The development of the DISC profiling system

Having proven its value in the late 1930s as part of the US army's recruitment process, the DISC profiling system became popular in a more general recruitment setting (Synergi, n.d.). With the development of computer software it also became more user-friendly and according to various groups became a widely used behavioural assessment tool worldwide (Thomas International Career Consultants, 2003; ManCom Team, n.d.; RP Cushing Recruitment, n.d.; Geier Learning International, n.d.; Axiom DISC, n.d.).

Dr Thomas Hendrickson refined Dr Marston's work and founded the Thomas Profiling System in the early 1960s (Thomas International, n.d.). Hendrickson adapted and developed the technology to meet the requirements of commerce and industry and his work has since gained widespread recognition as one of the "most successful methods of determining human behavioural styles in the working environment" (Thomas DiSC, n.d.). Since that time, the system has been widely implemented as a managerial aid to "recruiting, selecting, training, counselling, career planning, team bonding and team management around the world" (Thomas International Career Consultants, 2003; Thomas International Homepage, n.d.). According to statistics captured from the Thomas International website their global presence over the past 15 years included:

- 4 million assessments in 49 different languages;
- 30,000 clients;
- offices in over 50 countries;
- over 350 trained consultants, and
- there are 1428 variations of analysis for each report available (Thomas International Career Consultants, 2003).

For the purposes of this study the DISC workplace inventories were used for capturing (1) the personal profiles of the e-learning practitioners at TUT, (2) the profile of the e-learning

practitioner's job at TUT and (3) the relationship between these two in terms of their 'goodness of fit'.

3.8.1.3 The DISC behaviour styles

The following description of the basic assumptions of the DISC application, as well as the different DISC personality styles, is quoted from the resources and is not my own interpretation. The reason for this is that the DISC analysis is concerned with precise terms and to prevent confusion in interpretation I have used the descriptions as cited in the resources.

One of the basic assumptions of the DISC behaviour style analysis is that there are four basic behaviour styles, none of which is better or worse than any other. The four styles are:

- Dominance – how you handle problems.
- Influence – how you deal with people.
- Steadiness – how you pace yourself.
- Compliance – how you follow rules and procedures (WITT Communications, n.d.).

In addition to this basic assumption, WITT Communications list five more on their website (http://www.wittcom.com/what_is_disc.htm):

- Your dominant style influences the way you act, react and interact.
- Each style has its own characteristic strengths and weaknesses.
- The behavioural patterns of one style tend to conflict with those of the other three styles, making it easier to get along with people of the same style.
- The behavioural patterns of one style can complement those of the other three styles, making it more advantageous to work with people of a different style.
- To create effective working relationships, it's helpful to understand and adapt to the behavioural styles of the people you are working with (WITT Communications, n.d.).

A concise description in Table 3.6 of each DISC style will differentiate the style in terms of how persons with different styles deal with power, with other people, with change and with rules and procedures.

Table 3.6: Comparison of the different work behaviour styles

(adapted from WITT Communications (n.d.) and Thomas International Resources (n.d.))

Work behaviour styles		
"D" work behaviour styles	Competition, high performance standards, achieving goals, solving problems and challenges are high on the "D" list. They are concerned about results	
	Focus	Power
	Communication style	Tell
	Managerial style	Autocratic
	Motivators	Tangible goals
	Fears	Failure
	Question	What?
	Engages	Force of character
"I" work behaviour styles	Networking, conversation, working with others is high on the "I" list. They like people and want to be liked, are charming, optimistic and outgoing	
	Focus	People
	Communication style	Sell
	Managerial style	Democratic
	Motivators	Recognition and social inclusion
	Fears	Rejection
	Question	Who?
	Engages	Personality
"S" work behaviour styles	Hard work, creating a stable environment and the team are high on the "S" list. They are concerned about relations, are sympathetic, friendly, good listeners, "finisher completers"	
	Focus	Pace
	Communication style	Listen
	Managerial style	Procedural
	Motivators	Job contract and group inclusion
	Fears	Insecurity
	Question	Why?
	Engages	Experience
"C" work behaviour styles	Systems, processes, procedures and predictable and consistent outcomes are high on the "C" list. They have high standards, especially for themselves and can be perfectionists. They are concerned about accuracy and research every aspect of a situation and consider every possibility before making a decision.	

Table 3.6: Comparison of the different work behaviour styles (continued)
(adapted from WITT Communications (n.d.) and Thomas International Resources (n.d.))

	Focus	Policy
	Communication style	Write
	Managerial style	Unpredictable
	Motivators	Job specification and rules
	Fears	Conflict
	Question	How?
	Engages	Know-How

3.8.1.4 Description of DISC Factors

Each DISC profile shows the relevant importance of the four DISC factors in a person's behaviour. These factors have different properties and sub-traits and may lead to more than a million different combinations (Axiom DISC, n.d.) and 1428 variations of analyses (Thomas International, n.d.). These combinations facilitate complex interpretations reporting on behaviour style.

A summary of the DISC factors or "typical patterns of interaction" as described by Thomas International (n.d.) entails the following:

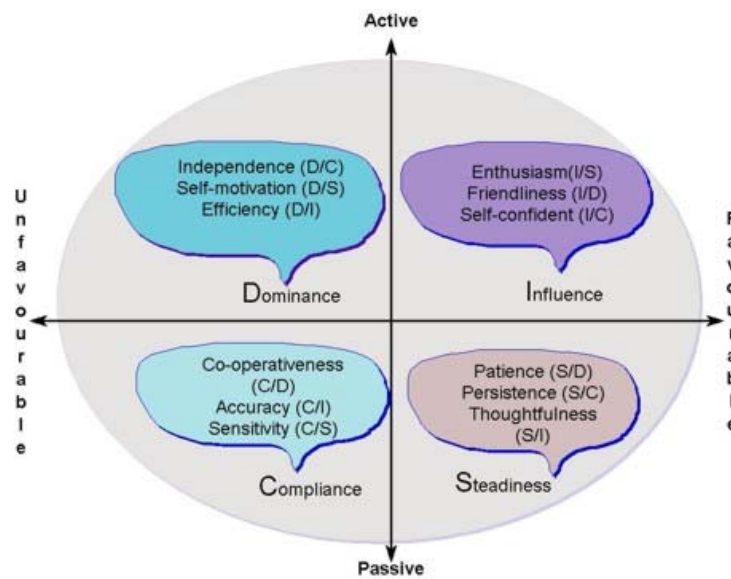
- Dominance focuses on POWER. Keywords describing this factor are *inter alia*: Driving, competitive, direct and self-starter.
- Influence focuses on PEOPLE. Keywords describing this factor are *inter alia*: Influential, verbal and communicative.
- Steadiness focuses on PACE. Keywords describing this factor are *inter alia*: Dependable, good listener, persistent and kind.
- Compliance focuses on POLICY. Keywords describing this factor are *inter alia*: Careful, perfectionist, precise and compliant (adapted from Thomas International, n.d. and ManCom Team, n.d.).

The 12 sub-traits, one for each possible pair of factors, enhance understanding of the relationship between factors in a profile (Axiom DISC, n.d.). The sub-traits as described by Axiom DISC (n.d.) are listed below in Table 3.7.

Table 3.7: DISC Sub-traits (adapted from Axiom DISC, n.d.)

List of DISC Sub-traits	
Sub-trait	Refers to individuals
Accuracy (C/I, sometimes called Caution)	With the main goal to “get things just right”
Cooperativeness (C/D)	Who prefer to work in team
Efficiency (D/I)	Who is primarily motivated by results
Enthusiasm (I/S)	With animated, expressive behaviour
Friendliness (I/D)	Who are open and warm to others
Independence (D/C)	Who follow their own goals
Patience (S/D)	Who are calm and unobtrusive
Persistence (S/C)	Who display dogged, tenacious behaviour
Self-confident (I/C)	Who have social confidence
Self-motivation (D/S)	Who are go-getters/self-starters
Sensitivity (C/S)	Who are observant and aware of their environment
Thoughtfulness (S/I)	Who think their actions through carefully

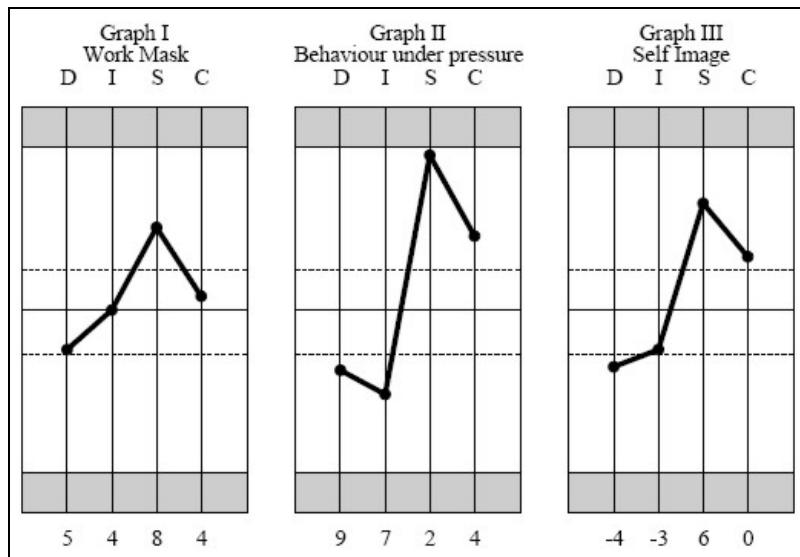
These sub-traits can be graphically presented as:



For example, if a person’s profile shows a high Steadiness score and a low Influence score, that can be interpreted as the person being thoughtful and this can be used as a context for interpretation (see Figure 3.13 for example of S/I graphical presentation).

Figure 3.13: Example of a DISC profile

showing a high Steadiness and low scores for Dominance and Influence factors in the self-image graph.



The factors in the DISC profile relate to particular style of behaviour, and the DISC profiles provide scope for interpretation to provide information such as the (1) individual **traits** that a person possesses or lacks, and how they are presented in the person's behaviour and (2) profile tension which reveals how much stress a person was experiencing at the time of completing the inventory, coping with stress and possible sources of stress.

3.8.1.5 What is a Thomas Personality Profile?

The Thomas International Personal Profile Analysis (PPA) has been described as “a validated, non-critical, behavioural analysis” that will report on a person’s work style behaviour with an emphasis on strengths and capabilities in the work environment (Thomas DiSC Systems, n.d.). The PPA is not a clinical test and the participant cannot ‘pass’ or ‘fail’ it (Thomas Disc Systems, n.d.). To complete the PPA, the user is asked to choose two options from a list of four words in each of 24 rows; the user will mark the word that described him/her the **most** and the **least** (Thomas International Resources, n.d.). These choices are scientifically charted and analysed by a trained analyst who will give feedback to the participant regarding his behaviour in the work situation. The results are plotted on a graph known as a 'DISC profile'. Feedback acceptability to the user is enhanced by the fact that it is a self-report instrument (Thomas DiSC Systems, n.d.). These personality profiles may help the worker to make career decisions, develop personal strengths, recognise personal qualities and motivators, develop self-awareness and create opportunities to change (Thomas International Resources, n.d.).

3.8.1.6 PPA for e-learning practitioners at TUT

Data capture and analysis of the characteristics of the e-learning practitioner were conducted on two levels, namely the organisational level, including all e-learning practitioners at TUT, and the programme level, including all the Partners in the P@W Programme. These actions are briefly recapped in the paragraphs here below.

3.8.1.6.1 Distribution and collection of PPA forms

Administration of the PPA to the e-learning practitioner at TUT involved the following:

- selection of e-learning practitioners;
- scheduling appointments with participants;
- requesting participation in study;
- requesting completion of the consent form;
- requesting completion of the open-ended question on the consent form;
- explaining the PPA and the procedure;
- requesting completion of the PPA form, and
- face-to-face conversations with the practitioners on how they perceive their e-learning practice.

3.8.1.6.2 Selection of e-learning practitioners at TUT

To identify the e-learning practitioners at TUT a name list of current practitioners was obtained from the Department of Telematic Education. The population list (108 e-learning practitioners

including the Partners from the P@W Programme were listed for 2005) was generated from information given by the WebCT administrator at Telematic Education, TUT. All the persons on the list were included in the study. Although for the purpose of this study I have chosen the term 'e-learning practitioner' to describe this group, one must keep in mind that these practitioners do not practise as e-learning practitioners per se; most of the time they have normal traditional lecturing duties as well.

An industrial psychologist from the Centre of Continuing Professional Development facilitated a data collection session with the Partners and they completed the PPA forms on 3 August 2004. The data were analysed and reports printed on 24 August 2004. Thirteen from the fourteen forms were valid and personal feedback about the PPA was given to the Partners on 26 October 2004. With the permission of the Partners these results were archived at the Centre of Continuing Professional Development and were retrieved by the researcher for quantitative and qualitative analysis during the period June –September 2005.

A total of 94 e-learning practitioners (excluding the Partners) was approached between the time period 16 May 2005 and 24 June 2005. This time period was crucial for three reasons : firstly, before that date practitioners were not easily available because they were presenting classes; secondly during this time they were busy marking examination papers, thus were mostly busy in their offices; and thirdly, the University closed on 24 June 2005 for the recess break, meaning that after 24 June 2005 none of the lecturers would have been available on campus. From the population list 69 percent reacted positively and 56 percent completed the PPA forms, the consent forms and the short questionnaire consisting of two questions (see Appendix C6). Fifty-nine face-to-face, unstructured interviews were conducted during the data collection phase. The personal conversations were focused on an informal question relating to "Please tell me how you use e-learning in your environment?" (see Appendix C3).

3.8.1.6.3 Scheduled appointments

A number of communication methods were used to make appointments with the practitioners. Initially, starting with the first name on the list, each person was telephoned to make an appointment. However, because of a lot of to and fro phoning between me and the practitioners, I changed the strategy to the next best option, namely using personalised emails. This worked well but was also time consuming. So I opted for the next best option namely to group people from one department and contact them as a group by sending one email to the group. This worked well and time was used more efficiently. From time to time these emails were followed up by a personal telephone call. After the appointments were scheduled I personally visited each person who reacted on the calls or emails.

3.8.1.6.4 Completion of the PPA form

A total of 60 people (excluding the Partners) reacted to my call for participation. During these contact sessions the aim of the study was explained and participation requested. If the person responded positively a consent form (see Appendix C6) and the PPA form (Appendix C1) were discussed with them. If they indicated interest, an HJA form (Appendix C2) were also provided. On completion the forms were collected and the participants were told that by entering personal details on the forms provided they would indicate that they wanted to receive feedback on their finished PPA and/or HJA. These feedback reports would be communicated in individualised face-to-face feedback sessions after completion of this study. The participants could benefit from the information gained from the Thomas International Profiling instruments.

I also used the initial face-to-face meeting to conduct an informal interview session. I asked one unstructured question namely: "Please tell me how you use e-learning in your environment?" This was done in a conversational manner and no means of recording was used during these sessions. Responses were charted on a spreadsheet afterwards as part of a feedback report (see Appendix C3).

Two questions accompanied the consent form, the one gathered information on the length of their e-learning practice and the other was an open-ended question, namely "In your opinion, what are the outstanding personal attributes (characteristics) of an e-learning practitioner?" (see Appendix C6). Responses to these questions were analysed and a list of descriptive words and lengths of e-learning practice were compiled.

Some of the participants asked to complete the form in their own time and in such cases I collected the form later.

In the TUT group 60 persons (64%) reacted to the call for participation, seven people (7%) lost interest and did not react to follow-up emails, seven (7%) promised to take part but never did and 46 (50%) actively participated.

3.8.1.6.5 Descriptive details of the e-learning practitioner group at TUT

A summary of the descriptive details of the e-learning practitioners at TUT relating to population and group composition is displayed in Table 3.3.

The excellent response from the e-learning practitioners resulted in a representative division between the different faculties at TUT. Apart from the Partners who were selected per faculty, e-learning practitioners from all eleven faculties took part in the study. However, for ethical reasons, I decided not to disclose the faculty/profile distribution.

3.8.1.6.6 Analysis of PPA forms

The completed PPA forms were delivered to the analyst who scored and analysed them between 13 June and 14 July 2005. Only two forms were invalid and were discarded.

3.8.1.6.7 Report format and meaning of the graphs

A computer-generated report for each individually completed PPA form, gives feedback and a graph on self-image in terms of how the person described him- or herself; on self-motivation; job emphasis; descriptive words of the personal profile; how others see the person (work mask); behaviour under pressure; general comments and also a list of motivators that would motivate this person in the work environment. Three graphs accompany each written report. For illustrative purposes in this study only the graphs on self-image will be used. Resource information on the graph descriptions was kindly supplied by the Thomas International analyst consultant.

Discussion on profile details is given in Chapter 4.3.

3.8.1.7 Introduction to HJA

At TUT no formal “e-learning” job exists, nor is there a job description for an e-learning practitioner. Over the past six years all lecturers who participated in multimode teaching and learning activities were either engaged in various Telematic Education projects, or were involved in the design, development or implementation of WebCT courses. None of these lecturers had been appointed as e-learning practitioners and their involvement in the e-learning environment was motivated mostly by their own interest. Involvement in e-learning activities meant an increase in their existing workload.

In my search for clarification on e-learning practice, as embedded in the work context at TUT, I took a closer look at existing informal practices but also focused on a more in-depth analysis of the job of the e-learning practitioner. Thomas International Systems provides a tool that can assist in such an endeavour, namely the Human Job Analysis (HJA). As illustrated in the previous subsection, this tool can be used to describe human behavioural functions and is designed to specify behavioural requirements of a job function. “What is being described are actions and attitudes which form a particular pattern and can commonly be defined as exemplifying a behavioural characteristic” (Thomas International, n.d.). The HJA is an integral part of Thomas International Systems, and the criteria used are the four factors that are also used in the PPA, namely Dominance, Influence, Steadiness, and Compliance.

The benchmark created by the HJA is the most critical component for specifying the job function and if the benchmark is inaccurate the resulting job match will be equally mismatched.

3.8.1.8 Benchmarking the job of the e-learning practitioner at TUT

The process of benchmarking consists of a number of different steps:

- Group selection and composition.
- Collection of relevant resource material.
- Discussion on fundamental questions before completing the HJA.
- Completion of the HJA form.
- Enrichment of the theoretical job benchmark.
- Validation of HJA profile to the profiles of the star performers.
- Construction of master profile.
- Full description of HJA.

General guidelines for conducting the HJA (adapted from The Human Job Analysis by Thomas International) and creating a benchmark for the job of the e-learning practitioner are outlined below.

3.8.1.8.1 Selection of expert consensus group

According to the guidelines prescribed by Thomas International, an HJA must be completed by a group consisting of at least four people. The preferred group composition should include two people who know the job but are not holders of the job; one person who has a holistic picture of the organisation; and one person who is a trained Thomas analyst.

Thus I had to make decisions about the composition of the expert consensus group and who to include based on the guidelines from Thomas International. I eventually chose a manager from the Department of Telematic Education, two successful Partners from the P@W Programme and two star performers from different faculties at TUT. I also included myself under the supervision of the Thomas International analyst at TUT.

3.8.1.8.2 The rationale for these choices

The manager from the Department of Telematic Education had an overall vision of the organisational needs and interactions, was actively involved in the design, development, implementation and evaluation of the P@W Programme, and also had first-hand experience as an e-learning practitioner, instructional designer and higher education lecturer. The expertise and experience of this manager covered a holistic job spectrum, and this person would be able to contribute from the macro- to the micro level.

The two Partners had received a comprehensive capacity building and training programme concentrating on the five main roles that the e-learning practitioner plays in the e-learning environment. They had both completed all the given assignments and tasks and had also used

all the prescribed technologies in the courses they had developed. They had also implemented their courses successfully. However, it is important to note that they were selected to participate in the P@W Programme by their faculties and had limited or no previous experience of e-learning practice. Thus whilst they had a very comprehensive and intensive theoretical training in this field, their actual practical application in the field was limited. Nevertheless, they were selected on the grounds of the overall spectrum of their acquired and applied knowledge in the field of e-learning practice.

The two star performers were selected from a small group of e-learning practitioners at TUT who actually “do the job”. These lecturers had formal registered Telematic Education projects, but had received no formal training as e-learning practitioners. Although project specifications included support from the Department of Telematic Education, no formal training programme had been presented. These lecturers were self-starters who excelled in spite of difficult and demanding circumstances. Thus whilst they did not have the theoretical background and training that the Partners had, they had the practical experience .

3.8.1.8.3 Completion of the HJA form

The HJA form consists of 24 statements about job performance. The rater rates each question bearing the successful performance of the job in mind and places a dot in the appropriate box. The choices are Very Low; Low; Significant; High; and Very High, based on the relative importance of the job. As indicated on the form, the factors selected are filtered through the relevant colour blocks and scored accordingly. The results are charted as a graph on the provided human job description axis.

3.8.1.8.4 Preparation for the expert consensus group meeting

In preparation for the HJA session, each expert consensus group member, with the exception of the manager from Telematic Education, completed an HJA form without scoring it. At the group discussion held on 24 June 2005 in the virtual classroom at the Department of Telematic Education, the group commented informally on the item list on the HJA form whereupon the session commenced.

To enrich the discussion about the HJA, information about the job should be gathered and shared amongst the group. The most relevant sources of information would include a job specification and details of job functions and job performance criteria for future job assessment. However, for this specific expert consensus group meeting no documentation was distributed because no formal documented information was available.

Before completing the HJA a useful exercise is to discuss fundamental questions about the job. This exercise was not necessary however because discussions about e-learning practice had already taken place during individual informal face-to-face interviews with the TUT e-learning practitioners.

I conducted the expert consensus group meeting under the supervision of an industrial psychologist from the Centre for Continuing Professional Development at TUT.

3.8.1.8.5 Various methods for completing an HJA

Three methods for completing an HJA are proposed in the Thomas International guidelines and will be discussed briefly here below.

1. Method one

Each member of the group selected to participate in the HJA completes the HJA form, scores it and draws up the graph. This must be done in isolation before the group meeting. When the group meets to complete the HJA, each person will present a graphic representation of their own HJA. A range of individual perceptions of the job requirements and functions will be on the table and will stimulate discussion. Differences must be discussed and a common perception sought before finalising a team HJA.

2. Method two

Each member of the group selected to participate in the HJA completes an HJA form but does not score it. In the group meeting one person gathers all the forms and draws up a group form. Corresponding answers are accepted and charted. Wide differences in answers must be discussed to arrive at a compromise. Thomas International guidelines suggest that there should be agreement on approximately 16 of the 24 questions. Only exceptions require discussion and after consensus has been reached the form is scored and one HJA constructed.

3. Method three

The group selected to participate in the HJA completes an HJA for more than one position at a time, for example, the position in question, the position to which this position will report, as well as a position alongside but different to the one being assessed. Group members are assigned to a particular HJA and answer the questions one at a time for each position. The Thomas International analyst leads the group question by question, providing interpretation from the back of the form as required.

Positions alongside the e-learning practice are that of teacher or lecturer and instructional designer. Job descriptions for both these positions were available and furthermore the HJA results on the job requirements for the position of instructional designer were available. Instructional designer groups from both the University of Pretoria and the TUT contributed to such a job description. However, in an attempt to streamline the process and to focus the expert consensus group activity, it was decided to choose the second method of completing the HJA.

3.8.1.8.6 Choosing a method for completing the HJA

The second method was chosen as it was best suited to the needs of the specific expert consensus group. Each group member had their completed HJA form ready and, as I read each individual statement on the HJA form, they were asked to give their answer. If the answers corresponded they were charted on a new “group” form. If the answers differed widely we read the question explanation on the back of the form and discussed the meaning of the statement and then charted the compromise arrived at. After a two-hour discussion session, the group was satisfied with the results. The new “group” form was scored and I constructed one HJA (see Appendix D2 for an example).

3.8.1.8.7 Description of the HJA instrument

The HJA form consists of 24 statements, falling into four groups of six statements each. Each group represent a different DISC factor. The form asks the users to “address the human demands of the job, to rate these on a four point scale and to construct a visual profile based on the summation of these “points” for each of the four clusters of statements” (Irvine, 2003:16). Transformation of the points system into graphs provides patterns for comparison with the PPA graph, thus allowing for the person to be compared to the employer’s job prescriptions. Refer to Table 3.4 for positioning the PPA and HJA in terms of answering the research questions.

3.8.1.8.8 Validity and reliability of the Thomas International System instruments

International studies established the construct and criterion related validity, internal consistency and test-retest reliability of the PPA under various circumstances (Hall, 1999; Inscape, 2005; TI correspondence, 12 April 2005, Appendix C21). According to the documentation provided, Thomas International followed the draft suggestions of the International Test Commission to ensure that they comply with international criteria for computer-based assessment procedures, can be applied to all employees, are not biased against any employee of group and also provide a scientifically based service to an international business community of nearly 70 000 organisations in 52 countries across more than 40 language groups (TI correspondence, 12 April 2005) (see Appendix C14).

3.8.2 Interview

Informal conversational interviewing was used to obtain data on the e-learning practitioners' view on their e-learning practice. As already described in section 3.8.1.6.4 only one question was posed to the participants: 'Please tell me how you use e-learning in your environment?'. Initial contact, during which I explained the aim of my study, had already been made through telephonic and/or e-mail communication, therefore the face-to-face meetings were continuations of our conversations. I maintained a relaxed, informal approach in a "tone of friendly chat" (Denzin & Lincoln, 2003:86). I did not restrict the time allocation for each meeting, but adapted to the ever-changing situations. The interviews had three purposes, namely to ask participants for their participation in the study, and if willing to participate to complete the consent form and respond to the open-ended question on the consent form. The third purpose of the interview was to explain the PPA and HJA forms and to ask for completion of these forms. Special considerations on my side were to try and remain on the topic of inquiry, to avoid getting involved in "real" conversation and to use language that created "sharedness of meaning" (Denzin & Lincoln, 2003:86) which was understandable for the participants. I was at a considerable advantage as far as rapport and the development of trust was concerned because the participants and I worked in the same the e-learning environment at TUT. Although we hold different positions, I could understand their frames of reference in terms of their e-learning practice. Asking questions and listening to the answers were meaningful ways of generating data. Refer to Appendix D3 for an analysis of the participants' responses. Refer to Table 3.4 for positioning the interview in terms of answering the research questions.

3.8.3 Participant observation

The aim of the expert consensus group's activities was to create job requirements for the e-learning practice at TUT. Although the procedures for this organised discussion and for plotting the HJA were followed as prescribed by Thomas International (described in section 3.8.1.8.3), an unexpected opportunity for participant observation occurred during this session. Valuable additional information on not only job characteristics, but also the participants' perceptions and feelings about the value and reliability of the contributions from expert consensus group, were added. Through participative observation the researcher could record the finer nuances that emerged from the interaction and behaviour of the group. Thus participative observation in a focus group not only contributes to understanding multiple viewpoints on a given topic, but also to enrich knowledge of the topic. Refer to Table 4.35 for a detailed reflection on the group's viewpoints. Refer to Table 3.4 for positioning participant observation in terms of answering the research questions.

3.8.4 *Instructional designers virtual focus group*

“Star performers” can be described as the people whose job performance can be rated as exemplary. To define star performers, colleagues (instructional designers) from the department of Telematic Education were asked for their opinion. In a virtual focus group using email they were asked to describe a star performer in the field of e-learning practice at TUT and to identify star performers in their faculties (see Appendix C7).

3.8.5 *Expert consensus group*

The expert consensus group conducted an HJA for the e-learning job protocol, which was observed by the researcher. Care was taken to use member-checking procedures to verify the procedure and content. The advantages of using an expert consensus group for designing a job profile were a targeted focus on the topic, the incorporation of various viewpoints from management and practitioners, and the valuable contribution of rich information from well-established experts. The general disadvantages of using focus groups were minimised by the HJA protocol. Therefore a formal protocol contributed to equal participative opportunities for all participants. The facilitator (researcher) followed the prescribed HJA protocol, which focused on the task at hand. Therefore sensitive or personal information was not part of these discussions and negative influences such as mistrust between the participants were not observed.

Section 4.4.2 describes the HJA protocol that was followed by the expert consensus group and the results of the analysis in detail. Refer to Table 3.4 for positioning the HJA and the expert consensus group activities in terms of answering the research questions.

3.8.6 *Documentation*

Various sources of data were captured in written format. These include the consent forms given to the e-learning practitioners, answers to the question on the consent form, instructional designer virtual group’s email discussions on star performers, and reflective essays written by the Partners on 17 May 2005.

Participants who signed a consent form were asked to respond to the question: ‘What is/are the most important characteristic/s of the e-learning practitioner?’ To simplify the administration, distribution and collection of responses to the question, the question was included on the consent form. This allowed for instant completion and collection of the participants’ responses during the face-to-face interview session scheduled between 16 May to 24 June 2005.

Responses were analysed and are reported on in section 4.3.2.4.2. Refer to Appendix C20 for an example of the consent form.

A virtual group consisting of instructional designers from the Department of Telematic Education, including the researcher, generated criteria for star performer selection and nominated star performers in their faculties. An analysis of the star performer group is reported on in section 4.3.2.4.1. Refer to Appendix C7 for a list of selection criteria for star performers.

In reflective essays the Partners were required to reflect on their experiences, perceptions and coping strategies regarding their use of new technologies in the P@W Programme. Structure for the essay was provided, which guided the Partners to focus their reflective notes on how they handled and coped with the new technologies that they had to master as Partners in the P@W Programme. The writing of these essays was one of the research data collection activities scheduled for the Partners on 17 May 2005. Partners were also requested to participate in a number of activities aimed at the generation and collection of research data on and to document various aspects of the P@W Programme of activities. This session was facilitated by an independent consultant. These essays as a data source focus specifically on their interaction with technology, and therefore are most relevant for this study in terms of acquiring new technological skills. Documents as sources of evidence provide stable, precise and qualitative rich data for analysis (Yin, 1998:231).

The essays were analysed and integrated in the data analysis presented in Chapter 4.1 -4.3. Refer to Appendix C8 for an example of the essay structure. Refer to Table 3.4 for positioning documents in terms of answering the research questions.

3.8.7 *Archival material*

Archival material from the P@W Programme included computerised and qualitative data files of, for example reflective diaries (bloggers), surveys on various workshops and work sessions, programme records such as capacity building and implementation progress reports, course and design evaluation records, peer evaluation reports, research articles and summaries, an archived copy of the e-moderating course in WebCT that everybody took part in, and an archived copy of all their activities, including online communication in WebCT representing the Partners' online community. From the wealth of data sources I have chosen the following:

Reflective diaries (blogger entries) which were written by the Partners over a period of one year from June 2004 to June 2005, the aim of which was to create opportunities for the Partners to voice their feelings, concerns, perceptions and recommendations on their experiences as e-learning practitioners. An analysis of these reflective texts will therefore highlight this aspect of their experiences.

Reflective communication took place between the Partners participating in the e-moderating module of the Programme, written by the Partners over the time period of six weeks from 5 October to 15 November 2004. The aim of this course was to allow the Partners to experience the world of the e-moderator and to create opportunities for participation in this environment. The Partners, the facilitator of the programme and the instructional designers from TUT, including myself as participant, formed an online community using online discussions to communicate its views. Participation in this online course provided the Partners with the experience of being an online learner and also of being an online moderator on such a course. Therefore an analysis of their online communication, focusing on the roles of learner and e-moderator, will provide insight into these areas of practice. Activities from this online e-moderating community provided excellent scope for the rapid ethnographic approach used.

Research summaries written by the Partners on 17 May 2005 to contribute to the corpus of research data required by the P@W Programme formed part of the research day activities for the focus group on that day. One of the tasks on that day was to document their reflections on their research projects conducted during their participation in the P@W Programme. Choosing the research summaries as sources of evidence thus included a perspective of the role of researcher.

Refer to Table 3.4 for positioning archival material in terms of answering the research questions.

3.8.8 *Self-reported feedback*

One of the research data collection activities conducted on 17 May 2005 included a request to the Partners to complete a questionnaire on influences on their e-learning practice. The questionnaire consisted of eight questions. One open-ended question asked for their opinion on the most important characteristics of e-learning practitioners and the remaining open-ended questions focused on how they perceived the five distinct roles that they played as e-learning practitioners in the P@W Programme. They also had to identify the job demands, distracters and releasers in their e-learning practice. The questions were presented in typed format allowing space for long detailed answers. All the Partners except one completed the questionnaire. Answers to questions are easy to retrieve, qualitative, and provide rich data for analysis. Open-ended questions create opportunities for creative reporting and uniqueness from the participants.

The self-reported feedback on how the Partners experienced their e-learning practice in terms of the five roles that they played was included as data source because of the very specific focus on the role structure for these e-learning practitioners and thus providing rich data and

perspectives on each of these roles. Another very specific focus of the questionnaire addressed job demands, distracters and releasers as perceived by the Partners.

Refer to Table 3.4 for positioning the self-reported feedback activity from the Partners focus group in terms of answering the research questions.

The questionnaires were analysed and integrated in the data analysis presented in Chapter 4.1-4.3. Refer to Appendix C13 for an example of the focus group questionnaire.

3.9 Mode of data analysis

Data analysis relevant to this study included quantitative as well as qualitative analyses, spanning a timeline from July to September 2005. An exception was an analysis of the PPAs from the Partners that was done in October 2004. All data were analysed by the researcher, except for the computerised analysis of the PPA and HJA forms done by the analysts of Thomas International, the HJA by the expert consensus group, and the selection of star performers by the virtual group. Table 3.8 provides information on the data analysis timeline.

Table 3.8: Data collection and data analysis timeline

	June 2004	Aug 2004	Oct 2004	Time period for Case study					Aug 2005	Sept 2005
				May 2005	17 May 2005	Jun 2005	25-30 Jun 2005	July 2005		
Data collection Partners archival material	Blogs				Research summaries					
Data collection Partners		PPA	PPA feed-back		Essay					
					Consent form question Focus group questionnaire					
Data collection e-Learning practitioners				PPA / HJA Interviews - F2F Consent form question						
Expert consensus group Virtual group							HJA			
								"Star" selection		
Data analysis - TI analysts			PPA Partners	PPA e-learning practitioners			HJA e-learning TUT		Validate PPA : HJA fit	
Qualitative data analysis Researcher								Qualitative data analysis - Consent form question, Interviews - F2F, Essays, HJA observations, blogger messages, e-moderation course, summaries, focus group questionnaire.		
Quantitative data analysis Researcher									PPA:HJA fit	

3.9.1 Computer analysis

Different modes of analysis were applied in this study. Although the reports provided by Thomas International for PPA are presented in essay and graphic format, the mode of analysis included **computerised analysis** of the participants' choices. A measurement technique referred to as "forced-choice" is used. This means that the participants are presented with four adjectives from which they must select two, one most like them and one least like them. The advantage of using this format is that the social desirability of responding is reduced by offering positive as well as negative qualities. After the participants have completed the 28 forced-choice boxes, their 28

most and *least* responses are charted on separate graphs, and the combination of these two is charted as a third graph, which is “shown as the most reliable measurement of DISC” (Inscape, 2005:12). The DISC is designed to measure ‘surface traits’, being “those behaviours that are readily seen and reported” (Inscape, 1996:4). The Inscape report (1996) distinguishes between surface traits and source traits of personality as those which are validated on face value or those validated by a significant body of research (construct validity). DISC is designed to measure surface traits. “Therefore the four surface traits, Dominance, Influence, Steadiness and Compliance should not be regarded as source traits. This means the user must regard D, I, S, and C not as internal dispositions, but as semantic labels for patterns of behaviour, at a level of describing behaviour, not explaining what cause the behaviour” (Inscape, 1996:5). Behaviour will not be constant from situation to situation, and therefore respondents based their choices on a specific situation, in this case their e-learning work environment.

Correspondingly, profile interpretation needs to emphasise that in a specific situation these are the tendencies a person has reported. For example, the e-learning practitioners completed the PPA forms from an e-learning practice point of view, describing themselves in an e-learning work environment. The Inscape report on the DISC model further points out that:

source traits may be relatively unchangeable but surface traits, including the behavioural characteristics measured on DISC, lend themselves to some degree of modification by a) selecting an environment which does not inhibit change by causing fear or defensiveness and or b) by selecting behaviours within one’s repertoire which are more appropriate to the situation. Needs, values, and personality characteristics which are not measured by DISC are likely to come into play in any change effort (Inscape, 1996:9).

Computerised analysis of the job requirements as selected by the various participants resulted in an **HJA** report presented by Thomas International in both narrative and graphical format.

3.9.2 Analysis by expert consensus focus group

In addition to the PPA instrument, which is “only one half of a joint process that makes the [worker and organisation] address the problem of what job characteristics are required to be met by the successful worker in a particular job within the organisation” (Irvine, 2003:15), the organisation contributes by completing the HJA form to compile a profile of the ideal job qualities. These are matched against the PPA profile of the worker. Probability of job success and satisfaction will be increased by the congruence or near concordance of the two profiles (Irvine, 2003).

The HJA was completed by the expert consensus focus group, and the graph was compared with the results of the PPA (see section 4.5.2.3). By using a prescribed scoring formula, congruence between the PPA and HJA results is calculated and expressed as a numerical value that indicates “goodness of fit” (see section 4.5.3).

3.9.3 *Analysis by virtual group*

Feedback on questions posed to the instructional designer virtual group listed qualifying criteria for an e-learning practitioner star performer as the following:

- Has been in practice for at least 18 months.
- Someone who facilitates in a way that allows learners to consistently achieve outcomes. Defining the outcomes lies in the field of curriculum design, not e-learning.
- Encourages communication/discussion.
- Uses more than two different e-learning applications (see Table 4.3 for selection criteria).
- Is dedicated to performing a task according to his/her abilities and to the benefit of the learners and the institution (it may be allocated to a single aspect and not necessary a broad scope).

Using the indicators as identified by the instructional design team from the Department of Telematic Education at TUT, 13 star performers were identified. Some of the star performers identified were not included in the study because they did not complete a PPA form and thus no profiles were available for them.

The PPA forms of the star performers identified were selected and the reports on these profiles were retrieved to be analysed as representing the star performer group.

3.9.4 *Qualitative analysis*

Qualitative data can frequently appear in the form of words, which are based on observation (watching), interviews (asking) or documents/archival material/self-reported feedback (examining). Some processing activities should be added to these data collection activities to make these words accessible for analysis, for example raw field notes need to be edited and typed up (Miles & Huberman, 1994:9). Miles and Huberman (1994:10) add that qualitative data analysis consists of three activity flows, namely “data reduction, data display and conclusion drawing/verification”.

3.9.4.1 *Data reduction: textual analysis*

Documentation of the P@W Programme resulted in a large amount of archival material, hence assessing its significance for this study required the following sifting process. Archived material

was categorised in terms of the P@W Programme activities, which provided a structure for analysis. I listed all the available data files under each category, read through the data files, made notes to explain their significance to the study and selected a number of these data files for further analysis. Decisions on which data sets to code, “which patterns to use for summarising a number of the chunks, and which evolving story to tell, are all analytical choices” (Miles & Huberman, 1994:11) that I had to make and were discussed in a previous section. My conceptual framework and research questions guided my choices and helped me to prevent overload (Miles & Huberman, 1994:10). Further analysis included making summaries (FGQues, F2F, PO, VG), coding (Char1, Char2, FGQues, Essay, Blog), testing themes (Char1 Char2, FGQues, Essay, Blog), making clusters (Char1 Char2, FGQues, Essay, Blog), and making partitions (e-Mod, RS). Each of these choices will be discussed in the following paragraphs.

Data generated by the face-to-face interviews, participant observation, virtual group discussions and focus group questionnaires were recorded in separate Excel data sheets. After the text had been recorded using a hermeneutical approach, **summaries** of the textual data were added to the data sheets to identify meaningful pieces of information. From these groups of text, themes were generated that reflected knowledge of the phenomenon under study (Byrne, 2001). The aim of qualitative textual analysis is to understand the participants’ themes/categories, whilst quantitative content analysis aims at quantifying in terms of the researcher’s categories (Silverman, 2005:12). Both these approaches were applied in this study.

As already pointed out in section 3.3.1, the hermeneutical phenomenological philosophical approach underpins this study, however, textual analysis using hermeneutics as an **analytical data technique** was implemented as a way of understanding the textual data and its hidden meaning (Byrne, 2001), through the process of fusing the horizons of the interpreter and the text. The hermeneutic cycle provides a “means of inquiry in which one considers the whole in relation to its parts and vice versa” (Schwandt, 1994:121). This entails reading a complete data chunk to form a holistic picture and then going back and looking for meaningful pieces of information. Themes, categories and key words were then identified and written down in the margin and examined to understand their meaning. This cycle continued by referring the pieces back to the data chunk.

An example of this is the analysis of the responses for each role category listed in the questionnaire (FGQues) completed by the Partners. I used coloured highlighters **to code** remarks on similar themes or job features, listed and counted the themes and then referred back to the quotations in the original essays to illustrate my observations and to test out the themes, thus emphasising not only the sociocultural and historical influences on qualitative

interpretation, but also the participation of the researcher in the production of meaning via participation in the circle of readings or interpretations (Gadamer, in Schwandt, 1994).

Hermeneutics is about interpretation, which is about **meaning**, which is about what is **understood** (Ross, 2002). This underlines the basic assumptions of hermeneutics, namely that the aim of textual analysis is understanding, not explanation, and that language is the primary medium for communicating meanings (Quigley, 1998). In my opinion, adding the phenomenological focus on lived experience and shared meanings, and “being in the world”, suggests that understanding can only be meaningful if it is contextualised. Hodder (1994) adds that documents that can be separated across space and time from their authors require more contextualised interpretation. He continues by saying that the “meaning of much material culture, including written text, comes about through use, and material culture knowledge is often highly chunked and contextualised” (Hodder, 1994:401). “The methods of interpretation of material culture center on the simultaneous hermeneutical procedures of context definition, the construction of patterned similarities and differences, and the use of relevant social and material culture theory” (Hodder, 1994:401).

Byrne (2001) underlines the practical value of the hermeneutical phenomenological approach by saying that it provides a means to “communicate and articulate the knowledge embedded on our practice”. She further states that “research findings are usually stated in terms of themes and categories. Passages from the text often are included to provide readers with examples, allowing them to decide whether they agree with the researcher’s identification of themes and categories” (Byrne, 2001). The aim of this is not to produce universal truths, but to inform practice.

Analysis of essays on the topic “Descriptive notes reflecting on technologies” was done by using the prescribed structure of the essay to identify the main themes and a **colour-coding scheme** to identify motivators and demotivators as reported by the Partners. This mode of content analysis used predetermined themes and categories in terms of the different technologies that were mastered, but the nature and meaning of the motivators and demotivators mentioned in the essays were analysed and interpreted using hermeneutical phenomenological approaches. This implies a holistic approach with special focus on the contextual definition.

Further analysis included textual analysis of online communication activities, such as blogs or online discussions, using hermeneutical analysis techniques.

As the analysis proceeded, I had to figure out how to construe “theory” in terms of the construction of the e-learning practitioner model with a series of connected characteristics

specifying the relationships between the components. This construction influenced and constrained data collection, reduction and display including the drawing of conclusions (Miles & Huberman, 1994:10) I tried to avoid irrelevant data, but on the other hand was sensitive to including many interpretation levels, aiming at understanding and uncovering the characteristics of the e-learning practitioner and practice in the TUT e-learning environment.

Data captured during a focus group session with the Partners on 17 May 2005 highlighted important job-related issues. Participants were asked to comment on job demands, distracters and releasers for each of their five roles during the P@W Programme. I analysed the responses for each role category using coloured highlighters to code remarks on similar themes or job features. The situational features that were mentioned were thematically tabulated. The person-situation interactionist model was used as a metaphor for **conceptualising an enriched HJA** and the tabulated themes were applied in this analysis. Relevant comments from the Partners were cited verbatim to illustrate some of the findings and to **test out the themes**.

Using reflective communications from the participants as documented in their research summaries and discussions while participating in the e-moderating course, I was looking in particular for distinct types of communication. Categorising the data according to the Partners' roles as students (e-moderating course) and researchers (research summaries), I tried to note the patterns and themes relating to the four DISC factors. These were used to enhance understanding of the e-learning practitioners in their work situations.

3.9.4.2 Quantitative content analysis

Quantitative content analysis was applied to analyse the words, phrases or sentences describing the characteristics of e-learning practitioners (Char1 and Char2). The phrases and sentences were analysed for meaning and then encapsulated in single words, these words were **listed, sorted and counted** using Excel spreadsheets. The main focus was on the content and not on the particular respondent's response. These word **clusters** were then categorised in terms of the DISC language to paint a 'DISC picture' of the characteristics of the e-learning practitioner.

Chapter 4 presents detailed descriptions of data analysis and display, and draws a number of conclusions. Before proceeding to Chapter 4, it is important to focus on the most common facets of maintaining quality and conducting ethical inquiry – in my opinion the most important pillars of credible quantitative research.

3.10 Quality criteria

In his discussion on the credibility of qualitative research Silverman (2005) asks the question “Does credibility matter? And then concludes by saying, “[u]nless you can convince your audience(s) that the procedures you used did ensure that your methods were reliable and that your conclusions were valid, there is little point in aiming to conclude a research study”

Silverman (2005:254). He continues by proposing a set of evaluating criteria:

- Are the methods of research appropriate to the nature of the question being asked?
- Is the connection to an existing body of knowledge or theory clear?
- Are there clear accounts of the criteria used for selecting cases for study, and for the data collection and analysis?
- Does the sensitivity of the methods match the needs of the research question?
- Was the data collection and record-keeping systematic?
- Is reference made to accepted procedures for analysis?
- How systematic is the analysis?
- Is there adequate discussion of how themes, concepts and categories were derived from the data?
- Is there adequate discussion of the evidence for and against the researcher’s arguments?
- Is a clear distinction made between the data and its interpretation? (Silverman, 2005:222).

Underlining the fact that “qualitative research can be made credible if we make every effort to falsify our initial assumptions about our data”, Silverman (2005:254) touches on an important issue also raised by Miles and Huberman (1994:279). They describe a number of issues relating to standards for the quality of drawing qualitative research conclusions, for example objectivity/confirmability; reliability/dependability; internal validity/credibility/authenticity; external validity/transferability and utilisation/application. Their discussion of these issues, conveying the views of Miles and Huberman (1994:277-280) and summarised below, introduces some useful ideas for further discussion on how to promote research credibility. My comments on the relevance of these issues to the study are given on each of the issues mentioned.

Confirmability issues relate to the question: “Do the conclusions depend on the subjects and conditions of the inquiry, rather than on the inquirer?” (Miles & Huberman, 1994:278). Can this study be replicated by other researchers? In this study I tried to describe in detail the general methods and procedures that were followed, the sequence for data collection and analysis, and how I linked conclusions with the data and the exhibits. I am aware of the influence of my own personal assumptions, values and biases on the study, and acknowledge the fact that my

position as instructional designer and P@W Programmes presenter irrevocably connects me to the study population and the study context. Therefore, although triangulation was used to induce rigor into the study, my personal involvement in the study made it difficult to identify and minimise my personal influences on the study.

Reliability⁵ **issues** refer to the stability of observations over time, whilst **auditability** refers to the degree of consistency of qualitative findings and is comparable with reliability in quantitative research. Useful questions in this domain may be: “Do findings show meaningful parallelism across data sources (informants, contexts, times)?” and “Can another researcher follow the decision trail of the researcher?” (Miles & Huberman, 1994:278). The audit trail consists of six types of documentation: raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, materials relating to intentions and dispositions, and instrument development information (Morse, 1994:230). This study aims to document and report on these types of documentation in as much detail as possible. Silverman (2005:226) is of opinion that reliability in qualitative studies can be addressed by using standardised methods to write field notes and by comparing textual analysis of the same data by several researchers. The use of tested, reliable measuring instruments, supported by international status, to measure PPA and HJA contributed to a measuring procedure that could be replicated. The computer-aided analysis of the data meant that the patterns reported actually existed throughout the data rather than in examples deliberately selected.

Internal validity/credibility/authenticity issues refer to questions such as “Do the findings of the study makes sense?” and “Are they credible to the people we study and to our readers?” (Miles & Huberman, 1994:278). Credibility means the determination of the soundness of the study. Silverman (2005) opposes two forms of validation that have been suggested as appropriate in the logic of qualitative research. He argues that the comparison of different kinds of data and methods to see whether they corroborate one another, also called triangulation, and taking one’s findings back to the subjects being studied for them to verify, also called respondent validation, are usually **inappropriate** for validating field research (Silverman, 2005:248).

He concludes his argument by referring to other authors, for example Garfinkel (1967) and Bloor (1978), saying that “the major problem with triangulation as a test of validity is that, by counter posing different contexts, it ignores the context-bound and skilful character of social interaction and assumes that members are ‘cultural dopes’ who need a social scientist to dispel their

⁵ **Reliability issues** refer to “circumstances in which a single method of observation continually yields an unvarying measurement” (Silverman, 2005:225)

illusions” (Silverman, 2005:235). Bloor (1983) and the Fieldings (1986) argue that attempts at respondent validation have value in terms of the generation of further research data, but not in terms of validating the research report. There is no reason to assume that members have privileged status as commentators on their actions and that such feedback cannot be taken as direct validation of the observer’s inferences. Silverman (2005:248) is not convinced that either triangulation or members’ validation could claim to validate qualitative research, and proposes *inter alia* analytic induction, the constant comparative method and tabulations as appropriate methods for validation.

The problem of “anecdotalism”, a term used by Silverman (2005:222) for describing research reports that tell interesting stories but fail to convince the reader of their credibility, implies that the anecdotal approach uses data in relation to conclusions or explanations and to provide evidence of a particular contention (Bryman, in Silverman, 2005:223).

In this study anecdotal data was used as enrichment material to illustrate the phenomenon and not to fit an ideal conception of the phenomenon or to select field data that are conspicuous because they are exotic at the expense of the less dramatic data (Fielding & Fielding, 1986 in Silverman, 2005:223).

Different forms of validation were applied in this study, namely **triangulation, crystallisation, respondent validation, analytic induction and tabulations**. Triangulation implies the use of several kinds of methods or data (Janesick, 1994:214), and Denzin’s (1984) typology which is widely accepted states that there are four basic types of triangulation: data triangulation (using a variety of data sources); investigator triangulation (using different researchers); theory triangulation (using multiple perspectives to interpret a single set of data) and methodological triangulation (using multiple methods to study a single problem) (Janesick, 1994:215). In the process of triangulation the researcher uses one or more types of triangulation to “validate” findings (Richardson, 1994:522). She continues by likening the triangle to a crystal, saying that the “traditional model of triangulation implies a fixed point of reference that can be triangulated, but in postmodernist mixed-genre texts do not triangulate” (Richardson, 1994:482). The central image is that of a crystal which “combines symmetry and substance with infinite variety of shapes, substances ...and angles of approach, thus creating ever-changing images of reality. Crystallisation deconstructs the traditional idea of validity, for now there can be no single, or triangulated truth” (Richardson, 1994:482). **This study therefore recognises that there are more than three sides from which to approach the world** (Richardson, 1994), and that multiple **perceptions are used to clarify meanings**. A variety of data sources, for example interviews, focus groups, questionnaires, documentation and surveys, were used to confirm the

soundness of the study and through a process of triangulation multiple strategies were used to enrich the process.

Quantitative and qualitative research approaches were combined to provide the different facets of the prism which reflect different realities in different colours, patterns and directions (Richardson, 1994:522). Analytical induction and tabulations were valuable for validating impressions obtained from qualitative data analysis (Silverman, 2005:237).

External validity/transferability issues refer to whether the conclusions of a study have any larger importance and if they are transferable to other context. How far can they be generalised? (Miles & Huberman, 1994:279). **In this study I did not aim to generalise results, I did not replicate findings in other studies to assess their robustness, and no other similar studies or findings could be found to compare the consistency with other research findings.** The aim of this study was to investigate the underlying structure of the e-learning practitioner construct and to use the findings of the study conducted at TUT to comment on possible future scenarios in terms of *what is...?; what should be...?* and *what does it mean...?*

Therefore transferability to other contexts may be a possibility in future experimentation with different scenarios.

Application issues refer to usefulness, asking questions about what this study does for its participants and for the consumers. The epistemological cost of this study is that I can make a contribution to the corpus of knowledge in the field of educational/learning technology by offering insight into the multifaceted characteristics of the e-learning practitioner. The aim was the development of a classification scheme for e-learning practitioners, which may contribute to the development of theoretical frameworks for application in planning interventions to enhance e-learning practice, and in planning and developing training programmes for e-learning practitioners. This study may contribute to build capacity in formulating a job description for the e-learning practitioner.

The findings from this research could be useful:

- as a job benchmark for e-learning practitioners at TUT;
- for planners of staff development programmes, and
- for planners of e-learning training programmes.

This study introduces commentary on the '**e-learning teaching self**' on the level of higher education, and the findings of the study may stimulate further action in terms of the

implementation of practical interventions as application of research findings. The question remains however whether teacher education and staff development and training, focusing on the e-learning teaching self can contribute to:

- the development of the professional identity of the e-learning practitioner;
- enhancing the fit between the e-learning practitioner and the e-learning job;
- the development of effective, customised staff development and training programmes;
- sustainable e-learning practices;
- facilitating change in the e-learning adoption cycle, and
- attempts to find answers to questions that may lead to further research.

There are also questions about ethics in terms of ‘Who benefits from or may be harmed by this research study?’ and these are discussed in the next section.

3.11 Ethical considerations

Basic codes of behaviour that were included in this research study were respect for the autonomy, human rights and dignity of the participant. Therefore participants were not exposed to motives not directly attached to the research study (MRC, n.d.:5), and I acted in a responsible manner, upholding “professional standards in accordance with academic training” (MRC, n.d.:5). Ethical clearance was given by the Research Ethics Committees of the University of Pretoria, as well as by the Tshwane University of Technology (see Appendices C15 and 16). Relevant documentation was accepted by these bodies and this included an application for approval of research involving human respondents (Appendix C17) and accreditation certificate from Thomas International (Appendix C18), copies of the consent forms used (Appendices C19: C20); and copies of the survey questionnaires (Appendices C12; C13).

3.11.1 *Description of practices used in this study*

Application of the above-mentioned principles used as a checklist for ethical conduct of practice in this study is discussed in the following paragraphs.

3.11.1.1 Professional ethics

“Epistemic imperative refers to the moral commitment that scientists are required to make to the search for truth and knowledge” (Mouton, 2002:239).

To honour the moral commitment made in this research study, conventions adhered to in this study pertained to integrity in the research, non-fabrication of data, recording of own data, fair use of other people’s materials, appropriate authorship to the publication of the research report

and rejection of plagiarism (Ko & Rossen, 2001; Mouton, 2002:241). Furthermore the written research report admits the limitations and shortcomings of the research study.

3.11.1.2 Enrichment of data

To enrich the data generated by the PPA and HJA, participants from the P@W Programme were provided with a questionnaire in which to give their opinion on job releasers, job demands and job distracters in their work environments, and they contributed records of their experiences on this programme in the form of reflective diaries, blogs, summaries and essays. These documents were archived at the Department of Telematic Education and participants gave informed consent for their use. The aim of the study is not to focus on individuals but to focus on patterns and the relationships between these patterns. The integrated data will contribute to a more holistic illumination of the construct under investigation.

3.11.1.3 Participation of human participants

The participants in the study are the e-learning practitioner population at TUT which includes the Partners from the P@W Programme.

Inclusion criteria: All practising e-learning practitioners at TUT including all the Partners from the P@W Programme.

Exclusion criteria: e-Learning practitioners who were not practising at TUT and who refused to give informed consent to participate in the research.

All participants who agreed to participate were given the PPA form and the HJA form if they wanted it as well. This was the only inventory to complete and no further participation will be requested. After completing the form the researcher delivered it for analysis and data reports were collected by the researcher. If so requested, participant was given feedback on the report on completion of the study.

Partners from the P@W Programme were also requested to complete a short questionnaire consisting of eight questions which took about 20 minutes to complete. They were asked to list the releasers, demands and distracters that they experienced in their e-learning practice, and also give their opinion on the most important characteristics of the e-learning practitioner. This was the only questionnaire that they had to complete and no feedback was given on their responses.

The Partners in the P@W Programme are part of an online knowledge building community in a WebCT environment at TUT. Online communication is one of the activities in the programme

and they used the communication tools available in the programme to comment voluntarily on their experiences as e-learning practitioners. With their consent these comments were logged as part of the documentation process of the P@W Programme and archived in printed format at the Department of Telematic Education at TUT.

For this study the Partners were requested to give permission to use quotations from their written reflections, as research data to enrich the Personal Profile Analysis and Human Job Analysis. The data from the PPA and HJA were used to create style profiles and no individual was implicated or named in these profiles. Partners' reflections were used anonymously to highlight some aspects of the style profiles and no individuals were named.

3.11.1.4 Subject approval and informed consent

I have received permission to conduct this research from the relevant authority:

The initial contact between the researcher and the e-learning practitioner population at TUT was via an email request to discuss the research project. Appointments were scheduled with all the respondents who were interested in participating. During a face-to-face explanatory session participation in the project was requested. If the person was willing to participate a consent form was offered to obtain informed consent. The consent form stated that the person would be participating voluntarily in the research and that all information obtained would be kept confidential. Participation could be ended at any time.

No minors (under 18), mentally infirm, or otherwise not legally competent to consent to their participation were included in this study.

No additional measures were needed to ensure full consent and participation in cases where the research was not conducted in the mother tongue of the subjects or in a language in which the subjects felt competent, because all participants were able to follow in either Afrikaans or English, depending on their language choice.

3.11.1.5 Risks and disadvantages to participants

Precautions were taken to protect participants from any harmful effects, and they were informed beforehand about the nature of the investigation. No form of deception was used in order to induce participants to participate (De Vos, 1998:25-27).

3.11.1.6 Benefits and advantages to participants

Participants received no benefits in the form of direct compensation. Indirectly, knowledge about their own work behavioural styles may contribute to their personal and career development. The

fact that the participants could reflect on their experiences as e-learning practitioners provided opportunities for both debriefing and insight as well as distance for 'far sight'.

3.11.1.7 Confidentiality, anonymity and trust

Respondents were offered confidentiality and anonymity for their involvement in the research. Data from the PPA and HJA forms as well as the questionnaires and Partners' reflections were handled confidentially and anonymity was ensured by not using any participant's name or identification of any kind.

Feedback reports from the PPA/HJA were given to participants if so requested on the consent form, otherwise no feedback on the research process or its conclusions were given.

Research data will be destroyed:

- PPA/HJA data will be destroyed at the end of the study.
- The original reflections of the Partners were archived on a CD as part of the documentation process of the P@W Programme and are stored at the Department of Telematic Education at TUT.
- The questionnaires completed by the Partners in the P@W Programme were destroyed on completion of the study.
- The printed document containing the reflection excerpts and quotations from the Partners in the P@W Programme was destroyed after completion of the study.

3.12 Summary

This chapter focused on the research process followed in this study, which guided the choices made for the implementation of the design. The different phases in the research process, underpinned by the hermeneutical phenomenology, were described. The chapter highlighted the qualitative case study approach that focused the research design and linked the theoretical paradigms to the research questions. In addition, a mixed method research approach was used, combining a number of qualitative and quantitative data collection and analysis tools and techniques, for example survey, interview, questionnaires, documents and focus groups. A description of the quality criteria in terms of confirmability, auditability, credibility, transferability and application issues concluded the chapter.

The next chapter addresses the implementation of the data collection and analysis tools and techniques as well as the consequent research results.

Chapter 4: Research findings

The previous chapter described the research design, linking the research questions and the methodology. This chapter reports on the research findings with a view to uncovering the latent structure of the e-learning practitioner construct. Implementation of the research design as outlined in Chapter 3 resulted in a bricolage of research data which was organised and analysed according to the set research goals to provide answers to the research questions.

Three main sections focusing on the person attributes of e-learning practitioners (section 4.3), the characteristics of the e-learning work environment (section 4.4) and their P-J fit relationship (section 4.5) form **the body** of this chapter. These sections focus on the **international, the TUT and the P@W e-learning domains** to answer questions about the **profile, patterns and structure** of the **person attributes** of the e-learning practitioner and the **e-learning job** and their **match** in the e-learning environment. Findings from the quantitative analysis of research data are **enriched** by a qualitative analysis of communications from the participants in this study. Figure 4.1 presents an overview of the focus of the data analysis process.

Figure 4.1: Focus of the data analysis process

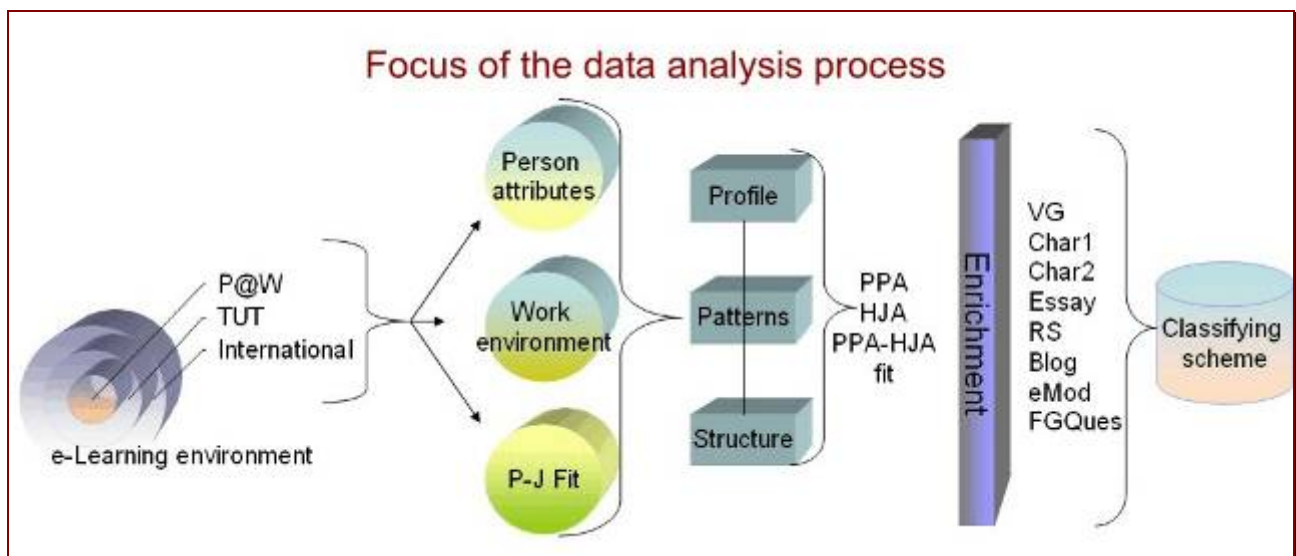
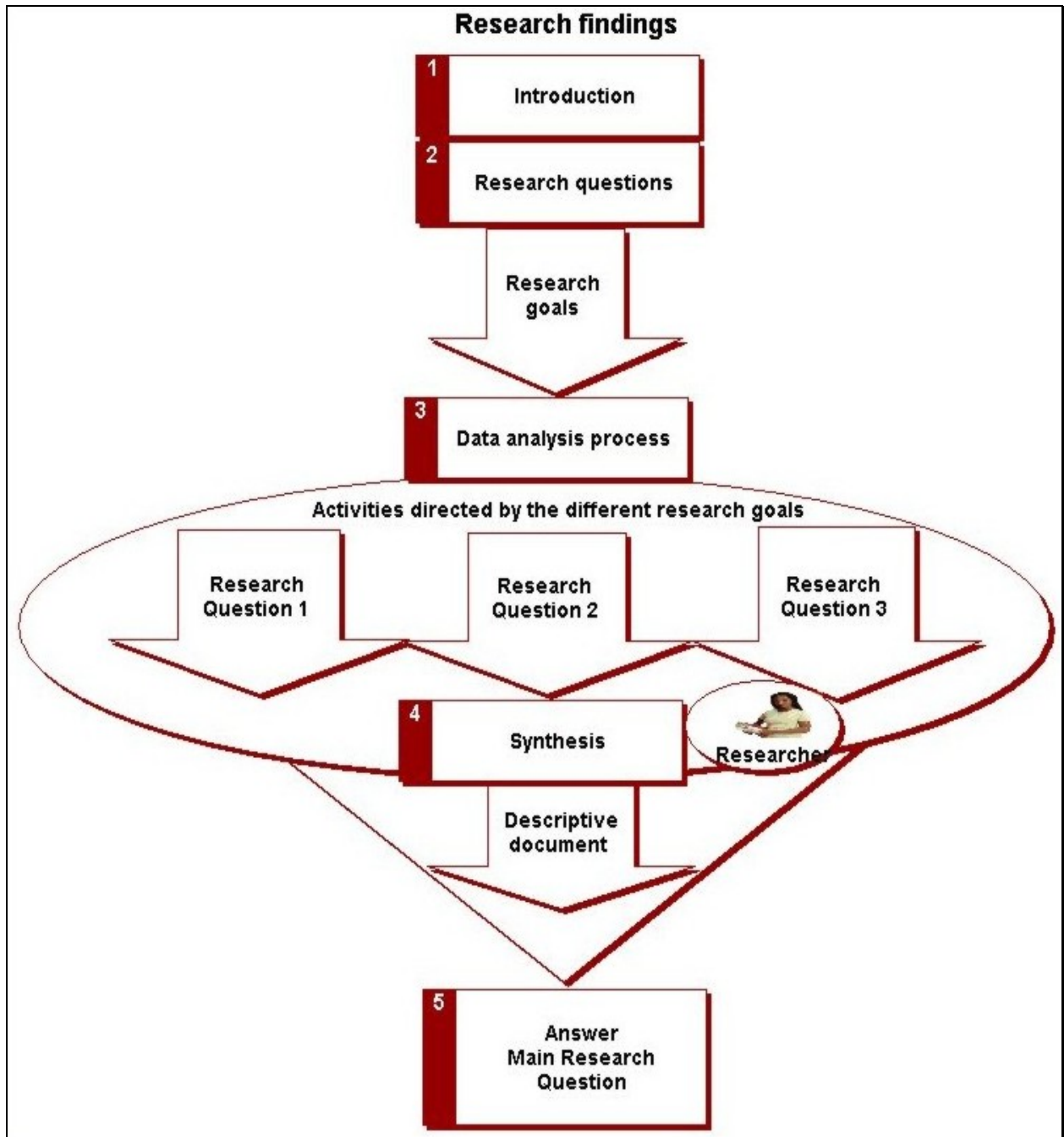


Figure 4.2 provides a synopsis of the **layout structure** of Chapter 4. The activities outlined in this figure are aimed at answering the main research question: 'What is the latent structure of the e-learning practitioner construct?' The chapter is divided into three main sections, each dealing with a specific research subquestion. To make sense of the research evidence, each section will address a number of research goals to answer the relevant subsidiary research questions and to report of research findings, which collectively contribute to answering the main research question. The chapter concludes with a synthesis of the research findings, which will contribute to a holistic description of a classifying scheme that addresses the question of the latent structure of the e-learning practitioner construct (section 4.6).

Figure 4.2: Synopsis of the layout structure of Chapter 4



4.1 Introduction

You cannot create experience. You must undergo it (Camus, n.d.).

Camus's words underline the essence of my role in the process of analysing the data, and interpreting and communicating the research findings. It is possible to present evidence that supports the findings but, as noted by Phillips (1990:42), "we can get these matters right or wrong – we can describe these beliefs correctly or incorrectly, or we can be right or make mistakes about their origins or their effects". However, for this study, it was my intention to maintain quality, to adhere to credibility standards and to conduct an ethical inquiry, as

described in sections 3.10 and 3.11 in the previous chapter. Applying quality standards as proposed by researchers such as Silverman (2005) and Miles and Huberman (1994) guided me towards what I believe are valid conclusions in this enquiry.

4.2 The research goals and questions

A detailed tabulation of the research goals and subsidiary questions was presented in Tables 1.1 and 1.2 in Chapter 1. The way in which each set of research goals was addressed to answer the research questions is described in the following sections of this chapter.

4.3 Research question 1

What is the latent structure of the e-learning practitioner construct in terms of person attributes?

The following subsidiary questions are complimentary to research question 1:

1. What are the characteristics of e-learning practitioners?
2. What are the characteristics of e-learning practitioners at TUT?
3. What are the personal profiles of e-learning practitioners at TUT?
4. What are the profile patterns of e-learning practitioners at TUT?
5. Who are the star performers at TUT?
6. How did the e-learning practitioners at TUT react to the motivators and demotivators presented by their e-learning practice?
7. What are the characteristics of the Partners in the P@W Programme?
8. What are the personal profiles of the Partners in the P@W Programme?
9. What are the profile patterns of the Partners in the P@W Programme?
10. How did the Partners in the P@W Programme perceive themselves as e-learning practitioners?

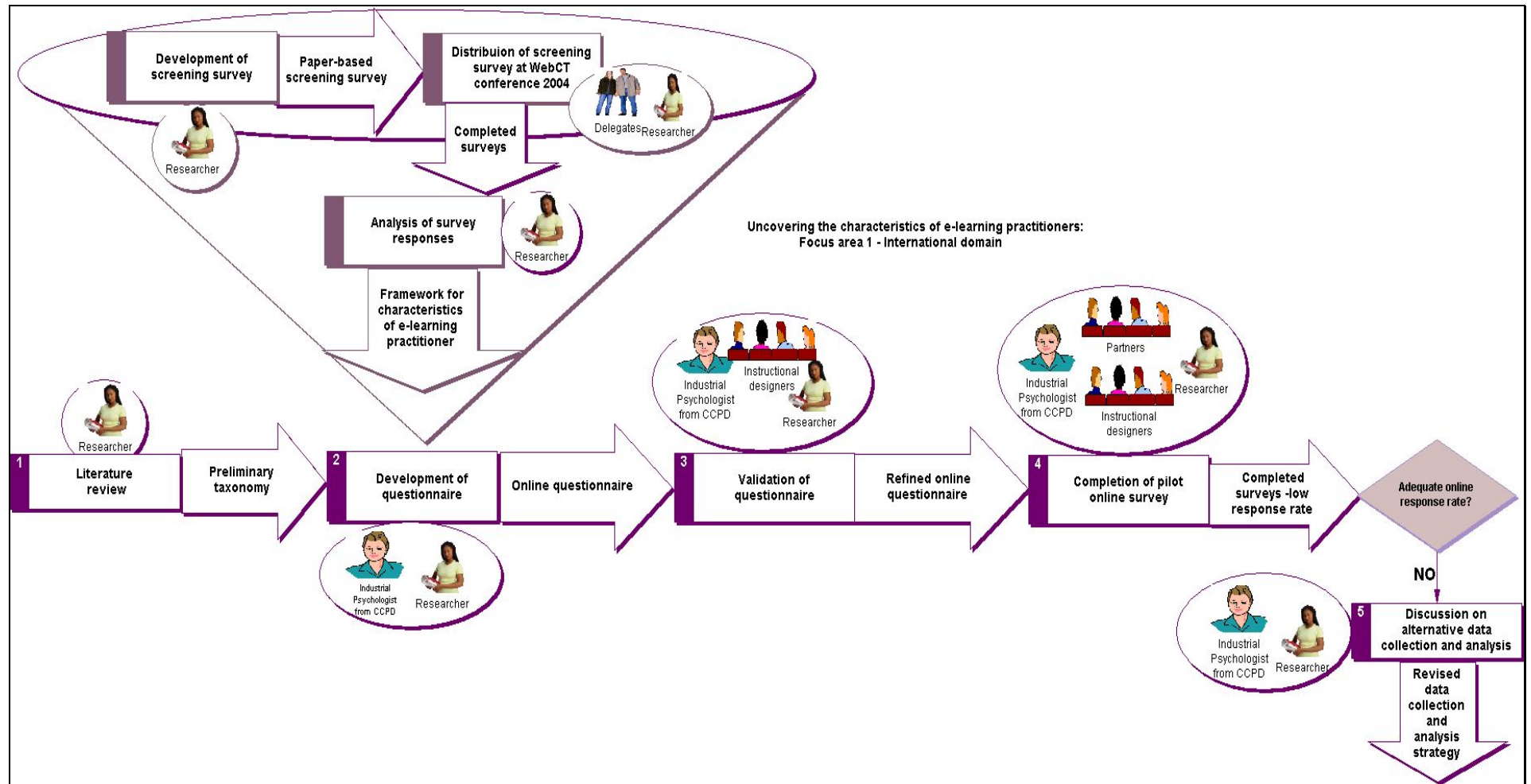
A discussion on the personal attributes of the e-learning practitioner from the international domain, as well as two levels of the Personal Profile Analysis (PPA) of the e-learning practitioner at TUT that were investigated in this study, will follow in the next section. The focus areas were the following:

- Uncovering the characteristics of e-learning practitioners from the international domain – addressing subsidiary question 1 (see Figure 4.3).
- PPA of the e-learning practitioner at TUT – addressing subsidiary questions 2-6 (see Figure 4.4).
- PPA of the Partners in the Partners@Work Programme at TUT – addressing subsidiary questions 7-10 (see Figure 4.12).

4.3.1 *Uncovering the characteristics of e-learning practitioners - international domain*

The first focus area presents findings for the characteristics of e-learning practitioners in the international higher education e-learning domain. The methods and procedures applied in this regard were discussed in section 3.6.1. With the focus on the first research goal, a number of research activities, for example the development of a preliminary taxonomy, conducting a screening survey and developing an online questionnaire, were carried out to collect and analyse data (see Figure 4.3). The following sections report on subsequent findings.

Figure 4.3: Uncovering the characteristics of e-learning practitioners from the international domain



4.3.1.1 Preliminary taxonomy

Research goal 1:

To identify indices, categories, dimensions and person attributes of e-learning practitioners.

A meta-analysis of the characteristics of e-learning practitioners as described in the literature produced the taxonomy summarised in section 2.6.5.4. Nine main themes were identified and represent the following categories: technical, curriculum, management, teaching skills, personal/affective traits, communication styles, teaching styles, personality traits and learning styles. The characteristics of each theme were categorised in a preliminary taxonomy of e-learning practitioner characteristics (see referenced tables 2.7 – 2.15). Table 4.1 summarises the characteristics of e-learning practitioners.

Table 4.1: Preliminary taxonomy of the characteristics of e-learning practitioners

Categories	Indices
Technical skills	Basic computer skills Techno-literate, e.g. using a discussion board, email skills, website design, Internet skills. Coping with new hardware and software applications Instructional design skills for online environments Program development
Curriculum skills	Programme development Development of course material Assessment competencies Ability to review the teaching and learning process to identify need changes and improvements
Management style	Time management Planning skills Organisational skills
Teaching skills	Motivating Listening Mentoring Mediating chat Active participation Creative Reflective Understanding
Personal/affective traits	Patience Persistence Coping with frustration Flexibility Problem solving Coping with time demands Compassionate

Table 4.1: Preliminary taxonomy of the characteristics of e-learning practitioners (continued)

Categories	Indices
Communication style	Student support Counselling skills Constant feedback Understanding language needs Focus on one-to-one communication Active approach Interpersonal skills Responsiveness Flexibility
Teaching style	Delegator: concerned with developing students' capacity to function in an autonomous fashion Facilitator: emphasises the personal nature of teacher-student interactions Personal model: believes in "teaching by personal example"
Personality traits	Takes chances Prompts Does not need sleep Good sense of humour Perceptive Collaborative Adventurous Creative Motivated Adaptable
Learning style	Likes to read, write stories Likes to do experiments and figure things out Likes to draw, design and create Likes to share, cooperate and discuss

4.3.1.2 Screening survey

Based on the identified categories and indices, a screening survey was developed aimed at refining the existing preliminary taxonomy. The development of the screening survey was discussed in section 3.6.2. Survey results were analysed in a table in MS Excel (see Appendix D8 for a data spreadsheet) to answer the first subsidiary question:

Subsidiary question 1

What are the characteristics of e-learning practitioners?

Findings indicated that professional knowledge and technical, curriculum and teaching skills were important for the e-learning practitioner. Other specific skills and characteristics that were selected as important were instructional design and the development of course material; using

the bulletin board; assessment competencies; teaching skills such as motivating, mentoring, active participation and creativity; personal/affective skills such as patience, flexibility and problem solving; communication skills such as continuous feedback and support to students; a facilitative teaching style; and a preferred learning style for the practitioner as being one of sharing and experimentation. Management and personal affective indices were not regarded as very important. Although this group did not select management skills as an important index of the characteristic e-learning practitioner, the majority of the participants selected time management, planning and organisational skills as important management skills. According to the participants *listening skills* were only moderately important, which is an interesting observation seeing that they felt that student support and continuous feedback were very important.

The most frequently selected personality attributes indicated a practitioner who **is motivated, creative and adaptable**.

4.3.1.3 Development of questionnaire: What is an e-learning practitioner?

From these results it became clear to me that the focus of the first research goal was very broad, aiming at uncovering general characteristics of e-learning practitioners. Therefore, in order to refine the focus, the results from the screening survey were used as input for the development of a more focused pilot survey. See section 3.6.3 for a description of the development method of the pilot survey. Because of the very low response rate to the online pilot survey, the results and the survey were discarded.

After lengthy in-depth discussions with various experts in the field, the survey focus and its application were narrowed down to work behavioural styles of e-learning practitioners at TUT (see section 3.6.3.7).

4.3.2 Personal Profile Analysis for e-learning practitioners at TUT

Data capturing and analysis of the characteristics of the e-learning practitioner were conducted on two levels, namely the organisational level, including all e-learning practitioners at TUT, and the programme level, including all the Partners in the P@W Programme. These actions are briefly recapped in the paragraphs below. The PPA for e-learning practitioners at TUT aims to attain the following research goals:

Research goals 2-5:

To identify work behavioural characteristics of the e-learning practitioners at TUT.

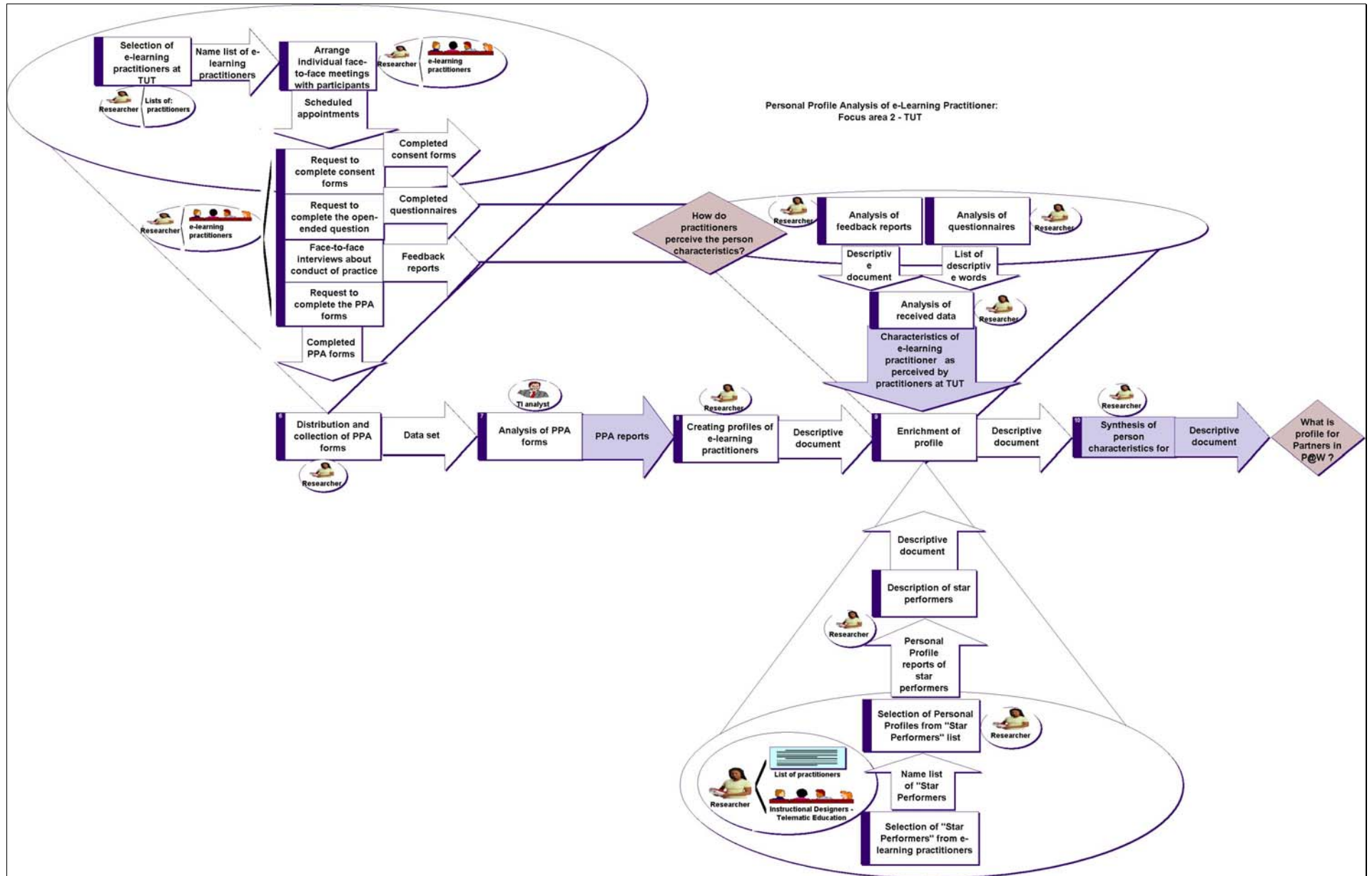
To identify the personal profiles of the e-learning practitioners at TUT.

To identify the profile patterns of the e-learning practitioners at TUT.

To enrich the PPA of the e-learning practitioners at TUT.

Figure 4.4 illustrates the process that was followed in collecting and analysing the relevant data for the second focus area. This illustration positions the various quantitative and qualitative research activities aimed at attaining the research goals. Methods and procedures applied in this regard were discussed in section 3.8.1.6 and the following sections report on subsequent findings.

Figure 4.4: Personal Profile Analysis of the e-learning practitioner at TUT



4.3.2.1 Behavioural characteristics of e-learning practitioners

Research goal 2

To identify work behavioural characteristics of the e-learning practitioners at TUT.

Data obtained from the descriptive word lists of the PPA reports were combined in a frequency table showing the percentage usage of each word to describe the behavioural characteristics of the e-learning practitioner group at TUT. Appendix D5 tabulates these words.

Subsidiary question 2:

What are the characteristics of e-learning practitioners at TUT?

Based on the above description, the prominent characteristics of e-learning practitioners at TUT were identified as precise, logical, accurate, thorough, systematic, dependable, amiable, assertive, detailed, persistent, active, friendly and mobile.

Apart from the essential personal characteristics identified by the PPA, the feedback reports also reflected the configuration of relationships of the essential elements in terms of a specific pattern or profile for each respondent. The particular pattern can be defined as exemplifying a behaviour characteristic. According to literature provided by Thomas International an individual will display one or more of these basic characteristics consistently in the working environment, because each person develops a style of life for himself/herself which places particular emphasis on certain postures and less emphasis on others.

4.3.2.2 Creating profiles of the e-learning practitioners

Research goal 3:

To identify the personal profiles of the e-learning practitioners at TUT.

Using the high DISC factors in each of the PPA reports, the following typical behaviour patterns emerged from these reports from the TUT e-learning practitioner group:

- In the Dominance factor seven style combinations, namely D (2), DC, DI, DIC DIS and DS, were reported.
- The Influence factor had a frequency of nine style combinations distributed as IC (2), ICD (3), ID (2), IS, ISC.
- The Steadiness factor had the second largest frequency (10) of style combinations with a cluster of six in the SC category. The other style combinations reported were SCD (3), and SD.

- The most prominent factor was the Compliance factor. A frequency of 18 style combinations, with a cluster around the CS (3) and CD (4) combinations, were reported. The rest of the style distribution was C (2), CDI (1), CI (1), CIS (2), CSD (2), and CSI (3).

A summary of the DISC factor, style combination and personal profile pattern distribution is presented in Table 4.2.

Table 4.2: Personal profile patterns of the TUT e-learning practitioner group

Personal profile DISC factor and style combination distribution of the TUT e-learning practitioner group					
Styles	Frequency of factors		Styles	Frequency of factors	
	D	I		S	C
D	2 (4.5%)		SC	6 (13.6%)	
DC	1 (2.3%)		SCD	3 (4.5%)	
DI	1 (2.3%)		SD	1 (2.3%)	
DIC	1 (2.3%)		C		2 (4.5%)
DIS	1 (2.3%)		CD		4 (9.1%)
DS	1 (2.3%)		CDI		1 (2.3%)
IC		2 (4.5%)	CI		1 (2.3%)
ICD		3 (6.8%)	CIS		2 (4.5%)
ID		2 (4.5%)	CS		3 (9.1%)
IS		1 (2.3%)	CSD		2 (2.3%)
ISC		1 (2.3%)	CSI		3 (6.8%)
Total each factor	7 (15.9%)	9 (20.4%)		10 (22.7%)	18 (40.9%)

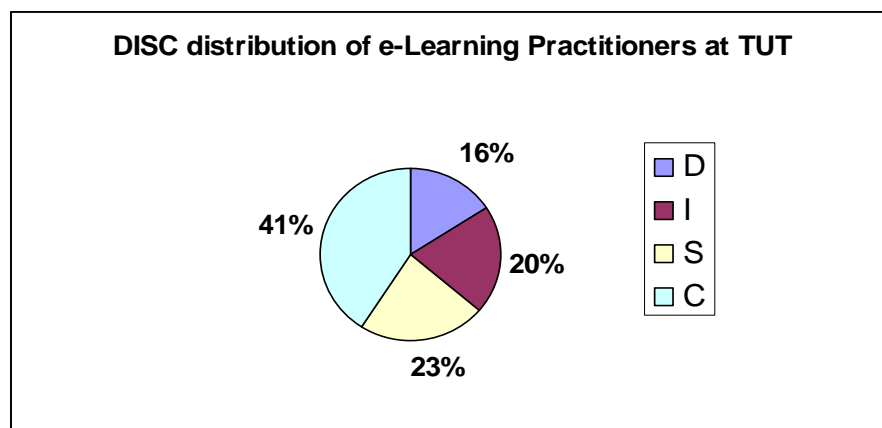
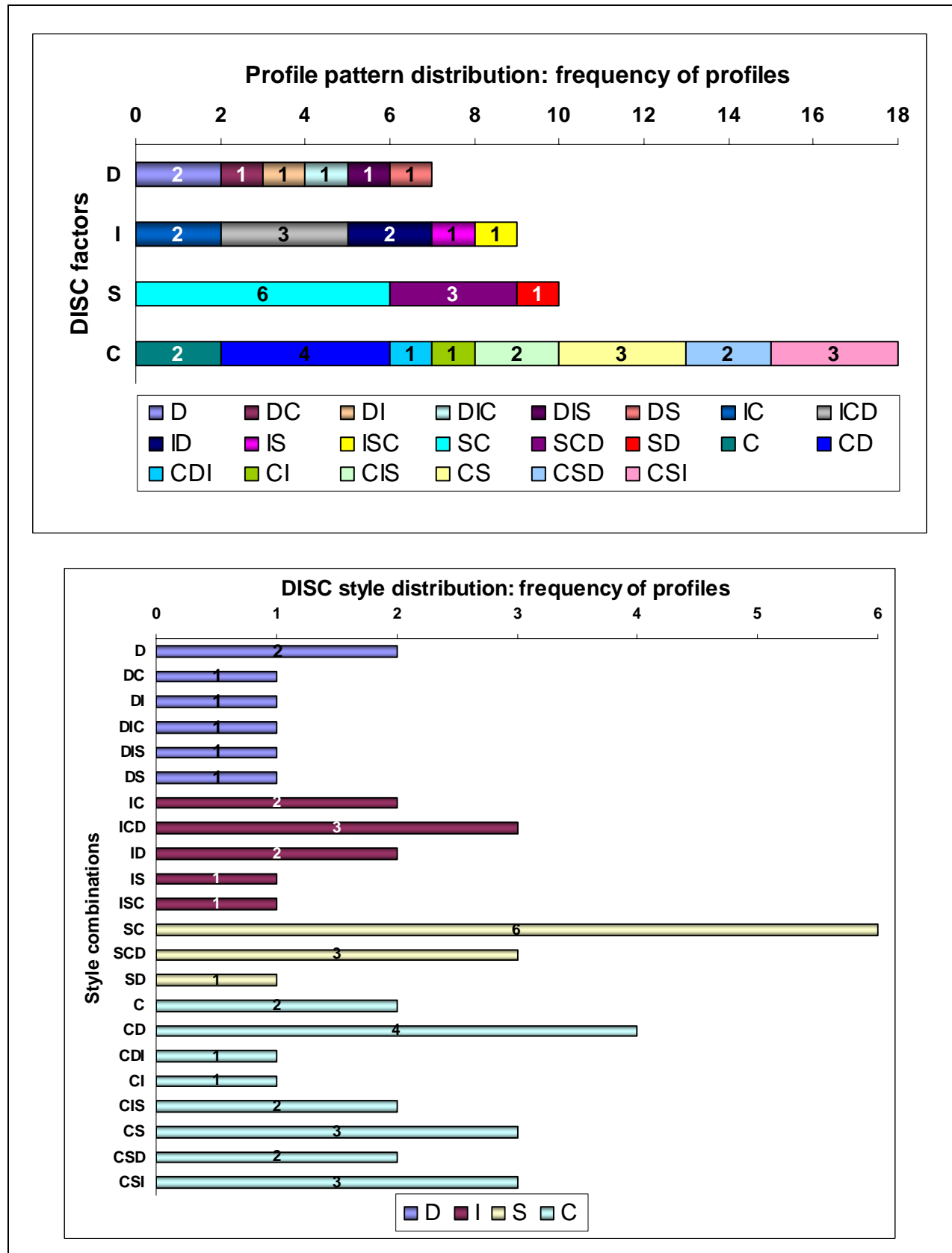


Table 4.2: Personal profile patterns of the TUT e-learning practitioner group (continued)



4.3.2.3 Description of DISC behaviour styles in each factor

Computer-generated, detailed reports on the behavioural style of each participant were provided by the analyst from the Centre for Continuing Professional Development at TUT. I analysed and studied the reports in detail to truly understand the meaning and importance of the personal characteristics mentioned. I also received formal training from Thomas International to register as an PPA and HJA analyst in order to understand the DISC language, analyse the reports and interpret the reports, data and results. PPA reports were analysed and results captured in a table in MS Excel (see Appendix D1 for the data spreadsheet).

Short summaries of the TUT e-learning practitioner group profiles are provided below to highlight some unique characteristics of these profiles.

4.3.2.3.1 High Dominance behaviour types

Seven participants' profiles related to the Dominance factor, two of these had no style combinations but only one factor, namely the Dominance factor. Of the other four, another three displayed high Influence factor combinations and only one high Compliance combination. The main characteristic of the high Dominance factor is positive behaviour and a drive to accomplish results in spite of opposition or antagonistic circumstances. Getting results, expediting action, accepting challenges, venturing into the unknown, solving problems and goal orientation are some of the values that people displaying a high Dominance factor may bring to their organisations. Because of their multiple interests they prefer an ever-changing environment. These individuals can all be described as independent self-starters, who want to 'get on with the job', seeking challenging assignments, straightforward communication and acting on inner drive seeking authority from power.

Only 16 percent of the TUT e-learning practitioners displayed a high dominance behavioural style. Typical high Dominance characteristics such as 'independent self-starters', 'seeking challenging assignments' and 'driven by positive drive' show similarities with the characteristics of the 16 percent distribution of the 'innovator', 'early adopter' categories as proposed by Rogers (1995) discussed in section 2.6.3.7.1.

4.3.2.3.2 High Influence behaviour types

Nine participants' profiles related to the Influence factor. All of these had style combinations: two displaying IC/DS and two displaying ID/CS styles respectively, three ICD/S styles, one IS/CD and one ISC/D style.

These individuals may be described as people orientated, natural leaders who use influence and persuasion to lead others and follow an emphatic approach to others. Networking,

conversation, working with others, and usually joining the organisations for social activity are some of the relevant characteristics here. They like people and want to be liked; are charming, optimistic and outgoing. The main characteristic of these profiles is positive behaviour in favourable or friendly situations, influencing others to react positively or favourably. Some of the values that they might bring to their organisations are generating enthusiasm, radiating optimism and a positive approach, easy communication and motivating other people to act. Salmon (2003:56) lists self-awareness, interpersonal sensitivity and the ability to influence as important characteristics of the e-moderator. As 20 percent of the e-learning practitioners at TUT displayed high Influence profiles, the importance of these characteristics will become evident in the discussions on e-learning “star performers” (see section 4.3.2.4.1).

4.3.2.3.3 High Steadiness behaviour types

Ten participants’ (23%) profiles related to the Steadiness factor. A cluster of six SC style combinations were reported and five of these were from the SC/ID style combination. In addition, another three added a high D to the profile displaying a style combination of SCD/I, while only one style combination of each of the SD/IC and SC/DI styles were reported. These individuals may be described as thorough, dependable, hard-working and persistent. They will need time to assess tasks and problems thoroughly before acting, and will sometimes resist change. Hard work, creating a stable environment and the team are high on the “S” list. They are concerned about relations, are sympathetic, friendly, good listeners, and “finisher completers”.

These individuals are the staying power of an organisation bringing some human values like loyalty, patience, reliability and predictability to their organisation. The main characteristic relating to this factor is passive behaviour in a favourable situation (environment). They are comfortable with systems and respectful of tradition, behaving in a calm, consistent and steady manner when pressurised. Twenty-three percent of the TUT e-learning practitioners display high Steadiness behaviour types, which may show similarities with the ‘late majority’ adopter categories as proposed by Rogers (1995) discussed in section 2.6.3.7.1.

4.3.2.3.4 High Compliance behaviour types

Eighteen participants’ profiles related to the Compliance factor. Two clusters of style combinations were reported, namely in the high CS (3) and CD (4) categories. The most prominent style combination groups in the Compliance factor were CD/IS (2), CD/SI (2), CIS/D (2), CS/DI (2) and CSI/D (3). These individuals may be described as having high standards, especially for themselves and they may be perfectionists, they are also concerned about accuracy and they research every aspect of a situation, considering every possibility before making a decision. Usually they are peaceful, sensitive, loyal and non-aggressive individuals,

doing to the best of their ability whatever is expected. They are capable of moulding themselves to the image that is expected of them, going to great lengths to avoid conflict. The main characteristic relating to this factor is passive behaviour in an antagonistic situation. Following directions or meeting standards, operating under controlled circumstances, adapting to situations and adhering to procedure to avoid error, trouble or danger are descriptive features of these behavioural styles.

The majority, namely 41 percent, of the TUT e-learning practitioners display a high Compliance behaviour style, which implies that a large percentage of this population will be task oriented and hard-working (see Table 4.2).

Subsidiary question 3:

What are the personal profiles of e-learning practitioners at TUT?

Based on the above description, the personal profiles of the e-learning practitioners at TUT were identified as being predominantly of the Compliance factor, both in frequency and style variation. Although the Dominance factor was the least represented, personal profiles in this dimension showed the second largest style variation, which implies a passive majority and a small driving force in the TUT e-learning practitioner group. As will become evident later in this discussion, this is in contrast to the general perception of participants (see Table 4.27) that the most important characteristics of e-learning practitioners should be their ability to be creative go-getters who enjoy challenging environments.

Research goal 4:

To identify the pattern structure type of the e-learning practitioners at TUT.

A way to describe personal attributes is in terms of the themes of each type of pattern and how they are organised or structured. Each type is a pattern of related themes. Themes describe processes that fulfil a unique role for each of the four DISC types. The style patterns form the building blocks for the structures of the different personal profiles. Further analysis of the DISC factor distribution revealed the patterns and structures of the e-learning practitioners' profiles at TUT (see Table 4.2) and addresses the fourth research goal.

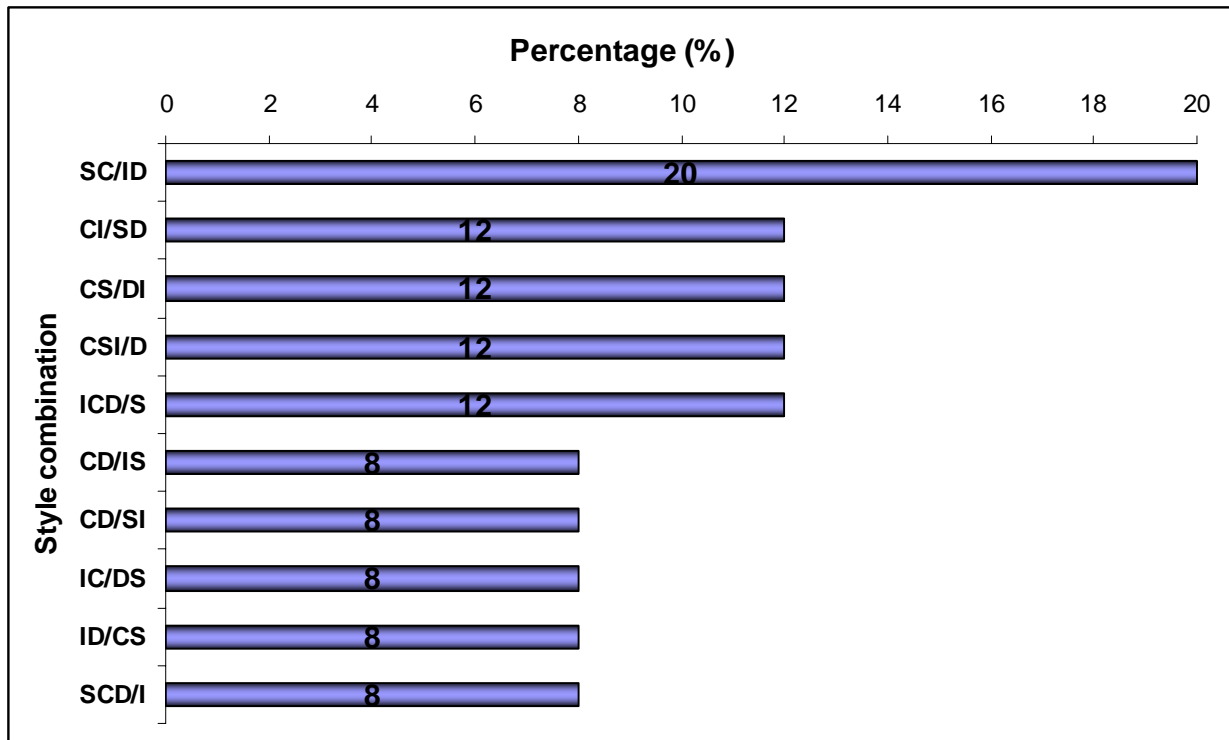
An analysis of each DISC factor revealed a variety of patterns, namely clusters of style combinations in the high Steadiness Compliance (SC), high Compliance Dominance (CD) and high Compliance Steadiness (CS) factors. Smaller clusters were found in the high Influence

Compliance Dominance (ICD) and high Steadiness Compliance Dominance factors. The relevance of these patterns to each DISC factor is illustrated in Table 4.2.

The structure of the DISC factors displayed a CSID order of strength, showing the Compliance factor as the most prominent and the Dominance factor the least represented. The Steadiness factor displayed the lowest frequency of style patterns, but the highest frequency of a high factor combination, namely six in the high Steadiness Compliance (SC) combination.

Further refinement using a five percent frequency as cut-off point, revealed a fairly even distribution of the style combination patterns, except for the SC/ID combination with a frequency of 20 percent, and an absence of any high Dominance style combinations (see Figure 4.5).

Figure 4.5: Profile of highest style combination patterns of the TUT e-learning practitioner group



Subsidiary question 4:

What are the profile patterns of e-learning practitioners at TUT?

Based on the above description the profile patterns of the e-learning practitioners at TUT were identified as dominantly from the Compliance factor (see Figure 4.5), displaying a theme of “having a course of action to follow” (Berens, 2001). The high “C” person focuses on “knowing what to do and keeping themselves, the group, or the project on track. Their informed and

deliberate decisions are based on analyzing, outlining, conceptualizing or foreseeing what needs to be done” (Berens, 2001).

An outstanding cluster is the SC/ID style combination displaying a theme of “getting the best result possible”, and focusing on the process of creating a positive outcome (Berens, 2001). People displaying behavioural pattern structures of “having a course of action to follow” and “getting the best result possible” are linked in terms of their sensitivity to environmental structuredness. They prefer structured work environments with few unexpected changes.

The strength of the high SC style combination implies that a core of the e-learning practitioner group consists of hard-working individuals who apply their specialist skills and knowledge to support or service their students. However, unwillingness to change may influence their interaction with a fast changing e-learning environment (discussed in section 2.6.3.7.1). The high percentage of SC and CS style combinations displayed by these practitioners may be one of the contributing factors to the relatively slow pace of technology adoption at TUT. The concern raised by Nichols and Anderson (2005) that e-learning environments at many institutions are ad hoc (see discussion in section 2.6.4.3), in the sense that a small percentage of e-learning practitioners may fully utilise e-learning applications, whilst the majority of academic staff may lag behind, is also applicable at TUT. The discussion on the application of the different technologies by the e-learning practitioners in section 4.3.2.4 illustrates that only a small percentage of e-learning practitioners utilise a full range of e-learning applications in their practice.

4.3.2.4 Enrichment of personal profiles of e-learning practitioners at TUT

Although the PPA is a work-orientated inventory, the report is only a guide and should never be used in isolation. Information about a person’s experience, education, qualifications, competencies and trainability can enrich a person’s personal profile especially if the profile is used to assist in selection, appraisal, development or coaching and counselling processes. However, the aim of this study is not to focus on individual profiles but to understand the bigger picture in terms of patterns and structure. Thus enrichment elements were captured firstly from additional self-reported feedback from the practitioners and secondly by identifying and profiling “star performers” among the practitioners. Profiling the star performers yielded very interesting results which will be described in the following paragraphs. Self-reported feedback on their perceptions of their e-learning practice was obtained during face-to-face personal interviews (F2F) with the e-learning practitioners, and from their responses to the question on the characteristics of the e-learning practitioner as posed on the consent form (Char1). These results will be discussed in a following section, and this addresses the fifth research goal:

Research goal 5:

To enrich the PPA of the e-learning practitioners at TUT.

(The fifth research goal inspired two subsidiary questions namely: Who are the 'star performers'? and How did the e-learning practitioners at TUT react to the motivators and demotivators presented in their e-learning practice?)

4.3.2.4.1 Star performers at TUT

'Star performers' may be described as the people whose job performance can be rated as an exemplary performance. To define star performers, colleagues (instructional designers) from the department of Telematic Education were asked for their opinions (VG, 07 July 2005 12:23:56 PM). An email request for participation in the virtual group discussion on star performers was sent out on 7 July 2005. Participants were asked to describe a star performer in the field of e-learning practice at TUT and to identify star performers in their faculties (see Appendix E, Excerpt 4.5 and Appendix D7).

Feedback on these questions listed qualifying criteria for an e-learning practitioner star performer as the following:

- Being in practice for at least 18 months;
- Someone who facilitates in a way that allows learners to achieve outcomes consistently. Defining outcomes lies in the field of Curriculum design, not e-learning;
- Encouraging communication/discussion;
- Using more than two different e-learning applications (see Table 4.3 for selection criteria), and
- A person who is dedicated to performing a task according to his/her abilities and to the benefit of the learners and institution (it may be allocated to a single aspect and not necessarily to a broad scope).

Table 4.3: Selection criteria for star performers

Activity profile for "star performers" at TUT													
Activity	Behavioural style												
	DS	D	D	DC	ID	ID	IC	SC	SC	SCD	CD	CSI	CSI
Roles													
Online teaching/ facilitating / e-moderating	x	x	x	x	x	x	x	x	x	x	x	x	x
Instructional design	x				x		x	x			x	x	x
Research		x		x	x						x	x	x
Management		x		x	x						x	x	
Life-long learner/ student	x				x							x	
Trainer													
Administrator													
Applications/ technologies													
WebCT:													
Course material distribution	x	x	x	x	x	x	x	x	x	x	x	x	x
Online Communication	x	x	x	x	x	x	x		x	x	x	x	x
E-testing	x	x	x	x	x			x	x			x	x
Multimedia: - PowerPoint, audio, animations, video clips	x			x	x	x	x			x		x	x
Video conferencing		x			x	x				x		x	
DVD/Video production for tutorials, testing	x				x							x	
Management: student marks, assignments, tests	x	x	x	x	x		x			x	x	x	x
Perception: e- tests for subjects				x	x				x				
Perception: e- tests for selection					x			x					
Training courses	x												
Practice timeframe	36+	36+	36+	36+	36+	13- 18	24- 36	36+	36+	24	36+	36+	24- 36

4.3.2.4.1.1 Selection of star performers

Using the indicators as identified by the instructional design team from the department of Telematic Education at TUT (VG), thirteen star performers, excluding the Partners, were identified. Some of the star performers selected were not included in the study because they did not complete a PPA form and thus no profiles were available for these people. Partners were not included in the star performers and were studied as a separate group.

4.3.2.4.1.2 Selection of personal profiles of star performers

The personal profile forms of the identified star performers were selected and the reports on these profiles were retrieved. Each PPA report lists a number of descriptive words that best

describe the personal characteristics of the respondent. Data obtained from the descriptive word lists of the PPA reports were combined in a frequency Table showing the percentage usage of each word to describe the personal characteristics of the star performers at TUT. Appendix D6 tabulates these words. Star performers at TUT were described as being active, direct, independent, mobile, precise, dependable, factual, logical, reflective, reserved and self-starters. Descriptive words that were unique to this group refer to them as being tense, participative, impatient, aloof, self-critical, self-assured, non-trusting, introspective, enforcing and demanding.

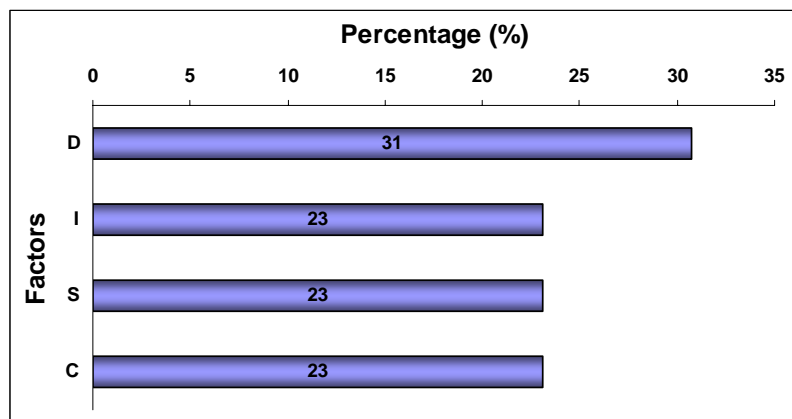
4.3.2.4.1.3 Description of star performers in terms of the DISC language

Apart from the essential personal characteristics identified by the PPA, the feedback reports also reflect the configuration of relationships of the essential elements in terms of a specific pattern or profile for each respondent. Using the high DISC factors in each of the PPA reports, the following typical behaviour patterns emerged from these reports on the star performers at TUT. The DISC factor and style combination profiles and frequency distributions of the star performer group are presented in Table 4.4 and Figure 4.6.

Table 4.4: Profile distribution of the star performers in the TUT e-learning practitioner group

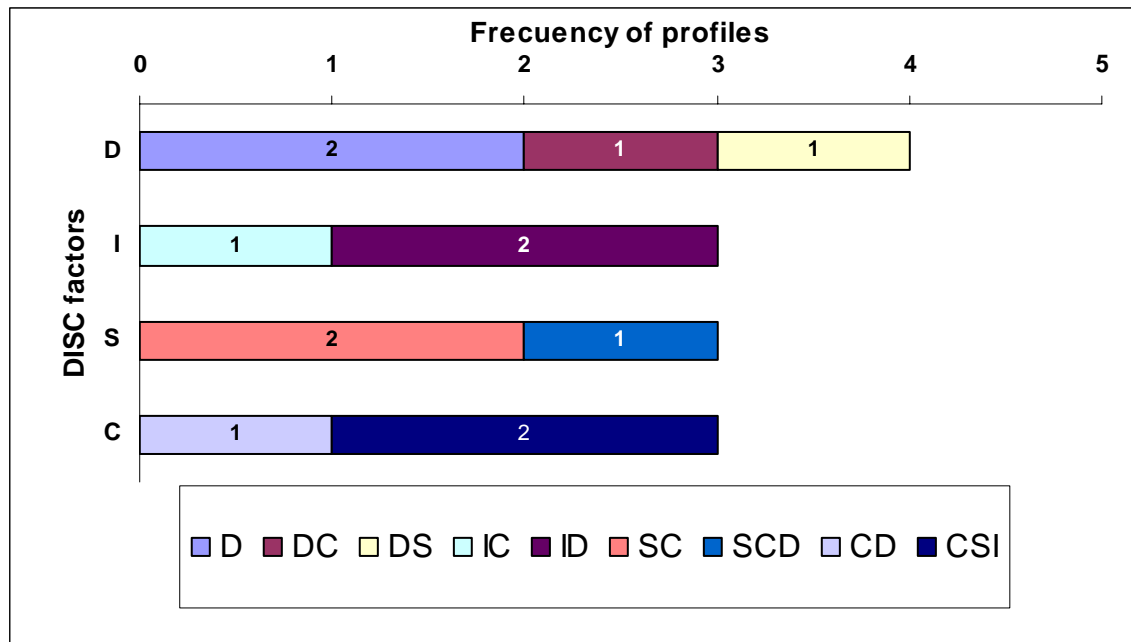
Style combinations	Frequency (n)	(%)	High factors combinations	Frequency (n)	(%)	Low factors combinations	Frequency (n)	(%)
D/CSI	1	10	D	2	25	D	2	22
D/ISC	1	10	DC	1	13	DS	1	11
DS/CI	1	10	DS	1	13	I	1	11
DC/IS	1	10	IC	1	13	ID	2	22
IC/DS	1	10	ID	2	25	IS	2	22
ID/CS	2	20	SC	2	25	ISC	1	11
SC/ID	2	20	SCD	1	13	SC	1	11
SCD/I	1	10	CD	1	13	CS	2	22
CSI/D	2	20	CSI	2	25	CSI	1	11
CD/IS	1	10						

Figure 4.6: DISC factor distribution of star performer group



The DISC factor distribution for the star performers reveals thought-provoking results. As can be seen in Figure 4.6 for this group, the Dominance factor (31%) is the most prominent factor with an even distribution (23%, each) of all the other factors. In comparison with the factor distribution pattern for the Partners in the P@W Programme (see Table 4.28), as well as for the e-learning practitioners at TUT (see Table 4.2), this pattern structure is unique to the star performer group.

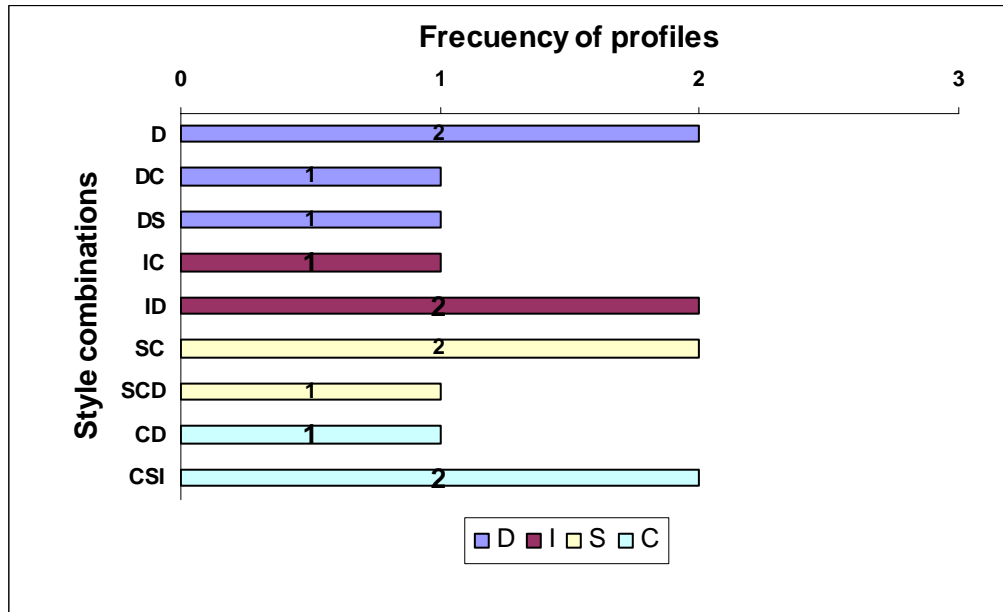
Figure 4.7: Personal profile pattern distribution of the star performer group



Furthermore, the single high Dominance (D) style as well as the high Dominance style (DC/IS) are present only in the group of star performers (see Figure 4.7). This is a significant observation in terms of the implications for e-learning practice. The current contextual situation at TUT varies from unstructured at the one end to structured (P@W Programme) at the other end of the continuum. Thus, by placing these practitioners on this continuum it becomes clear that the high Dominance profile practitioner would flourish in the challenging, fast changing and unstructured environment. The driving force behind the action process comes from active behaviour from within the practitioner in terms of power or character to control the situation. This behaviour style will become clearer in the course of this discussion.

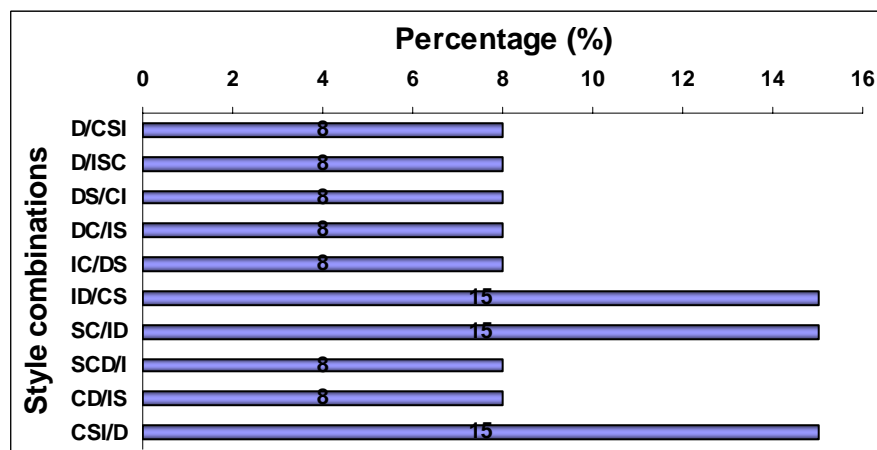
The relevance of these patterns to each DISC factor is illustrated in Figure 4.8. The structure of the DISC factors displays a prominent Dominance factor, whilst all the other factors are distributed evenly with an even distribution of style patterns throughout.

Figure 4.8: Personal profile structure distribution of the star performer group



Another interesting occurrence (Figure 4.9) is the style combination patterns of the star performers. A variety of style combination patterns were present, with small clusters in the ID/CS, SC/ID and CSI/D combinations (see Figure 4.9). The ID/CS combination is also unique to the star performer group. A high cluster of the SC/ID combination was also present on the e-learning practitioner group at TUT but not in the Partners group. The driving force of the SC/ID behaviour style is passive action in response to a pulling force from a friendly structured environment from outside the person. Interventions in the form of personal support and guidance from the department of Telematic Education, seed money for projects and contracted project plans would contribute to structuring the environment for these practitioners. A detailed discussion on the interaction between the different practitioner groups and their work environments will follow in section 4.5.2.

Figure 4.9: Profile of style combination patterns of star performers



A profile of the style combination patterns of star performers was created using a cut-off point of 10 percent. The star performer group showed an even distribution of the “HIGH” style combinations (see Figure 4.10). The profile for the “LOW” factors also revealed an even distribution among all the “LOW” factors (see Figure 4.11).

Figure 4.10: Profile of “HIGH” factors in the combination patterns of star performer group

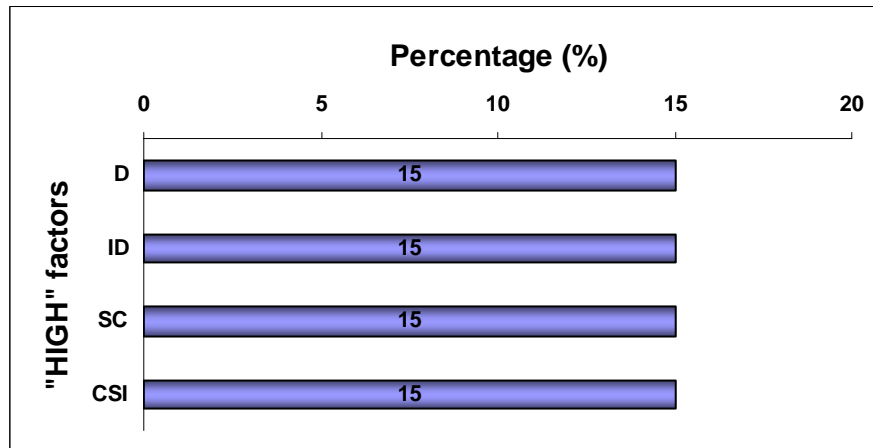
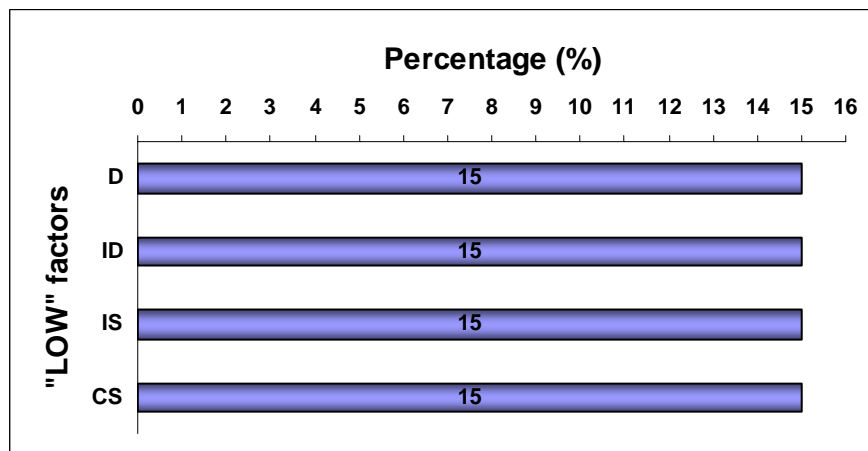


Figure 4.11: Profile of “LOW” factors in combination patterns of star performer group



Taking cognisance of the “HIGH” and “LOW” DISC factors is revealing in terms of pattern and structure, but should always be studied in a relational context to ensure holistic profiles. In an attempt to make these profiles explicit in the reality of the work context, snapshots of their “stories” are given in the following paragraphs.

A kaleidoscope of activities characterises the e-learning practice of star performers. Mapping these activities (Table 4.3) to the illustrative profiles (Table 4.5) suggests complex relationships between the practitioner and job practice. For example, some of the people from the Dominance group frequently trained assistants to do some of the administrative tasks so that they could “go

on with the job". A more in-depth discussion of these relationships will be highlighted in section 4.5.2.

Excerpts from relevant personal profiles illustrate some of the behavioural styles of five star performers and are tabulated in Table 4.5.

Table 4.5: Illustration of behavioural styles of some star performers

High D	High DC	High SC	High CSI	High ID																																																		
Behavioural style	Behavioural style	Behavioural style	Behavioural style	Behavioural style																																																		
<p>Striving for results, accepting a challenge as being part of the job, is willing to bypass convention and being a strong individualist, has a high determination to succeed. Has a creative tendency and experiment with possibilities. Self motivators Seeks independence within the structure, challenge and tangible goals against which to measure achievement. Needs room to move, act independently and have freedom from constraints Authority power and security are both important to this self reliant individual.</p>	<p>Is a direct and forceful individual who is driven to achieve, wherever possible, the perfect solution. Is a self-starter and enjoys a variety of tasks which are both challenging and demanding. Self motivators Needs room to operate independently of others once he/she knows what is required of him/her. Seek authority within own area of expertise. Prefers well defined job parameters and will look for laid-down standards of achievement.</p>	<p>Patience, control and deliberation characterise the usual behavioural style of this amiable and easy going person who plans work carefully and operates within proven and well defined parameters. Is a considerate, modest person who relates well to most people. Find available recourses and support. Self motivators Motivated by stability, sincerity and deserved appreciation. Recognition for service and identification with the company are also key motivators.</p>	<p>This logical and systematic person works hard, acts in a highly tactful manner and rarely antagonises others intentionally. Builds up friendships on trust and sincerity, works in an orderly manner, is accurate and likes to get the detail right. Built excellent courses over time period. Self motivators Standard operating procedures, sincerity, limited exposure, security and no sudden or abrupt changes are important self motivators</p>	<p>Is gregarious and very optimistic. A natural leader who uses influence and persuasion to win his/her way. Is a positive person, optimism, enthusiasm and an easygoing attitude are key factors in this person's characteristics. Utilise all possibilities. Self motivators Requires a variety of tasks and people involvement. Needs to be able to influence others in a variety of situations with freedom from routine, detail and administrative work.</p>																																																		
<p>Descriptive words Drive, <i>independence</i>, individualistic, direct, critical, logical, <i>energetic</i>, <i>self-starter</i>, authoritative, restless, eager, alert, active, strong willed, self assured.</p>	<p>Descriptive words Direct, perfectionist, reserved, <i>self-starter</i>, <i>energetic</i>, mobile, rule-orientated, analytical, precise, suspicious, aloof, reflective, logical, asks "what" and "how".</p>	<p>Descriptive words Dependable, non-demonstrative, predictable, patient, persistent, kind, lenient, systematic, precise, cautious, reserved, reflective, factual, hesitant, peaceful, humble, non-demanding.</p>	<p>Descriptive words Systematic, precise, logical, persistent, deliberate, talkative, friendly, confident, cautious, modest and peaceful.</p>	<p>Descriptive words Persuasive, gregarious, participative, positive, assertive, active, mobile, impatient, tense, anxious, <i>independent</i>, alert, eager, <i>self-starter</i>, asks "who" and "what".</p>																																																		
<p>Graph III Self Image D I S C</p> <table border="1"> <caption>Data for High D Self Image</caption> <tr><th>Dimension</th><th>Score</th></tr> <tr><td>D</td><td>12</td></tr> <tr><td>I</td><td>-5</td></tr> <tr><td>S</td><td>-4</td></tr> <tr><td>C</td><td>-5</td></tr> </table>	Dimension	Score	D	12	I	-5	S	-4	C	-5	<p>Graph III Self Image D I S C</p> <table border="1"> <caption>Data for High DC Self Image</caption> <tr><th>Dimension</th><th>Score</th></tr> <tr><td>D</td><td>12</td></tr> <tr><td>I</td><td>-6</td></tr> <tr><td>S</td><td>-7</td></tr> <tr><td>C</td><td>0</td></tr> </table>	Dimension	Score	D	12	I	-6	S	-7	C	0	<p>Graph III Self Image D I S C</p> <table border="1"> <caption>Data for High SC Self Image</caption> <tr><th>Dimension</th><th>Score</th></tr> <tr><td>D</td><td>-4</td></tr> <tr><td>I</td><td>-3</td></tr> <tr><td>S</td><td>6</td></tr> <tr><td>C</td><td>0</td></tr> </table>	Dimension	Score	D	-4	I	-3	S	6	C	0	<p>Graph III Self Image D I S C</p> <table border="1"> <caption>Data for High CSI Self Image</caption> <tr><th>Dimension</th><th>Score</th></tr> <tr><td>D</td><td>-8</td></tr> <tr><td>I</td><td>1</td></tr> <tr><td>S</td><td>6</td></tr> <tr><td>C</td><td>4</td></tr> </table>	Dimension	Score	D	-8	I	1	S	6	C	4	<p>Graph III Self Image D I S C</p> <table border="1"> <caption>Data for High ID Self Image</caption> <tr><th>Dimension</th><th>Score</th></tr> <tr><td>D</td><td>-1</td></tr> <tr><td>I</td><td>5</td></tr> <tr><td>S</td><td>-4</td></tr> <tr><td>C</td><td>-2</td></tr> </table>	Dimension	Score	D	-1	I	5	S	-4	C	-2
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The star performers were selected according to specified criteria and they demonstrated excellent job performance; however as can be seen in the descriptions and accompanying graphs of self-image (illustrated in Table 4.5), the profiles of some of the star performers are exactly the opposite of each other. Reasons for these anomalies will become more evident in the discussion on P-J fit in section 4.5.

Subsidiary question 5:

Who are the star performers at TUT?

Based on the description above, the star performers were identified as being predominantly from the Dominance work behavioural style group: a unique grouping for e-learning practitioners at TUT.

4.3.2.4.2 Analysis of self-reported feedback from e-learning practitioners at TUT

Analysis of responses to the question: 'Please tell me how you use e-learning in your environment?' (F2F) was done by using a coding scheme to identify themes, motivators and demotivators in e-learning practice as reported by the practitioners at TUT. The following paragraphs will highlight some of these responses as voiced by the prominent style combinations in each of the different DISC factor groups set against the e-learning practice milieu, and this then addresses the fifth research goal:

Research goal 5:

To enrich the PPA of e-learning practitioners at TUT.

4.3.2.4.2.1 High Dominance group

Variety and acting on challenges and changes encapsulate the typical behavioural style of this group. All four star performers in the high Dominance group experimented with and applied a variety of technologies by taking on different roles their e-learning practice (see Table 4.6 for details). Repetitive, routine tasks might be boring to these rather restless individuals and for that reason three of the four practitioners involved an administrative aid in the implementation process of WebCT courses to handle the administration side of the courses.

Table 4.6: Applications in the e-learning environment by Dominance behavioural styles

Activity	Style			
	DS1	D2	D3	DC4
Roles				
Online teaching/facilitating/e-moderating	X		X	X
Instructional design	X	X	X	X
Research	X	X		X
Management	X		X	X
Life long learner/student	X	X		x
Trainer				
Administrator				
Applications/technologies				
WebCT:				
Course material distribution	X	X	X	X
Online communication	X		X	X
E-Testing	X		X	X
Multimedia: PowerPoint, audio, animations, video clips				X
Management: student marks, assignments, tests	X		X	X
Video Conferencing	X			
DVD/Video production for tutorials, testing		X		X
Perception: e-testing		x		X
Training				
Practice timescale (months)	36+	36+	36+	36+

A number of work-related frustrations and demotivators were mentioned, namely time restraints and difficulty in time management, technical computer problems and the unavailability of technical and software support. Motivators such as job challenges, learning to master new skills and technologies and administrative support were mentioned (see Table 4.7 for details).

The e-learning practitioner's reaction to/interventions for the motivators and demotivators mentioned are important indicators of behavioural style (Entries in Table 4.7 are number coded for reference in Appendix D3).

Table 4.7: Self-reported feedback from high Dominance group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators	Reactions/interventions from e-learning practitioner
DS1	6.1	6. Multimode teaching and learning	1. Use WebCT extensively	Accepted the job challenges and kept on developing and improving courses
	8.1	8. Video conferencing	1. Used electronic communication for example video conferencing to enrich the teaching and learning experience for learners. Used the medium to communicate academic work to peers in other locations	Had several video conferencing sessions with peers internationally
	12.1	12. Personal growth	1. Learnt new skills	Personal appointment with ID to learn new skills

Table 4.7: Self-reported feedback from high Dominance group (continued)

Styles	Feedback reference	Category	e-Learning practice motivators/demotivators	Reactions/interventions from e-learning practitioner
	14.2	14. Personal support	2. The TE group are too busy, I would like more support from them	Personal appointment with ID to discuss problems
	17.1	17. Administrative help	1. Trained administrative person to do administrative tasks in WebCT	Trained administrative person to do administrative tasks in WebCT
D2	16.2	16. Skills training	2. Uses e-testing for skills training	Kept on developing and improving new e-tests in spite of numerous difficulties
	12.1	12. Personal growth	1. Learnt new skills	Eager to explore and learn more about new program facilities and new applications
D3	9.1	9. Time constrains	1. Too much to do in too little time	Asked for more in-depth training and to become a Partner next year
	17.1	17. Administrative help	1. Need help to do the job properly	Trained administrative person to do administrative tasks in WebCT
DC4	6.1, 12.1, 12.2, 12.3	6. Multimode teaching and learning	1. Use WebCT integrated in face-to-face class presentation. Use e-tests as pre and post tests. Make use of digital content, mastery learning, multimedia	Accepted the job challenges and kept on developing and improving courses
		12. Personal growth	1. Learnt new skills	Built capacity
			2. I learnt to use more WebCT tools	Became more and more independent
			3. I learnt new WebCT applications	Became more and more independent

➤ **High Dominance Influence profile (DI5)**

An interesting exception in the high Dominance group is the high DI profile. Only one profile in the e-learning practitioner group at TUT shows a perfect match with the job profile required by the HJA (see section 4.4 for details), but this individual unfortunately does not currently practice e-learning (see Table 4.8 and Table 4.9 for more detail on the roles played and applications used in practice). Being of a competitive nature, this person prefers situations where freedom of action is possible. This person is decisive and forceful and a self-starter who was one of the first lecturers at TUT to participate in a Telematic Education project. In accordance with their inquisitive, energetic and restless nature, this person may at times take on too many tasks and sometimes does not follow through and finish a job. Although this person shows the perfect fit for the job of e-learning practitioner at TUT, the lack of infrastructure, namely limited computer access for students, has demotivated this person to from continuing as an e-learning practitioner (F2F, 19 May 2005). This individual is motivated by power, authority and an opportunity for advancement and therefore being in a situation where they had no power to

change the environment they decided rather to move away than to face failure. Being a good communicator who influences others (colleagues and students) by force of character, it is important for this person to clearly define targets and goals against which progress can be measured and profitable results achieved, and if the results are endangered rather change direction than deal with failure.

Table 4.8: Applications in the e-learning environment by DI behavioural styles

Activity	Style DI5
Roles	
Online teaching/facilitating/e-moderating	
Instructional design	x
Research	
Management	
Life-long learner/student	
Trainer	
Administrator	
Applications/technologies	
WebCT:	
Course material distribution	X
Online Communication	
E-Testing	
Multimedia: PowerPoint, audio, animations, video clips	
Management: student marks, assignments, tests	
Video conferencing	
DVD/Video production for tutorials, testing	X
Perception: e-testing	
Training	
Practice timescale (months)	7-12

Initial enthusiasm and driving force faded as fear of failure demotivated this person from continuing practice. The job-related frustrations listed in Table 4.9 (F2F, 19 May 2005) occurred in 2001 and since then, despite changing for the better, this person has not been motivated to try again.

Table 4.9: Self-reported feedback from DI style combination

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
DI5	1.1, 1.2	1. Lack of infrastructure:	1. Not enough computer labs for number of students	Stopped using WebCT
			2. Not enough computers available for number of students	

To conclude this discussion on the behavioural styles of the high Dominance group of e-learning practitioners at TUT, the participants from this group listed the following **characteristics** as very important for the e-learning practitioner:

Creative, Visionary, Hands-on, Flexible, Fearless, Open-minded, Desire to uplift others, Determined, Persistent, Willing to stand up after something does not work and try again. Not to be controlled by negative non e-learning type. Perseverance, Attention to detail, Must have available time (answers to open-ended question on consent form – Char1, see Appendix D4).

4.3.2.4.2.2 High Influence group

These individuals can be described as: people orientated; natural leaders who use influence and persuasion to lead others and follow an emphatic approach towards others. Three persons, two with high Influence and High Dominance (ID) and one with high Influence, high Compliance (IC) style combinations from this group were identified as star performers. Small style combination clusters were reported in three groups, namely the high Influence, high Compliance, high Dominance (ICD) group, the high Influence high Compliance (IC) group and the high Influence, high Dominance (ID) group. The latter group is a significant combination because only star performers are reflected by this combination. Their reaction to motivators and demotivators in their e-learning practice will be discussed very briefly below.

➤ High Influence Dominance profiles

This profile indicates a gregarious and positive individual. Optimism, enthusiasm and an easygoing attitude are key factors in this person's characteristics. A variety of tasks and people involvement are essential for this person. As can be seen in Table 4.10, one of the star performers (ID1) played every role possible and used all available applications in the e-learning practice with enthusiasm (see tables 4.10 and 4.11 for details). Because of a tendency to be impatient for results and to look for ways to make things happen quickly, this person is at the forefront of the Telematic Education drive at TUT. As an early adopter and self-starter this person was one of the first participants in Telematic Education projects at TUT. The tendency to be unconventional and willing experiment and "play" with technologies, has led to the development of excellent, dynamic and well-rounded courses.

Table 4.10: Applications in the e-learning environment by ID behavioural styles

Activity	Styles	
	ID1	ID2
Roles		
Online teaching/facilitating/e-moderating	X	X
Instructional design	X	
Research	X	
Management	X	
Life-long learner/student	X	
Trainer		
Administrator		
Applications/technologies		
WebCT:		
Course material distribution	X	X
Online communication	X	X
E-Testing	X	
Multimedia: PowerPoint, audio, animations, video clips	X	X
Management: student marks, assignments, tests	X	
Video Conferencing	X	X
DVD/Video production for tutorials, testing	X	
Perception: e-testing	X	
Training		
Practice timeframe (months)	36+	13-18

A few work-related frustrations were mentioned (F2F, 27 May 2005), namely unreliability of Internet access and sometimes a baffling surprise element in unconventional circumstances. As this person enjoys challenges, these surprises are more often seen as opportunities for advancements than frustrations (see Table 4.11 for details).

Table 4.11: Self-reported feedback from Influence Dominance group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
ID1	19.1	19. Innovations	1. Unexpected surprises	Accepted the job challenges and kept on developing and improving courses
ID2	10.2 -10.4	10. Personal feelings	2. I am disillusioned with WebCT	Wanted to stop using WebCT
			3. I don't want to use WebCT any more, too much hassles	
			4. I can not guarantee quality service to the students, so I am not going to use WebCT in the next semester	

The other star performer (ID2) in this group had a more modest approach to the available roles and technologies and also became demotivated and disillusioned with WebCT (see tables 4.10 and 4.11):

I cannot guarantee quality service to the students, so I am not going to use WebCT in the next semester (F2F, 10 June 2005).

For this practitioner, who is primarily interested in people, their problems and their activities, using influence of character to motivate people to act, feelings that he/she as person cannot guarantee "quality service" might provoke fears of rejection and lack of social recognition by colleagues and students. These fears may have contributed to this person's decision to stop using WebCT as an e-learning application.

➤ **High Influence, Compliance and Dominance profiles (ICD)**

A small cluster of profiles were reported in this style combination (see Table 4.12 for details). None of these were associated with star performers. Commonalities between the profiles of these style combinations and the profiles of the IC combination in terms of the explanation of the self-image existed. These persons are leaders by nature, who use good communication skills and their influence and persuasion coupled with logic and a systematic approach. Being attentive to detail these persons will rely on facts and have an innate desire for things to be correct and may have a tendency to vacillate in decision making until there is absolute certainty that the decision is the correct one. One of the key motivators for these persons is to have situations which allow them to have the power, authority and recognition for the work that they are doing. To do things in a systematic, logical manner and as such have security and clear objectives are also important motivators. Uncertainties about the availability of computer laboratories and enough computers may be uncomfortable situations for these persons. Seeing that these persons are motivated by personal attention this might be an approach to follow in individualised staff development plans for these practitioners.

One star performer (IC3) was identified in the IC style combination group. This profile differs from the ICD styles in terms of a lesser need for power. This person is mainly motivated by popularity, favourable working conditions, standard operating procedures, personal attention and public recognition, challenging situations and the opportunity to achieve good results.

Table 4.12: Applications in the e-learning environment by ICD behavioural styles

Activity	Style				
	ICD5	ICD6	ICD7	ICD8	IC3
Roles					
Online teaching/facilitating/e-moderating		X	X	X	X
Instructional design	X				X
Research					
Management					
Life-long learner/student					
Trainer					
Administrator					
Applications/technologies					
WebCT:					
Course material distribution		X	X		X
Online communication					X
E-testing					
Multimedia: PowerPoint, audio, animations, video clips		X			X
Management: student marks, assignments, tests				X	X
Video conferencing	X				
DVD/video production for tutorials, testing					
Perception: e-testing					
Training					
Practice timescale (months)	36+	36+	12	7-12	24-36

Motivators and demotivators mentioned by these groups are listed in Table 4.13.

Table 4.13: Self-reported feedback from ICD group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
ICD5	8.1	8. Video conferencing	1. Used electronic communication for example video conferencing to enrich the teaching and learning experience for learners. Used the medium to communicate academic work to peers in other locations	This was a highly successful application and will be repeated in the near future
ICD6	1.1, 1.2, 7.1	1. Lack of infrastructure:	1. Not enough computer labs for number of students	Stopped using WebCT in 2001 and since then this person became re-interested only recently
			2. Not enough computers available for number of students	Due to improvements in the infrastructure, e-learning activities may be taken up again
	7.1	7. Practical subject	1. Used visual material to stimulate process and procedural thinking skills	Successful application of multimedia. Will repeat in the future
IC3	6.1	6. Multimode teaching and learning	1. Use WebCT integrated in face-to-face class presentations	Used communication tools to provide feedback and to identify problems

➤ **High Influence Steadiness profiles**

Two persons displayed high Influence Steadiness (IS) behavioural styles but the one profile also displayed a high Compliance (C) style (see Table 4.14 for details).. These profiles indicated individuals who are outgoing with a genuine interest in others, work well as team members and prefer secure structured working environments which also allow for a certain amount of independent input. Owing to an assertive and enthusiastic manner, together with self-confidence, this person is able to convince others to readily accept his/her ideas and to impress with warmth, sympathy and understanding. These characteristics combined with a work ethic as very hard workers who are thorough, dependable and reliable may explain why one of these persons (IS1) are not keen to keep on practising in an e-learning environment. This person started very enthusiastically, working long hours to develop online courses, but became disillusioned when very few of the students actually visited the WebCT course or reacted to all the hard work (F2F, 7 June 2005). This person, who is likely to give students a second chance, failed to understand the dynamics of online communication and the absolute necessity of driving an online course. One of the key motivators for this person is to feel wanted and to have a sense of belonging and involvement. Two other important motivators are recognition and appreciation for work well done. Clearly these motivators were not present in this e-learning environment. This might be the result of misunderstanding the role of the e-moderator and definitely has implications for future staff training and development in this regard.

Table 4.14: Applications in the e-learning environment by the IS behavioural style

Activity	Style	
	IS1	ISC2
Roles		
Online teaching/facilitating/e-moderating	X	X
Instructional design	X	X
Research		
Management		
Life-long learner/student		
Trainer		
Administrator		
Applications/technologies		
WebCT:		
Course material distribution	X	
Online communication	X	
E-Testing		X
Multimedia: PowerPoint, audio, animations, video clips		
Management: student marks, assignments, tests		
Video Conferencing		
DVD/video production for tutorials, testing		
Perception: e-testing		
Training		
Practice timescale		

To conclude this discussion on the behavioural styles of the **high Influence group** of e-learning practitioners at TUT, the participants from this group listed the following characteristics as very important for the e-learning practitioner:

Three persons indicated “Innovativeness” as very important; two mentioned creativity and others listed were: ‘Love of teaching’; ‘Wanting to make life easier and less work for better results’, Oordeelkundigheid [Discretion] Enthusiasm ‘Passion to improve skills’, ‘Iemand wat 'n uitdagende raaksien in iets wat hy/sy niks of bitter min van weet en dit ontwikkel’ [Someone who sees a challenge in something that he/she knows very little about and develops it.] (answers to open-ended question on consent form – Char1, see Appendix D4).

4.3.2.4.2.3 High Steadiness group

Ten participants’ profiles related to the Steadiness factor. Nine of these displayed high Steadiness and high Compliance combinations (see Table 4.15 for details). A cluster of six profiles was reported for a high SC combination of which five displayed a SC/ID style combination. Individuals with high Steadiness Compliance (SC) behavioural style combinations can be described as thorough, dependable, hard-working, persistent and creating a stable environment. They will need time to assess tasks and problems thoroughly before acting, and will sometimes resist change. They are concerned about relationships, they are good team players, are sympathetic, friendly, good listeners and “finisher completers”. Two of these individuals (SD1 and SC2) had practised in the e-learning domain for more than three years and may be classified as “veterans”. They do not really qualify as star performers because of their one-sided approach to the e-learning practice, but being thorough and persistent by nature they have succeeded and have stayed involved in the field of electronic testing in spite of numerous obstacles.

Table 4.15: Applications in the e-learning environment by SD behavioural styles

Activity	Styles	
	SD1	SC2
Roles		
Online teaching/facilitating/e-moderating		
Instructional design	X	
Research		
Management	X	X
Life-long learner/student		
Trainer		
Administrator		
Applications/technologies		
WebCT:		
Course material distribution		
Online communication		
E-Testing	X	
Multimedia: PowerPoint, audio, animations, video clips		
Management: student marks, assignments, tests	X	
Video conferencing		
DVD/video production for tutorials, testing		
Perception: e-testing	X	X
Training courses	X	
Practice timescale (months)	72+	48+

It is clear that motivators such as security and support, appreciation, hard work, challenge, and recognition for long service enabled these persons to perfect their practice over a time period of more than four years (see Table 4.16).

Table 4.16: Self-reported feedback from SD group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
SD1	16.1	16. Skills training	1. Use WebCT for skills training and assessment	Accepted the job challenges and kept on developing and improving electronic tests

➤ **High Steadiness Compliance profiles (SC)**

Although the Compliance factor is the most prominent factor displayed in the behavioural styles of the e-learning practitioners at TUT, the highest cluster of style combinations were reported as combinations of high Steadiness and high Compliance styles (see Table 4.17 for details). These persons are by nature thorough, persistent and patient and may have a strong leaning towards perfectionism. They are good listeners but not particularly demonstrative and hence may be considered by colleagues to be rather cool and aloof. They are rule orientated and may be more interested in things, planning and organisational problems than in people. Being motivated by structure, sincerity, deserved appreciation and a well-defined task specification, problems with organisational infrastructure, slow Internet connections, bandwidth problems and unreliable Internet access are devastating to these individuals. They are not prepared to compromise and adhere to high standards under all circumstances.

Three star performers were identified in this group, namely two from the high SC (SC4, SC6) and one from the high SCD (SCD2) style combinations. They work closely with their supportive instructional designers from the department of Telematic Education and are content with things as they are, striving to maintain the status quo and perform work in a consistent and predictable manner. One of them found infrastructural deficiencies too stressful to manage and decided not to continue with the use of e-testing. Although this person received support in this regard, the insecure situation was not acceptable. One of the main characteristics of this behavioural style is to behave passively in a favourable situation and to react to cues from the environment rather than to be proactive in a self-starting manner.

See Appendix D9_SC for a short generic report, generated from the resources of Thomas International, which highlights the important characteristics of this profile cluster. To protect the identities of the e-learning practitioners, only an exemplary report is used which is not specific

for any given participant. The accompanying graph is an illustration of the profile and is not mapped according to the specific profile described.

Table 4.17 contextualises the profile of the high SC style combination in the e-learning practice at TUT.

Table 4.17: Applications in the e-learning environment by SC behavioural styles

Activity	Styles							
	SC11	SCD3	SC4	SC5	SC6	SC7	SCD1	SCD2
Roles								
Online teaching/facilitating/e-moderating	X	X	X		X		X	X
Instructional design	X	X			X			
Research					X			
Management				x	X		x	x
Life-long learner/student								
Trainer						X		
Administrator								
Applications/technologies								
WebCT:								
Course material distribution	X	X	X		X		X	X
Online communication	X	X	X		X			X
E-testing		X	X		X			
Multimedia: PowerPoint, audio, animations, video clips							X	X
Management: student marks, assignments, tests	X			X				X
Video conferencing								X
DVD/video production for tutorials, testing								
Perception: e-testing			X		X			
Training						X		
Practice timescale	36+	24-36	36+	13-18	36+	24	13-18	24

One of the main characteristics of this behavioural style is to behave passively in a favourable situation and to react to cues from the environment rather than to be proactive in a self-starting manner. Reactions and interventions from practitioners to job motivators and demotivators are listed in Table 4.18.

Table 4.18: Self-reported feedback from SC group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
SC2	11.1,11.2	11. Computer related problems	1. Technical problems	Support from TE
			2. Software problems	Support from TE
SC4, SC7	1.1, 2.1	1. Lack of infrastructure:	1. Not enough computer labs for number of students	Does not present multimode classes anymore
		2. Accessibility	1. Very slow internet connections	Stopped using electronic tests
			2. Unreliable internet connections	Stopped using electronic tests
SC6	21.1	21. Assessment	1. Use e-testing for selection of students	Continue successful application of technology in secure environment

To conclude this discussion on the behavioural styles of the high Steadiness group of e-learning practitioners at TUT, the participants from this group listed the following characteristics as very important for the e-learning practitioner:

Enthusiasm, patience, original, clarity of thought, dedication (answers to open-ended question on consent form – Char1, see Appendix D4).

A number of participants did not comment on important characteristics of e-learning practitioners.

4.3.2.4.2.4 High Compliance group

The highest distribution (18) of behavioural profiles related to the Compliance factor. Style clusters occurred in the high CS, CD and CSI combinations. These individuals may be described as cautious and conservative, slow to make decisions until all available information has been checked. They are systematic thinkers and workers who are at ease with systems, processes, procedures and predictable and consistent outcomes. They display passive behaviour in antagonistic situations and comply with high work standards to avoid trouble or error.

Four of these individuals (C3, CD5, CS7 and CSI12) had practised in the e-learning domain for more than three years and can be classified as "veterans". Two of these practitioners were additionally selected as star performers but the other two did not qualify because of their one-sided approach to e-learning practice. Being systematic, precise and accurate by nature,

however, they made a valuable contribution to the field of electronic testing and as administrative assistant handling all non-subject related aspects of a WebCT course.

As can be seen in Table 4.19 below, these individuals (C1 and C3) prefer to specialise in one application area, namely skills training, with a main function of applying specialised skills to ensure the maintenance of standards and quality.

Table 4.19: Applications in the e-learning environment by C behavioural styles

Activity	Style	
	C1	C3
Roles		
Online teaching/facilitating/e-moderating		
Instructional design		
Research		
Management		
Life long learner/student		
Trainer	X	X
Administrator		X
Applications/technologies		
WebCT:		
Course material distribution	X	
Online Communication		
E-testing		
Multimedia: PowerPoint, audio, animations, video clips		
Management: student marks, assignments, tests		
Video Conferencing		
DVD/video production for tutorials, testing		
Perception: e-testing		
Training courses	X	X
Practice timescale	7-12	36+

Job demotivators are listed in Table 4.20.

Table 4.20: Self-reported feedback from C group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
C3	14.1,14.2	14. Personal support	1. I need more personal support from the TE team	Personal contact / support sessions with Instructional designer
			2. The TE group are too busy, I would like more support from them	Alternative support resources utilised

➤ **High Compliance Dominance profiles**

Another cluster (4) of styles was displayed in the high Compliance Dominance (CD) group. One star performer (CD7) was selected in the CD style combination. These profiles indicate individuals who apply logic and analysis to most situations and are active, alert and unlikely to antagonise others knowingly. The high D factor adds the dimension of assertiveness, and a need for continual challenges. Authority should be vested in the person's area of expertise. Key

motivators are accomplishments, results and the need to know “why”, reassurance and an environment free of sudden changes.

These characteristics combined with being a hard worker, self-starter, results orientated and an achiever may explain why one of the individuals (CD6) is not currently practising as an e-learning practitioner. This person is naturally driving and forceful but emphasises these characteristics only when the pressure is really on. This suggests therefore that results and authority become more important to this person. As indicated in tables 4.21 and 4.22, this person started off very enthusiastically with creative course development, but became disillusioned when very few of the students actually visited the WebCT course or reacted to all his hard work. This person decided to stop using WebCT for course presentations.

The other two persons used WebCT as a vehicle for course material distribution and did not proceed to a higher level of active online communication and e-tivities for students.

These are all pointers to the crucial importance of specialised training in online communication and interaction for practitioners as well as students. Although the department of Telematic Education offers services, support and training to e-learning practitioners at TUT, it seems that especially practitioners in the high Steadiness and high Compliance factor groups experience a greater need for individualised structured support and training. Through the P@W Programme most of these needs may be addressed.

Table 4.21: Applications in the e-learning environment by the CD behavioural style

Activity	Styles			
	CD4	CD5	CD6	CD7
Roles				
Online teaching/facilitating/e-moderating			X	X
Instructional design		X	X	X
Research				X
Management				X
Life-long learner/student				
Trainer	X			
Administrator				
Applications/technologies				
WebCT:				
Course material distribution	X	x	X	Xx
Online communication				X
E-Testing				
Multimedia: PowerPoint, audio, animations, video clips				
Management: student marks, assignments, tests				X
Video conferencing				
DVD/video production for tutorials, testing				
Perception: e-testing				
Training courses	X			X
Practice timescale	7-12	7-12	1-6	36+

In the face-to-face situation “too much to do in too little time” was mentioned as a reason for the lack of activity on WebCT. The ‘stress graph’ for this person indicates that this person loses drive under pressure in situations, becoming less direct and demanding and more accommodating. This could undoubtedly lead to frustrations and a fall off in work performance (see Table 4.22 for details).

Table 4.22: Self-reported feedback from CD group

Conversational question asked before participants completed the PPA: “Please tell me how you use e-learning in your environment?”				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
CD6	3.1	3. Static courses	1. Little student participation. 2. Low level online communication	Need for staff training
CD4	16.1	16. Skills training	1. Use WebCT for skills training	Update WebCT course regularly
CD5	9.1	9. Time constrains	1. Too much to do in too little time	Diminish pressure on person, provide extra support from TE

➤ **High Compliance Steadiness profiles**

Corresponding with the highest style frequency (six) in the Steadiness factor (see Table 4.17), the high CS style combination showed a high frequency in the Compliance factor. These persons are by nature precise, sincere and rarely antagonise others intentionally. They are persistent, hard-working individuals who investigate facts and may follow a perfectionist approach where systems, procedures, policies and rules are concerned. They prefer a structured working environment where logic and accuracy are paramount. Two of these practitioners had been engaged in e-learning for more than three years, one (CS9) is a steady user of WebCT and the other is a self-starter who uses electronic testing intensively. Neither of them can be described as a star performer because of the limited scope of practice (see Table 4.23 for details).

Table 4.23: Applications in the e-learning environment by the CS behavioural style

Activity	Styles			
	CS7	CS8	CS9	CS10
Roles				
Online teaching/facilitating/e-moderating		X	X	X
Instructional design		X		
Research				
Management	X			
Life-long learner/student				
Trainer				
Administrator				
Applications/technologies				
WebCT:				
Course material distribution		X	X	X
Online Communication		X	X	X
E-testing				
Multimedia: PowerPoint, audio, animations, video clips				
Management: student marks, assignments, tests		X		
Video conferencing				
DVD/video production for tutorials, testing				
Perception: e-testing	X			
Training courses				
Practice timescale				

Job motivators and demotivators are listed in Table 4.24.

Table 4.24: Self-reported feedback from CS group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
CS7	1.4	1. Lack of infrastructure	3. Computer labs need equipment	Utilised ad hoc funds
CS8	9.1, 9.2	9. Time constrains	1. Too much to do in too little time	Use additional administrative support staff
			2. "Do you know of somebody who can help us to maintain WebCT courses and to develop more WebCT material?"	Called for help with instructional design aspects of WebCT courses
CS10	12.1, 12.2, 12.3	12. Personal growth	1. Learnt new skills	Self-starter who took responsibility for own learning
			2. I learnt to use more WebCT tools	Did WebCT training
			3. I learnt new WebCT applications	Did WebCT training
CS9, CS10	14.1	14. Personal support	1. I need more personal support from the TE team	Needs help with instructional design aspects of WebCT courses

➤ **High Compliance, Steadiness Influence profiles**

The thorough, accurate and precise nature of the high CS style combination will be complimented by friendly, amiable and talkative behavioural styles as characteristics of the high Influence factor in these profiles. These persons need to be liked and are driven to avoid trouble and antagonism. They prefer the status quo, are security conscious and like to know what is required and why. Although the two persons (CSI11 and CSI12) do not like sudden or abrupt changes, they were selected as star performers having practised for more than two years and utilising a variety of possible roles and applications in the e-learning teaching and learning environment (see Table 4.25 for more details). Supported by Telematic Education and by following a systematic and persistent approach over the years, these persons have developed as star performers.

Table 4.25: Applications in the e-learning environment by the CSI behavioural style

Activity	Styles		
	CSI11	CSI12	CSI13
Roles			
Online teaching/facilitating/e-moderating	X	X	x
Instructional design	X	X	
Research	X	X	
Management	X	X	
Life-long learner/student	X	X	
Trainer			
Administrator			
Applications/technologies			
WebCT:			
Course material distribution	X	X	x
Online communication	X	X	
E-testing	X	X	
Multimedia: PowerPoint, audio, animations, video clips	X	X	x
Management: student marks, assignments, tests	X	X	
Video conferencing			
DVD/video production for tutorials, testing			
Perception: e-testing			
Training courses			
Practice timescale	24-36	36+	1-6

During face-to-face communication, job-related frustrations and motivators were mentioned and are listed in Table 4.26 (F2F).

Table 4.26: Self-reported feedback from CSI group

Conversational question asked before participants completed the PPA: "Please tell me how you use e-learning in your environment?"				
Styles	Feedback reference	Category	e-Learning practice motivators/demotivators at TUT	Reaction/interventions from e-learning practitioner
CSI12	1.3	1. Lack of infrastructure	3. Computer labs need equipment for class presentations	Utilised additional resources
	9.1, 9.2	6. Multimode teaching and learning	1. Use WebCT integrated in face-to-face class presentation. Use electronic testing extensively	Utilised available resources

To conclude this discussion on the behavioural styles of the high Compliance group of e-learning practitioners at TUT, the participants from this group listed the following characteristics as very important for the e-learning practitioner:

Open-mindedness; Creativity (2); Disciplined; As admin assistant I feel that you should have outstanding organisational skills. Patience is also required; Planner; Time manager; Ondernemend, [Enterprising] Doelgerig, [Purposeful]; Volhardend, [Persistent]; Geduldig, [Patient]; A person without a family-life who to work is his/her life; Patience, Accommodating, Organised; Persistence; Self-discipline, Must enjoy doing it and be excited about new technologies. His excitement must grow into his students, He must also participate in further reading and research regarding e-Learning (answers to open-ended question on consent form - Char1, see Appendix D4).

4.3.2.5 Analysis of questionnaires

Analysis of the responses to the open-ended question "In your opinion, what are the outstanding **personal attributes (characteristics)** of an e-learning practitioner?" put to the e-learning practitioners as well as the Partners resulted in a list of descriptive phrases. These phrases were further analysed and colour coded according to their relevance to the different DISC factors (see Table 4.27).

The most important characteristics of the e-learning practitioner as perceived by the practitioners from TUT were creativity and innovativeness, patience and persistence and enthusiasm:

Persistent, willing to stand up after something does not work and try again. Not to be controlled by negative non-e-learning type (D2, Char1, 1 June 2005).

The practitioner should be organised, punctual, disciplined, and able to manage time. Effective communication, regular feedback to students, and a love for teaching are important characteristics of the 'online teacher':

Effective communication and language to provide feedback. Patience and listening skills in order to know what the real problems are (IC9, Char1, 1 June 2005).

Love of teaching; Innovativeness; Wanting to make life easier and less work for better results (ID1, Char1, 27 May 2005).

Dedication and hard work, working smarter, embracing new technologies, and accepting the challenges are some of the indispensable characteristics mentioned:

Must enjoy doing it and be excited about new technologies. His excitement must grow into his students. He must also participate in further reading and research regarding e-learning (CSI12, Char1, 23 May 2005).

Putting these words into DISC language revealed a high cluster in the Dominance factor and another small cluster in the Steadiness factor. A variety of characteristics were identified in the Compliance factor, followed by the Influence factor (see Table 4.27 for details). These characteristics describe a person who is both creative and results orientated, concerned with quality and standards. This person is an organised self-starter with an open mind and a desire to get things done quickly and accurately.

Table 4.27: Descriptive words from e-learning practitioners from TUT group

Analysis of words describing the characteristics of the e-learning practitioner as perceived by the TUT group														
Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor
Organised	3	High C	Creative	7	High D	Enthusiasm	3	High I	Patience	7	High S	Perseverance	1	Low C
Time manager	3	High C	Innovative / New ideas	4	High D	Communication	2	High I	Persistent	3	High S	Independent	1	Low C
Knowledge	2	High C	Working smarter	2	High D	Teacher	2	High I	Dedicated	2	High S			
Skills	2	High C	Accepting challenge	2	High D	Supportive	2	High I	Hard working	2	High S			
Punctual /Disciplined	2	High C	Interested	1	High D				Listening skills	1	High S			
Open-minded	2	High C	Fearless	1	High D									
Adaptability	1	High C	Goal oriented / Motivated	1	High D									
Technology	1	High C												
Flexible	1	High C												
Diplomatic	1	High C												
Clarity of thought	1	High C												
Detail	1	High C												

Subsidiary question 6:

How did the e-learning practitioners at TUT react to the motivators and demotivators presented by their e-learning practice?

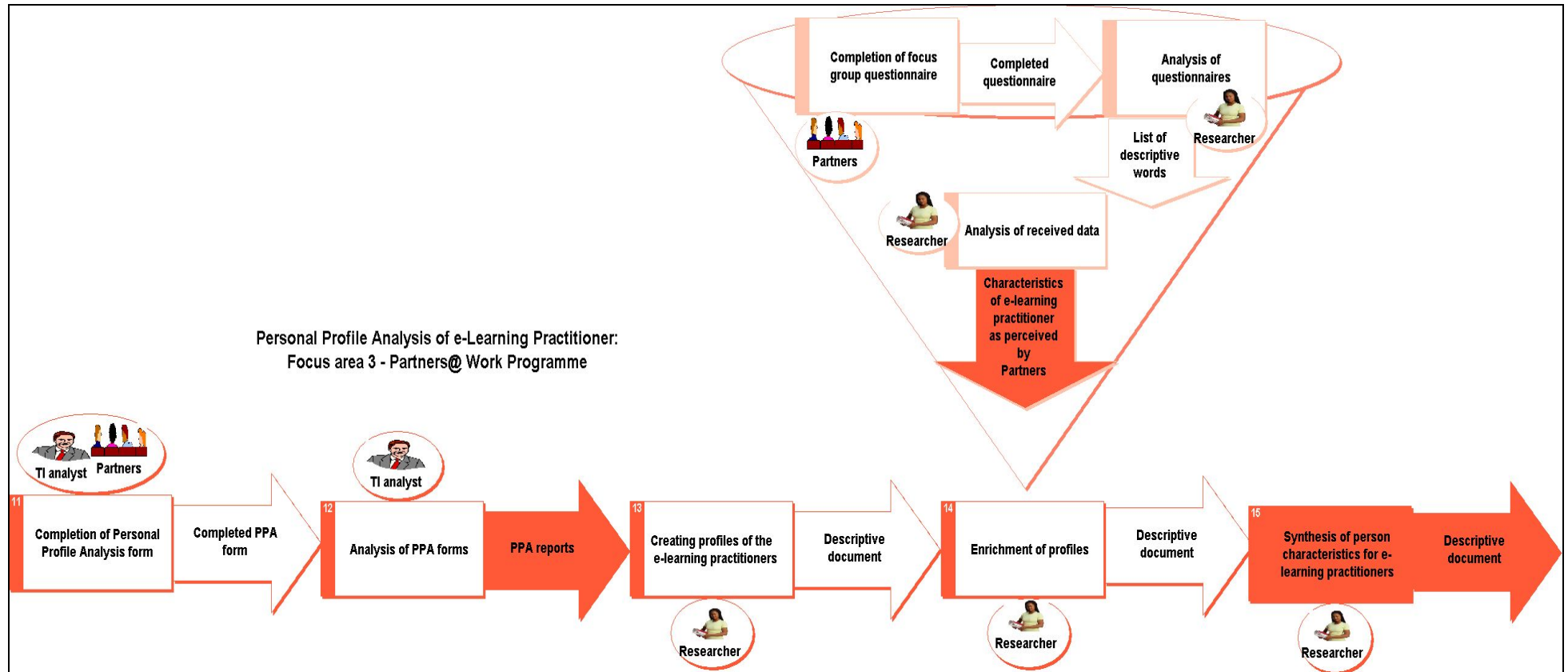
Based on the above discussion, the e-learning practitioners perceived the most important characteristics of e-learning practitioners as creativity and innovativeness, patience and persistence and enthusiasm. They view their e-learning practice as challenging; presenting both motivational and demotivational cues for a variety of reactions. Their reactions to these challenges illustrated some of their work behavioural styles.

4.3.3 *Personal Profile Analysis for Partners in the P@W Programme*

Data capturing at the Centre for Continuing Professional Development at TUT.

The third focus area presents findings on the characteristics of Partners in the P@W Programme domain. Figure 4.12 illustrates the process that was followed to collect and analyse the relevant data. Methods and procedures applied in this regard were discussed in section 3.6.1 and the following sections report on subsequent findings.

Figure 4.12: Personal Profile Analysis of the Partners in the Partners@Work Programme at TUT



4.3.3.1 Completion of the PPA form

A total of 14 Partners completed the PPA form on 3 August 2004 during a session facilitated by the analyst from Thomas International at the Centre for Continuing Professional Development at TUT. During this session the aim of the PPA was explained and participation requested. On completion, the forms were collected by the analyst and the data was analysed and reports printed on 24 August 2004. Thirteen of fourteen forms were valid and personal feedback by the analyst was given on 26 October 2004. For the purpose of this study only twelve of the forms were used as one person in the group had commitments that changed his/her position in the Partner group and the other form was invalid.

4.3.3.2 Analysis of PPA forms

A computer-generated report for each individually completed PPA form provides the person with a printed feedback report and a set of three graphs reporting on self-image, behaviour under stressful work conditions and work mask (see Appendix D9_SC).

According to the Thomas International resources, the self-image is not necessarily how others see the participant. However in this study, the researcher was astounded by the accuracy of the PPA to match the actual behaviour patterns displayed by the Partners, as observed by the researcher and the other group members.

Discussion on profile details follows in the paragraphs below and addresses the sixth research goal:

Research goal 7

To identify work behavioural characteristics of the Partners in the P@W Programme.

4.3.3.3 Creating a profile of the Partners

Each PPA report lists a number of descriptive words which best describe the personal characteristics of the respondent. Data obtained from the descriptive word lists from the PPA reports were combined in a frequency table showing the percentage usage of each word to describe the personal characteristics of the Partners. Appendix D4 tabulates these words. Characteristics of the Partners group are summarised as them being independent, accurate, logical, precise, sceptical, thorough, adaptable, sincere, amiable, direct, firm, patient, probing and reflective.

Descriptive words which are unique to this group refer to them as being calm, decisive, fair, firm, investigative, non-antagonistic, objective, opinionated, self-confident, suspicious, sympathetic, verbally influential and versatile.

Subsidiary question 7:

What are the characteristics of the Partners in the P@W Programme?

Based on the description above the main work behavioural characteristics of the Partners were identified as independent, accurate, logical, precise, sceptical, thorough, adaptable, sincere, amiable, direct, firm, patient, probing and reflective.

Apart from the essential personal characteristics identified by the Personal Profile Analysis, the feedback reports also reflect the configuration of relationships of the essential elements in terms of a specific pattern or profile for each respondent. Using the high DISC factors in each of the PPA reports, the following typical behaviour patterns emerged from these reports from the Partners at TUT:

- In the Dominance factor two styles namely DI and DS were reported.
- The Influence factor had the second largest frequency of styles (3), namely ID (2) and IS.
- The Steadiness factor had the same style frequency as the Dominance factor namely S and SD.
- The most prominent factor was the Compliance factor with a cluster of styles around the CS combination. The style distribution was C, CS (3), and CSD.

A summary of the personal profile DISC factor and style distribution is listed in Table 4.28 and addresses the eight research goal:

Research goal 8:

To identify the personal profiles of the Partners in the P@W Programme.

Table 4.28: Personal profile DISC factor and style distribution of the Partner group

Personal Profile DISC factor and style distribution of the Partner group				
Styles	Frequency of Factors			
	D	I	S	C
DI	1 (8.3%)			
DS	1 (8.3%)			
ID		2 (16.7%)		
IS		1 (8.3%)		
S			1 (8.3%)	
SD			1 (8.3%)	
C				1 (8.3%)
CS				3 (25%)
CSD				1 (8.3%)
Total	2 (16.6%)	3 (25%)	2 (16.6%)	5 (41.6%)

DISC distribution of Partner group at TUT

Factor	Count	Percentage
D	2	16.6%
I	3	25%
S	2	16.6%
C	5	41.6%

4.3.3.3.1 Report on PPA of the Partners@Work group – results from the PPA reports

Concise reports on the results for the different behavioural styles from the Partners are cited below to highlight some characteristics and patterns of these profiles. Generic reports and graphs, generated by Thomas International, were used to protect the identity of the Partners. Exemplary reports and graphs for profiles in the different groups were presented. To enhance anonymity the graphs and reports should be read separately as illustrations of the relevant style and the graphs do not necessarily fit the report description exactly.

The preceding discussions on star performers and the perceptions of the e-learning practitioners regarding the characteristics of the e-learning practitioner necessitate further focus on the Dominance factor in the Partner group. Two other clusters of style combinations, namely ID and CS, will also be investigated and described.

4.3.3.3.1.1 High Dominance group

Two Partners' profiles related to the Dominance factor, but each has distinct combinations, namely, the first high Dominance combined with a high Influence factor, and the second a high Dominance combined with a high Steadiness factor. Although these individuals can be described as independent self-starters, they differ substantially on the rest of their profiles. Each will be discussed separately in the paragraphs below:

➤ **High Dominance Influence profile (DI)**

This profile indicates a self-starter to whom independence of action is important together with continuous challenge which will afford opportunity for career progression. This person likes to be able to negotiate commitments on an equal basis, with the freedom to work creatively and independently in a relatively unstructured environment. **This was the only one in the whole group that preferred an unstructured working environment.** See Appendix D9_DI for a generic feedback report for the DI profile as described by resources from Thomas International.

This person combines an assertive and persuasive nature in order to get things done. The focus is on a drive for results, but differs from the purely Dominance type because the person possesses the ability to be considerate towards others. As illustrated by the high "I" in this profile, communication, negotiation and personal influence are also important characteristics.

The low Steadiness and Compliance factors suggest that this person likes a fast pace, is eager, alert and restless, and can be impatient if things do not happen fast enough.

Descriptive words for this profile include words such as innovative, self-starter, assertive, decisive, confident, positive, gregarious, eager, restless, independent, strong-willed, alert and competitive (Thomas International PPA report, 24 August 2004).

➤ **High Dominance Steadiness (DS)**

The high Dominance Steadiness (DS) profile differs from the DI profile in that the person does not necessarily see the need for constant praise and persuasion as is the case with the high I profiles. These individuals are very practical, like to get on with the job and have an innate drive to achieve goals independently from others. They are self-starters who need time to reflect on the approach before commencing tasks. The high S suggests a need for a slower pace, however these individuals are able to deal with several tasks as long as they are given time to plan or schedule the workload. They are also by nature thorough, analytical, hard-working and independent in approach. They are good investigators of facts and information who tend to make decisions devoid of personal/emotional involvement, based on a thorough assessment of the information available. Once a decision has been made it is difficult to shift the person and if pressured he/she is likely to become exceedingly stubborn (see Appendix D9_DS for more details on motivational aspects). An important job requirement is that the job should provide sufficient authority for the person to direct others or investigate independently, combined with practical approaches for the achievement of profitable goals.

Descriptive words for this profile include words such as driving, forceful, investigative, logical, sceptical, serious, thorough, reserved, independent, stubborn, determined (Thomas International PPA report, 24 August 2004).

4.3.3.3.1.2 High Influence group

Three partners' profiles related to the Influence factor, namely two with the combination high **Influence, Dominance (ID)** factors and one combination of high Influence and high Steadiness (IS) factors. Whilst their individual profiles differ according to the unique relationship between the factors in each profile, common denominators are that they are concerned with communication, extroverted, friendly, charming, people's people. See Appendix D9_ID for a brief generic feedback report for the ID profile as described by resources from Thomas International.

Descriptive words for this profile include words such as verbally influential, self-confident, outgoing, direct, active, versatile, firm, independent, and persistent (Thomas International PPA report, 24 August 2004).

➤ High Influence Steadiness (IS)

The high Influence Steadiness profile differs from the ID profile in that the person is internally cautious and indirect, and may not be a self-starter, but once requirements are known the person will work hard to achieve successful end results. The person has a genuine interest in people and has the ability to gain the respect and confidence of a variety of individuals; is a good communicator, who is willing to delegate but sometimes has a tendency to be over friendly as well as to over-praise and to favour certain people. The high S suggests the person as being persistent, thorough and dependable in most situations. For the best results, this person needs time to consider any new situation and will need thorough explanation before starting a project. Can be firm when pushed, and may show signs of stubbornness and independence. The person with a high IS profile will continually seek security in trying to maintain the status quo in a non-antagonistic, structured working environment which allows contact with others on a regular basis.

Descriptive words for this profile include words such as friendly, persuasive, relaxed, independent, strong willed, accommodating, communicative, sympathetic, sincere, thorough, peaceful, and calm (Thomas International PPA report, 24 August 2004).

4.3.3.3.1.3 High Steadiness group

Two partners' profiles related to the Steadiness factor, one display only a Steadiness factor, whilst the other has a high Dominance combination. Although these individuals can be described as thorough and kind, they differ substantially on the rest of their profiles.

➤ **High Steadiness profile (S)**

Individuals with this profile tend to avoid pressure and prefer a relaxed, fairly structured work environment.

Descriptive words for this profile include words such as patient, lenient, sincere, just, hardworking, firm, amiable, fair and dependable (Thomas International PPA report, 24 August 2004).

➤ **High Steadiness Dominance profile (SD)**

Individuals with this profile like to be self-organised with a preference for both structure and security.

Descriptive words for this profile include words such as tenacious, independent, opinionated, direct, assertive, amiable, patient and sincere (Thomas International PPA report, 24 August 2004).

4.3.3.3.1.4 High Compliance group

The majority, namely five, of the partners' profiles related to the high Compliance factor. Furthermore the highest concentration of one factor combination is clustered in the high Compliance Steadiness (CS) factors – the distribution is illustrated in Figure 4.13. Individuals with high Compliance characteristics can be described as concerned about accuracy, wanting to do things right, tending to be quiet, indirect and formal, appearing cautious and neat, and liking systems and procedures that produce predictable and consistent outcomes.

The first profile displayed only one high factor, namely Compliance, whilst the next group consisting of three profiles adds Steadiness characteristics, for example persistence, amiability, dependability, being kind, friendly and good listeners. The last two profiles in the Compliance factor group added a high Dominance and a high Influence factor respectively to their profiles. Adding a high Dominance factor to a high Compliance and high Steadiness factor may add a focus on task rather than people. On the other hand if a high Influence factor is present, the profile will shift to a more "people" focus. Each profile will be discussed in the paragraphs below:

➤ **High Compliance profile (C)**

This person is striving to maintain high standards, is accurate, precise and detailed by nature, and is driven to avoid hassle. See Appendix D9_C for a generic feedback report for the C profile as described by resources from Thomas International (Thomas International PPA report, 24 August 2004).

Descriptive words for this profile include words such as precise, quiet, careful, accurate, specialist, non-aggressive, adaptable and objective (Thomas International PPA report, 24 August 2004).

➤ **High Compliance Steadiness profiles (CS)**

A cluster of three profiles related to the Compliance factor are from the high Compliance Steadiness factors combination. These individuals can be described as concerned with accuracy, precise, analytical and hard working. But they are also team players who are concerned about relationships. See Appendix D9_CS for a generic feedback report for the CS profile as described by resources from Thomas International.

Descriptive words for this profile include words such as precise, accurate, adaptable, detailed, sceptical, inquisitive, non-antagonistic, logical, analytical and reflective (Thomas International PPA report, 24 August 2004). One of the profiles also included words such as cautious, perfectionist and serious.

➤ **High Compliance, Steadiness and Dominance profiles (CSD)**

The last profile in the Compliance factor showed a high Compliance, Steadiness and Dominance factor combination. This profile exhibits characteristics such as those described for the high CS profile in combination with an underlying need for both security and self-organisation, directing effort to acquiring of a specialised skill. This person is a "reason whyer" who not only wants to know "why" but also "how", being reflective and somewhat doubtful by nature, and dislikes conflict. For this person authority should be vested in expertise and is motivated by standard operating procedures, reassurance, security of situation and personal attention.

Descriptive words for this profile include words such as precise, quiet, dependable, painstaking, sincere, loyal, reflective, non-aggressive, adaptable and sceptical (Thomas International PPA report, 24 August 2004).

It is evident from the above reports that the profile patterns of the group of Partners illuminate the fact that the majority of the group prefer a structured work environment, with definite guidelines for conducting practice. The following paragraphs will expand the focus on the characteristics of the Partners as e-learning practitioners by enriching the data with rich descriptions of the patterns and structure of the Partners' profiles.

Subsidiary question 8:

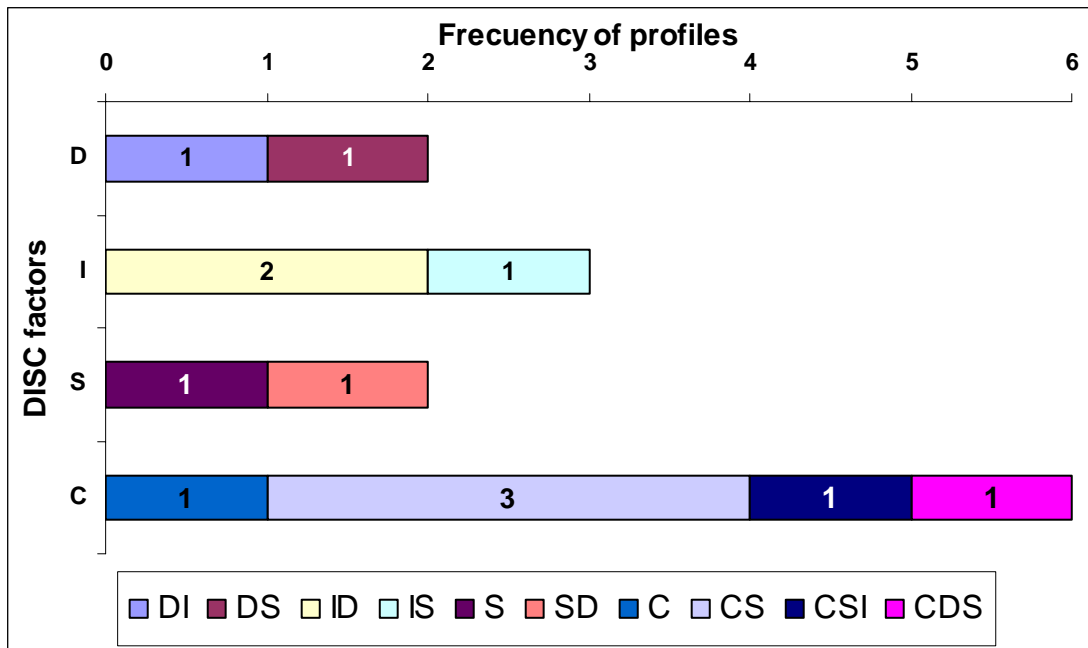
What are the personal profiles of the Partners in the P@W Programme?

Based on the above description, the personal profiles of the Partners were identified as dominantly from the Compliance factor, both in frequency and style variation.

Further analysis of the DISC factor distribution revealed the pattern and structure of the personal profiles of the Partners in the P@W Programme.

The DISC factor distribution for the Partner group has two distinct features namely a high Compliance factor and an equal distribution for the Dominance and Steadiness factors (see Figure 4.13). Each DISC factor displayed a variety of style combinations with clusters in the high Influence Dominance (ID) and the high Compliance Steadiness (CS) factors (see Figure 4.13).

Figure 4.13: Personal profile pattern distribution of the Partner group

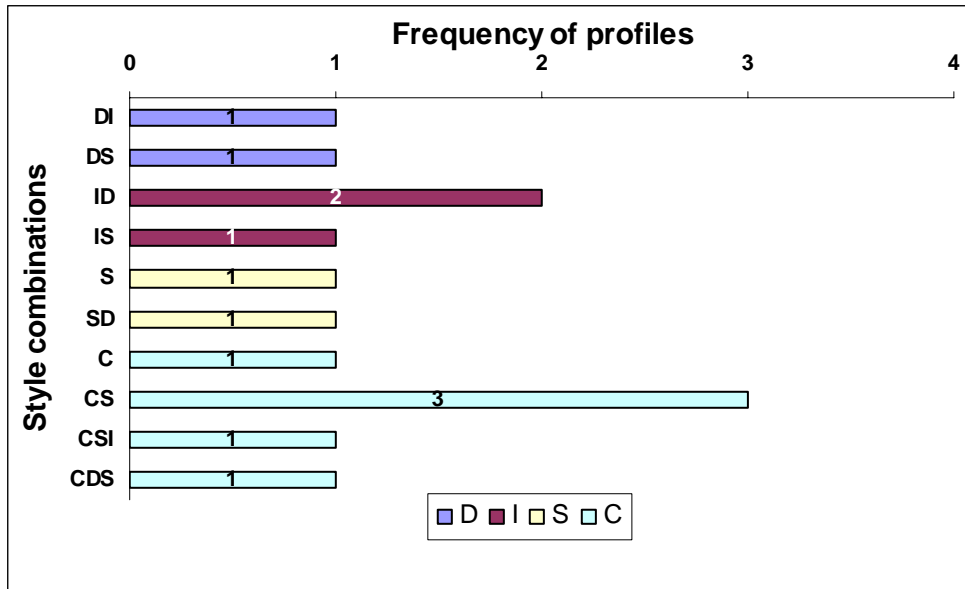


The structure of the DISC factors displayed a CIDS order of strength, showing the Compliance factor as the most prominent followed by the Influence factor. The highest cluster of three style patterns is present in the Compliance factor (see Figure 4.14) and addresses the ninth research goal.

Research goal 9:

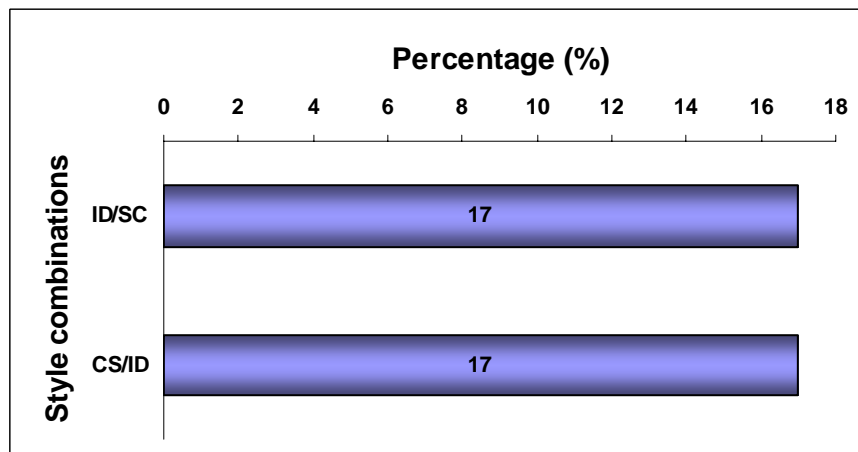
To identify the profile patterns of the Partners in the P@W Programme.

Figure 4.14: Personal profile structure distribution of the Partner group



Further refinement revealed a distribution of style combination patterns in the ID/SC and CS/ID combinations with a frequency of 17 percent each (see Figure 4.15).

Figure 4.15: Profile of highest style combination patterns of the Partner group



Two “HIGH” factors in the style combination patterns were identified, namely a high CS (25%) and a high ID (17%) combination (see Figure 4.16). The profile for the “LOW” factors displayed an even distribution of three patterns, namely, IC, ID and SC with a frequency of 17 percent each (see Figure 4.17).

Figure 4.16: Profile of "HIGH" factors in the combination patterns of the Partner group

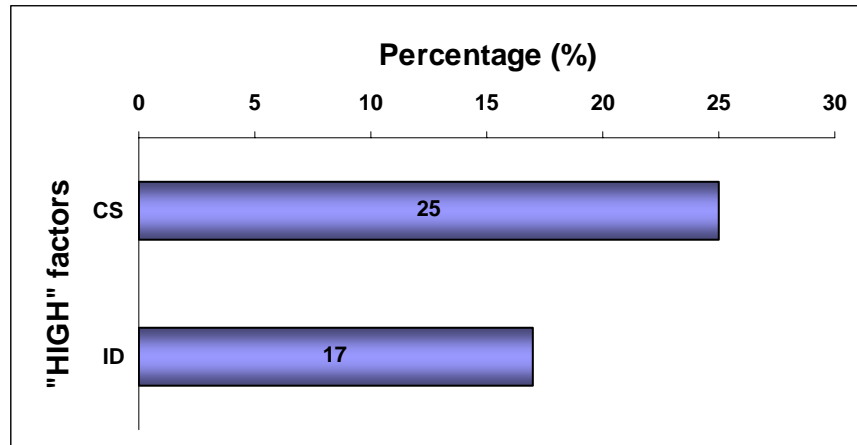
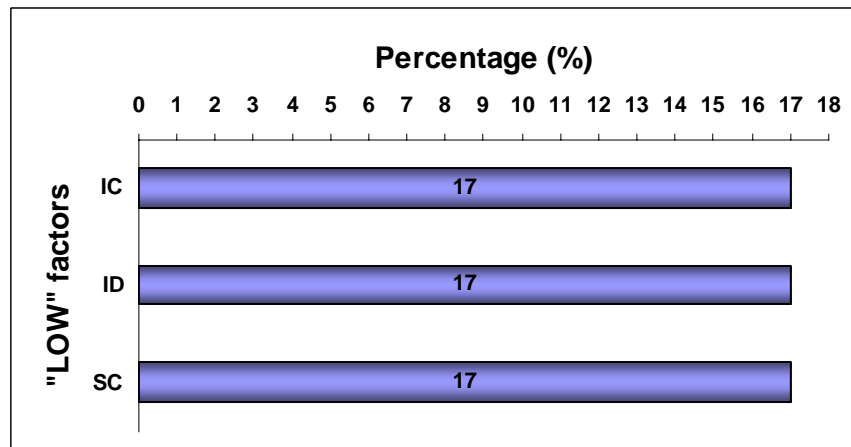


Figure 4.17: Profile of "LOW" factors in the combination patterns of the Partner group



Two important focus areas, namely the high CS and high ID style combinations, became evident from the analysis of the structure and style patterns of the Partners' personal profiles. It is interesting to note that the e-learning practitioner group from TUT also displayed a high frequency of the CS style combination with the Compliance factor as the strongest factor. The high ID combination corresponds more with the findings in the star performer group. A more in-depth comparison of the patterns and structures of the different groups will be presented in the final section of this focus area. Because of their prominence in the Partners group, the following elaboration on the personal profile report results will direct focus on the high CS and high ID style combinations.

Subsidiary question 9:

What are the profile patterns of the Partners in the P@W Programme?

Based on the above description, the profile patterns of the e-learning practitioners at TUT were identified as predominantly from the Compliance factor, both in frequency and style variation.

The most prominent pattern types were two opposites, namely the CS/ID and ID/SC. Low factor combinations came from the Influence factor, namely the IC and ID patterns and an opposite pattern type of an SC combination.

4.3.3.4 Enrichment of personal profiles of the Partners from the P@W Programme

Enrichment elements were captured by an analysis of a focus group questionnaire as well as an essay completed by the Partners during a focus group session at the department of Telematic Education on 17 May 2005. This session was conducted by an independent consultant and the Partners were requested to complete an **essay** and a **questionnaire** on how they perceive their e-learning practice. They also had to respond to the same question that was posed to the e-learning practitioners on the characteristics of the e-learning practitioner. Their written responses were collected on 17 May 2005. The data was analysed using the same method of theme identification and colour coding as described for the TUT group. These results will be discussed in a following section and address the tenth research goal.

Research goal 10:

To enrich the PPA of the Partners in the P@W Programme.

4.3.3.4.1 Analysis of essays written by the Partners from the P@W Programme

Analysis of essays on the topic “Descriptive notes reflecting on technologies” was done by using the prescribed structure of the essay to identify the main themes and a colour coding scheme to identify motivators and demotivators as reported by the Partners on 17 May 2005. The following paragraphs will highlight some of these responses as voiced by the prominent style combinations in each of the different DISC factor groups.

4.3.3.4.1.1 High Dominance group

Partners in this group stated that at first they felt overwhelmed by the technology but as they moved along and became more familiar with the new environment, “new ideas and innovativeness were created” (high DI) and, once WebCT was mastered, “it became very enjoyable to be part of the group all involved in instructional design” (high DS).

Using words like useful and cost saving with regard to application of technologies (high DI) underlined the fact that this person is motivated by tangible goals. Accepting challenges and driving for achievement were motivators for them. Strategies mentioned to master the technologies were “my own blood, sweat and tears. Struggling the way all computer illiterates

struggle when first learning a program. My instructional designer helped. Partners helped and I even employed a personal friend to help me understand the programs” (Essay, 17 May 2005).

The high DS’s reaction on Yahoo messenger underlined the importance of group inclusion and pace for this person. “I apologise to my Partners for not being an active participant in the conversations of the Yahoo Messenger. This was not due to any negative feeling towards them of Yahoo, but rather due to the fact that I needed the time to develop my e-learning programme.” This person did not master some of the listed technologies “due to lack of time involved in learning how to use the many technologies” (Essay, 17 May 2005).

A demotivator, reflecting in this person’s need to get results and also to be part of the group, was the fact that no Blogger feedback was received, it “creates a feeling that the input has no outcome” (Essay, 17 May 2005)..

As is evident from “Now that I know what I know, I will need very little assistance from the instructional designers in creating the programs”, security of situation is also a motivator for the person with a high DS profile.

4.3.3.4.1.2 High Influence group

The Partners in the high Influence group voiced a number of motivators and demotivators in their essays. Persons displaying a high IS profile react to cues from a favourable environment. Thus under pressure they might take a long time to adjust to change, have trouble meeting deadlines and may not change pace easily and have difficulty planning and timing time expenditure. This was evident in the reflection on the use of new technologies from this person who stated repeatedly that “I missed out on it”, “Felt out of my depth. Felt lost”, “Lost, haven’t a clue”, “Ignored it”, “Just left it behind and did the job with other tools” (Essay, 17 May 2005).

With a high interest in people and a need to communicate, the use of the Blogger and Yahoo Messenger motivated this person. “Felt heard. It was good to let go of frustrations and emotions. Easy worthwhile tool”; “Easy good interactive tool” (Essay, 17 May 2005).

Behavioural styles showing a high ID style combination enjoy power and challenge authority. This is highlighted by the following remarks:

I did not feel we had enough training and was unsure ... once again I search for a manual to explain the different features and had many trials before mastering some of the features (Essay, 17 May 2005).

At home I experimented with it, recorded, re-recorded 7 times or more until I found a method that worked for me. This method really impressed my colleagues at work and is really very useful and fun to use. I think of all the programs, this would be number 2 on my list (Yahoo messenger being first) (Essay, 17 May 2005).

These people are motivated by popularity through social recognition as illustrated by “impressed my colleagues at work” and social situations are also motivating to the high ID styles. For example:

Yahoo messenger was my absolute best and I found it very valuable! It was just great to learn about this feature I didn't know about and be in contact with my friends@work. This must be the technology I mastered the quickest and best! I also found it valuable to exchange information quickly with the Partners (Essay, 17 May 2005).

An enthusiastic approach to challenging situations is evident from “I experimented with it at home and found it very useful” (Essay, 17 May 2005). Being ‘people's persons’ thriving on gaining respect and trust from other people was refrained in: “It was a challenge to write the script for the video and I had to ask several people's opinion as I was very unsure of myself but received valuable feedback which helped me to improve the script. I felt proud to have my script accepted and would like to use it in future” (Essay, 17 May 2005).

It is interesting to note that although the persons in this group share the high Influence factor in their behaviour styles, their approaches were diversely influenced by their style combinations. For example: *ignoring vs. experimenting/searching for a manual* in difficult and challenging situations.

4.3.3.4.1.3 High Steadiness group

Motivators for persons in the high Steadiness group are structure and security of situation. They enjoy the status quo, will need time to adjust to change and enjoy recognition for long service and a job well done. Approaching situations in a practical manner and the need to know reasons and likely consequences of any changes or action taken before implementation were illustrated by the frequent use of the phrase “voel dis nie nodig in my vakgebied nie” [feel it is not necessary in my subject field] (Essay, 17 May 2005).

If the high Steadiness factor is combined with a high Dominance factor, the resultant profile displays traits such as determination and domineering behaviour. Being both stubborn and patient this person uses these traits in order to dominate the situation. This person tried to

“implement as many of WebCT’s elements as possible in my course” (Essay, 17 May 2005). Compare this approach to the “voel dis nie nodig in my vakgebied nie” approach of the pure Steadiness style.

Persons in the high SD group are hard and conscientious workers who like to get on with the job, motivated by challenging tasks. It is evident from the descriptions in the essay that the person with a high SD behaviour style worked very hard to utilise all the prescribed technologies in the available time period, but despite the time constraints mentioned concluded more than once with the phrase “it was easy to master” (Essay, 17 May 2005).

4.3.3.4.1.4 High Compliance group

Motivators for the group with a high Compliance factor are knowledge about how a task should be done and what is expected (standard operating procedures), preferably in a structured environment with well defined job parameters for example:

I made careful notes on the operating instructions, then when I got home I tried to do it again using the instructions, which I then modified to be more precise. There are a couple of technologies like Camtasia, Perception and Blogger it just did not want to work as described by the instructions. They frustrated me (Essay, 17 May 2005).

I felt intimidated because the other partners seemed to know a hell of lot more than I (Essay, 17 May 2005).

They are motivated by reassurance, “motivated and inspired by instructional designer” “ek voel gemaklik met die nuwe vaardigheid, maar weet ook dat ek op die “back-up” van my IO kan steun sou ek probleme ervaar” [I feel comfortable with the acquired skill, but know that I can count on the ‘back-up’ of my ID] (Essay, 17 May 2005).

These people are also motivated by personal attention and by being part of a team of professionals or experts. Reflections on how they used new technologies were:

Excellent explanation of how to use by instructional designer (Essay, 17 May 2005).

Some was easier than others. I have spent more time on practicing those that I found harder and also sought help from my instructional designer and the other partners (Essay, 17 May 2005).

I enjoy using this technology (Yahoo Messenger), even to this day. The sense of being with others when you are working long and late hours kind of make it easier (Essay, 17 May 2005).

They will seek opportunities to extend their knowledge in order to specialise: “Learned from stuff that other Partners did in their programme development and which could be used in my own.” Gain unique skills, power and the respect of others “once I have started mastering these skills/technologies it felt like a huge accomplishment and value-added” (Essay, 17 May 2005).

On reflecting on how mastering the listed technologies was experienced, the answers were short and powerful:

Empowering, boost in self-confidence, efficient (Essay, 17 May 2005).

Good feelings to know how a former unknown tool is functioning (Essay, 17 May 2005).

I understood why it was needed. – Very empowering and satisfying (Essay, 17 May 2005).

These people tend to be perfectionists: “Still not clear where it will fit in. Did not really try to implement. Previous attempt failed.” And precise and systematic: “I divided my tasks into chunks. Began with the easiest then proceeded to more challenging tasks” (Essay, 17 May 2005).

There is also a tendency to direct effort towards acquiring a specialised skill. They are demotivated by sudden changes and uncertain situations, for example response to the utilisation of video conferencing was: “Too terrified to think of one.” Or reaction on failure of technology: “I was very frustrated by not being able to get into Blogger” (Essay, 17 May 2005).

An analysis of the Partners reflection on their experiences on the use of new technologies and applications revealed an enriched picture of their e-learning practice. Combining theory and practice contributes to our understanding of the structure of the e-learning practitioner.

4.3.3.4.2 Analysis of questionnaires completed by the Partners from the P@W Programme

Analysis of the responses to the open-ended question “In your opinion, what are the outstanding **personal attributes (characteristics)** of an e-learning practitioner?” posed to the Partners on 17 May 2005 resulted in a list of descriptive phrases. These phrases were further analysed and colour coded according to their relevance to the different DISC factors.

The most important characteristics of the e-learning practitioner as perceived by the Partners were creativity and innovativeness, “people’s person”, compassion, and perseverance. Phrased by persons in the high Compliance group:

Flexibility and adaptability to conditions that change quickly. Calmness in stressful/unforeseen circumstances. Creativity – finding new and novel ways of presenting material. Inquisitiveness – keeping up to date with changing and new educational technologies (C, Char2, 17 May 2005).

The practitioner should be organised, punctual, disciplined and able to manage time. Effective communication, regular feedback to students and a love for teaching are important characteristics of the ‘online teacher’. These are illustrated in the words of some of the Partners:

Being prompt in replying to messages that are from students that need your input. Creating an environment that is interesting enough for students to take part (I, Char2, 17 May 2005).

First and foremost be a teacher who has the desire to train students. He/she should obviously also know the technology that facilitates e-learning. A very important trait is also that the practitioner should have patience not only with regards to the students but with regards to the e-learning system that could be frustrating at times (D, Char2, 17 May 2005).

Dedication and hard work, working smarter, embracing new technologies and accepting the challenges are some of the indispensable characteristics mentioned for example:

Compassionate, Dedication, Perseverance (C, Char2, 17 May 2005).

Open to new ideas. Not resisting change. Innovative, Flexible, Adaptive, Critical – within limits (D, Char2, 17 May 2005).

Putting these words into DISC language reveals high clusters in the Dominance and Influence factors and other small clusters in the Compliance and Steadiness factors (see Table 4.29 for details). These characteristics describe a person who is creative and results-orientated, but also inspirational and concerned about communication and people. This person is a competitive, imaginative, organised self-starter with an open-mind and a desire to influence and persuade people.

Table 4.29: Analysis of descriptive words

Analysis of words describing the characteristics of the e-learning practitioner by Partners														
Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor
Organised	3	High C	Creative	6	High D	Peoples person	6	High I	Dedicated	3	High S	Perseverance	4	Low C
Knowledge	3	High C	Innovative / new ideas	4	High D	Compassionate	4	High I	Calm	3	High S			
Skills	3	High C	Keep up with change	3	High D	Communication	3	High I	Patience	2	High S			
Adaptability	2	High C	Goal oriented / motivated	2	High D	Enthusiasm	2	High I	Persistent	1	High S			
Technology	2	High C	Interested	2	High D	Teacher	1	High I						
Flexible	2	High C	Accepting challenge	1	High D									
Diplomatic	1	High C	Working smarter	1	High D									
Punctual /disciplined	1	High C	Fearless	1	High D									
Open-minded	1	High C	Ambitious	1	High D									
			Critical	1	High D									
			Multitasking	1	High D									
			Inquisitive	1	High D									

Subsidiary question 10:

How did the Partners in the P@W Programme perceive their e-learning practice?

Based on the above discussion, the e-learning practitioners perceived the most important characteristics of e-learning practitioners as being creativity and innovativeness, being a people's person, and compassion and perseverance. Their reflection on their e-learning practice illustrated some of their work behavioural styles.

4.3.4 *Synthesis of research findings on person characteristics*

An in-depth investigation pertaining to the characteristics of the e-learning practitioners at TUT and the Partners in the P@W Programme revealed detail about the characteristic personal profiles of these groups, as well as detail about the individual profiles in each group. For example, the profiles of the star performers as a subgroup of the e-learning practitioners of TUT differed substantially from the profiles of the TUT group and markedly from the profiles of the Partners. These findings have a profound consequence for training and career development of the e-learning practitioner at TUT and these implications for training and career development will be discussed in section 4.3 of this chapter. The following discussion will focus on comparisons between the e-learning practitioner group at TUT, the Partner group and the star performer group. The comparison will include:

- Work behavioural characteristics;
- Personal profiles in terms of DISC factor and style combinations;
- Personal profile type pattern distribution;
- Personal Profile structure distribution, and
- Profiles of "HIGH" style combination patterns.

The synthesis of these findings combine the answers to the subsidiary research questions stated in section 4.3 and conclude this discussion on the person attributes of the e-learning practitioner by answering the first research question:

What is the latent structure of the e-learning practitioner construct in terms of person attributes?

Data obtained from the descriptive word lists from the PPA reports on the TUT e-learning practitioner population were combined in a frequency Table (see Table 4.32 and Appendix D5). A cut-off point of 5 percent was used to condense the data somewhat. The Table shows the percentage usage of each word to describe the behavioural characteristics of the e-learning

practitioner groups, combining the TUT and star performer groups as a fourth group. Descriptive words are listed in descending order and a summary of the PPA reports describes the e-learning practitioner group at TUT as being precise, logical, accurate, thorough, systematic, dependable and amiable. Although there is a marked similarity between this group and the Partners, the latter also shows prominent features of independence, sincerity and scepticism. Descriptive words which are unique to the Partner group refer to them as being calm, decisive, fair, firm, investigative, non-antagonistic, objective, opinionated, self-confident, suspicious, sympathetic, verbally influential and versatile.

On the other hand, the descriptions of the star performers show uniqueness in being tense, participative, impatient, aloof, self-critical, self-assured, non-trusting, introspective, enforcing and demanding. Furthermore, they are mostly characterised as being active, direct, independent, mobile, precise, dependable, factual, logical, reflective, reserved, self-starters and systematic. See Table 4.32 for a comparison of the work behavioural characteristics of the e-learning practitioners at TUT.

Descriptive characteristics for the e-learning practitioner population at TUT were mainly identified as precise, logical, accurate, thorough, careful, systematic, amiable, dependable, independent, assertive, detailed and persistent.

4.3.4.1 The Personal Profile DISC factor and style combinations

Comparing the DISC factor and style combinations in each of the groups studied at TUT the following typical behaviour patterns emerged:

- In the Dominance factor nine style combinations, namely D (2), DC, DI (2), DIC, DIS and DS (2), were reported.
- The Influence factor had a frequency of twelve style combinations distributed as IC (2), ICD (3), ID (4), IS (2), ISC.
- The Steadiness factor had the same frequency (12) of style combinations as the Influence factor with a cluster of six in the SC category. The other style combinations reported were S, SCD (3), and SD (2).
- The most prominent factor was the Compliance factor. A frequency of 23 style combinations, with a cluster around the CS (6) and CD (4) combinations, was reported. The rest of the styles distributed were C (3), CDI, CI, CIS (2), CSD (3), and CSI (3).

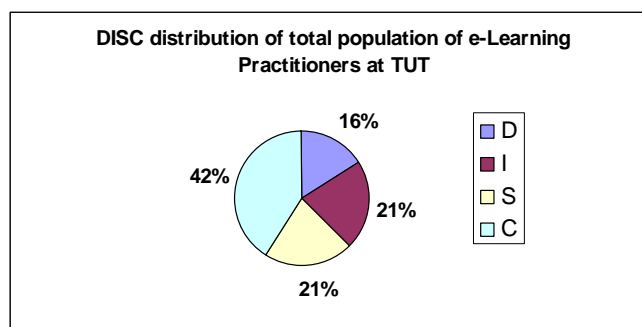
A comparative summary of the personal profile DISC factor and style combinations appears in Table 4.30.

Table 4.30: Comparison of the DISC styles in the different groups

Styles	Frequency of factors											
	D	Dp	D Star	I	Ip	I Star	S	Sp	S Star	C	Cp	C Star
D			2									
DC			1									
DI	1	1										
DIC	1											
DIS	1											
DS		1	1									
IC				1		1						
ICD				3								
ID					2	2						
IS				1	1							
ISC				1								
S								1				
SC							4		2			
SCD							2		1			
SD							1	1				
C										2	1	
CD										3		1
CDI										1		
CI										1		
CIS										2		
CS										3	3	
CSD										2	1	
CSI										1		2
Total for each factor	3	2	4	6	3	3	7	2	3	15	5	3
Total for DISC factors	9 (16%)			12 (21%)			12 (21%)			23 (42%)		

The DISC factor distribution for the total population of e-learning practitioners was divided equally between the Influence and Steadiness factors with a frequency of (12) 21 percent each, the lowest frequency in the Dominance (9), 16 percent, and the highest, namely (23) 42 percent, in the Compliance factor (see Figure 4.18).

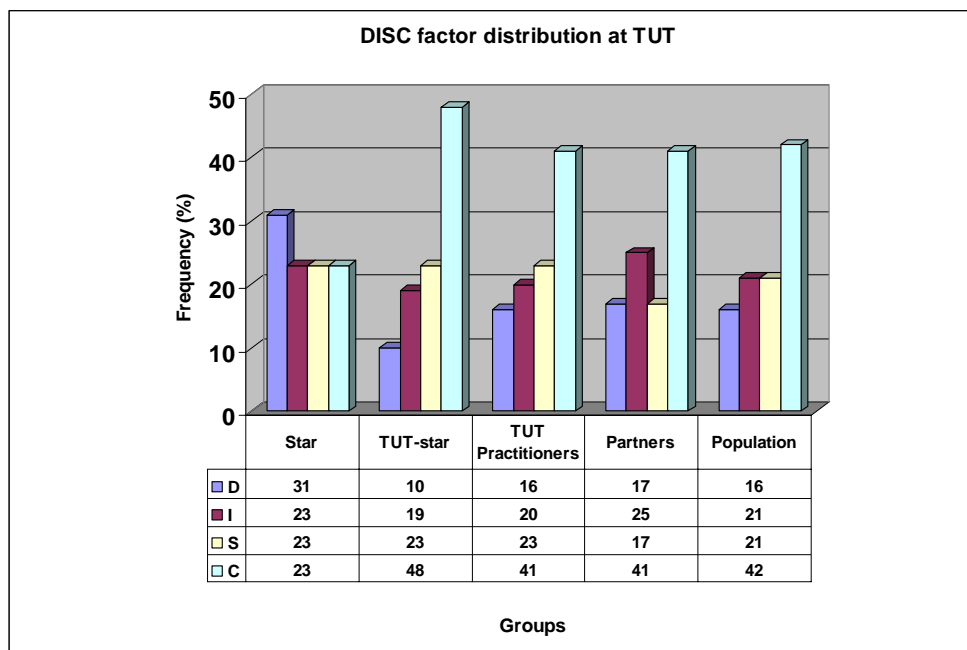
Figure 4.18: DISC distribution of the total population of e-learning practitioners at TUT



It is evident from the graph in Figure 4.19 that the behavioural styles of the star performer group were the most prominent in the Dominance factor but evenly distributed in the other factors. The profiles for the TUT and Partners groups are very similar with slight opposite variances in the Influence and Steadiness factors. The star performer group differed substantially from the other groups in the Compliance factor and displayed a frequency of 23 percent against the 41 percent and 48 percent of the other groups (see Figure 4.19).

A comparison between the three e-learning practitioner groups against the total e-learning practitioner population revealed similar distribution patterns between the TUT group and the total population, which means that this group is representative of the total population. However the star performer group presented a different pattern that differed from the total population and the other groups. The Partner group correlated with the TUT and total population groups and displayed a slight rise in the Influence factor and a slight drop in the Steadiness factor (see Figure 4.19).

Figure 4.19: Comparison of the DISC factor distribution in the different groups



Each DISC factor displayed a variety of style combinations with clusters in the high Steadiness Compliance (SC), the high Compliance Steadiness (CS) and the high Influence Dominance (ID) factors (see Figure 4.20).

Figure 4.20: Personal profile pattern distribution of TUT

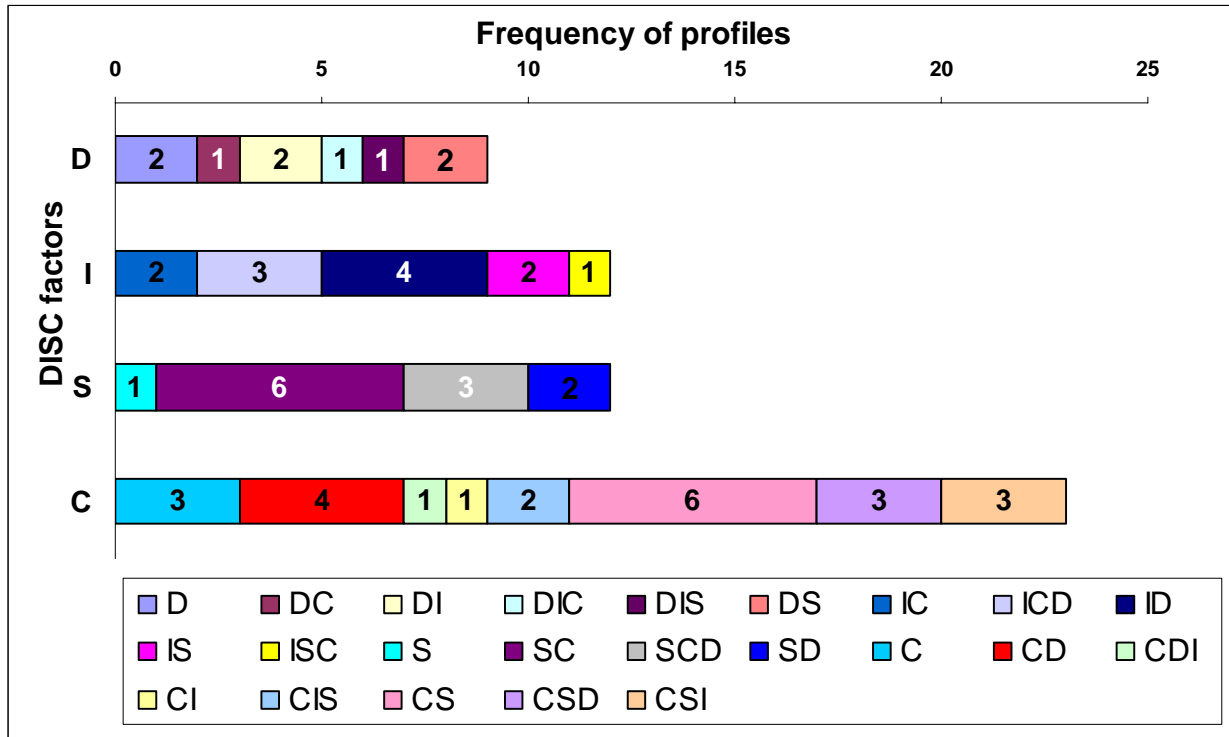
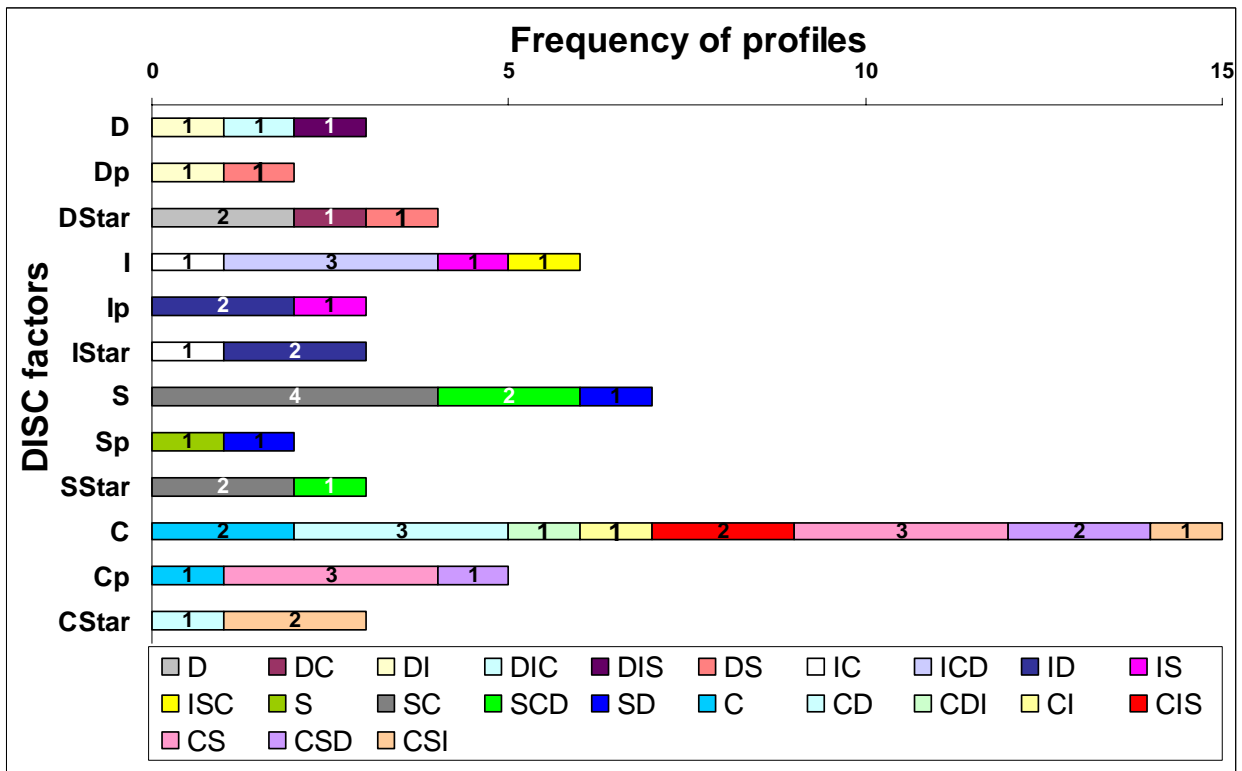


Figure 4.21: Comparison of the profile pattern distribution in the different groups



p = Partner group; Star = star performer

Comparing the style patterns to the different e-learning practitioner groups (see Table 4.21), it is clear that:

- Only two style combinations from the Dominance factor correspond;
- Only one high DI combination in both the TUT and Partner groups match;
- There is one style match between the TUT and the Partner group and no match between the star performer group and the other groups in the Dominance factor;
- The high D and the high DC styles were only present in the star performer group;
- The high Influence factor presented a match (high IS) between the TUT and Partner groups but no match between the high Influence styles of the TUT and the star performer groups;
- The high ID style combination was present in both the Partner and the star performer groups but not in the TUT group;
- Another style combination that was only present in the star performer group was the ID/CS style combination, and
- Corresponding patterns in the Influence factor were the high ID combination present in the Partner and star performer groups and the high IC combination in the TUT and star performer groups.

Persons with behavioural styles with the high Dominance and high Influence factors generally prefer an unstructured work environment with freedom to act independently. It is evident from this finding that the star performer group has a prominent presence in these factors, whilst the weight of the TUT group is more towards the Compliance and Steadiness factors. This implies that there will be a general tendency for these persons to prefer a more structured work environment.

The high SC frequency as well as the SCD style combination in the Steadiness factor is a prominent feature in the TUT group and is also present in the star performer group.

Although the Compliance factor is the most prominent, displaying the highest variety and frequency of styles, the most important feature, namely a high CS, is not present in the star performer group. Keeping in mind that the current e-learning practice at TUT is more favourable towards the high Dominance Influence group, it make sense that the majority of e-learning practitioners will need adaptations in their work environments to change their environment to a more favourable context for their specific behavioural styles. **These issues will be addressed in the next section of this chapter.**

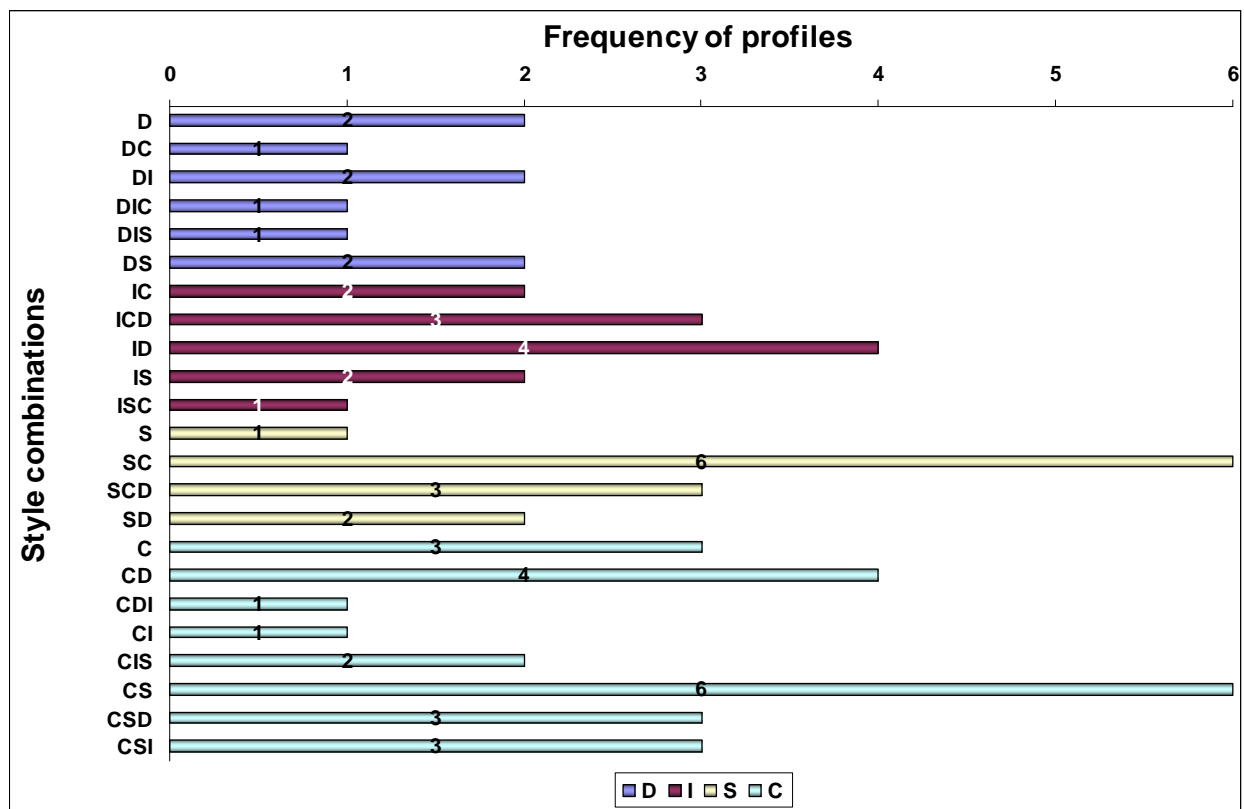
It is interesting to note that both the Compliance style combinations present in the star performer group correspond with the Compliance style combinations in the TUT group, but not with any in the Partners group. However, the TUT group represent all the Compliance style combinations present in the Partner group (see Figure 4.21).

Distinct style combinations only present in the Partner group were C/SID, DS/IC, ID/SC (2) and S/CID. This finding highlights the fact that although the Partners group is weighted heavily in the Compliance factor with a cluster in the CS style combination, the rest of this group has a diverse style distribution. The concentration of the CS style combination is evident in the TUT and the Partner group but absent from the star performer group.

An interesting occurrence is the correlation between the TUT and the star performer group in terms of the Steadiness factor. All the style combinations (SC/ID, SCD/I) displayed by the star performer group for the Steadiness factor were also present in the TUT group and were absent from the Partner group. The implication of this finding is that there is a possibility that opposite profiles will emerge from e-learning practice as star performers.

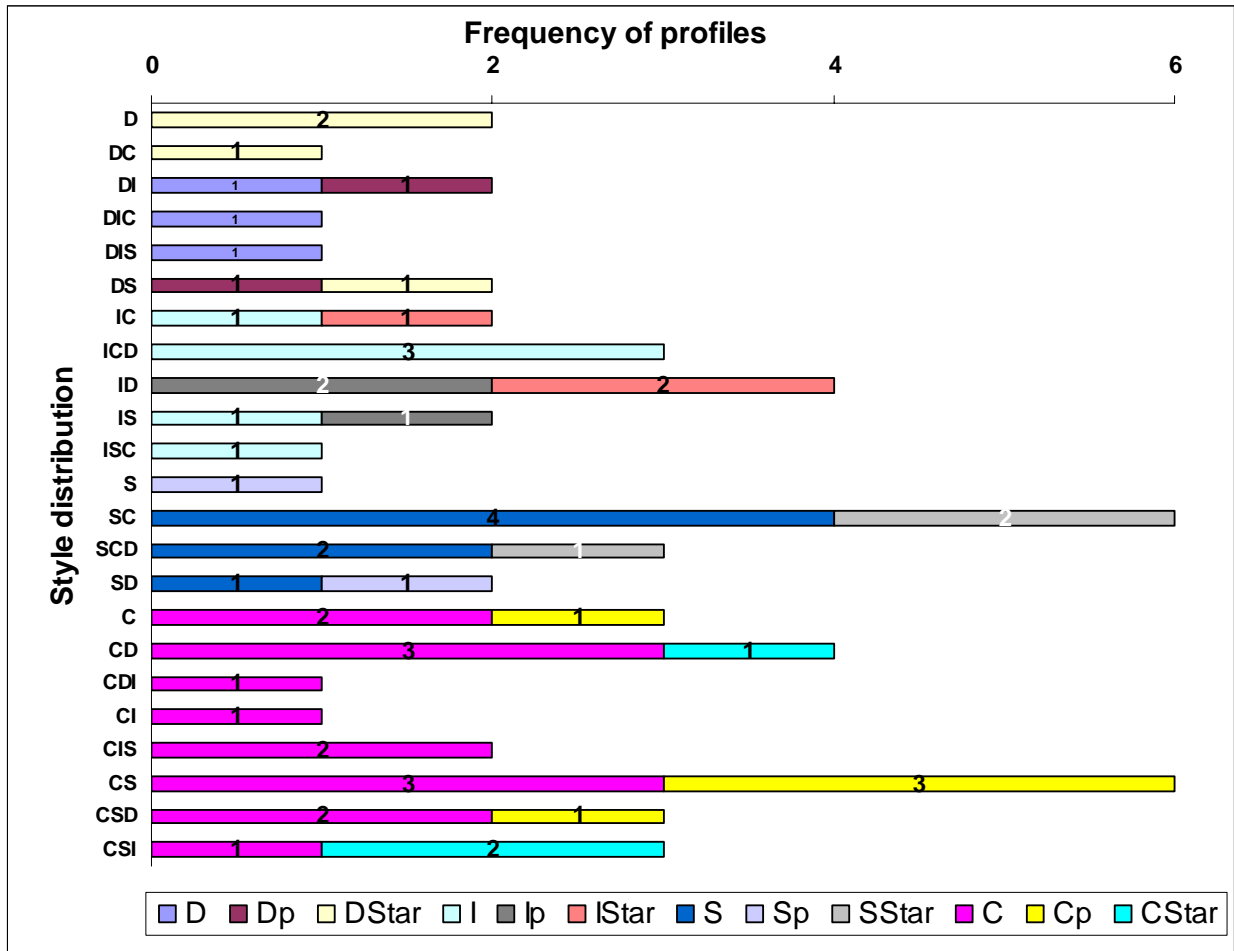
The structure of the DISC factors displayed a CSID order of strength, showing the Compliance factor as the most prominent and the Dominance factor the least represented. The Compliance factor displayed the highest frequency of style combinations, namely eight with clusters in the CS, CD, C and CSI combinations. The Steadiness and Influence factors had the same style frequency displaying clusters in the high SC and high ID style combinations. The relevance of these patterns to each DISC factor is illustrated in Figure 4.22.

Figure 4.22: Personal profile structure distribution of total population at TUT



In comparing the personal profile structure distribution for the different e-learning practitioner groups at TUT, it became evident that the strongest factors were strengthened by the star performers in the Dominance Influence and the Steadiness factors respectively, and the Partner group in the Compliance and Influence factors (see Figure 4.23).

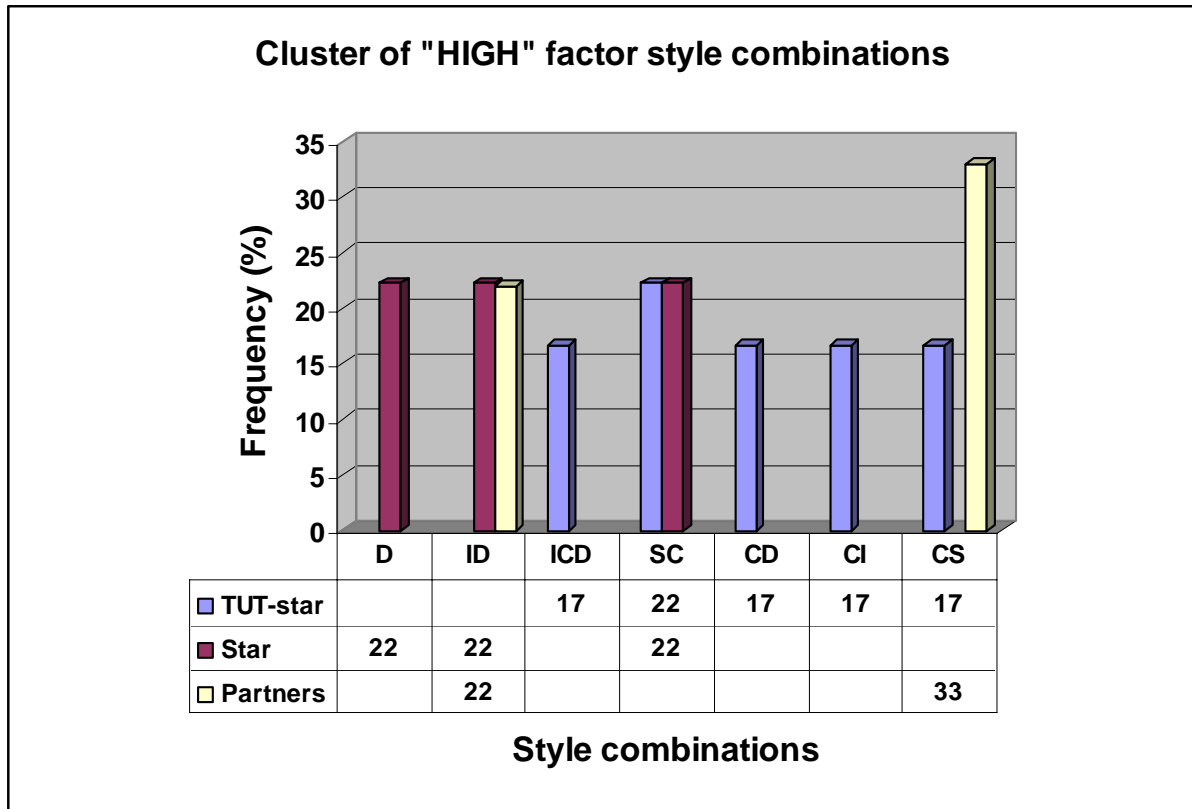
Figure 4.23: Comparison of the profile structure distribution in the different groups



p = Partner group; Star = star performer group

Comparing the different e-learning practitioner groups to the personal profile patterns revealed very interesting distribution patterns. The following paragraphs will comment on the predominant clusters that were reported in the different groups. Using Figure 4.24 as reference it is clear that there are definite clusters of the high factor style combinations for the different groups. The Partner group displayed a high cluster in the CS style, whilst the star performer group displayed a high cluster in the D style. The TUT group did display one pertinent high cluster group in the SC style.

Figure 4.24: Comparison of clusters of style combinations in the different groups



The significance of these findings will be evident from the practical recommendations of this study presented in Chapter 5.

Persons with behavioural styles with the high Dominance factor generally prefer an unstructured work environment with freedom to act independently. It is evident from this finding that the star performer group is prominent in this factor, whilst the weight of the Partner group is more towards the Compliance and Steadiness factors. This implies that there will be a general tendency for these persons to prefer a more structured work environment.

The question may arise as to why the star performer group is different, and the answer may lie in the current organisational context at TUT. At TUT the job of the e-learning practitioner is not defined nor is there a formal job description to guide us in our search for clarification in this matter. However, for the past six years e-learning practitioners who were interested in multimode teaching and learning have participated in Telematic Education projects on a voluntarily basis. Support took various forms such as seed money to finance projects, personal support from the staff of Telematic Education, infrastructure for production of teaching and learning materials, and a variety of available technologies. The organisational environment was unstructured and the onus for choices about which roles to play, approaches to follow and applications to use was on the individual practitioner. Furthermore, a vast number of problems and challenges were presented by the lack of implementation infrastructure, large student

groups, time constraints, and fellow colleagues who were sometimes very sceptical and unsupportive. In such an environment the individual who is active and energetic, competitive, concerned about results, has the drive to reach set goals, and a passion for solving problems and addressing challenges is more likely to succeed and to survive. These individuals can be described as independent self-starters, who want to “get on with the job”.

In contrast to this group, the group profiling in the high Steadiness and high Compliance factors shows a preference for well-structured environments where logic and accuracy are most important. They have a need for a slower pace and variety; routine and repetitive work may frustrate them. They are persistent, hard-working individuals who investigate facts and may follow a perfectionist approach where systems, procedures, policies and rules are concerned. Three of the star performers in this group, apart from being star performers, also specialised in one aspect of e-learning practice and continued over a period for more than three years to pursue excellence in their chosen field. The remaining group found structure in the personalised support that they received from the instructional designers of the department of Telematic Education. The high Steadiness factor group in particular are concerned about relationships, are good listeners, and “finisher completers” who maintain good relationships with their instructional designers and receive recognition for long years of service. These practitioners feel reassured by appreciation, hard work, challenge, and recognition for long service.

4.3.4.2 Enrichment of the personal profiles of the e-learning practitioner

By combining and adding the feedback on the characteristics of the e-learning practitioner from the different participative groups, a list of enrichment elements were identified (see Table 4.31). The most important characteristics of the e-learning practitioner as perceived by the group of participants in order of frequency were creativity, patience, innovativeness/new ideas, people's person, organised, perseverance, knowledge, effective communication, dedication, skills, enthusiasm, persistence and compassion. Characteristics mentioned as important by the TUT group, and not by the Partner group, were time, supportive, “clarity of thought”, detail orientated, hard working, listening skills and independence. With the exception of the selection of time (3) all the other choices occurred only once and therefore can be viewed as not of such high importance to the overall profile of the practitioner. Time was mentioned in the context of time management and also the availability of enough time for the practitioner to complete work. As time is always an important factor for workers in any job, the choice of time management as a characteristics of e-learning practitioners is not unique, but is nevertheless of high importance for the profile of the practitioner.

Choices by the Partner group that were not made by the TUT group were a high frequency of “people’s person”, keep up with change, calmness, ambitious, critical (to a certain extent), multitasking and inquisitiveness. The first three, namely “people’s person”, keep up with change and calmness were frequently mentioned, and the rest were mentioned at a low frequency.

Translating these characteristics into DISC language it is fair to say that this profile points to a person who has a high Dominance/low Compliance factor (creativity, innovativeness, perseverance) combined with a high CI (organised, knowledge, skills, “peoples person” and effective communication). This means that low and high Compliance factor elements are incorporated and will therefore be a moderate high in this profile. Although patience (high Steadiness) is mentioned frequently the meaning of the word might be interpreted as, “A very important trait is also that the practitioner should have patience not only with regards to the students but with regards to the e-learning system that could be frustrating at times” (D, Char2, 17 May 2005), rather than patience in the sense of work pace.

To conclude this discussion on the comparison of the given feedback on the characteristics of an e-learning practitioner from the TUT groups, the following summary emerged:

The e-learning practitioner is a person who is a creative, energetic and driven, who experiments with new technologies, is open-minded, and open to new ideas, innovations and technologies, has compassion for people – students and colleagues alike. He or she loves to communicate and motivate people by influencing them. Can react to challenges and changes in the environment, is organised, goal-orientated and persevering. Has a thorough knowledge of his/her field of specialty and has the ability to function in a team, but also as leader/driver of the students (see Table 4.31).

However, these perceived characteristics differ widely from those chosen by the participants in the screening survey and even more distinctly from the actual characteristics of the e-learning practitioners as reported on the PPA forms. Table 4.32 compares these findings and it is interesting to note that the most frequently mentioned characteristics that are perceived as important, namely creativity and patience, are not present in the lists derived from the PPAs.

The survey analysis showed the most important characteristics as motivation and time management, planning and organisational skills, but lists motivation, creativity and adaptability as the most important personality attributes.

Independence and accuracy show the highest frequency in the Partner group, whilst the combination of independent activity, mobility and directness characterised the star performers.

The most important descriptive characteristics of the e-learning practitioners at TUT show them as logical, precise and accurate individuals.

Table 4.31: Analysis of words describing the characteristics of the e-learning practitioner

Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor	Descriptive word	Fre-quency	Factor
Organised	6	High C	Creative	13	High D	Peoples person	6	High I	Patience	9	High S	Perseverance	5	Low C
Knowledge	5	High C	Innovative / New ideas	8	High D	Communication	5	High I	Dedicated	5	High S	Independent	1	Low C
Skills	5	High C	Goal oriented / Motivated	3	High D	Enthusiasm	5	High I	Persistent	4	High S			
Time manager	3	High C	Accepting challenge	3	High D	Compassionate	4	High I	Calm	3	High S			
Punctual /disciplined	3	High C	Interested	3	High D	Teacher	3	High I	Hard working	2	High S			
Open-minded	3	High C	Keep up with change	3	High D	Supportive	2	High I	Listening skills	1	High S			
Adaptability	3	High C	Working smarter	3	High D									
Technology	3	High C	Fearless	2	High D									
Flexible	3	High C	Ambitious	1	High D									
Diplomatic	2	High C	Critical	1	High D									
Clarity of thought	1	High C	Multitasking	1	High D									
Detail	1	High C	Inquisitive	1	High D									

Table 4.32: Comparison of the characteristics of e-learning practitioners at TUT

Descriptive words of the characteristics of e-learning practitioners from different data sources											
Perceived characteristics (open ended question)		Characteristics – Taxonomy (checklist)		Characteristics – Partners (PPAs)		Characteristics –TUT (PPAs)		Characteristics - Star (PPAs)		Characteristics –Population (PPA's)	
Words	(N)	Words	(%)	Words	(%)	Words	(%)	Words	(%)	Words	(%)
creative	13	motivated	85	independent	50.0	precise	77.4	active	46.2	precise	60.7
patience	9	time management	75	accurate	41.7	accurate	54.8	direct	46.2	logical	44.6
innovative / new ideas	8	planning skills	75	logical	41.7	logical	54.8	independent	38.5	accurate	41.1
organised	6	organisational skills	75	precise	41.7	thorough	45.2	mobile	38.5	thorough	39.3
people's person	6	flexibility	75	sceptical	41.7	amiable	41.9	precise	38.5	careful	33.9
knowledge	5	problem solving	75	thorough	41.7	systematic	38.7	dependable	30.8	systematic	32.1
skills	5	mentoring	70	adaptable	33.3	dependable	35.5	factual	30.8	amiable	30.4
communication	5	participation	70	sincere	33.3	detailed	32.3	logical	30.8	dependable	30.4
enthusiasm	5	creative	70	amiable	25.0	assertive	29.0	reflective	30.8	independent	26.8
dedicated	5	patience	70	direct	25.0	inquisitive	29.0	reserved	30.8	assertive	25.0
perseverance	5	student support	70	firm	25.0	non- aggressive	29.0	self-starter	30.8	detailed	25.0
compassionate	4	constant feedback	70	patient	25.0	persistent	29.0	systematic	30.8	persistent	25.0
persistent	4	adaptable	65	probing	25.0	quiet	29.0	alert	23.1	active	23.2
time manager	3	prompt	55	reflective	25.0	sincere	29.0	anxious	23.1	sceptical	23.2
punctual /disciplined	3	active	55	active	16.7	careful	25.8	assertive	23.1	direct	21.4
open-minded	3	analytical	55	analytical	16.7	friendly	25.8	cautious	23.1	reflective	21.4
adaptability	3	collaborative	50	assertive	16.7	kind	22.6	eager	23.1	friendly	19.6
technology	3	adventurous	50	deliberate	16.7	perfectionist	22.6	energetic	23.1	inquisitive	19.6
flexible	3	listening	50	dependable	16.7	mobile	19.4	friendly	23.1	mobile	19.6
goal oriented / motivated	3	understanding	45	detailed	16.7	patient	19.4	gregarious	23.1	non-aggressive	19.6
accepting challenge	3	persistence	45	fair	16.7	probing	19.4	loyal	23.1	patient	19.6
interested	3	coping with frustration	45	inquisitive	16.7	sceptical	19.4	non- demanding	23.1	probing	19.6
keep up with change	3	understanding language needs	45	kind	16.7	serious	19.4	persistent	23.1	quiet	19.6
working smarter	3	flexibility	45	non- aggressive	16.7	active	16.1	positive	23.1	adaptable	17.9
teacher	3	good sense of humour	35	non- antagonistic	16.7	adaptable	16.1	stubborn	23.1	kind	17.9
calm	3	reflective	35	outgoing	16.7	cautious	16.1	thorough	23.1	perfectionist	17.9

4.3.5 **Summary**

In conclusion, the personal profiles of two groups, the TUT e-learning practitioners, including the star performer subgroup and the Partner group, within the e-learning practitioner population of TUT were investigated to illuminate the image of the e-learning practitioner at TUT. Distinct profiles for the different groups identified a number of important characteristics for each group and were discussed accordingly.

Emerging patterns from the analysis expose the “**what is**” and “**what is perceived**” as **different patterns**. It is evident from the preceding paragraphs that the majority of personal profile patterns of the e-learning practitioners at TUT were concentrated in the **Compliance factor around three clusters showing CD, CS and CSI style combinations**, a further **cluster of SC profiles** was found in the Steadiness factor. The **lowest frequency** of profiles was displayed in the **Dominance** factor. Comparing these patterns with the profiles of the star performers revealed a new, **unique pattern for the star performers, namely a cluster in the Dominance factor**. Perceptions from the e-learning practitioners revealed yet another pattern, namely a high Dominance factor with creativity and innovativeness as the most important characteristics of the e-learning practitioner. Creativity / innovativeness / originality / unconventionality are briefly mentioned in only three of the PPA reports, **not a general characteristic at all!** It is also interesting to note that all three of these PPA reports were from star performers. Innovativeness was only once mentioned in the PPA reports from the Partners.

It is fair to argue that the perceptions of the TUT and Partner groups pertaining to the characteristics of the e-learning practitioner are **more relevant to the star performers** than to the existing e-learning practitioner group at TUT. The existing personal profiles of the e-learning practitioners at TUT differ from these of the star performers and furthermore do not display the most important personal characteristic as perceived by the practitioners themselves.

Research question 1

What is the latent structure of the e-learning practitioner construct in terms of person attributes?

Based on the previous discussion, the basic structure of the e-learning practitioner construct in terms of person attributes as presented by the e-learning practitioners at TUT consists of a **CSID configuration**. Although personal attributes stay fairly constant over time, work behavioural styles may show changes and reactions to certain environmental influences. Therefore the structure of the e-learning practitioner construct in terms of person attributes is not a static structure. As discussed previously, it is a living subsystem of the e-learning practitioner system, displaying certain characteristics, patterns and relationships. This construct may emerge differently from its latent position depending on a number of influences, for example environmental structuredness.

In order not to pre-empt the discussion on P-J fit in section 4.5, I simply make the comment that these findings complement findings from the Human Job Analysis discussed in section 4.4 of this chapter. **This section commented on the question “What is...” but will continue with the argument “What should be...” in section 4.5.**

4.4 Research question 2

What is the latent structure of the e-learning practitioner construct in terms of the work environment context?

The following subsidiary questions were complimentary to research question 2:

1. What are the characteristics of the e-learning practitioner job?
2. What are the job structures for the e-learning practice?
3. What are the characteristics of the e-learning job at TUT?
4. What are the job structures for the e-learning practice at TUT?
5. What are the characteristics of the P@W Programme e-learning job?
6. What are the job structures for the P@W Programme e-learning job?
7. What are the job demands, distracters and releasers perceived by the Partners in the P@W Programme?

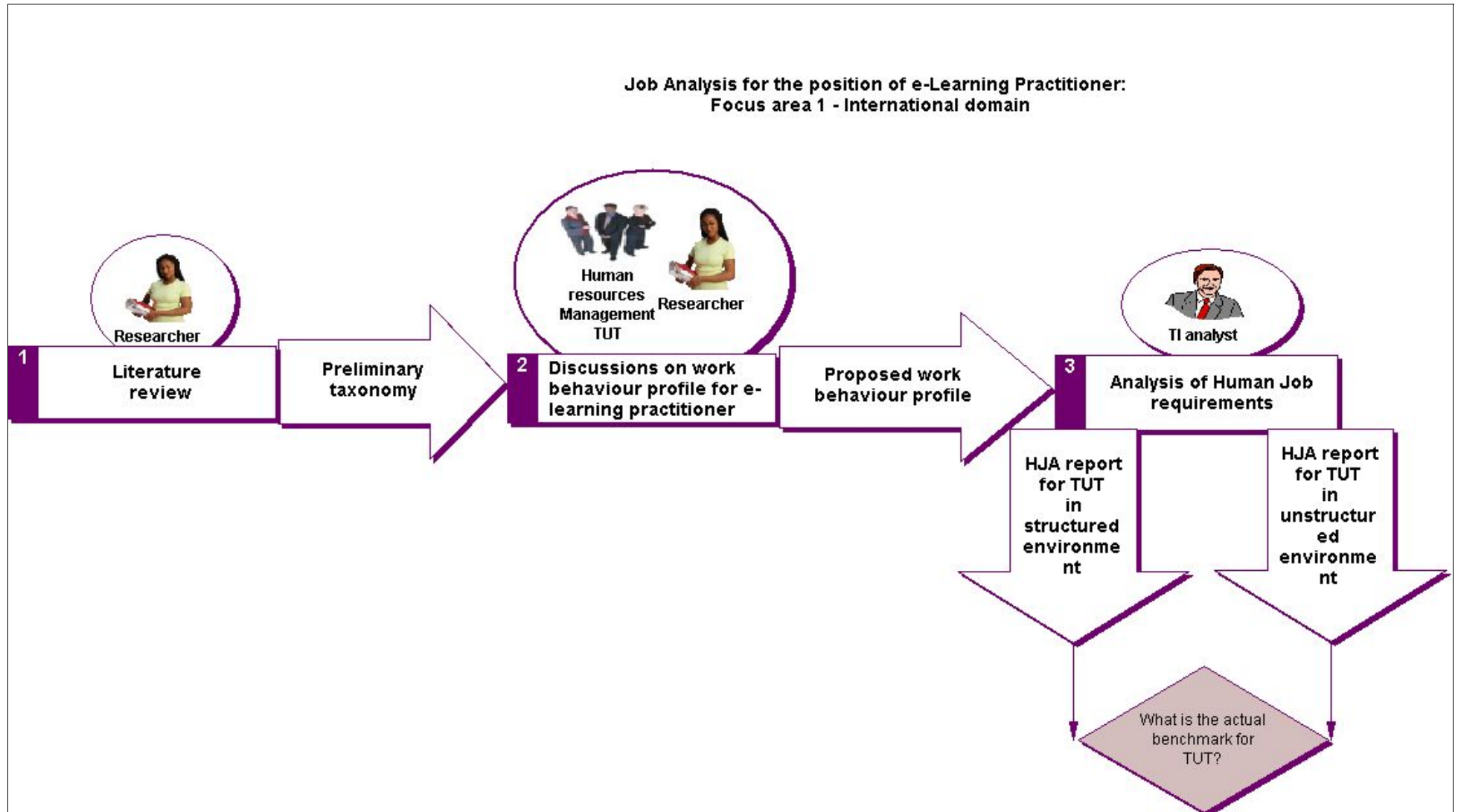
Discussion of three levels of job analysis for the position of e-learning practitioner at TUT that were investigated in this study will follow in the next section. The focus areas were:

- literature from the international domain on the characteristics of e-learning practitioners (addressing subsidiary questions 1-2);
- HJA for the e-learning practice at TUT (addressing subsidiary questions 3-4), and
- HJA for the e-learning practice embedded in the Partners@Work Programme at TUT (addressing subsidiary questions 5-7).

4.4.1 *Meta-analysis of e-learning practitioner characteristics*

The first focus area in this section presents findings for the job analysis for the position of e-learning practitioner in the international higher education e-learning domain. With the aim on the first and second research goals, research activities included an analysis of the e-learning practitioner job based on international requirements. Figure 4.25 illustrates the analysis process.

Figure 4.25: Job analysis process - international domain



As may happen in the fast changing environment of virtual organisations applying multimode teaching and learning approaches, job analysis for a job that does not yet exist may be necessary. It is apparent from the literature (see Chapter 2) that there are a vast number of characteristics and roles listed for e-learning practitioners. However, descriptions of how these character profiles fit into job positions or what the work environment of these practitioners should look like are very limited and not necessarily scientifically verified.

4.4.1.1 Discussions on the work behaviour profiles

Further investigation on this rather fuzzy topic of job analysis pointed in the direction of human resource development. And as the core of the e-learning practitioner job lies embedded in education with specific reference to the job of lecturer, I requested a job analysis document for the job of lecturer at TUT from the Department of Human Resources. This was followed up with an appointment with the Head of Planning and Employment at the Department of Human Resources, discussing possible routes to obtaining a job description for the e-learning practitioner. Building on the synthesis from literature as a point of departure, a possible work behaviour profile was compiled which was sent for analysis to Thomas International to address the first and second research goals for the second research question, namely:

Research goals 1-2

To identify job characteristics of e-learning practice.

To identify job structures for e-learning practice.

4.4.1.2 Analysis of the e-learning practitioner job at TUT

The analyst from Thomas International compiled two profiles for an e-learning practitioner, benchmarked against international requirements. These two job profiles aimed to fit a structured and an unstructured work environment respectively. The results were sent to an industrial psychologist from the Centre for Continuing Professional Development at TUT who is also registered as a Thomas International analyst, who communicated and explained the results to me (see Appendix E, Excerpt 4.2).

Discussion on profile details follows in the paragraphs below.

4.4.1.2.1 HJA reports for the position of e-learning practitioner

The first HJA report for the e-learning practitioner job based on data from a literature study addresses the job definition for the e-learning practitioner in a structured working environment. The following report was compiled by the analyst from Thomas International:

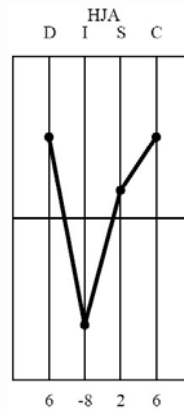
1. Human job requirement in a structured environment provided by Thomas International

The results of the HJA under consideration suggest that the competences required by the jobholder should include the ability to:

- Focus and push both self and others to achieve targets. Budgets and goals despite any opposition or antagonism encountered.
- Be resolute in focusing on results and, if these are threatened, be prepared to resolve problems or conflicts, dealing with people, despite their feelings or the situation.
- Assert authority in order to meet agreed timescales and deadlines.
- Take decisions in a timely and appropriate manner, whilst at the same time ensuring that others follow similar principles.
- Work within a technical or specialist area of expertise in order to continuously improve the quality of the service and/or product provided.
- Introduce monitoring systems that identify whether individuals or the organisation are achieving their objectives, as well as any variances in terms of goals and timescales. Ensure that corrective action plans are formulated and implemented.
- Develop competence and expertise.
- Remain self-controlled and be prepared to listen to the views and ideas of others.
- Draw conclusions by probing problems and issues and contemplate the consequences of any action that is likely to be taken, testing the reliability of the information available.

The HJA implies that the job requires a person who is forceful, assertive, results orientated and has the ability to work in a steady, thorough, well organised, logical and systematic manner. The job content is likely to include work which is challenging and requires investigation and research in order to resolve technical or specialist problems. There are indications that the incumbent of this position may be called upon to work in areas where knowledge and expertise are important factors. The incumbent should have the persistence to see a job through to conclusion and work within clearly defined parameters. The person occupying the job should be authoritative, inquisitive, self-reliant, methodical, deliberate and precise in approach. The ability to question, concentrate and work within set precedents may also be important aspects within this job.

The HJA graph shows high Compliance, Dominance, and Steadiness factors and a low Influence factor (see Figure 4.26 for a graphical presentation of the job structure).

Figure 4.26: HJA for structured environment

The second HJA report for the e-learning practitioner job based on data from a literature study addresses the job definition for the e-learning practitioner in an unstructured working environment.

2. Human job requirement in an unstructured environment provided by Thomas International

The results of the HJA under consideration suggest that the competences required by the jobholder should include the ability to:

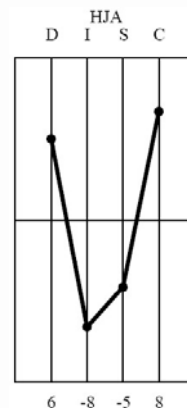
- Develop and comply with the systems, procedures, rules, objectives and timescales set by the organisation and adopt a disciplined approach when undertaking tasks.
- Work within a technical or specialist area of expertise in order to continuously improve the quality of the service and/or product provided.
- Remain rational when dealing with others, work within organisational requirements, be systematic and factual when dealing with colleagues, and handle conflict adopting a logical and unemotional approach until a solution becomes achievable.
- Provide the best possible solution to problem solving or decision making by conscientiously testing, examining facts, trying different alternatives and careful strategic planning.
- Assert authority in order to meet agreed timescales and deadlines. Overcome any problems which may hinder the achievement of same.
- Focus and push both self and others to achieve targets, budgets and goals despite any opposition or antagonism encountered.
- Be a self-starter who demonstrates energy in the work situation, seeking to get things done and at the same time addressing a wide variety of tasks.
- Adopt a serious and questioning manner in order to assess situations and reach

conclusions, thus basing the processes on facts and information gleaned from others.

The HJA indicates that the job holder needs to be a person who is both creative and results-orientated. Concern for the consequences of action and alertness to quality and standards may well be key aspects in this job. The position could involve a variety of activities in which emphasis is placed upon achieving results through a, logical and factual manner. Standard operating procedures, challenging assignments and the adherence to rules and procedure are integral to the function. Ideally the person who is best suited to the role will be systematic, precise, careful, shrewd, probing, objective, reserved, serious, self-starting, inquisitive, mobile, active, alert and with a desire to get things done quickly and accurately. Quality, organisation, self-control and an analytical approach are also likely to be important factors to the success of this job. The HJA graph shows high Compliance and Dominance factors and low Steadiness and Influence factors.

See Figure 4.27 for a graphical presentation of the job structure for e-learning practitioners in an unstructured environment).

Figure 4.27: HJA for unstructured environment



Subsidiary question 1:

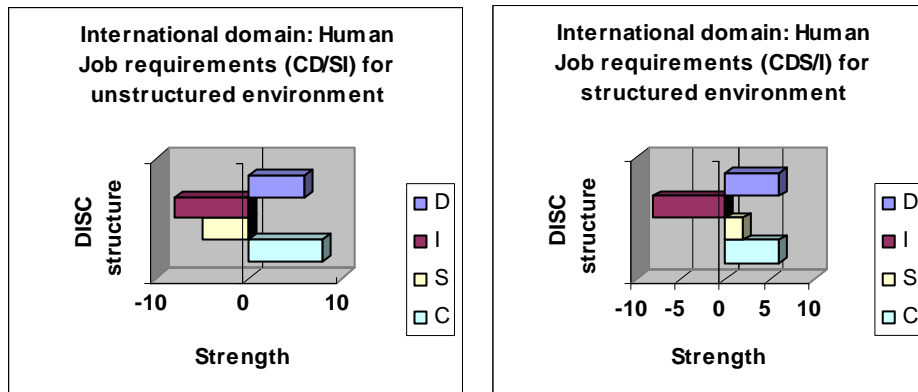
What are the characteristics of the e-learning practitioner job?

Based on the above description, job characteristics of the e-learning practitioner job may vary according to the structuredness of the environment. The main job characteristics are a variety of challenging activities in which emphasis is placed on achieving results in a logical, factual manner. Ideally the person who is best suited to the role will be systematic, precise, careful, shrewd, probing, objective, reserved, serious, self-starting, inquisitive, mobile, active, alert and with a desire to get things done quickly and accurately. Quality, organisation, self-control and an analytical approach are also likely to be important factors to the success of this job.

Subsidiary question 2:

What are the job structures for the e-learning practice?

Based on the job requirements for an unstructured environment the job structure displays a CD/SI configuration and for a structured environment the job structure displays a CDS/I configuration (see illustrations below):



These international benchmarks provoked questions about the **actual benchmarks** at TUT and for the P@W Programme and inspired investigation into the job characteristics of the e-learning practice at TUT to address the third and fourth research goals for the second research question, namely.

Research goals 3-4

To identify job characteristics of e-learning practice at TUT.

To identify job structures for e-learning practice at TUT.

4.4.2 *HJA for the e-learning practice at TUT*

The second focus area in this section presents findings for the job analysis for the position of the e-learning practitioner at TUT. Focusing on the third and fourth research goals, research activities included an analysis of the e-learning practitioner job based on requirements identified by the expert consensus group for TUT. As described in section 3.8.1.8 benchmarking the e-learning job at TUT was done by the expert consensus group, supported by the researcher and the consultants of Thomas International. Figure 4.28 illustrates the analysis process.

Figure 4.28: Job analysis process for the position of the e-learning practitioner at TUT

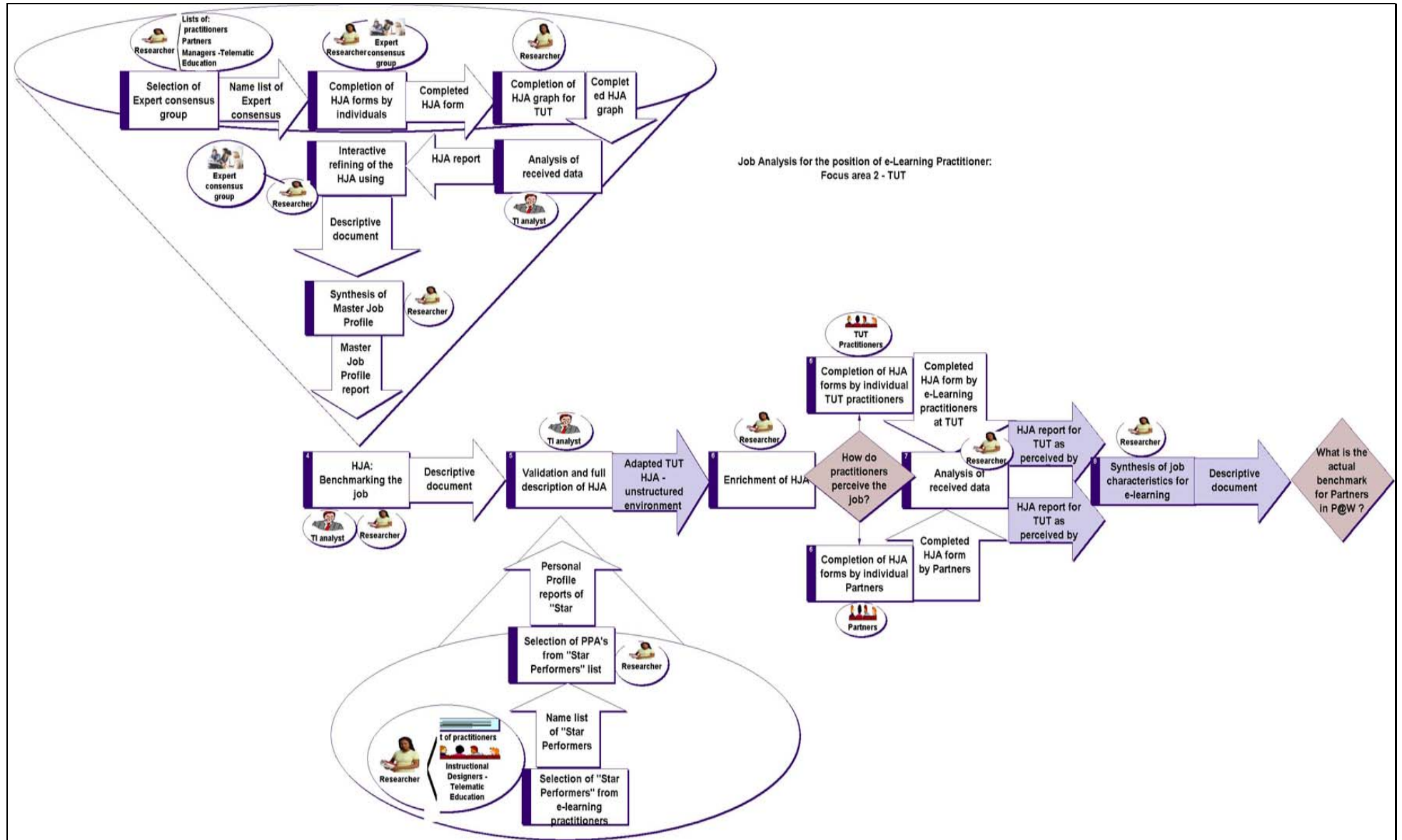


Table 4.33 summarises the original individual choices of each member of the expert consensus group on the different statements on the HJA form. The forms were completed before the expert consensus group started their discussions on the HJA. Only answers to three statements, namely numbers four, 20 and 21 (marked in grey), were unanimously selected. General agreement on the importance/unimportance of most of the other statements (marked in blue) was evident and fourteen answers were closely related. Seven of the answers to the 24 statements displayed a wide variation (marked in pink).

Table 4.33: Frequency of choices on the individual HJA forms

Statement Number	Frequency and distribution of individual choices					Group consensus Group choices
	Very low	Low	Significant	High	Very high	
1				3	2	High
2		2	1	1	1	Significant
3	1	1	1	1	1	Significant
4				5		High
5		2		2	1	Low
6				3	2	High
7				2	3	High
8			1	4		High
9	1		2	2		Low
10	3	2				Low
11				3	2	High
12	1	2		1	1	Low
13	2	1		2		Significant
14	1	3	1			Low
15	1	1		3		High
16				3	2	Very high
17		2	1	2		Low
18				3	2	Very high
19				4	1	High
20				5		High
21				5		High
22		1		2	2	High
23				4	1	High
24	1	4				Low

The interpretation of the scale on the HJA form is as follows:

Very High = Critical for the job; High = Important; Significant = Part of the job; Low = Unimportant; Very Low = Irrelevant.

Table 4.34: Selected HJA statements

Statements that were *unanimously* selected as **important** for the job were:

4. "Must have ability to organise various types of people."
20. "Must have vision to plan ahead on a large scale."
21. "Must have skill to persuade others to his/her point of view."

Other statements *generally agreed* on as **important** for the job were:

1. "Must concentrate on detailed work easily."
6. "Must be able to act without a precedent."
7. "Must have ingenuity to create new ideas."
8. "Must have the ability to deal with strangers."
11. "Must have poise and mastery of language in expression."
15. "Must develop rhythm and co-ordination in repetitive work."
19. "Must have the ability to overcome objections."
22. "Must seek authority in making policy statements."
23. "Must have patience to follow detailed instructions."

Other statements *generally agreed* on as **critical** for the job were:

16. "Must be able to handle interruptions and changes."
18. "Must have the ability to motivate others."

4.4.2.1 Reflection on the expert consensus group discussion

The following reflection on the expert consensus group discussion is my personal observations of the situation. Discourse during proceedings clarifies most of the issues that were raised. In reading the individual statements one by one it became clear that the interpretation of the statements and the semantic nuances were responsible for most of the choice differences on job importance. In essence the group agreed on the core characteristics of the job and during the group discussion it was apparent the participants did not have difficulty in changing their answers once there was consensus on the meaning of the statements.

One of the participants felt that the method were not scientifically reliable, but after discussion it was agreed that this exercise is aimed at a theoretical job benchmark, although the refinement process (described in section 4.4.2.4) would contribute to a more valid benchmark. Because of the vast differences in the individual interpretation of the statements, the only way to establish a benchmark was to have an expert consensus group discussion and, after the group had reached consensus on the actual meaning of the statements, try to arrive at a compromise. This led to a lively discussion. Statements that presented difficulties and the consequent difference in opinion are summarised in Table 4.35.

Table 4.35: Summary of discussion on HJA statements

Statement number	Statement	Discussion
2	"Must make unpopular decisions in carrying out the job."	<p>Some of the group members felt that the specific role of the e-learning practitioner would dictate the situation. For example, even the lecturer who follows a participatory, active, student involvement approach will have deadlines for assignments, tests and group work. For some students (clients) adherence to deadlines may be seen as unpopular decisions.</p> <p>On the other hand in normal e-learning practice unpopular decision making is not a very important aspect of the job. Disciplining people based on own decision is not a high priority for the job and it is more likely that the job involves disciplining of students according to specific rules. The group decided to choose "significant" as the most applicable choice.</p>
3	"Must have persistence to plug steadily at routine work."	<p>Different opinions on this statement included on the one hand the view that to work in an online environment will require the person to stick at repetitive work. For example in a learning management system like WebCT, depending on the duration of the course, the cycle between the beginning and end of a task may be relatively short and the lecturer will have to stick to specific tasks on a regular basis. It is important for the job that the practitioners read, react to and answer students' e-mails and take note of the activities on the discussion board. Furthermore there will be routine work like the marking of assignments and managerial functions involving students, marks and courses.</p> <p>On the other hand routine work was interpreted as doing the same type of work on a regular basis, and the participants felt that the job of the e-learning practitioner may include a variety of roles. For example, the instructional design and production roles may involve creative processes not involving a particular short cycle routine.</p> <p>The group decided that the job has possibilities for high and low choices and chose "significant" as the most applicable choice.</p>

Table 4.35: Summary of discussion on HJA statements (continued)

Statement number	Statement	Discussion
5	"Must be diplomatic and cooperative."	<p>Different opinions on this statement included on the one hand the view that the e-learning practitioner needs to be diplomatic when approaching students in an online communication environment. Because of the lack of face-to-face, personal communication there might be a chance that students may experience direct communication as intimidating. The rest of the group felt that it is important for the e-learning practitioner in the role of online teacher to lead the way and to firmly communicate information about deadlines, tests, assignments etc.</p> <p>The group decided to choose "low" as the most applicable choice.</p>
9	"Must be steady in following an established work pattern. "	<p>In contrast to the original choices of "significant" and "high", the group changed their choices to low after a discussion on the matter. "Following" is not a job characteristic in the sense that the practitioner would rather act in a proactive than reactive manner. The day-to-day work patterns may differ and the practitioner will make individual choices from day to day.</p> <p>The group decided to choose "low" as the most applicable choice.</p>
12	"Must be able to follow a system to perfection."	<p>The group were divided in their opinion on this statement.</p> <p>On the one hand the structured environment of a tertiary educational institution leaves little room for individual application of the institutional rules, regulations and procedures. On the other hand in the daily practice of the e-learning practitioner the individual has the capacity to make decisions on the merits of the situation and not according to a strict rulebook with an application for each and every situation.</p> <p>The group decided to choose "low" as the most applicable choice.</p>

Table 4.35: Summary of discussion on HJA statements (continued)

Statement number	Statement	Discussion
13	"Must be able to help others to solve human problems."	Initially the choices suggested that the ability to help others to solve human problems did not really apply to this job. However after discussion the group agreed that it is important for the practitioner to be a good "listener". In the online environment especially the practitioner must be sensitive to students' responses concerning personal problems. For example the student might be "absent" from the online discussions due to personal problems and the practitioner might set aside the task focus for a while because it is appropriate to be concerned with the individual. The group decided to choose "significant" as the most applicable choice.
17	"Must seek authority in calculated risks."	Because the parameters of the online teaching and learning environment are not defined yet, the taking of risks is part of the job. For example, because of unforeseen technological problems an electronic test might be a risk, and there must always be a backup test available as a substitute. But this doesn't mean that the practitioner must ask permission from his/her superior every time an electronic test is delivered. On the other hand the structured environment of a tertiary educational institution dictates caution from the practitioner in certain situations and will require permission from the authorities before action is taken. This will definitely be applicable in a situation where funds are needed for a specific project. After discussion the group decided to choose "low" as the most applicable choice, because the e-learning practitioner dares to take risks without extreme caution.

Agreement by the group on the different job statements resulted in the completion of a new HJA form summarising the group's perceptions of the job. The group then had a general discussion on the nature of this job. Words like "innovative", "driver", "love of teaching", "leading", and "creative" were mentioned. An interesting observation after the HJA graph was drawn was the prominence of the "Influence" factor in the graph, but during the expert consensus group discussion, the group verbally stated that they did not think personal influence is extremely

important. Further individual discussions with the experts revealed interesting views on the importance of the Influence factor in terms of the virtual persona of the e-learning practitioner.

One other concern after completion of the HJA was that the procedure of theoretical benchmarking can only be valid if a process of consensus is followed. Different interpretations of the statements may have a substantial impact on the choices made by the participants. It is important to keep in mind that the theoretical benchmark is a presentation of the participants' perceptions of the job and not cast in stone. Therefore the group composition is extremely important to ensure expert opinion on the job parameters and characteristics. The theoretical benchmark must be validated by comparing the profile to profiles of star performers occupying similar positions.

It is interesting to note that although I took special precautions (selection criteria for participants and following the prescribed guidelines from Thomas International) to ensure validity and reliability in the benchmarking of the HJA, the experts still had a wide difference of opinion on a few statements. The expert consensus group discussed this phenomenon and came to the conclusion that the undefined nature of the job of the e-learning practitioner, the variety of roles that the e-learning practitioner can play and the fact that there is no job description for the job of the e-learning practitioner at TUT may be contributing factors to this uncertainty.

Furthermore, it is interesting to note that foci in the e-learning domain, and in other concurrent and completed research studies at the University of Pretoria, are on the role of the online facilitator the profile of the online facilitator, and the skills and competencies needed by instructional designers. These studies may contribute to the holistic understanding of the different job dimensions of the e-learning practitioner, but differ distinctly from this study in their specialised focus on the roles, skills and competencies of the online facilitator and the instructional designer.

The focus of the specific job analysis in this study is on the behavioural requirements of the e-learning practitioner job function. The latter is an umbrella construct that may well include functions of an online teaching and learning facilitator as well functions for the production and instructional design of e-learning materials.

4.4.2.2 HJA graph as perceived by the ECG

The completed HJA form was mapped on the DISC matrix and scored according to the scoring instructions on the HJA form. The following graph (Figure 4.29) emerged with a DISC factor score of D=6, I=6, S=-2, and C=-3 (see Figure 4.29 for a graphical presentation of the HJA).

Figure 4.29: HJA as perceived by the ECG

If an HJA form is completed by a group or team, once the form is completed consideration must be given to the possible overloading or under-appreciation of the job. In this case no indications of under- or overshift were present. In a case where a job has been overloaded (overshift) the graph will present all four factors above the line and an undershift will be demonstrated when all four factors are below the midline of the graph. In order to rectify the position, the midline is moved. A new midline is calculated by measuring the distance between the highest and lowest factors and dividing the intervening space in half. This will indicate the point for the new midline.

The HJA graph completed by the expert consensus group shows no indication of either an under- or overshift. It is important to keep in mind that this presentation is only a theoretical benchmark of the e-learning practitioner job and portrays the job function as perceived by the raters of the form.

4.4.2.3 Analysis of received data

Results for the completed HJA graph were sent to Thomas International to be analysed.

4.4.2.3.1 HJA report for the position of e-Learning Practitioner at TUT

The third HJA report for the e-learning practitioner job based on data as perceived by the expert consensus group addresses the job definition for the e-learning practitioner in a unstructured working environment. The following report was compiled by the analyst from Thomas International:

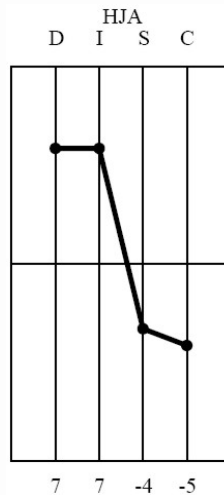
3. Human job requirement for the e-learning practitioner in an unstructured environment at TUT

The results of the HJA under consideration suggest that the competences required by the jobholder should include the ability to:

- Take decisions in a timely and appropriate manner, whilst at the same time ensuring that others follow similar principles.
- Get oneself and others committed to the timeous commencement and achievement of tasks, and overcome any problems. Assist those who are not natural self-starters or who are inexperienced.
- Assert authority in order to meet agreed timescales and deadlines. Overcome any problems which may hinder the achievement of same.
- Be resolute in focusing on results and, if these are threatened, be prepared to resolve problems or conflicts, dealing with people, despite their feelings or the situation.
- Smooth relationships when difficult circumstances prevail and develop a culture of trust both within and outside the team.
- Create a network of contacts across various disciplines that will provide advice on what resources are available both within or outside the organisation.
- Bring a sense of urgency to situations, demonstrate an proactive approach, be willing to become involved in order to increase the pace and achieve goals and objectives.
- Be firm and persistent when expressing views, and present concepts and ideas to overcome problems once the situation has been carefully evaluated and discussed.

The HJA indicates that the person fulfilling the role should be inspirational, manipulative , with an ability to communicate with others. This job is likely to contain tasks which require individuality within antagonistic situations. Taking direct and positive action with little or no precedent may also be a critical factor. The job should carry freedom to act and the authority to make decisions even though they may not always be popular. It is important to note that the HJA suggests that the job incumbent may at times challenge and/or even go outside of set parameters in order to achieve results. The position requires a person who is venturesome, assertive, forceful, self-reliant, self-confident, verbal, independent, unyielding and impatient both to get things done and to succeed

See Figure 3.30 for a graphical presentation of the job structure for e-learning practitioners in an unstructured environment at TUT).

Figure 4.30: HJA for e-learning practitioner at TUT

4.4.2.4 Interactive refinement of the HJA

A further refinement to the HJA is to create a Master Job Profile which can be compared to the HJA already created. The aim of this exercise is to create a proper description of appropriate behaviour required for the post and whether a person behaving accordingly would be able to function effectively. Instructions on how to construct the Master Job Profile, as well as the relevant word descriptions, were provided by the analyst from Thomas International. To create the Master Job Profile graph report these steps are followed:

- **Step 1:** Once the HJA has been drawn, four descriptive adjective words for each High and Low factor using the provided adjective word list are written down;
- **Step 2:** Adjectives the words describing the main emphasis on the HJA are added;
- **Step 3:** The wording from the relevant “Basic Combinations descriptions” in the HJA instruction booklet are added;
- **Step 4:** Each group member indicates the characteristics of the person required by the HJA on an issued copy of the “Master Job Graph Interpretation” form, and
- **Step 5:** Acquired information can be analysed to construct the master profile which should correspond with the completed HJA graph. If it is not the case the group is not clear about the perception of the job.

After completing the HJA, the expert consensus group was asked to participate in the refining process. The above-mentioned steps were followed and the process started with an invitation e-mail. Firstly the group were given feedback on the completed HJA graph and were invited to participate (see Appendix E, Excerpt 4.3) in setting up the Master Graph document. Two respondents gave their feedback (see Appendix E, Excerpt 4.3b).

4.4.2.5 Master Graph Document

The above-mentioned steps for creating the Master Graph document were followed and the five steps are summarised below:

- **Step 1:** Give four descriptive words for each High and Low factor using the adjective word list.
 - **Feedback on step 1:**
 - The following words were identified:
 - High D: Self-Starter; Assertive; Decisive; Inquisitive;
 - High I: Persuasive; Positive; Participative; Communicative;
 - Low S: Active, Alert, Dynamic and Energetic
 - Low C: Independent; Persistent and Firm and Unconventional.
- **Step 2:** Describe the main emphasis on the HJA.
 - **Feedback on Step 2**
 - Directing (for the High D factor) and Leading (for the High I factor) were added to the above mentioned list.
- **Step 3:** Transcribe the wording from the “Basic Combinations descriptions”.
 - **Feedback on Step 3**
 - The D/C combination was described as – Individuality – “Antagonistic situations require taking direct and positive action where there may be little or no precedent to go on. The job carries freedom to act and the authority to make decisions even when they may be unpopular”.
 - The I/C combination was described as – Self-Confidence – “Contact situations require motivating and influencing people where there is little protocol or precedent available to serve as a guide. He/She may be required to commit himself/herself by taking a position or “stand” which is controversial” (Emphasised in combination with High D).
- **Step 4:** Indicate characteristics of the person required.
 - Each member of the expert consensus group received an e-mailed copy of the Master Job Graph interpretation table, and a request to select one block in each column that they felt was descriptive of the job of the e-learning practitioner. The four columns relate to DISC in that order and cells one to eight are above the midline and the rest below the midline. Responses and choices are listed in Table 4.36.
- **Step 5** is discussed in section 4.4.2.6.

Table 4.36: Summary of responses on the Master Job Graph Interpretation

D	I	S	C
1	2	Steadiness to accomplish results Patience Systematic approach Concentrating and finishing assignments usually by oneself Deliberate in approaching problem solving Fact gathering	3 4 Conscientious effort Precision accuracy Critical approach in solving problems. Sensitivity in dealing with others Logical analysis
5 Use of power and authority Immediate accomplishments Being firm in decision making Freedom from doing all the specific details Take an idea and move with it	6 Actions involving contact with people Democratic relationships 'Open door' policy in working with others Congeniality Counselling/ teaching approach	7	8
9	10 Logical in approach but still considers people Sincerity in helping others Must meet deadlines Must do the important tasks themselves	11 Alertness Restlessness Quickness to change Demonstrative if things go wrong A number of projects going at the same time	12
13	14	15 Freedom to act alone Develop new and different activities Active, mobile Develop opportunities to be heard in presenting new concepts	16 Encouraged to try new ideas

The selection of more than one cell in the different columns suggests that there might be a variation in perceived job requirements relating to different job scenarios and demands.

4.4.2.6 Synthesis of Master Job Profile

Synthesis of information provided by the expert consensus group pertaining to the Master Job Profile revealed the following job characteristics:

Descriptive words for competences required by the jobholder should include the ability to be a self-starter, be assertive; decisive; inquisitive; persuasive; positive; participative; communicative; active, alert, dynamic; energetic; independent; persistent; firm and unconventional.

The main emphasis of the job is highlighted as “directing and leading”. Taking direct and positive action where there may be little or no precedent to go on, motivating and influencing people with self-confidence.

Interpretations from the Master Graph table further suggest a combination of independent, firm decision making, active and quick reaction to change, democratic relationships, teaching approach, opportunity to develop new and different activities, sensitivity in dealing with others, deliberate in approaching problem solving, fact gathering, logical in approach but still considers people, sincerity in helping others and must meet deadlines.

- **Step 5:**
 - Acquired information for the Master Job Profile was sent for analysis to the analyst at Thomas International (see Appendix E, Excerpt 4.4).

Clarification on aspects of the Master Graph was requested from the analyst and in an hour-long telephonic conversation on 22 July 2005 we discussed the following issues:

Summary of discussion on Master graph

The respondents from the expert consensus group selected more than one option in the different columns, because they felt that some of the characteristics in other columns were applicable as well. For example: Block number 4 was selected but a statement from block 16 namely “Encouraged to try new ideas” was added. These contradictory choices can be interpreted in terms of the job complexity and environmental influences.

The structure of the e-learning practitioner job is complex in the sense that different job roles in different settings may dictate a variety of requirements. It is possible for a person to specialise and focus on one of the possible roles only in a structured or unstructured environment. On the other hand a person may experiment with all possibilities in an unstructured environment. These

different applications may impact on the human job requirement. For example in an unstructured and sometimes unfriendly environment it would be vital for an e-learning practitioner to drive initiatives and also to use his influence to sell ideas to his managers and also to the students. The high “I” in the proposed profile (HJA graph for the position of e-learning practitioner at TUT) suggests “people importance”. This is in line with contemporary teaching and learning approaches emphasising the learner as active participant in the process. Effective communication is the vital energising component to activate and keep the teaching and learning environment alive. Especially in the online environment where the e-learning practitioner act as facilitator, e-,moderator, communicator, reacting on student’s e-mails and giving regular feedback on input from students. The influence factor will be conveyed by the online persona of the persons involved.

The low “C” factor on the graph (HJA graph for the position of e-learning practitioner at TUT) is an indicator that the requirements for this job points to a person acting according to own discretion without restrictions from procedures, rules and regulations. Such a situation is not typical from the Higher Education environment, because there will always be procedures, rules and regulations about registration of students, marks, time tables for examinations etc. The freedom to act independently lies in the choice of educational approaches and applications within the framework of the organisation. Creativity and innovativeness as the most important characteristics of the e-learning practitioner as pointed out by participants in this study (see list of descriptive words from Questionnaire 3) are expressed in day to day practice within the organisational structure. We decided that it would appropriate to adapt the original HJA graph as compiled by the expert consensus group slightly to represent a higher “C” factor.

Before creating a full description of the HJA we also discussed the Personal Profiles of the “star performers” and relevance of these profiles to the Master Job Profile. Validation of this profile can be described as the actual benchmark for the job under construction.

4.4.2.7 Validating the Master Job Profile by creating an actual benchmark

To validate the theoretical benchmark as proposed by the expert consensus group, these perceptions must be compared to the profiles of star performers. The latter are defined as the persons in identical or related jobs whose job performance can be rated as exemplary and may indicate actual benchmarks for the job. It is important to ensure that the star performers are rated on their performance in the job in question and not because they are star performers. It is important to make the necessary adjustments to align the theoretical and actual benchmarks.

To define star performers, colleagues (instructional designers) in the department of Telematic Education were invited give their opinions (see section 3.8.4). An e-mail posing two questions was sent out to them (see Appendix E, Excerpt 4.5).

The variation in profiles of the star performers has already been discussed in section 4.3.2.4.1 but is relevant for the HJA in terms of the structuredness continuum.

4.4.2.8 Full description of the HJA

A full description of the HJA was written and checked back with the analyst from Thomas International. It is possible to have a perfect job profile but not the perfect person, and therefore it might be necessary to make the relevant calculated allowance. According to Thomas International it is easier to change the job than to change the person!

A registered analyst from Thomas International compiled the actual benchmark for the position of e-learning practitioner at TUT (see Figure 4.31 for details).

4.4.2.8.1 Adapted HJA report for the position of e-learning practitioner at TUT

The adapted HJA report for the e-learning practitioner job based on data as perceived by the expert consensus group addresses the job definition for the e-learning practitioner in a unstructured working environment. The following report was compiled by the analyst from Thomas International:

4. Human job requirement for the e-learning practitioner in an unstructured environment at TUT

The results of the HJA under consideration suggest that the competences required by the jobholder should include the ability to:

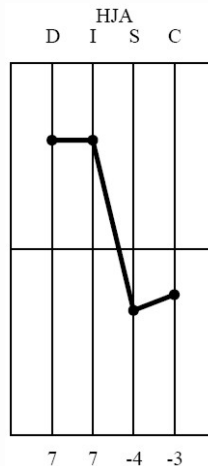
- Take decisions in a timely and appropriate manner, whilst at the same time ensuring that others follow similar principles.
- Get oneself and others committed to the timeous commencement and achievement of tasks, and overcome any problems. Assist those who are not natural self-starters or who are inexperienced.
- Assert authority in order to meet agreed timescales and deadlines. Overcome any problems which may hinder the achievement of same.
- Be resolute in focusing on results and, if these are threatened, be prepared to resolve problems or conflicts, dealing with people, despite their feelings or the situation.
- Smooth relationships when difficult circumstances prevail and develop a culture of trust both within and outside the team.

- Create a network of contacts across various disciplines that will provide advice on what resources are available both within or outside the organisation.
- Be firm and persistent when expressing views, and present concepts and ideas to overcome problems once the situation has been carefully evaluated and discussed.
- Bring a sense of urgency to situations, demonstrate a proactive approach, be willing to become involved in order to increase the pace and achieve goals and objectives.

The HJA indicates that the job requirement is for a person who is inspirational, manipulative and has the drive to achieve. The job is likely to require that tangible, measurable results are to be obtained despite opposition or resistance to their accomplishment. There may be pressure to meet deadlines in an environment laced with a wide variety of problems and unexpected interruptions. Communication and people skills are also important aspects of the job. The person fulfilling this role should be self-starting, competitive, imaginative, direct, influential, persuasive and self-confident. Independence, mobility, activity, pace and authority are also factors which could be important to this position.

See Figure 3.31 for a graphical presentation of the job structure for e-learning practitioners in an unstructured environment at TUT (adapted).

Figure 4.31: Actual benchmark for TUT



Subsidiary question 3:

What are the characteristics of the e-learning job at TUT?

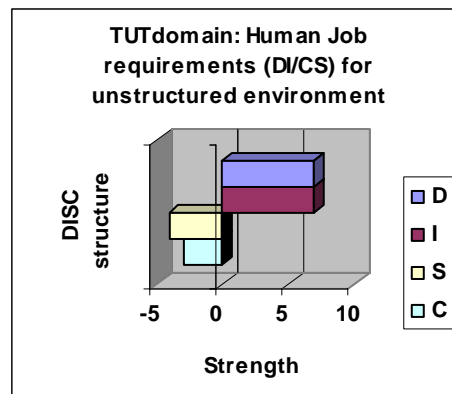
Based on the above description, job characteristics of the e-learning practitioner job may vary according to the structuredness of the environment. The job requirement is for a person who is inspirational, manipulative and has the drive to achieve. The job is likely to require that tangible, measurable results are to be obtained despite opposition or resistance to their accomplishment. There may be pressure to meet deadlines in an environment laced with a wide variety of

problems and unexpected interruptions. Communication and people skills are also important aspects of the job. The person fulfilling this role should be self-starting, competitive, imaginative, direct, influential, persuasive and self-confident. Independence, mobility, activity, pace and authority are also factors which could be important to this position.

Subsidiary question 4:

What are the job structures for the e-learning practice at TUT?

Based on the job requirements for an unstructured environment at TUT the job structure displays a DI/CS configuration, illustrated below.



4.4.2.9 Enrichment of the HJA

No organisational job specification, previous advertisements for the position, details on specific functions or key result areas, or critical success factors for analysing effectiveness in the future are available for the e-learning practitioner job at TUT. However, through the HJA process, as described above, enriched by a process of crystallisation, available resources can be utilised to get a clearer picture of what this job should look like. A number of resources were explored, for example the job profile as designed by the analyst from Thomas International (see section 4.4.2.8), the identification of “star performer” as perceived by practitioners from the Department of Telematic Education (see section 4.4.2.7), and the Master Job Profile created by the expert consensus group (see section 4.4.2.5).

Extending the enrichment process further to include the views of e-learning practitioners at TUT and the Partners in the P@W Programme produced valuable data on how they perceive job requirements for e-learning practice at TUT (see paragraphs below).

The rationale behind this was to obtain a holistic picture of how the e-learning practitioners perceived this job. The results were also, however, rather ‘fuzzy’. Seeing this exercise in light of

the fact that the experts had a difference of opinion on the semantics of some of the statements, there is no way that the choices of the participants could be listed as a theoretical benchmark for the job. This was not the intention of this enrichment activity, however, nor was it used as a validated, scientifically sound method to extrapolate an e-learning practitioner job description based on frequency of choices. The aim of this exercise was merely to get an impression of what existing practitioners at TUT think of the e-learning practitioner job and to add a little background colour to the mosaic of the e-learning practitioner construct.

4.4.2.9.1 Job requirements as perceived by e-learning practitioners at TUT

The e-learning practitioner group at TUT that participated in this research study could volunteer to complete an HJA form as well as a PPA form (see Appendix C6).

Those who agreed to participate were instructed to complete the HJA form in terms of their perceptions of job requirements for the e-learning practitioner's job. Nineteen completed forms were scored according to prescribed procedures.

4.4.2.9.2 Job requirements as perceived by the Partners

The Partners in the P@W Programme at TUT who participated in this research study could volunteer to complete an HJA form. They were invited by e-mail to participate and those who agreed were instructed to complete the HJA form in terms of their perceptions of job requirements for the e-learning practitioner's job. Six completed forms were scored according to prescribed procedures.

4.4.2.9.3 Analysis of completed HJA forms

The questions on the HJA form provided the structure for the participants' views. The data from the completed forms for each group were entered on a spreadsheet and scored as prescribed by the HJA method. Results from these completed HJA forms were used as guidelines to gather data about their perceptions of the e-learning practitioner job at TUT. The DISC scores for each individual were added to a frequency table and the average of these scores was graphed (see Table 4.37 and Figure 4.32 for responses from the TUT e-learning practitioners and Table 4.38 and Figure 4.33 for responses from the Partners).

4.4.2.9.4 Analysis of completed HJA forms from TUT e-learning practitioners

The analysis of the results of 19 HJA forms yielded interesting results. As can be seen from the frequency table 14 (73,6%) of the 19 raters considered Dominance and Influence as important factors for the e-learning practitioner, whilst only five (26%) indicated that the Steadiness factor is more important than the Dominance factor.

Table 4.37: Frequency of HJA scores from TUT e-learning practitioners

	Frequency of DISC scores on the HJA form from TUT e-learning practitioners																		Total	Average	
D	11	1	8	9	6	7	5	10	0	4	-7	7	7	6	8	10	4	8	2	106	5.6
I	11	4	9	7	3	4	4	8	6	3	-1	6	5	4	8	8	8	9	3	109	5.7
S	-1	3	-5	0	-8	0	-6	1	2	-3	6	4	-6	2	-2	1	6	-2	4	-4	-0.21
C	1	3	-2	-2	-5	1	-5	2	2	4	4	2	2	1	2	3	2	-1	1	15	0.79

The DISC graph displays the same basic shape as the HJA graph developed by the expert consensus group. See Figure 4.32 for a graph of the job structure for e-learning practitioners in an unstructured environment at TUT as perceived by the TUT e-learning practitioners.

Figure 4.32: HJA as perceived by practitioners at TUT



4.4.2.9.5 Analysis of completed HJA forms from the Partners

Interesting to note that duplication of this exercise with the P@W group resulted in complementary results. All the participating Partners identified the Dominance and Influence factors as important for the e-learning practitioner at TUT.

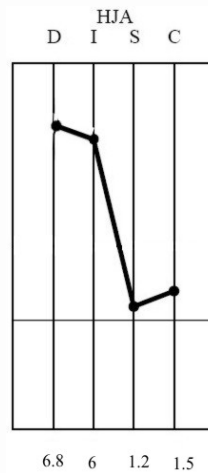
Table 4.38: Frequency of HJA scores from Partners

	Frequency of DISC scores on the HJA form from P@W						Total	Average
D	9	9	5	8	3	7	41	6.8
I	9	8	1	6	1	10	35	6
S	-2	1	2	-2	0	9	8	1.2
C	4	3	-1	1	0	2	9	1.5

As can be seen in the graph (Figure 4.33) there is an overshift in the HJA, which means that the job has been overloaded. In order to rectify the position the midline must be moved to between the highest and the lowest factor, dividing the intervening space in half. The new midline is not

on 0 but on 2.8. See Figure 4.33 for a graph of the job structure for e-learning practitioners in an unstructured environment at TUT as perceived by the Partners.

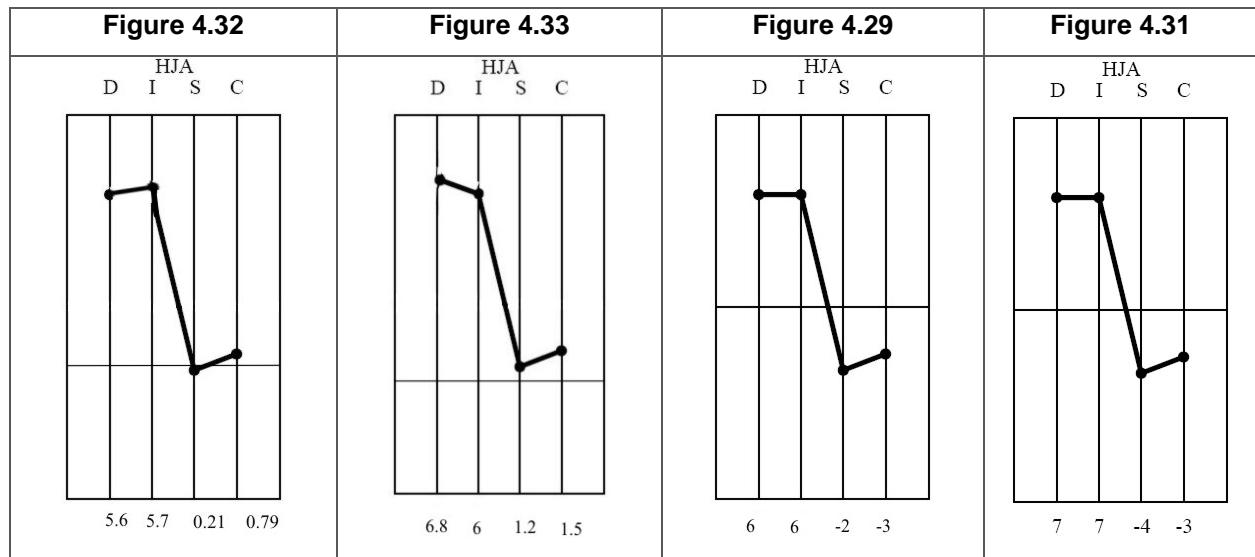
Figure 4.33: HJA as perceived by Partners



4.4.2.9.6 Comparative graphs of the job requirements as perceived by the TUT e-learning practitioners, Partners and the expert consensus group at TUT

As illustrated in the following HJA graphs (see Table 4.39), all the participating groups, namely the TUT e-learning practitioners (Figure 4.32), the Partners (Figure 4.33), and the expert consensus group (Figure 4.29) indicated that the Dominance and Influence factors are very important for the job. These perceptions were complemented by the validated, benchmarked profile for e-learning practitioners at TUT (Figure 4.31).

Table 4.39 presents a comparison of the job structures for e-learning practitioners in an unstructured environment at TUT as perceived by the TUT e-learning practitioner groups.

Table 4.39: Comparison between HJA's as perceived by different groups

The similarity of the graphs indicates a general agreement of opinion about the job requirements for e-learning practitioners at TUT. It is important to keep in mind that the graphs portray a mutual perception about a job that does not have a formal job description as such, but that is practised in a self-directed way by the practitioners. Different levels of support structures in terms of infrastructure, human resources and technologies are provided by the organisation and formal projects and programmes are further supported by the Department of Telematic Education.

Enrichment of subsidiary question 3:

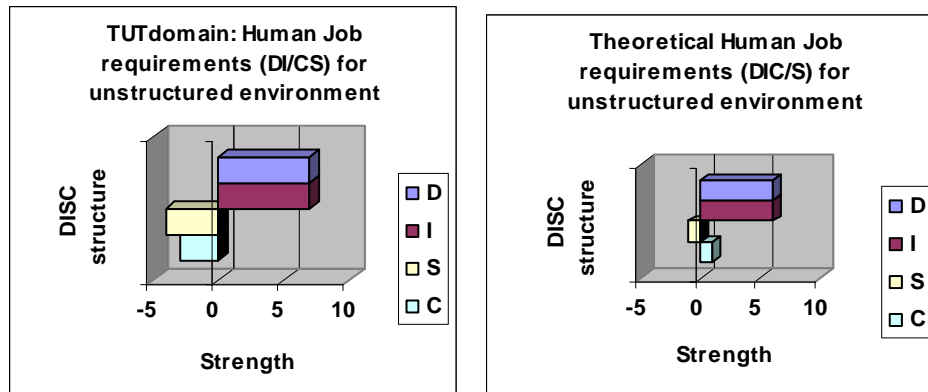
What are the characteristics of the e-learning job at TUT?

Based on the above description, job characteristics of the e-learning practitioner job may vary according to the structuredness of the environment. The job requires a person who is inspirational, manipulative and has the drive to achieve. The job is likely to require that tangible, measurable results should be obtained despite opposition or resistance. There may be pressure to meet deadlines in an environment laced with a wide variety of problems and unexpected interruptions. Communication and people skills are also important aspects of the job. The person fulfilling this role should be self-starting, competitive, imaginative, direct, influential, persuasive and self-confident. Independence, mobility, activity, pace and authority are also factors that could be important for this position.

Enrichment of subsidiary question 4:

What are the job structures for the e-learning practice at TUT?

Based on the job requirements for an unstructured environment at TUT the job structure displays a DI/CS configuration. Based on the theoretical benchmark of the job requirements for an unstructured environment at TUT, the job structure displays a DIC/S configuration.



4.4.2.10 Synthesis of job characteristics for the e-learning practitioner at TUT

The following job characteristics can be deduced from above-mentioned job requirements. The jobholder should have the ability to do the following:

- Adapt to the fast pace of the electronic teaching and learning environment, taking decisions in a timely and appropriate manner. There may be pressure to meet deadlines in an environment laced with a wide variety of problems and unexpected interruptions.
- Practise sound e-moderating principles by getting oneself and others committed to the timely commencement and achievement of tasks, and to address and overcome any problems as quickly as possible. Assist those who are not natural self-starters or who are inexperienced. Solid training for all participants is essential.
- Assert authority in order to meet agreed timescales and deadlines. Overcome any problems that may hinder the achievement of set outcomes. Proactive contingency plans to counteract infrastructural and technological failure are very important life savers.
- Be resolute in focusing on results and, if these are threatened, be prepared to resolve problems. The job is likely to contain tasks that require individuality in antagonistic situations. To achieve positive outcomes requires giving both direction and opportunity for participation. Dealing with students, despite their feelings or the situation, may sometimes require the freedom to act and the authority to make decisions even though they might not always be popular.
- Maintain smooth relationships when difficult circumstances prevail and to develop a culture of trust both within and outside the team, especially in the unstructured, ill-

defined work environment where persuasiveness and the selling of e-learning principles and concepts to managers and students are important.

- Create a network of contacts across various disciplines that will give advice on what resources are available both within or outside the organisation.

4.4.2.10.1 Key expectations of the HJA for the e-learning practitioner at TUT

In terms of the adapted HJA graph (see Figure 4.31), the High factors for the e-learning practitioner at TUT are Dominance and Influence and the Low factors are Steadiness and Compliance. The expectations outlined from the HJA will thus be for a person of an energetic, directing, leading and persuading nature combined with the ability to act independently and sometimes unconventionally. It is important for the e-learning practitioner in the online teaching and learning environment to actively lead the way for the students. The job requires, on the one hand, a powerful leader using force of character to get positive results and, on the other hand, an online persona who influences, motivates and persuades in order to create an online knowledge-building community. As it is so easy to get lost in cyberspace, students need a driver who has the ability to organise various types of people with confidence and enthusiasm. In the online environment in particular, where electronic communication is sometimes the only means of communication, the driver must have the ability to motivate and lead others successfully and to engage in communication with unseen strangers using a positive and participatory approach. Open, regular communication is an essential and crucial aspect of the online teaching and learning environment.

As mentioned earlier the e-learning practitioner job at TUT is not a formal, structured position and no formal job description for such a job exists. Lecturers who engage in e-learning practices are working in an unstructured working environment, but are also bound by the policies, rules, regulations and procedures of the organisation in which they are operating. Thus the working environment, acting on and influenced by varying degrees of supportive interventions, may sometimes tend to move to the other side of the continuum to become more and more structured. The P@W Programme as an example of such a structured environment will be discussed in the following paragraphs to address the fifth and sixth research goals for the second research question:

Research goals 5-6

To identify job characteristics of e-learning practice for the P@W Programme.

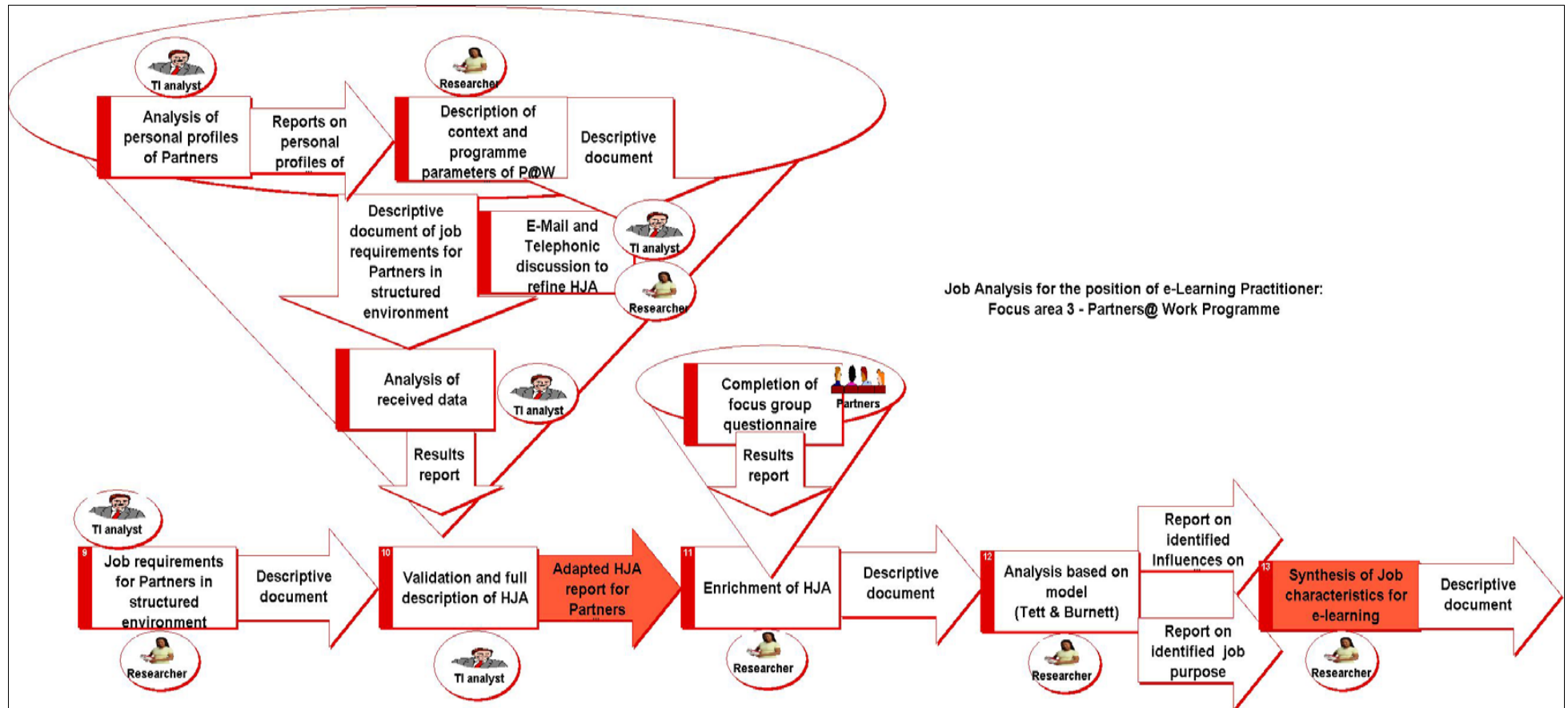
To identify job structures for e-learning practice for the P@W Programme.

4.4.3 *Actual benchmark for the job requirements of Partners*

If the focus shifts towards the P@W programme, the picture will change. This formal programme provides a structured working environment for the Partners. They accepted a “job description” when they contracted their positions with the department of Telematic Education and with TUT. A full description of this is available at http://www.tut.ac.za/tut_web/index.php?struc=2918.

The third focus area in this section presents findings for the job analysis for the position of e-learning practitioner in the P@W Programme. Focusing on the fifth, sixth and seventh research goals, research activities included an analysis of the e-learning practitioner job based on requirements adapted by consultants from Thomas International. Figure 4.34 illustrates the analysis process.

Figure 4.34: Job analysis process for the position of the e-learning practitioner in P@W Programme



4.4.3.1 Description of job requirements for Partners in a structured environment

Partners in the programme committed to:

- remaining **actively involved** in the project for at least **one full year** (June to June);
- being available as a **mentor** for the new intake of PARTNERS the following year (June – to June) and for other lecturers in the Faculty;
- attending and actively participating in **all contact sessions**;
- completing **web-based learning modules** on online facilitation and other relevant topics;
- participating actively and critically in **online discussions**;
- creating **technology-enhanced teaching materials** and **learning opportunities** of high quality;
- keeping a **reflective journal** for action research purposes;
- writing an **article** collaboratively that could be submitted to an accredited, peer-reviewed journal;
- preparing a **paper** collaboratively that could be submitted to a national conference in the field, and
- actively **implementing** the new teaching and learning materials, as well as the online facilitation skills that were mastered during the course of the year (January to June).

Certain quantity and quality standards were set to indicate appropriate compliance to the above-mentioned commitments. Full details on the “job” requirements for the position of Partner in the P@W Programme defining “job” roles and functions and the key performance areas that were set with clear guidelines on standard operating procedures are available at http://www.tut.ac.za/tut_web/index.php?struc=2452.

4.4.3.2 Validation and full description of HJA for Partners

Validation of the above-mentioned “job” for the Partners in the P@W Programme entails refinement of the “job” requirements. Starting with a discussion on the findings from the PPA of the Partners, the P@W Programme scenario was brainstormed in a series of email and telephonic discussions between the analyst from Thomas International and the researcher.

Definition of context is an extremely important issue in the validation process of the HJA considering the continuous interaction between the individual and the work context. According to Tett and Burnett (2003:502), “[b]ehavioural interpretation (as expressing one trait or another) is context-dependent; understanding trait expression calls for consideration of relevant situational features”. One of the topics under discussion during brainstorming sessions between

the analyst from Thomas International and I was the difference between unstructured and structured environments (see Appendix E, Excerpt 4.6).

It is evident from the above answer that to accommodate a more structured environment, the job requirements applicable in an unstructured environment, as proposed by the drafted HJA for the e-learning practitioner at TUT, need to be changed. A structured environment for the purpose of this study may be viewed as a secure and stable working environment, where the participants follow a plan of action, with well-defined roles and tasks, and clear parameters for job performance. The P@W Programme provides such a structured environment for the Partners.

4.4.3.2.1 Description of the context and programme parameters of the P@W Programme

The following contextual topics, capacity-building programme for Partners, key result areas of critical success factors and job roles directed our brainstorming sessions and are briefly outlined below.

➤ Capacity-building programme for the Partners

The capacity-building programme provides structure for the P@W programme and is designed to accommodate lecturers across faculty borders and in various academic support departments. Specific outcomes are contracted with both the Partners and their supervisors, and focus on the following:

- Design, development, implementation and evaluation of course materials using the main technologies available at the Department of Telematic Education.
- Skills development activities.
- Knowledge development activities.
- Active involvement in an action research project with the aim of strengthening the Partners' research skills.
- Mentoring activities.

Five key result areas of critical success factors were deduced from the above, namely online teaching, instructional design, personal development, research and project management.

During the one-year duration of the programme it is compulsory for the Partners to comply with all above-mentioned focus areas, however, after completion of the programme further specialisation in one of these areas may be undertaken.

➤ **Key result areas of critical success factors and job roles**

Corresponding with the above-mentioned responsibilities are five main roles that the Partner should fulfil. These roles are:

1. Online teacher/facilitator/e-moderator.
2. Instructional designer.
3. Adult learner.
4. Researcher.
5. Project manager.

Structure and support for the Partners fulfilling these roles were created by the parameters of the programme, programme outcomes, infrastructure and personal support from staff in the Department of Telematic Education. Knowledge building activities are focused on the five main technologies, namely web-based teaching and learning using WebCT, video conferencing, video production, e-testing and the production of multimedia, and are enriched by contributions from guest speakers, conferences, workshops and work sessions. Assessment criteria for the critical performance areas are specified by the programme and the Partners use Self Assessment Reports to assess their progress. However, evaluation of the Partners' job performance is beyond the scope of this study and will not be discussed.

Information exchange between the analyst from Thomas International and I resulted in a report on job requirements to accommodate a more structured environment (see Appendix E, Excerpt 4.7).

4.4.3.2.2 HJA report for the e-learning practitioner at TUT (adapted for a structured environment)

The adapted HJA report for the e-learning practitioner job addresses the job definition for the e-learning practitioner in a structured working environment. The following report was compiled by the analyst from Thomas International:

5. Human job requirement for the e-learning practitioner adapted for a structured environment at TUT

The results of the HJA under consideration suggest that the competences required by the jobholder should include the ability to:

- Develop a team atmosphere through hard work, calmness, tolerance and consistency, attempting to fulfil work projects with honesty and integrity.
- Generate and provide specialist and/or administrative services which benefit the organization and, depending on whether they are task or people-related, lead to a high

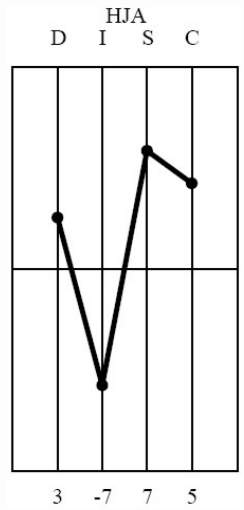
level of internal and external customer satisfaction.

- Be persistent in problem solving, seeking solutions through the expertise of both self and others. Research all the facts with care and resolving problems in a timely and thorough manner.
- Develop competencies and expertise in both oneself and others in order to attain satisfactory standards and deliver results within agreed timescales.
- Enjoy challenging problem solving situations and come up with well thought through practical solutions.
- Apply a systematic and logical approach in order to achieve accurate results.
- Create a culture of continuous improvement.
- Set clear objectives, monitor progress, take corrective action and control performance levels.
- Adopt a serious and questioning manner in order to assess situations and reach conclusions, thus basing the processes on facts and information gleaned from others.

The HJA is calling for a person who has the drive to achieve results within a specialist, technical or administrative area of expertise. The incumbent is likely to be reflective by nature and should enjoy working in areas which require attention to detail and maintaining quality and standards. The job is likely to involve concepts, equipment, ideas and problem solving where a sound depth of knowledge and expertise are a strong requirement. Persistence and the ability to see a job through to conclusion are important to the role as is security and a structured working environment. Impulsive and pressurised decision making should not be an integral aspect of the function as caution should be exercised in this area. The person fulfilling this role should be driving, thorough, systematic and enjoy working within clearly defined work parameters. Ideally the job is calling for a person who is tenacious, structured, methodical, organised, inquisitive, factual, cautious, shrewd, self reliant, hard working and with a strong need to achieve a worthwhile result. A probing, questioning and objective approach is also called for within the position.

The following graph (see Figure 4.35) captures the requirements for a structured working environment for the e-learning practitioner at TUT in for the Partners from the P@W Programme. The job structure is presented in Figure 4.35.

Figure 4.35: Proposed HJA for a structured environment



Subsidiary question 5:

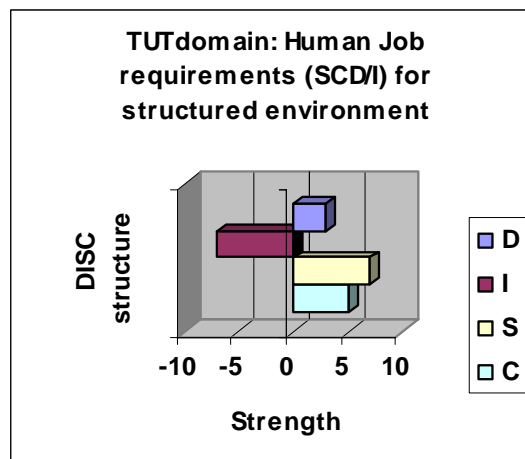
What are the characteristics of the P@W Programme e-learning job?

Based on the above description, the job characteristics of the e-learning practitioner job may vary according to the structuredness of the environment. The job is likely to involve concepts, equipment, ideas and problem solving where a sound depth of knowledge and expertise are a strong requirement. Persistence and the ability to see a job through to the conclusion are important to the role, as is security and a structured working environment

Subsidiary question 6:

What are the job structures for the P@W Programme e-learning job?

Based on the job requirements for a structured environment in the P@W Programme, the job structure displays a SCD/I configuration.



To conduct a thorough job function analysis and to establish clear behavioural criteria for the job all available information about the job should be taken into consideration. The above-mentioned HJA data were enriched by the following situational features:

- The details of specific functions of the e-learning practitioner as outlined in the capacity building programme for the Partners.
- The five key result areas of critical success factors as measured in the self-assessment as well as in the progression reports of the Partners.
- Written feedback on job features provided by the Partners and captured during a focus group session on 17 May 2005.

The above-mentioned features will be discussed very briefly below and address the seventh research goal for the second research question:

Research goal 7

To identify job demands, distracters and releasers as perceived by the Partners in the P@W Programme.

4.4.3.3 Enrichment of HJA – Feedback from the Partners on positive and negative job influences

Tett and Burnett (2003) propose a person-situation interactionist model of job performance that offers a basis for improving yields from personality measures in fitting people to jobs, and attempts to vitalise personality traits with motivational force in heightening appreciation for them as theoretical constructs. These researchers apply the model to target better use of personality information in work settings. The model introduced a concept of trait activation, principled on the premise that personality traits are expressed as responses to trait-relevant situational cues (e.g. demands) and it offers an interactional approach to understanding trait-performance relations. Tett and Burnett (2003) propose that latent personality traits will manifest as trait-expressive work behaviours only when trait-relevant cues are present at task, social and organisational levels. Working situations operating on each of these levels can be relevant to personality expression in several ways (Tett & Burnett, 2003), for example as a job demand, distracter, constraint or releaser. Their conceptualisation of the situational features relevant to personality expression at work is useful in the context of this study and three features, namely job demands, distracters and releasers, were investigated. Job demands are defined as an opportunity to act in a positively valued way. Job demands include tasks and duties found in the job description as well as less formal prescriptions carried in group norms and organisational

features. A distracter is related to a job demand but differs from it in that responding to a distracter interferes with performance. A constraint restricts cues for trait expression, while a releaser is a discrete work event that counteracts a constraint. According to Tett and Burnett's (2003) model a facilitator on the other hand makes trait-relevant information that already exists in a given situation more salient. Job demands, distracters and releasers are trait activators, constraints are deactivators and facilitators amplify the activation or deactivation effects of the other features.

To deepen my understanding of the situational context for the Partners in the P@W Programme I used the concept of trait activators to point to situational job features. Data captured during a focus group session with the Partners on 17 May 2005 highlighted important job-related issues. Participants were asked to comment on job demands, distracters and releasers for each of the five roles that they played during the P@W Programme. The five roles are teacher, designer, adult learner (student), manager and researcher.

4.4.3.4 Analysis of data based on the Tett and Burnett (2003) model

I analysed the responses for each role category using coloured highlighters to code remarks on similar themes or job features. The findings are presented here according to the five job roles categorised in three trait activators, namely job demands, distracters and releasers. A number of situational features were mentioned and these are thematically displayed in the tables below. Relevant comments from the Partners are cited verbatim to illustrate some of the findings. However, to **protect the identity of the participants, references cite only the DISC factor** and not the relevant style combinations.

4.4.3.4.1 Findings

The findings are presented here according to the five job roles:

- online teacher/facilitator/e-moderator;
- instructional designer;
- adult learner;
- researcher, and
- project manager

categorised in three trait activators, namely job demands, distracters and releasers.

4.4.3.4.1.1 Role of online teacher/facilitator/e-moderator

Playing the role of **online teacher/facilitator/e-moderator** during the P@W Programme, the Partners experienced various positive and negative influences. A number of *programme*

demands, distracters and releasers were highlighted. Sixteen themes were identified. These are listed together with the number of responses by theme in Table 4.40.

Table 4.40: Summary of influences on online teacher/facilitator/e-moderator's role

Role of online teacher/facilitator/e-moderator	
Themes and topics identified	Number of responses (n)
Programme demands	
Lack of infrastructure	3
Time saving with new applications	1
Proactive planning	1
Lack of skills	1
Large student groups	1
Workload	2
Student demands	3
Programme distracters	
Lack of infrastructure	3
Slow Internet access	3
Involvement in departmental activities	2
Unexpected software problems	1
Login problems	1
Power failure	1
Programme releasers	
Utilising new technologies to enhance interaction between lecturer and students	2
New knowledge opens possibilities	8
Technology eased pressure during contact sessions	1

Lack of infrastructure with respect to Internet, classroom and laboratory facilities:

I did not have Internet in the lab. Was very frustrated at first as I have interactive lessons linking to the internet. I worked around this by concentrating on the other content in the lesson – shifted my focus (I, FGQues, 17 May 2005).

slow internet access:

Slow Internet. Students complained about access when not in structured/booked lab sessions (C, FGQues, 17 May 2005).

and student demands:

I have put in more hours to mark online assignments. Took time to train the students for the use of WebCT (C, FGQues, 17 May 2005).

were the most prominent negative demands on the online teacher:

Some students couldn't login during testing: I supplied them with multiple choice sheet and continued with assessments (C, FGQues, 17 May 2005).

Positive influences on workload were availability of new technologies and support provided by assistants:

New knowledge about technology urged me to include online assignments in my course (C, FGQues, 17 May 2005).

Furthermore, nearly all the Partners mentioned the use of new technologies and application of acquired knowledge as releasers that counteract the constraints. One example of this is the use of local WebCT servers in computer laboratories to cater for the slow Internet access, however these interventions sometimes increased the administrative burden, which then again became a negative demand:

Slow internet – created a dummy on [server] (lots of extra admin – just did it ...) (S, FGQues, 17 May 2005).

4.4.3.4.1.2 Role of instructional designer

Playing the role of instructional designer during the P@W Programme, the Partners experienced various positive and negative influences. A number of *programme demands*, *distracters* and *releasers* were highlighted. Seventeen themes were identified. These are listed together with the number of responses by theme in Table 4.41.

Table 4.41: Summary of influences on instructional designer's role

Role of instructional designer	
Themes and topics identified	Number of responses (n)
Programme demands	
Exhaustion/long hours	4
New possibilities for design	2
Lack of knowledge and skills	4

Table 4.41: Summary of influences on instructional designer's role (continued)

Themes and topics identified	Number of responses (n)
Lack of assistance	2
Uncertainty	3
New WebCT developments	1
Programme distracters	
Lack of infrastructure	3
Slow Internet access	1
Unavailable support	2
Homework	1
Lack of skills	2
Confusion	1
Programme releasers	
Encouragement by colleagues	2
Encouragement by partners	2
Personal assistant	1
Fast ADSL at home	1
New knowledge – new insight	7

Long hours of battling to master all the new technologies:

Very frustrating when one small step prevents you from going forward with design. When you have overcome this, there is suddenly another hurdle (C, FGQues, 17 May 2005).

and to acquire necessary knowledge and skills exhausted the Partners:

Homework was time consuming and prevented me from getting to real development of my course. I tried to finish off the homework as quickly as possible and to pay attention to what really mattered (C, FGQues, 17 May 2005).

I had no choice but to bite the bullet in understanding how the programs work. Overcoming the lack of knowledge and realizing the benefit of the added value is a very positive aspect (D, FGQues, 17 May 2005).

Being a computer illiterate was one of the most telling distracters. Having now learnt a lot (but not enough) about computer programs makes it all worthwhile (D, FGQues, 17 May 2005).

but most of them experienced encouragement and support offered by colleagues and their fellow Partners as motivating influences:

The more knowledge I gained about what was expected, the easier I managed the development work (C, FGQues, 17 May 2005).

The help I received from my partners had a very positive influence. When I didn't know something or needed assistance I knew I could ask any of them (I, FGQues, 17 May 2005).

In the online design environment slow Internet access is a distracter that impacts negatively on job performance:

Slow internet on campus – worked at home on online course material (S, FGQues, 17 May 2005).

Slow lines let me feel frustrated and anxious (S, FGQues, 17 May 2005).

4.4.3.4.1.3 Role of adult learner

In playing the role of an adult learner during the P@W Programme the Partners experienced various positive and negative influences. A number of *programme demands, distracters and releasers* were highlighted. Twelve themes were identified. These are listed together with the number of responses by theme in Table 4.42.

Table 4.42: Summary of influences on adult learner's role

Role of adult learner	
Themes and topics identified	Number of responses (n)
Programme demands	
Enjoyed workshops	2
Workload/programme and technology demands overwhelming	6
Experimentation with possibilities	2
Programme distracters	
Time	3
Uncertainty	2

Table 4.42: Summary of influences on adult learner's role (continued)

Lack of knowledge and skills	2
Confusion	2
Programme releasers	
Learn new knowledge and skills	4
Application of new knowledge and skills	2
Empowerment	1
Positive attitude of Partners	1
Varied approaches to mastery learning	3

Feelings of confusion and being overwhelmed by tough programme demands and distracters:

I found the quick pace of teaching practical applications a bit difficult and had to do more work on my own to master it (I, FGQues, 17 May 2005).

I was overwhelmed and confused with all the info provided and not really knowing what was expected. I consulted ID for long hours to get some structure (C, FGQues, 17 May 2005).

Too much computer knowledge in too short a time. Felt totally lost. Also forgot most of what I was shown. Stressed out (I, FGQues, 17 May 2005).

were counteracted by releasers such as positive, enthusiastic participation, perseverance and encouragement by the group:

I searched for as much information on programmes as I could. I went on a PowerPoint course in order to improve my skills, searched for written info on WebCT etc. I played around with programs a lot and experimented (I, FGQues, 17 May 2005).

The more knowledge I gained about what was expected, the easier I managed the development work (C, FGQues, 17 May 2005).

All the new knowledge and skills continuously motivated me to explore and use it where applicable in my course material and research topic (C, FGQues, 17 May 2005).

4.4.3.4.1.4 Role of researcher

In playing the role of researcher during the P@W Programme the Partners experienced various positive and negative influences. A number of *programme demands, distracters and releasers* were highlighted. Eleven themes were identified. These are listed together with the number of responses by theme in Table 4.43.

Table 4.43: Summary of influences on researcher's role

Role of researcher	
Themes and topics identified	Number of responses (n)
Programme demands	
Unfamiliar terrain	5
Write an article	2
Confusion	2
Decisions on topics	2
Frustration	2
Programme distracters	
Timeframe	6
Funds	1
Programme releasers	
Encouragement/support by instructional designers	2
Support by experts	2
Internet searches	1
Positive feelings/enjoy research	2

The hat of researcher was unfamiliar for a number of Partners who felt uncomfortable with this role:

I am not a researcher by nature and have had to discipline myself and keep myself motivated (I, FGQues, 17 May 2005).

I was very confused with regard to research and what was expected of me. I relied heavily on my ID and did an extensive literature search. I am still very unsure of what to do (I, FGQues, 17 May 2005).

They experienced the research timeframe as inadequate:

Article and paper to be presented in short period of time – started thinking early and thinking about possibilities (C, FGQues, 17 May 2005).

TIME. This was and is a huge problem. To be able to present a valuable paper/ presentation I need much more time to obtain some reliable data. However, being forced to deliver, I use what I have! (C, FGQues, 17 May 2005).

and consequently felt pressurised and frustrated:

Time – just left other important stuff for a few days to do it (and are still paying the price of being behind) (S, FGQues, 17 May 2005).

Releasers consisted mainly of personal support from various sources as well as formal research workshops presented by research experts from TUT:

The programme lent itself to various research topics. I had to decide which will be most interesting and effective in my specific field (C, FGQues, 17 May 2005).

A Releaser: To use help in the form of expert and services available (I, FGQues, 17 May 2005).

Support from our research professor motivated me to go for it (S, FGQues, 17 May 2005).

4.4.3.4.1.5 Role of project manager

In playing the role of project manager during the P@W Programme the Partners experienced various positive and negative influences. A number of *programme demands*, *distracters* and *releasers* were highlighted. Fourteen themes were identified. These are listed together with the number of responses by theme in Table 4.44.

Table 4.44: Summary of influences on project manager's role

Role of project manager	
Themes and topics identified	Number of responses (n)
Programme demands	
Share developments with colleagues	3
Student management	2

Table 4.44: Summary of influences on project manager's role (continued)

Costs	1
Proactive planning and organisation	3
Programme distracters	
Lack of infrastructure	4
Negative colleagues	1
Rethink and reinvent	2
Unforeseen costs	1
Student demands	2
Extra responsibilities	2
Programme releasers	
Encouragement by colleagues/students	3
Successful implementation of courses	2
Communication to other colleagues	2
Effective facilitation of learning	2

Demands such as management of students, courses and interdepartmental communication were mentioned frequently:

Demands: Co-operation interdepartmentally and across cultures (I, FGQues, 17 May 2005).

Distracters: Unforeseen circumstances not budgeted for (C, FGQues, 17 May 2005).

I had to arrange and negotiate physical facilities for implementation (CS, FGQues, 17 May 2005).

Distracters: all the technical difficulties I experienced with the course and the lack of facilities. It prevented me from presenting the course the way I would have liked to but had to take to Plan B and adopt to the difficult circumstances (I, FGQues, 17 May 2005).

Positive outcomes of the programme were strong releasers that counteracted negative distracters:

The encouragement of my colleagues and students has made a positive impact on future development (C, FGQues, 17 May 2005).

I took up the challenge, even when it cost me money, to solve problems (D, FGQues, 17 May 2005).

Rethink and reinvent ways that teaching and learning can be undertaken (D, FGQues, 17 May 2005).

Organising, planned ahead, structured sessions (C, FGQues, 17 May 2005).

Demands of programmes forced me to improve my organisation skills (C, FGQues, 17 May 2005).

Assistance of ID, and student assistants, helped (C, FGQues, 17 May 2005).

I felt relieved and proud of the way in which my course material effectively facilitated learning in my students, however only the final exam will confirm this (C, FGQues, 17 May 2005).

Releasers: When something did go right I was enthusiastic and told myself that one day I will have everything in place and then it will be COOL RUNNINGS (I, FGQues, 17 May 2005).

4.4.3.4.2 Synthesis of data

Subsidiary question 7

What are the job demands, distracters and releasers as perceived by the Partners in the P@W Programme?

With regard to the above description, the following summary answers subsidiary question 7.

A holistic summary of the job features perceived as demands, distracters and releasers shows that lack of infrastructure was identified as the most prominent distracter, and that several innovative measures and alternatives were implemented to counteract it; nevertheless these were not enough to meet the demands and needs of the e-learning environment. Without a supportive infrastructure in terms of availability of technology, fast Internet access and adequately equipped classrooms and computer laboratories programme sustainability will be under question. One of the Partners voiced this issue crisply in a blog entry:

... The most important aspect of the project is to extend the technology at all Departments in order to be able to facilitate e-learning. Every lecture room should at least be equipped with ADSL, video projector, and DVD players. If this is not done, TUT will stay behind in terms of cutting edge training. 20 October 2004: 7:12am

The high Steadiness and high Compliance factor personal profiles displayed by this group may explain why the members experience the fast pace and huge workload of the programme and their lack of knowledge and skills as exhausting demands. Empowerment through gaining new knowledge and skills, the creative application and implementation of these acquired assets, as well as the positive outcomes of their projects in terms of the set criteria, counteracted some of the distracters. The encouragement and support offered by various groups were frequently mentioned as releasers and motivators.

It is interesting to note that the three Partners with a high Influence behavioural style frequently mentioned the support of other people – fellow Partners, students, instructional designers and colleagues – as releasers. Innovativeness and creative approaches were mentioned as releasers by people with low Compliance, high Dominance and high Influence factor combinations. “*I consulted ID for long hours to get some structure*” was the lament of most Partners with high Compliance profiles, but was counteracted by “*knowledge and skills continuously motivated me*”.

4.4.3.4.3 Identification of job features/trait activators

A comparison of the results of the HJA for P@W Programme with the above-mentioned situational job features, as perceived by the Partners, yielded amazing results. The competences required by the jobholder that were highlighted in the HJA corresponded very highly with the influences identified by the Partners (see list below).

Competencies required by the jobholder should include the ability to:

- develop a *team atmosphere* through hard work, calmness, tolerance and consistency, attempting to fulfil work projects with honesty and integrity vs. ‘encouragement and support offered by various groups were frequently mentioned as releasers and motivators’;
- generate and provide *specialist and/or administrative services* that benefit the organisation and, depending on whether they are task or people-related, lead to a high level of internal and external customer satisfaction vs. ‘empowerment through gaining new knowledge and skills, creative application and implementation of these acquired

assets as well as the positive outcomes of their projects in terms of the set criteria, counteracted some of the distracters’;

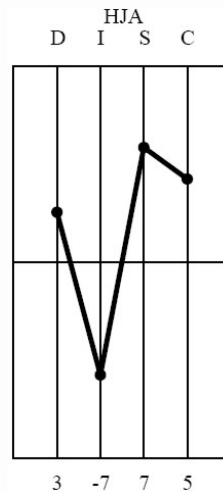
- be persistent in problem solving, seeking solutions through the expertise of both self and others. Research all the facts with care and resolve problems in a *timely and thorough* manner vs. ‘they experienced the research timeframe as inadequate and consequently felt pressurised and frustrated’;
- develop competencies and expertise in both oneself and others in order to attain satisfactory standards and *deliver results within agreed timescales* vs. ‘the fast pace, huge workload of the programme and their lack of knowledge and skills as exhausting demands’;
- enjoy challenging *problem-solving situations* and come up with well-thought through practical solutions vs. ‘lack of infrastructure with respect to Internet, classroom and laboratory facilities, slow Internet access and student demands were the most prominent negative demands on the online teacher. Positive influences on workload were availability of new technologies and support provided by assistants, furthermore nearly all the Partners mentioned the use of new technologies and application of gained knowledge as releasers that counteracts the constraints. One example of this is the use of local WebCT servers in computer laboratories to cater for the slow Internet access speed, however these interventions sometimes loaded the administrative burden which then again became a negative demand’;
- apply a *systematic and logical approach* in order to achieve accurate results vs. ‘feelings of confusion and being overwhelmed by tough programme demands’ will influence job performance negatively’;
- create a culture of *continuous improvement* vs. ‘lack of infrastructure was identified as the most prominent distracter, several innovative measures and alternatives were implemented to counteract this distracter, but nevertheless is not enough to comply to the demands and needs of the e-learning environment’;
- set *clear objectives, monitor progress, take corrective action and control performance levels* vs. ‘positive outcomes of the programme were strong releasers that counteracted negative distracters’, and
- adopt a serious and questioning manner in order to assess situations and reach conclusions, thus basing the processes on *facts and information gleaned from others* vs. ‘releasers were mostly personal support from various sources as well as formal research workshops presented by research experts from TUT.

4.4.3.4.4 Identification of job purpose

The job purpose is the holistic theme of the job pattern and the above-mentioned job features can be translated into *DISC language* and a corresponding graph to present the e-learning

practice. The following graph (see Figure 4.36) captures the job requirements for a structured working environment for the e-learning practitioner on the P@W programme. The combination of high Steadiness, high Compliance, high Dominance and low Influence factors map the job pattern in Figure 4.36.

Figure 4.36: Proposed HJA for a structured environment.



4.4.4 Synthesis of job characteristics

In conclusion, e-learning practice in a structured environment is likely to involve concepts, equipment, ideas and problem solving where a sound depth of knowledge and expertise are a strong requirement. Another very important feature is the development of a team spirit, involving the whole knowledge building community including the students. White (2000:1) is of the opinion that “online education is structured around the dynamics of human communication”. A participative, interactional communication model is vital for this environment. This may be done by building team spirit and striving for success through hard work and attempting to complete work projects with honesty and integrity. Persistence and the ability to see a job through to its conclusion are important to the role, as is security and a structured working environment. Impulsive and pressurised decision making should not be a feature of the function, however the fast pace and the sometimes unpredictable nature of the e-learning teaching and learning environment will always be an uncomfortable job feature for the practitioners who prefer a slower pace within agreed timescales without sudden changes.

4.4.5 Summary

Three levels of job analysis for the position of e-learning practitioner at TUT were investigated. The first focus area analysed important job characteristics identified from a meta-analysis of the literature. The findings resulted in two HJA reports: one for an e-learning practitioner job definition in a structured environment and one in an unstructured working environment. The second focus area analysed the e-learning practice at TUT, with the findings pertaining to a job

definition in an unstructured working environment. The third focus area analysed the e-learning practice embedded in the Partners@Work Programme at TUT, where findings resulted in an adapted HJA report for job requirements in a structured working environment.

Drawing comparisons between these findings yield thought-provoking results. A high Dominance factor was identified as an important job requirement on all three job levels. The importance of this factor will correlate with the degree of environmental structuredness. Virtual organisations with a high degree of virtuality (Shin, 2004) are characterised by a relatively flat structure as opposed to the traditional organisational hierarchy (DeSanctis & Monge, 1999; Snow, Lipnack & Stamps, 1999) in Shin (2004). Networks of individuals work together in a flexible way (unstructured work environment) and person attributes that are most important according to Shin (2004) are computer literacy, the ability to work autonomously, and time management skills. Autonomy is one of the most important values pursued by virtual organisations (Shin, 2004). Employees are expected to be self-motivated and self-directed, goal orientated and getting results. Thus employees who value this type of work arrangement are likely to be a better fit to this job.

Choices made by all the groups involved in the construction of the HJA culminated in a job requirement pointing to a high Influence factor. Virtual teams relies heavily on electronic communication and although communication is the life stream of any team it is more important in virtual teams (Cascio, 2000, in Shin, 2004) because it is necessary for effective collaboration and for building trust (Shin, 2004). It enables team members to connect across time and space. However, indices from the literature and job requirements for the Partners in a structured work environment, suggested a low Influence factor, bringing values like “working alone; can work in a job that requires little personal contact; preferring things to people, orientated to problem solving, trouble shooting and planning”, to the job.

Variation in the degree of importance of the Steadiness factor correlates with the pace of the environment. The fast pace of the unstructured environment calls for a low Steadiness factor, which is also proposed by the report based on analysis of literature. Adhering to an accepted work pattern requires a higher Steadiness factor.

Movement of the Compliance factor from above the line to below the line in the different job analysis suggests environments that vary in terms of controlled operation and working independently.

As mentioned previously the complexity of the e-learning practitioner job, contextualised in different settings, with a variety of available job roles, provides a kaleidoscope of job

opportunities to accommodate different behavioural styles in various combinations. However, bearing in mind the above findings it would be safe to argue that two prominent patterns, namely a high DI style combination and a high CS style combination emerged. As discussed in the preceding paragraphs, these two opposite combinations at the ends of a continuum, contextualised in a specific working environment will interact with the organisation to produce unique job requirements.

Research question 2

What is the latent structure of the e-learning practitioner construct in terms of work environment context?

Based on the previous discussion the basic structure of the e-learning practitioner construct in terms of work environment context as presented in this section consists of five possible configurations namely: CD/SI, CDS/I, DI/CS, SCD/I and DIC/S. As discussed previously the e-learning job is a living subsystem of the e-learning practitioner system, displaying certain characteristics, patterns and relationships. It may emerge differently from its latent position depending on a number of influences e.g. environmental structuredness.

Further discussion of how these job characteristics fit together with personal characteristics of the e-learning practitioner will be discussed in the next section.

4.5 Research Question 3

Without work all life goes rotten. But when work is soulless, life stifles and dies (Camus, n.d.).

4.5.1 *Introduction: - Analysis of P-J fit of the e-learning practitioner*

The match of the personal profiles to the requirements of the job position was obtained by means of a computerised fit between the PPA and the HJA for TUT. The computerised match between these two small groups resulted in a goodness of fit score on a scale of 1-5, where one is the best fit and five is not a good match. Because of emerging high cost implications it was not possible to score all the data by means of a computerised match. On the advice of the analyst from Thomas International and to ensure consistency in the P-J fit analysis it was decided to rather use a manual calculation method. All the PPAs were analysed against all the possible HJAs for goodness of fit. To be able to do the analysis and calculations, I received training from Thomas International in Cape Town. Results were verified by the analyst from Thomas International (Appendix D10 and Appendix E, Excerpt 4.8).

The profile analysis results were matched and scored against five different HJA results, according to the provided formula by Thomas International. Fitting the HJA to an individual personal profile will result in a fit "score" that can be used as a guideline to determine if the person will fit the job. A goodness of fit profile relating to a 1-6 score was constructed. Six out of six is the best fit and a score of one out of six indicates that this is not a good match, a score of zero indicates no fit at all. Both the PPA and the HJA are graphically represented in a visual DISC graph, so as to be able to compare compatibility of the individual to the position. The results of the PPA/HJA fit will be discussed in this section and the findings will answer the third research question:

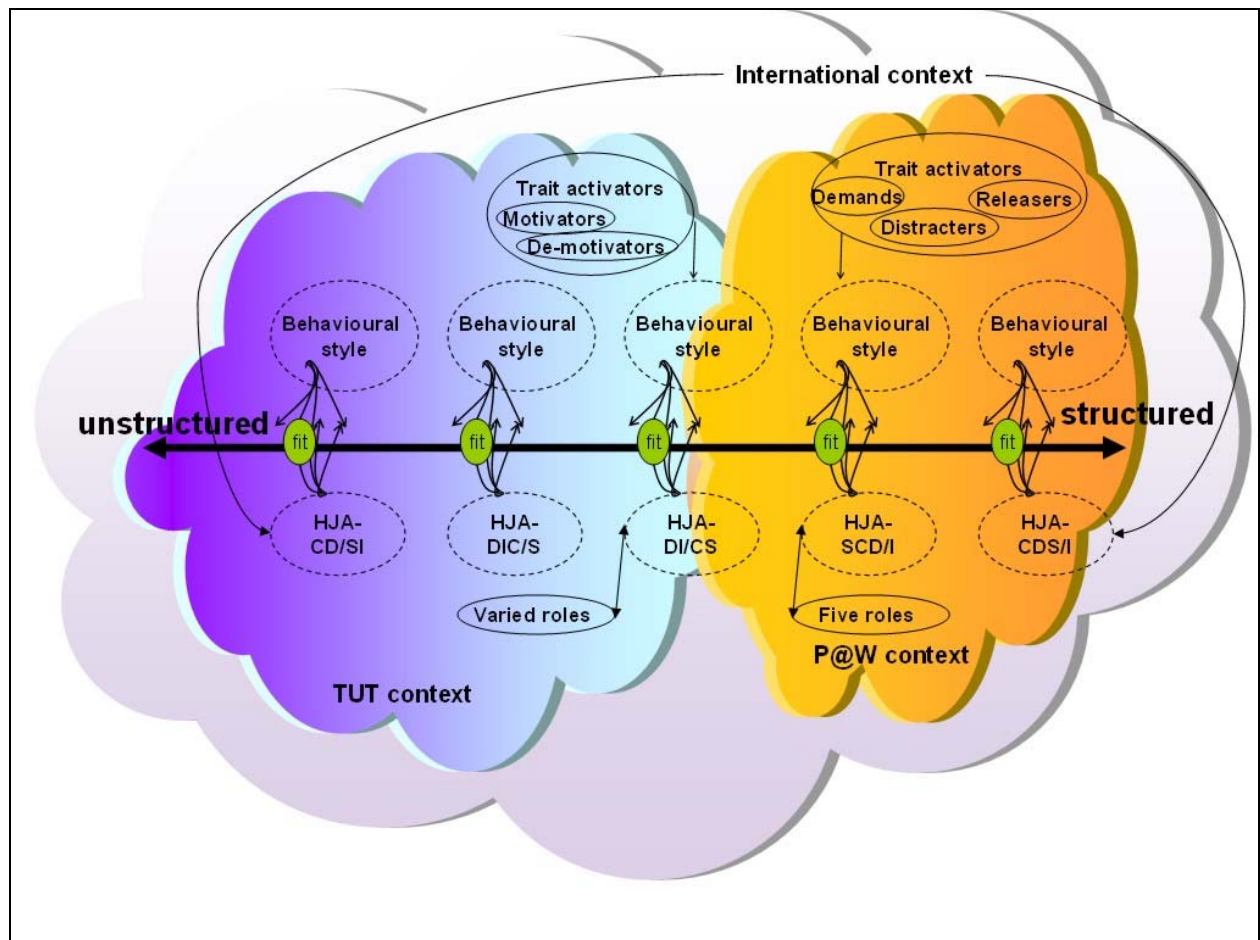
How do the work environment- and person attributes fit together in the structure of the e-learning practitioner construct?

The following subsidiary questions were complimentary to research question 3:

1. What is the P-J fit for the different groups in different e-learning work environments?
2. What is the 'goodness of fit' between the personal profile and e-learning job structures for the different e-learning practitioner groups at TUT in terms of acceptable compatibility?

Although the work environment of the e-learning practitioners in the P@W Programme is contextualised and demarcated by the parameters of the programme, it is part of the TUT organisation which is further contextualised in the international domain of higher education. However, for the purposes of this study the information on the characteristics of the e-learning practitioner as portrayed by international resources was used to get background for setting the stage. However, individual personality characteristics have no meaning as such and further analysis in terms of their relationships is indispensable for construction of meaning. As already discussed in section 3.3.3, systems thinking provided the framework to do just that and was used to integrate aspects of person attributes and human job requirements in the organisational (TUT and P@W Programme) context. Bateman and Zeithaml (1990) describe an organisational system as a set of interdependent elements with a generic structure of input, process, output and environment. The following paragraphs will describe the application of systems theory in clarifying the patterns, processes, structures and purposes of two subsystems in the TUT organisation. The two subsystems are the e-learning practice (job) and the e-learning practitioner (person) interacting on a continuum of an unstructured to a more structured environment. The inherent drivers and operating principles of the person (behavioural styles) react to environmental trait activators (motivators, demotivators) that will influence the relationship with the job. The latter react to environmental influences that will dictate the human job requirements. The congruence in the patterns and structures of the two subsystems in a given environment will result in harmony that will benefit both subsystems. See graphical presentation below (Figure 4.37).

Figure 4.37: Graphical presentation of the e-learning practitioner and -practice subsystems



Relationships between these subsystems embedded in the context of the TUT e-learning practitioner work environment and the P@W Programme will be analysed. Findings pertaining to these analyses will constitute the building blocks for the structure of the e-learning practitioner construct and answer the main research question:

What is the latent structure of the e-learning practitioner construct?

This section starts off with a discussion on the relationship between the two subsystems and reports on the P-J fit in terms of the goodness of fit of the different work environments. The focus areas are the following:

P-J fit of the e-learning practitioner in:

- international domain (see Figure 4.38);
 - PPA:HJA fit report for unstructured environment;

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group;
- Partner group;
- PPA:HJA fit report for structured environment;
 - TUT e-learning practitioner population;
 - TUT e-learning practitioner group;
 - Star performer group;
 - Partner group;
- TUT e-learning practitioner group (see Figure 4.43);
 - PPA:HJA fit report for unstructured environment;
 - TUT e-learning practitioner population;
 - TUT e-learning practitioner group;
 - Star performer group;
 - Partner group;
 - PPA:HJA fit report for structured environment (see Figure 4.48);
 - TUT e-learning practitioner population;
 - TUT e-learning practitioner group;
 - Star performer group;
 - Partner group;
- Theoretical situation as perceived by the e-learning practitioners at TUT (see Figure 4.53);
 - PPA:HJA fit report for theoretical e-learning practitioner in unstructured environment;
 - TUT e-learning practitioner population;
 - TUT e-learning practitioner group;
 - Star performer group, and
 - Partner group.

The second theme in this section continues with an analysis and comparison of the relationship between the two subsystems in terms of the different groups that were studied. The results

reported and analysed in Theme 1 are integrated in Theme 2 to enable a better understanding of the relationships between person attributes from the different groups studied and the different human job requirements for the different environments⁶ in the TUT organisational system. The focus areas are:

- The integration of findings on the relationships between the patterns and structure of P-E fit in the different environments.
- The integration of findings on the relationships between the patterns and structure of P-E fit in the different groups.

4.5.2 Theme 1: P-J fit analysis in the different domains

This theme focused on the P-J fit between the results of the personal profiles (see section 4.3) of the different groups that were studied and the results of the human job requirements as determined for the different focus areas (see section 4.4). The findings of the P-J fit are given in this section beginning with assessment of the PPAs studied being mapped onto the five different human job requirements respectively. Exemplary fit patterns for the most prominent behavioural style combinations (D, DI, ID, ICD, SC, SCD, CD, CDS, CS and CSI) and the CD/SI human job requirement profile are displayed in Appendix D10. The P-J fit analysis focuses on the self image graphs from the personal profiles, as being representative of personal characteristics. The aim of analysis was not to focus on individual profiles or individual behavioural style changes under pressure, but rather to focus on the relationships and structure of personal characteristics in the work context. Relationships between the patterns and structures of the personal profiles and the human job requirements are mapped in terms of “goodness of fit” between the relevant profiles. In this section the first research goal of the third research question is addressed.

Research goal1

To identify the relationship between the e-learning practitioners and the e-learning job (P-J fit) in terms of different work environments.

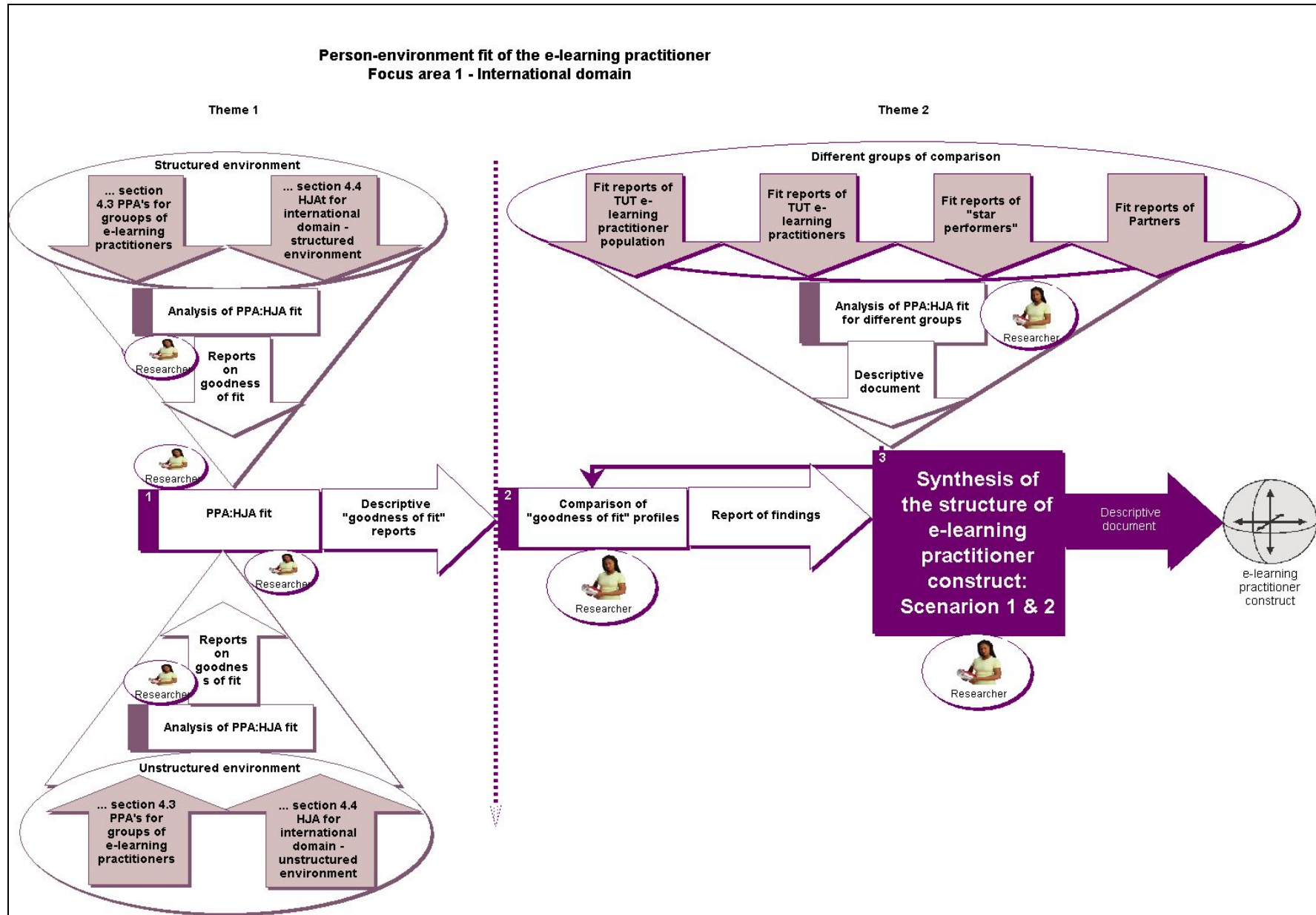
⁶ The work environment varies on a blended continuum from unstructured to structured, providing the context for the e-learning practitioners at TUT. “Unstructured” pertains to a context that “experiences more change and thus is more demanding in the sense that it doesn’t offer stability, and are open to the adoption of new inventions and ideas” (TI analyst, 26 July 2005 09:27). The structured context offers more stability, clear guidelines on standard operating procedures, and more formal job tasks. Supportive measures provided by personal assistance from the instructional designers at the Department of Telematic Education, formal project plans or limiting the focus to one area of expertise influence the environment to become more structured.

4.5.2.1 International domain focus area 1: HJA (CD/SI)

Figure 4.38 illustrates the analysis process that was followed to synthesise the findings presented in this section. P-J fit (unstructured environment) between the e-learning practitioner and HJA (CD/SI) are presented for the following groups:

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group, and
- Partner group.

Figure 4.38: P-J fit of the different groups and the international e-learning domain



4.5.2.1.1 P-J fit of the TUT population : HJA (CD/SI)

Behavioural characteristics of the e-learning practitioner as outlined in the literature review were mapped and an HJA for an unstructured environment was set up and graphed by the analyst from Thomas International (discussed in section 4.4 of this chapter). The TUT population, assessed in terms of the four DISC factors and measured against 96 personal characteristics (PPA) relevant in the work environment, displayed 23 high factor behavioural style combinations. The highest frequency of style combinations was in the Compliance (35%) factor, followed by the Dominance (26%), Influence (22%) and Steadiness (17%) factors (see Table 4.45).

Table 4.45: Frequency of style combinations in TUT population

Style combinations	Frequency (%) of Style combinations in each DISC factor
D	
DC	
DI	6 (26%)
DIC	
DIS	
DS	
IC	
ICD	
ID	5 (22%)
IS	
ISC	
S	
SC	4 (17%)
SCD	
SD	
C	
CD	
CDI	
CI	8 (35%)
CIS	
CS	
CSD	
CSI	
Total	23 (100%)

DISC personal profiles (reference Table 4.30)

CD/SI profile (reference Figure 4.27)

Measured against the CD/SI profile (see Table 4.45) these behavioural characteristics as captured in the DISC personal profiles (see Table 4.45) were assessed to determine goodness of fit.

It is evident from the graphs in Table 4.45 that the Compliance factor has the greatest strength in both the TUT population group and the human job requirements for an e-learning practitioner

in an unstructured environment. The TUT population shows the least strength in the Dominance factor, whereas the job under discussion calls for a stronger Dominance factor. Goodness of fit is measured on a 1–6 point scale, where six is best fit and one indicates that the person’s characteristics do not seem to be in line with the requirements of the HJA. A zero score indicates fit absence. The refined fit scores for the TUT population are tabulated in Table 4.46.

Table 4.46: P-J fit scores for the TUT population : HJA (CD/SI)

Styles	Frequency (%) of fit per style combination						
	6	5	4	3	2	1	0
CD	3.6	3.6					
DC		1.8					
C		1.8	3.6				
CSD		5.3					
D			1.8	1.8			
SCD			5.3				
CDI			1.8				
CS			3.6	7.1			
DS				3.6			
DIC				1.8			
IC				1.8	1.8		
ICD				5.3			
CI				1.8			
DI					3.6		
ID					7.1		
SD					3.6		
SC					10.7		
CIS					3.6		
CSI					3.6	1.8	
DIS						1.8	
ISC						1.8	
S						1.8	
IS							3.6
Total	3.6	12.5	16.1	23.2	34	7.2	3.6
	32.2						68

Table 4.46: P-J fit scores for the TUT population : HJA (CD/SI) (continued)

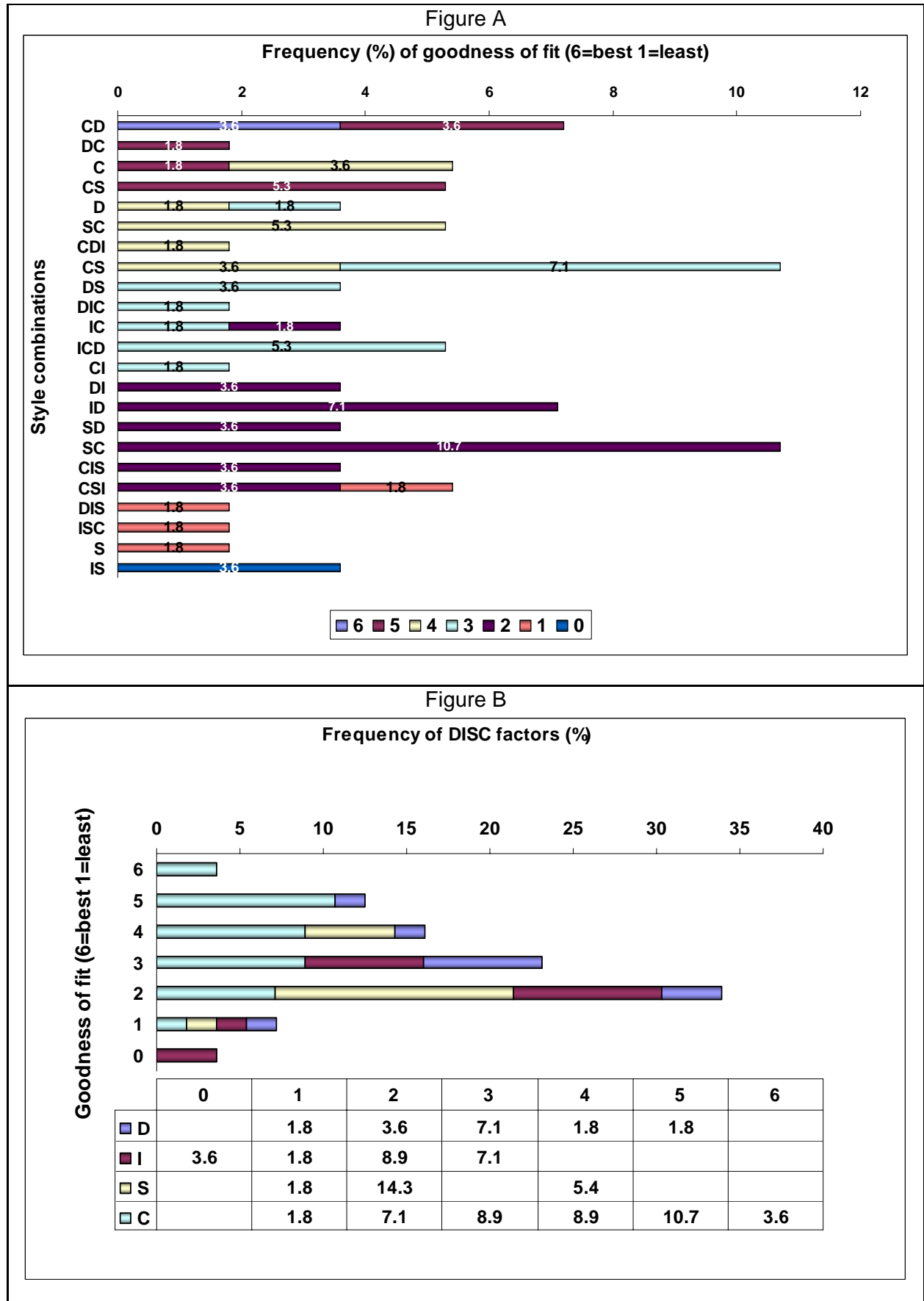


Table 4.46 shows that the best fit for the job is the high Compliance factor (style combination percentage of 3.6%), whilst other patterns of style combinations between mainly the Compliance and Dominance factors show scores of between five (style combination percentage of 12.5%) and four (style combination percentage of 16.1%) for goodness of fit. The other combinations (68%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.46.

The best fit for the job is a high CD style combination; only 3,6 percent of the population scores a best fit score. However, because of a low style distribution difference of the low factors, another 3,6 percent in the group from the high CD style combination scored five and not six⁷. A percentage of 1,8% of the group displaying a high DC profile scored five and a further five percent of the group in each of the high C and high CSD profile groups scored in the five to four range. A percentage of 1,8% of the group in each of the high D and high CDI combination groups scored four. Five percent high SCD scored four. In the 0-2 score range the high CSI, high ISC, high S and high IS style combinations represented 10.8 percent of the group.

It is evident from Table 4.46 that the Compliance factor is absent from the zero score range and the only factor present in the best fit score range, which implies that profile styles in this factor tend to be more positively related to the job requirements for the CD/SI structure. The Dominance factor is distributed towards the mid range scores slightly higher than the Steadiness factor, with no extreme high or low score. The Influence factor is distributed towards the lower score ranges, which implies that profile styles in this factor tend to be more negatively related to the job requirements for the CD/SI structure. Figure B in Table 4.46 shows that only two (3.6%) profiles of the TUT population display a job fit of 6/6.

These findings suggest that only 32 percent of the TUT population falls in an acceptable range for goodness of fit. Although the Compliance factor is the most prominent factor in the TUT population the Dominance factor is the least represented which means that if the job requirements call for a stronger Dominance factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

⁷ Identical high style combinations may display different fit scores due to variations in the low style combination patterns.

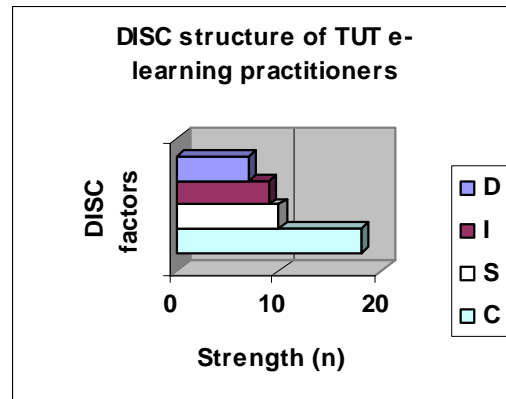
4.5.2.1.2 P-J fit of the TUT e-learning practitioner group : HJA (CD/SI)

The TUT e-learning practitioner group assessed in terms of the four DISC factors displayed similar fit patterns as the TUT population (see tables 4.47 and 4.48 and a detailed description in Appendix D11). P-J fit patterns for the TUT e-learning practitioner group exclusive of the star performer group displayed patterns more in favour of the Steadiness and Compliance factors. Figure 4.19 shows that only 10 percent of this group displayed strength in the Dominance factor. Table 4.48 shows small variances between the fit patterns from the inclusive and exclusive e-learning practitioner groups.

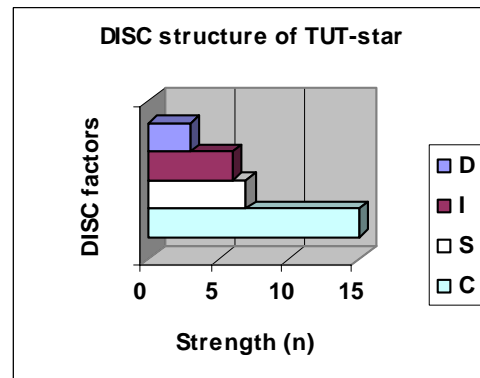
Table 4.47: Frequency of style combinations of the TUT e-learning practitioner group

Style combinations	Frequency (%) of Style combinations in each DISC factor
D	
DC	
DI	6 (27.3%)
DIC	
DIS	
DS	
IC	
ICD	
ID	5 (22.7%)
IS	
ISC	
S	
SC	3 (13.6%)
SCD	
SD	
C	
CD	
CDI	
CI	8 (36.4%)
CIS	
CS	
CSD	
CSI	
Total	23 (100%)

DISC personal profiles (reference Table 4.2)



DISC personal profiles (reference Table 4.30 and Figure 4.19)



CD/SI profile (reference Figure 4.27)

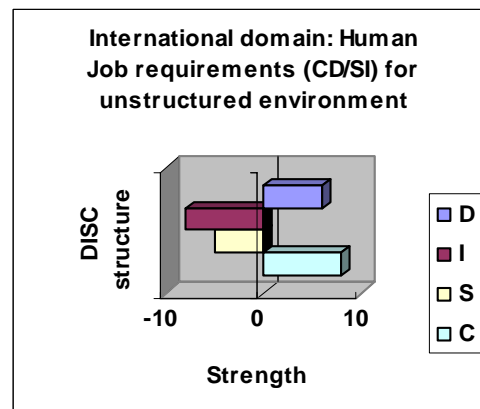


Table 4.48: P-J fit for the TUT e-learning practitioner group : HJA (CD/SI)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
CD	4.5	4.5					
DC		2.3					
C		2.3	2.3				
CSD		4.5					
D			2.3	2.3			
SCD			6.8				
CDI			2.3				
CS			2.3	4.5			
DS				2.3			
DIC				2.3			
IC				2.3	2.3		
ICD				6.8			
CI				2.3			
DI					2.3		
ID					4.5		
SD					2.3		
SC					13.6		
CIS					4.5		
CSI					6.8		
DIS						2.3	
ISC						2.3	
IS							2.3
Total	4.5	13.6	16	22.8	36.3	4.6	2.3
	34.1						66
Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding the star performers						
	6	5	4	3	2	1	0
CD	6.5	3.2					
C		3.2	3.2				
CSD		6.5	3.2				
SCD			6.5				
CS			3.2	6.5			
DIC				3.2			
IC				3.2			
ICD				9.7			
CI				3.2			
DI					3.2		
SD					3.2		
SC					12.9		
CIS					6.5		
CSI					3.2		
DIS						3.2	
ISC						3.2	
IS							3.2
Total	6.5	12.9	16.1	25.8	29	6.4	3.2
	35.5						64.4

Only 4,5 percent of the profiles of the TUT e-learning practitioner group display a job fit of 6/6. These findings suggest that only 34 percent of the TUT e-learning practitioner group fall into an acceptable range for goodness of fit. Although the Compliance factor is the most prominent factor in the TUT e-learning practitioner group the Dominance factor is the least represented and also weaker than in the total population group, which means that if the job requirements call

for a stronger Dominance factor presence, the majority of the TUT e-learning practitioners' behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job. These trends strengthen if the star performer group is excluded from the TUT e-learning practitioner group.

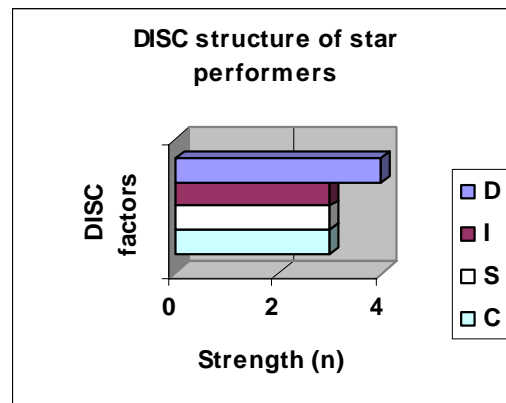
4.5.2.1.3 P-J fit of the star performer group : HJA (CD/SI)

The star performer group assessed in terms of the four DISC factors displayed nine behavioural style combinations (see Table 4.49).

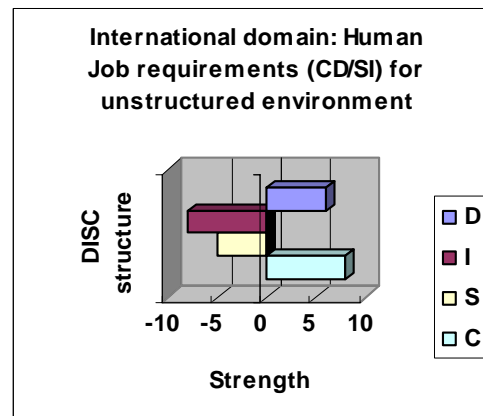
Table 4.49: Frequency of style combinations of the star performer group

Style combinations	Frequency (%) of Style combinations in each DISC factor
D	
DC	3 (33.3%)
DS	
IC	
ID	2 (22.2%)
SC	
SCD	2 (22.2%)
CD	
CSI	2 (22.2%)
Total	9 (100%)

DISC personal profiles (reference Figure 4.6)



CD/SI profile (reference Figure 4.27)



It is evident from the graphs in Table 4.49 that the Dominance factor is strongest in the star performer group, but the human job requirements for an e-learning practitioner in an unstructured environment call for a high Compliance factor. The star performer group shows equal strength in the Compliance, Steadiness and Influence factors, whereas the job under discussion calls for less strength in the Influence and Steadiness factors. Table 4.50 shows a refined fit score between the star performer group and the job.

Table 4.50: P-J fit scores for the star performer group : HJA (CD/SI)

Styles	Frequency (%) of fit scores per style combination						
	6	5	4	3	2	1	0
DC		7.7					
CD		7.7					
D			7.7	7.7			
SCD			7.7				
DS				7.7			
ID					15.4		
IC					7.7		
SC					15.4		
CSI					15.4		
Total	0	15.4	15.4	15.4	53.9	0	0
	30.8			69.3			

Figure A

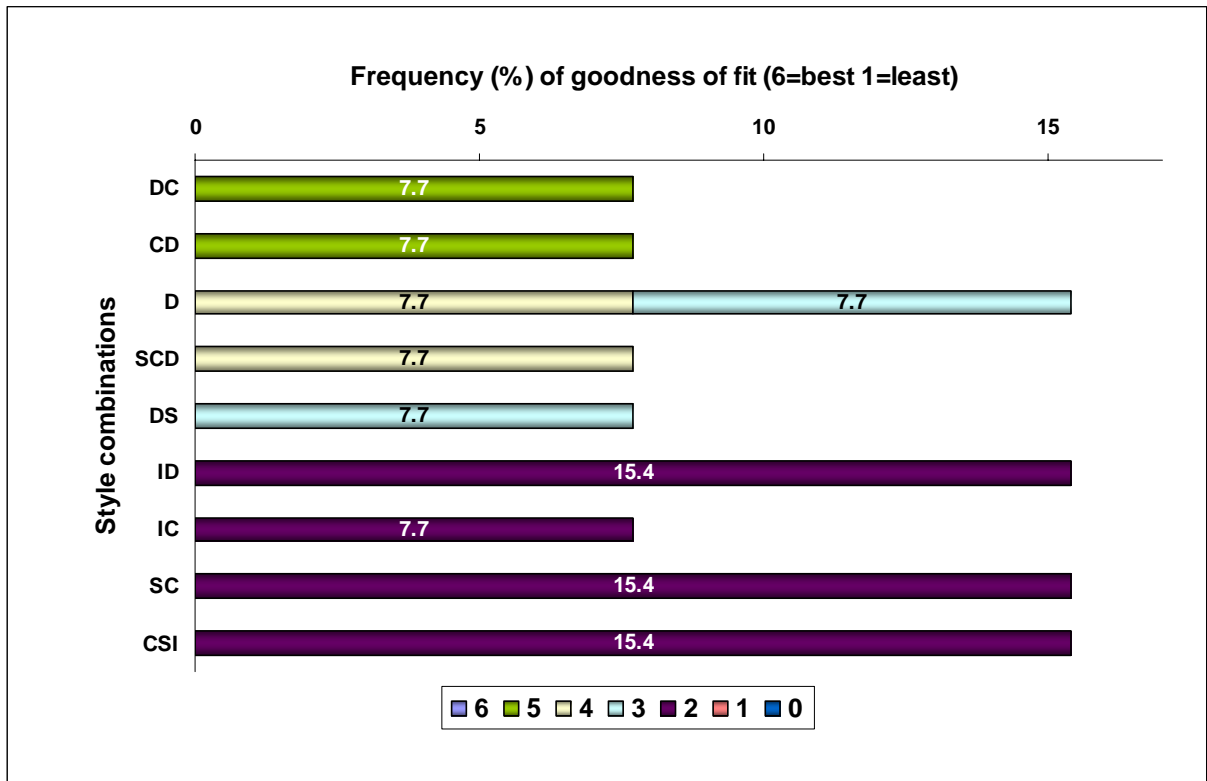


Table 4.50: P-J fit scores for the star performer group : HJA (CD/SI) (continued)

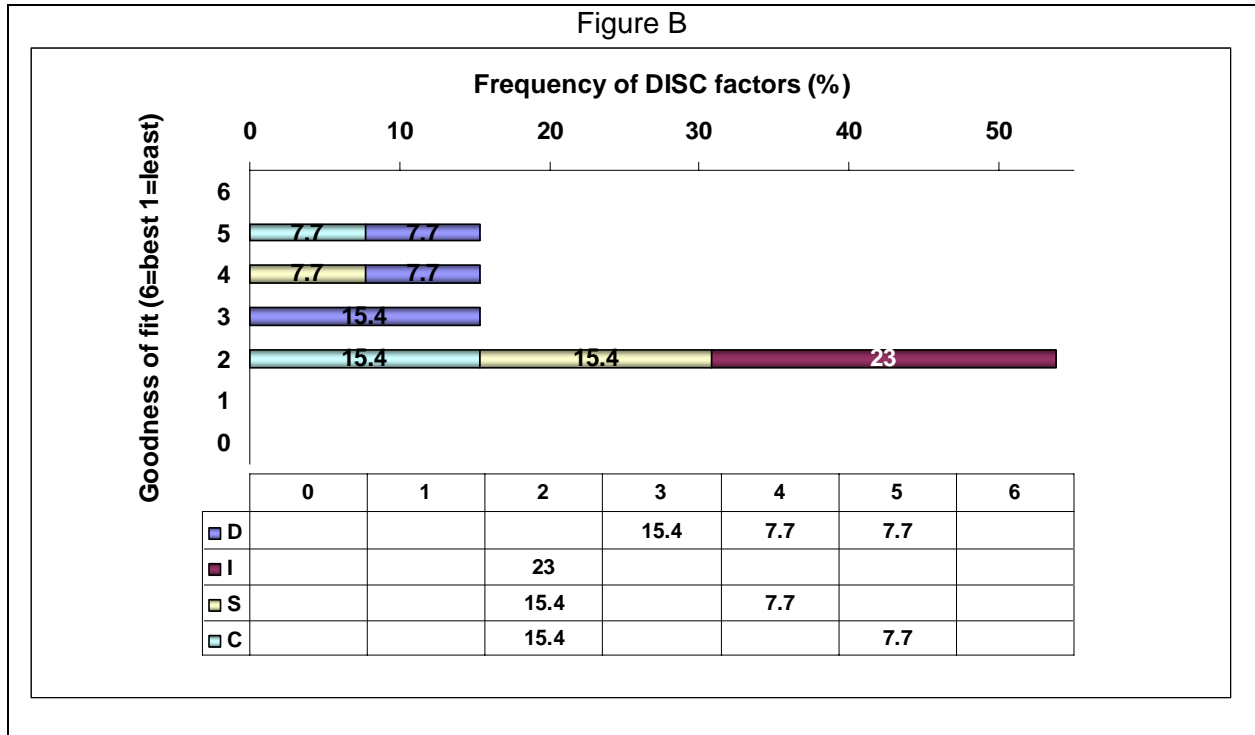


Table 4.50 shows no best fit for the job, but the two complementary style combinations, high DC and high CD (15.4%) in the Dominance and Compliance factors, show a fit range of five. The Steadiness factor shows a score of four (style combination percentage of 7.7%) for goodness of fit. The other combinations (69%) do not seem to be in line with the requirements of the HJA DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in Table 4.50.

Table 4.50 shows no factors in the extreme score ranges. The Dominance and Compliance factors present in the five fit score range imply that profile styles for these factors tend to be more positively related to the job requirements for the CD/SI structure. The Influence factor is only present in the two fit score range and 15,4 percent of the Compliance and 15,4 percent of the Steadiness factors are also distributed towards the lower score range, which implies that profile styles in these factor combinations tend to be more negatively related to the job requirements for the CD/SI structure. Table 4.50 shows that 30,8 percent of this group fall into an acceptable range for goodness of fit.

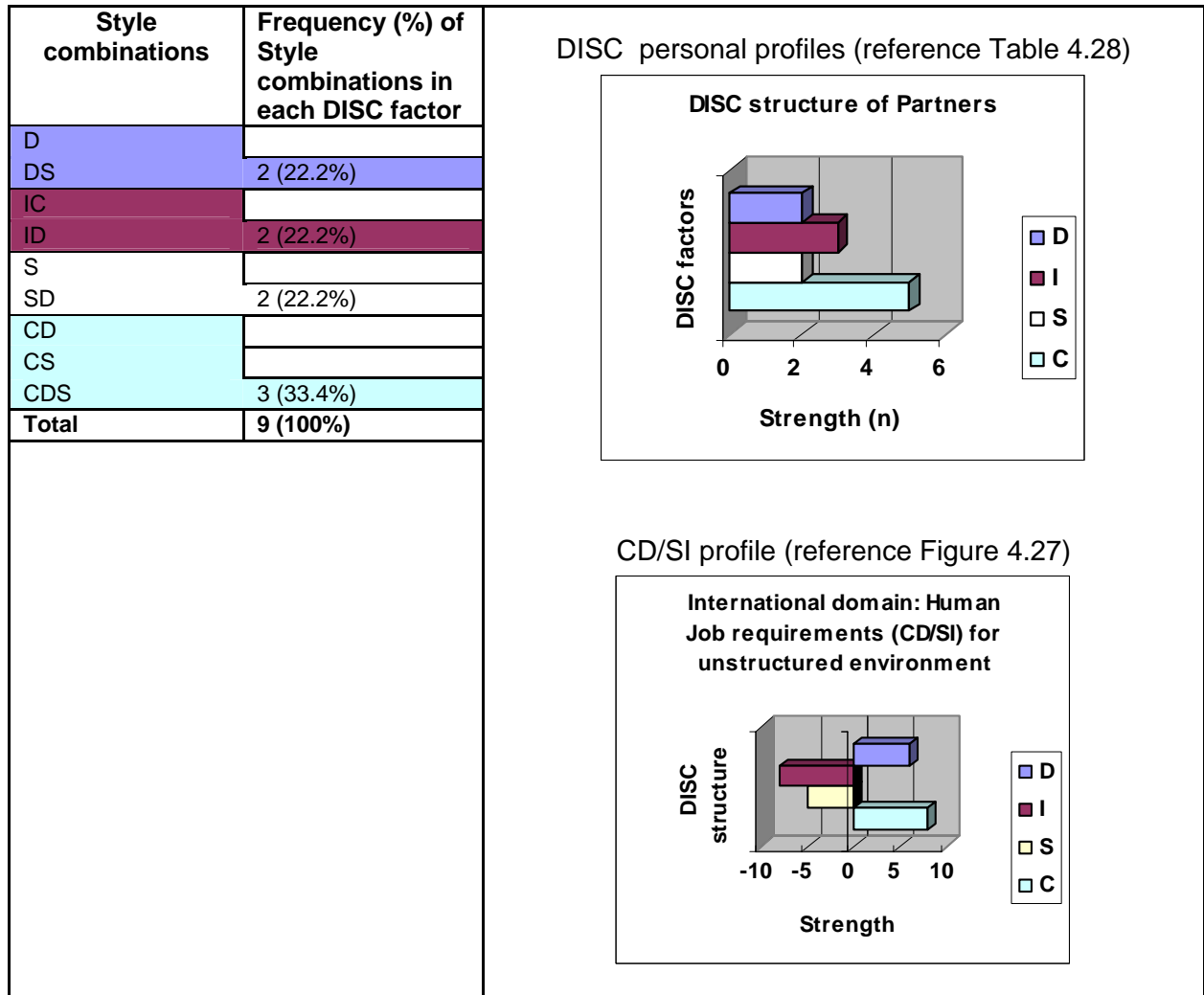
The star performer group differs from the TUT population in that the Dominance factor is the most prominent in the group, but the least represented in the TUT population group. Although the Compliance factor is the most prominent factor in the TUT population, the star performer group presents an equal distribution of the Compliance, Steadiness and Influence factors. The job requirements under discussion call for a stronger Compliance factor presence thus the

majority of the star performers' behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.1.4 P-J fit of the Partner group : HJA (CD/SI)

The Partner group assessed in terms of the four DISC factors displayed nine behavioural style combinations. The highest frequency of style combinations was in the Compliance factor (33%), followed by the other factors (22%) each (see Table 4.51).

Table 4.51: Frequency of style combinations of the Partner group



It is evident from the graphs in Table 4.51 is that the Compliance factor has the greatest strength in both the Partner group, and the human job requirements for an e-learning practitioner in an unstructured environment. The Partner group shows strength in the Influence factors, whereas the job under discussion calls for less strength in the Influence and Steadiness factors. Table 4.52 shows a refined fit score between the Partner group and the job.

Table 4.52: P-J fit scores for the Partner group : HJA (CD/SI)

Styles	Frequency (%) of fit scores per style combination						
	6	5	4	3	2	1	0
CSD		8.3					
C			8.3				
CS			8.3	16.7			
DS				8.3			
DI					8.3		
ID					16.7		
SD					8.3		
S						8.3	
IS							8.3
Total	0	8.3	16.6	25	33.3	8.3	8.3
	24.9				74.9		

Figure A

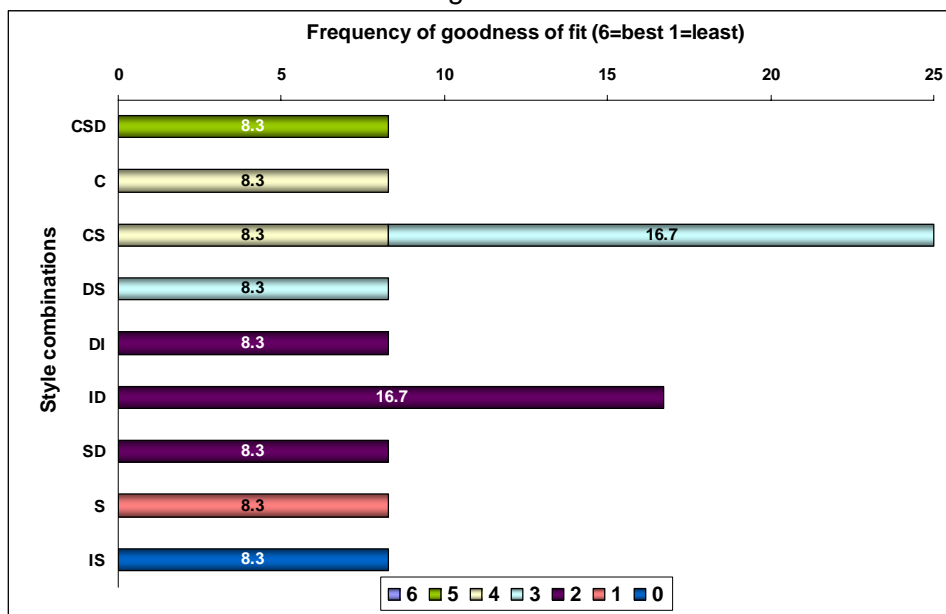


Figure B

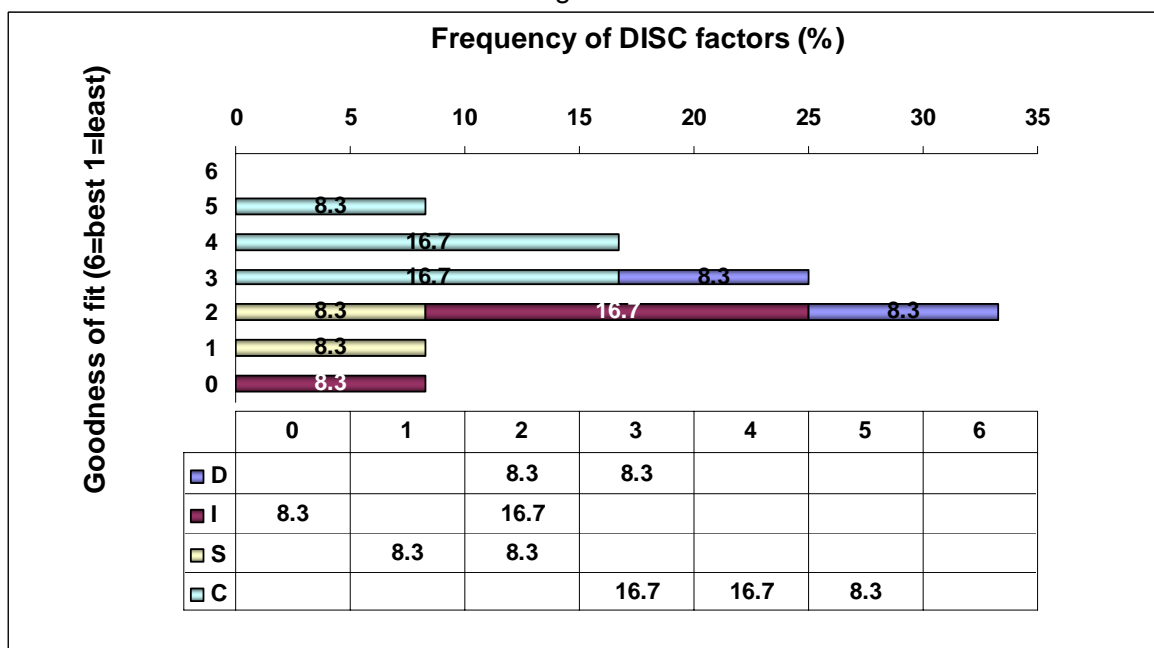


Table 4.52 shows no best fit for the job, but a high CSD style combination and high Compliance factors show a fit range of five and four. The Steadiness and Influence factors show scores in the low ranges. Only 25 percent of the Partners group falls into the acceptable P-J fit score range, while the other combinations (75%)⁸ do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.52.

Table 4.52 shows no factors in the best fit score range and one style combination, namely the high IS, in the zero fit score category. The Compliance factor is present in the five fit score range, implying that profile styles for this factor tend to be more positively related to the job requirements for the CD/SI structure. The Influence factor is only present in the two and zero fit score range, which implies that profile styles in these factor combinations tend to be more negatively related to the job requirements for the CD/SI structure. Approximately seventeen percent of the Dominance factors fall into the 3-2 score ranges. The majority of Compliance factors are distributed in the 5-3 score ranges. The findings suggest that only 25 percent of the Partner group fall into an acceptable range for goodness of fit. The majority (75%) of the Partner group's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

The Partner group complements the TUT population in that the Compliance factor is the most prominent, but the Influence factor is stronger in the Partner group, with the other two factors equally the lowest represented. The job requirements under discussion call for a stronger Dominance factor, presence thus the majority of the Partner behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.2 International domain focus area 2: HJA (CDS/I)

Figure 4.38 illustrates the analysis process that was followed to synthesise the findings presented in this section. P-J fit (structured environment) between the e-learning practitioner and the HJA (CDS/I) are presented for the following groups:

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group, and
- Partner group.

⁸ Note: It is possible that percentages shown in figures may differ slightly because of the use of approximate values.

4.5.2.2.1 Person-job fit of the TUT population : HJA (CDS/I)

Behavioural characteristics of the e-learning practitioner as outlined in the literature review were mapped and an HJA for a structured environment was set up and graphed by the analyst from Thomas International (discussed in section 4.4 of this chapter). To adapt the original CD/SI profile to a profile applicable in a structured environment, the Compliance factor was adapted to a slightly lower value and the Steadiness factor to a positive value. This resulted in a CDS/I HJA graph (see section 4.4.1.2.1). Measured against the CDS/I profile the behavioural characteristics of the TUT population as captured in the DISC personal profiles (see Figure 4.39) were assessed to determine goodness of fit. The scores for the TUT population are tabulated in Table 4.53 display similarities with the scores for the e-learning practitioner group (see Appendix D11 for details). Only 35,7 percent of the TUT population fall into an acceptable range for goodness of fit. Although the Compliance factors are the most prominent and the Steadiness factors are moderately present in the TUT population, the Dominance factor is the least represented which means that if the job requirements call for a stronger Dominance factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

Figure 4.39: DISC factor distribution for TUT population vs. HJA (CDS/I)

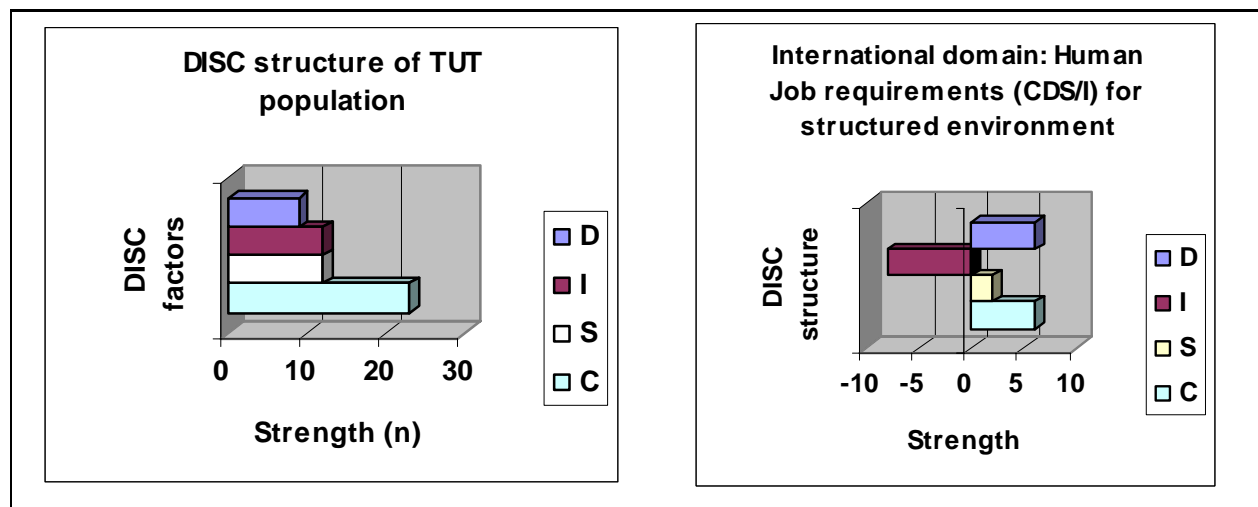


Table 4.53: P-J fit for the TUT population : HJA (CDS/I)

Styles	Frequency (%) of fit scores per style combination						
	6	5	4	3	2	1	0
CSD	5.3						
CD		3.6	3.6				
CS		3.6	7.1				
SCD		5.3					
C			1.8	3.6			
DC			3.6				
DS			1.8				
CDI				1.8			
CIS				3.6			
CSI				5.3			
D				1.8	1.8		
SC				10.7			
SD				3.6			
CI					1.8		
DIC					1.8		
ISC					1.8		
IC					1.8	1.8	
ICD					5.3		
S					1.8		
DI						3.6	
DIS						1.8	
ID						7.1	
IS						3.6	
Total	5.3	12.5	17.9	30.4	16.1	17.9	0
	35.7			64.4			

Figure A

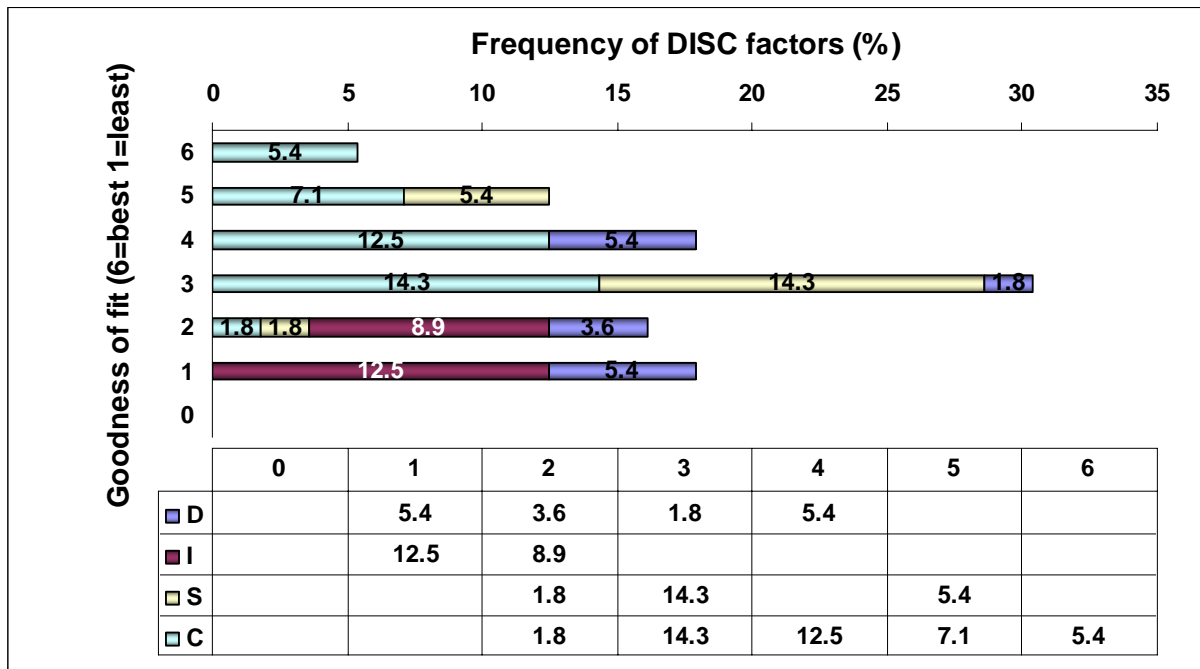
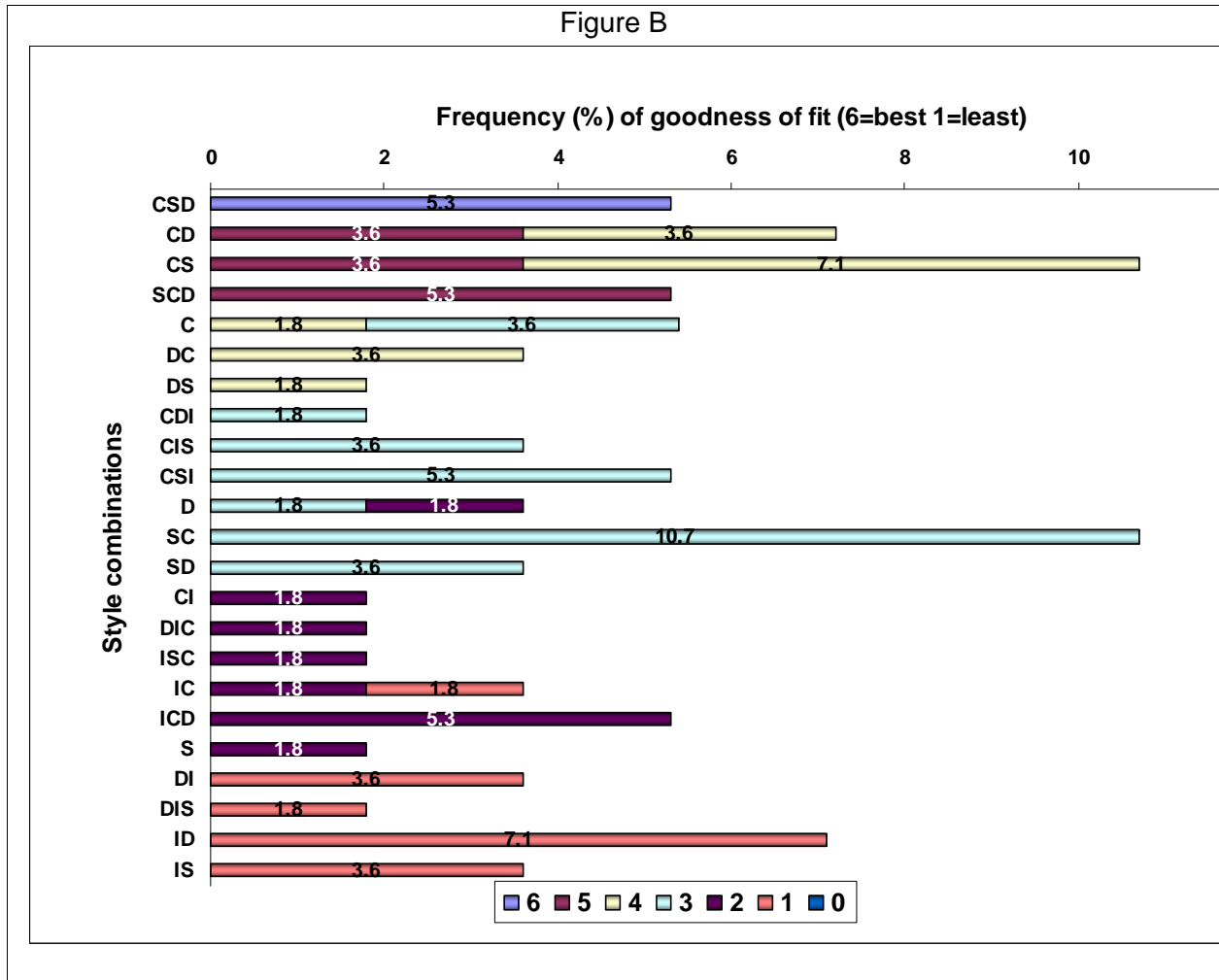


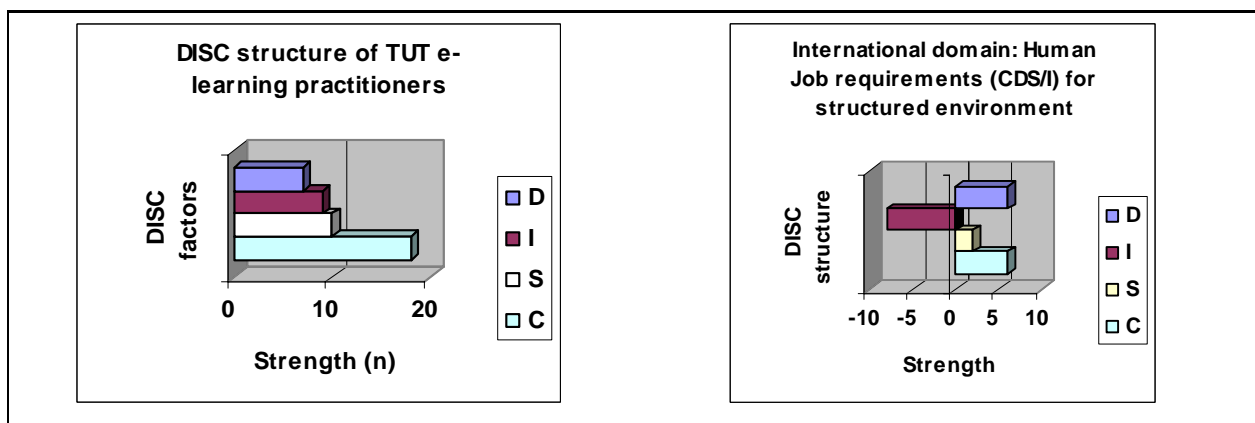
Table 4.53: P-J fit for the TUT population: HJA (CDS/I) (continued)



4.5.2.2.2 P-J fit of the e-learning practitioner group: HJA (CDS/I)

Measured against the CDS/I profile the behavioural characteristics of the e-learning group at TUT as captured in the DISC personal profiles (see Figure 4.40) were assessed to determine goodness of fit. The scores for the e-learning group are tabulated in Table 4.54.

Figure 4.40: DISC factor distribution for e-learning group at TUT vs. HJA (CDS/I)



It is evident from Figure 4.40 that the Compliance factor has the greatest strength in both the TUT population group and the human job requirements for an e-learning practitioner in a structured environment. The Steadiness factor in the TUT profile is more prominent than the one for the CDS/I HJA and the TUT e-learning practitioner group shows the least strength in the Dominance factor; whereas the job under discussion calls for a stronger Dominance factor. Table 4.54 shows a refined fit score between the TUT e-learning group and the job.

Table 4.54: P-J fit for the TUT e-learning group : HJA (CDS/I)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
CSD	4.5						
CD		4.5	4.5				
CS		2.3	4.5				
SCD		6.8					
C			2.3	2.3			
DC			2.3				
DS			2.3				
CDI				2.3			
CIS				4.5			
CSI				6.8			
D				2.3	2.3		
SC				13.6			
SD				2.3			
CI					2.3		
DIC					2.3		
ISC					2.3		
IC					2.3	2.3	
ICD					6.8		
DI						2.3	
DIS						2.3	
ID						4.5	
IS						2.3	
Total	4.5	13.6	15.9	34.1	18.3	13.7	0
	34				66.1		
Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding star performers						
	6	5	4	3	2	1	0
CSD	6.5						
CD		6.5	3.2				
CS		3.2	6.5				
SCD		6.5					
C			3.2	3.2			
CDI				3.2			
CIS				6.5			
CSI				3.2			
SC				12.9			
SD				3.2			
CI					3.2		
DIC					3.2		
IC					3.2		
ICD					9.7		
ISC					3.2		
DI						3.2	
DIS						3.2	
IS						3.2	
Total	6.5	16.2	12.9	32.2	22.5	9.6	0
	35.6				64.3		

Table 4.54: P-J fit for the TUT e-learning group : HJA (CDS/I) (continued)

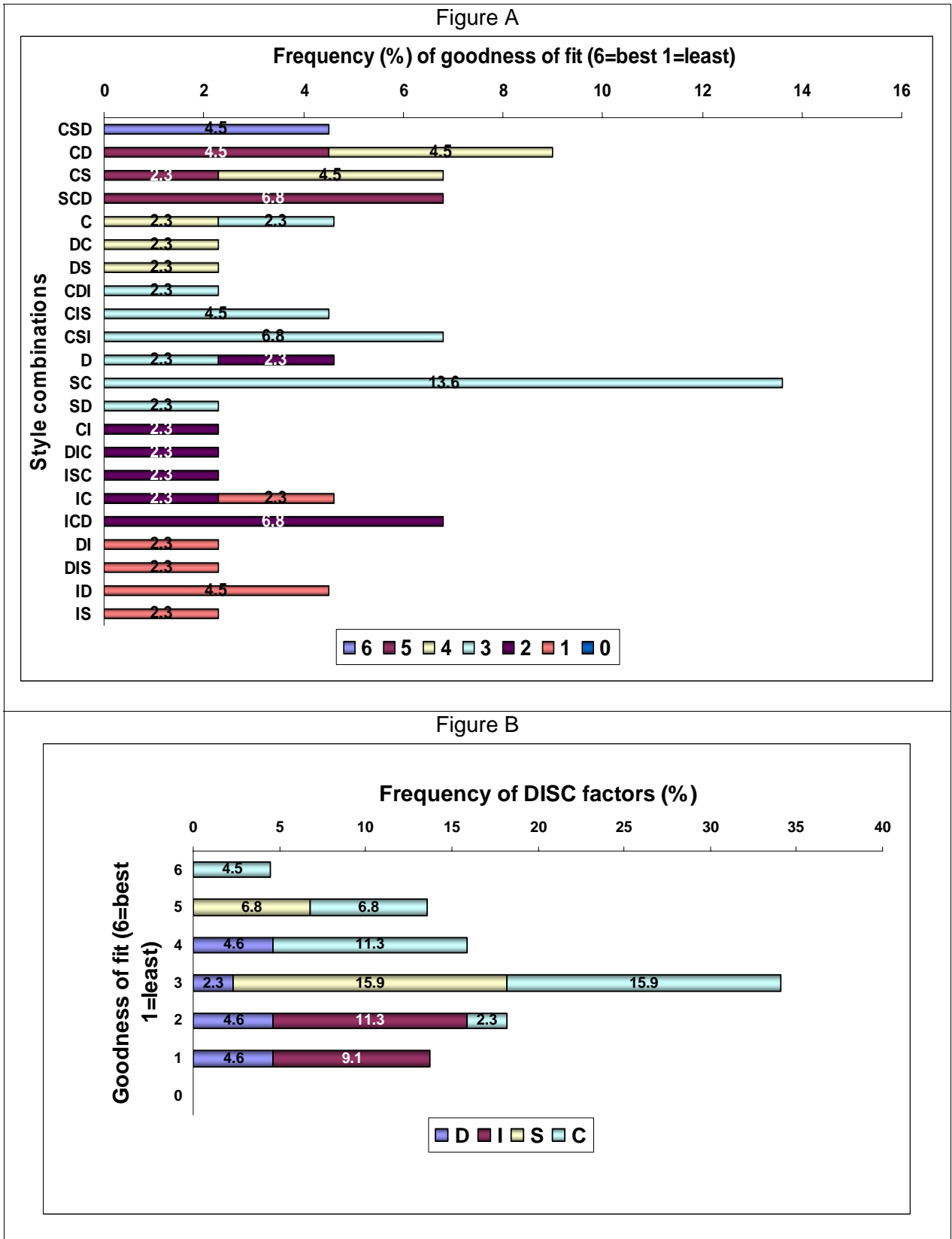


Table 4.54 shows that the best fit for the job is the high Compliance factor (style combination percentage of 4.5%), whilst other patterns of style combinations between the Compliance and Steadiness and to a lesser extent the Dominance factors show scores between five (style combination percentage of 13.6 %) and four (style combination percentage of 15.9%) for

goodness of fit. The other combinations (66%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.54.

Only 4,5 percent from the group in the high CD, 2,3 percent from the group in the high CS and 6,8 percent from the group in the high SCD style combinations scored five. A percentage of 2,3% of the group in each of the high C, high DS, high DC and 4,5 percent of group in the high CD and high CS combination groups scored four. None scored in the zero range and in the 1-2 score range a variety of high D and high I style combinations are displayed by 29,7 percent of the group.

Table 4.54 shows the Compliance factor is absent from the 0-1 score range and is the only factor present in the best fit score range, which implies that profile styles in this factor tend to be more positively related to the job requirements for the CDS/I structure. The Dominance factor is distributed towards the mid to low range scores, slightly lower than the Steadiness factor, with no extreme high score but present in the low score range. The Steadiness factor is distributed towards the mid range scores, showing no extreme scores. The Influence factor is distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related towards the job requirements for the CD/SI structure.

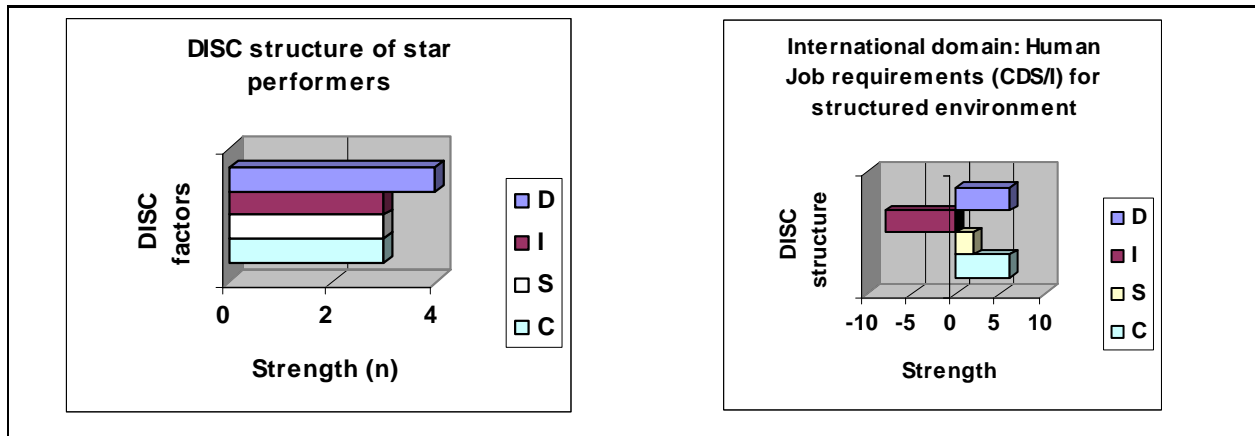
The highest frequency of **best** fit style combinations in the structure of the P-J fit between the TUT e-learning practitioner group and the CDS/I Human Job requirements is displayed in the high Compliance Dominance Steadiness style combinations. The highest frequency of **least** fit style combinations in the structure of the P-J fit between the TUT e-learning practitioner group and the CDS/I Human Job requirements is displayed in the high Influence style combinations.

Only 4,5 percent profiles of the e-learning group display a job fit of 6/6, which correspond with the score of the TUT population (see Table 4.54). If the star performers are excluded from this group the percentage increases to 6,5 percent (see Table 4.54). These findings suggest that if the star performer group is excluded from the group only 35,6 percent of the TUT e-learning practitioner group fall in an acceptable range for goodness of fit.

4.5.2.2.3 P-J fit of the star performer group : HJA (CDS/I)

Measured against the CDS/I profile the behavioural characteristics of the star performer group as captured in the DISC personal profiles (see Figure 4.41) were assessed to determine goodness of fit. The scores for the star performer group are tabulated in Table 4.55.

Figure 4.41: DISC factor distribution for star performers vs. HJA (CDS/I)



It is evident from Figure 4.41 that the Dominance factor has the greatest strength in the star performer group and the human job requirements call for high Dominance and Compliance factors. The Steadiness factor in the star performers' profile is more prominent and the Influence factor too strong for the CDS/I HJA requirement. Table 4.55 shows a refined fit score between the star performer group and the job.

Table 4.55: P-J fit for the star performer group : HJA (CDS/I)

Styles	Frequency (%) of fit scores per style combination from star performer group						
	6	5	4	3	2	1	0
SCD		7.7					
DS			7.7				
DC			7.7				
CD			7.7				
D				7.7	7.7		
SC				15.4			
CSI				15.4			
ID						15.4	
IC						7.7	
Total	0	7.7	23.1	38.5	7.7	23.1	0
	30.8			69.3			

Table 4.55: P-J fit for the star performer group : HJA (CDS/I) (continued)

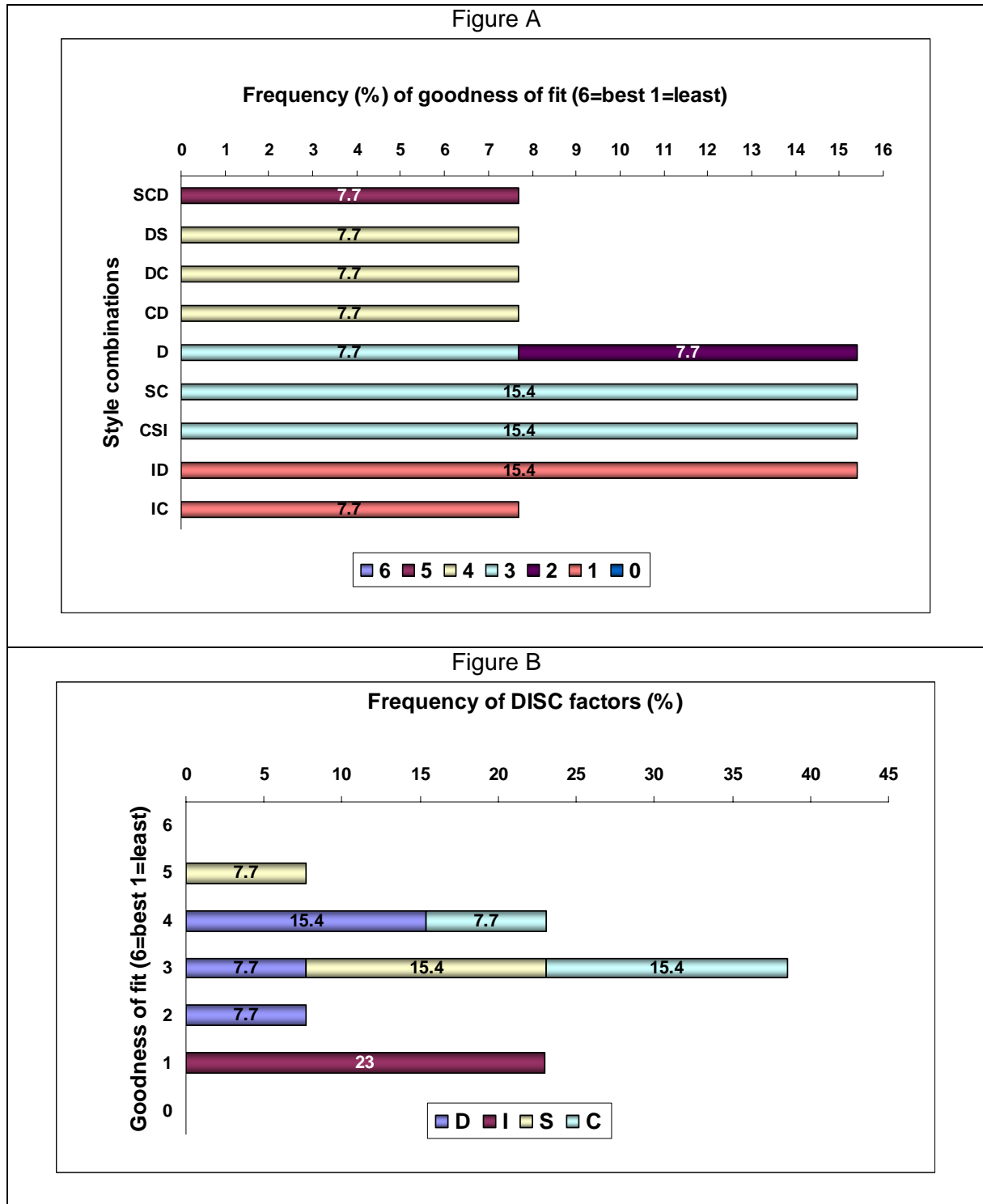


Table 4.55 shows no best fit for the job, and only the Steadiness (7.7%) displays a fit score of five. The Dominance (15.4%) and the Compliance (7.7%) factors display a fit score of four. The other Steadiness, Dominance and Compliance factors are distributed in the mid score ranges. The Influence factor (23%), including all the high Influence style combinations, is in the one fit score range. Sixty-nine percent of the star performer group does not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.55.

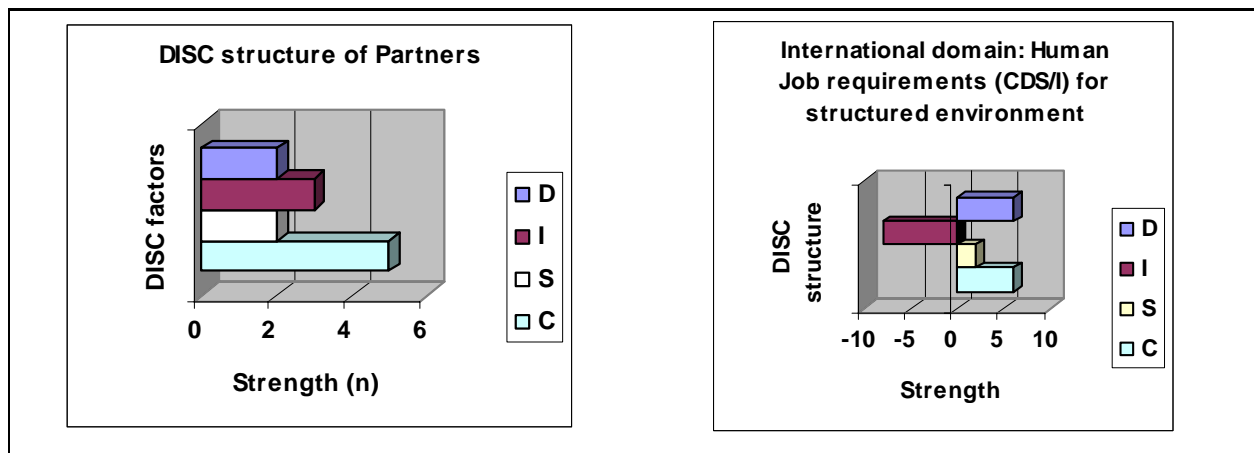
Table 4.55 shows no factors in the extreme score ranges. None of the star performer group displays a job fit of 6/6 but these findings (Table 4.55) suggest that 31 percent of this group fall into an acceptable range for goodness of fit. The majority (69%) of the star performer group's behavioural characteristics do not seem to match the requirements of the HJA and will thus not be a natural fit for the job.

The star performer group differs from the TUT population in that the Dominance factor is the most prominent in this group but the least represented in the TUT population. Although the Compliance factor is the most prominent factor in the TUT population, the star performer group displays an equal distribution of the Compliance, Steadiness and Influence factors. The job requirements under discussion call for a stronger Compliance and Steadiness factor presence thus the majority of the star performers' behavioural characteristics do not seem to match the requirements of the HJA and hence they will not be a natural fit for the job.

4.5.2.2.4 P-J fit of the Partner group : HJA (CDS/I)

Measured against the CDS/I profile the behavioural characteristics of the Partner group as captured in the DISC personal profiles (see Figure 4.42) were assessed to determine goodness of fit. The scores for the Partner group are tabulated in Table 4.56.

Figure 4.42: DISC factor distribution for Partners at TUT vs. HJA (CDS/I)



It is evident from Figure 4.42 that the Compliance factor has the greatest strength in the Partner group and the human job requirements call for high Dominance and Compliance factors. The Steadiness factor in the Partner's profile is more prominent and the Influence factor too strong for the CDS/I HJA requirement. Table 4.56 shows a refined fit score between the Partner group and the job.

Table 4.56: P-J fit for the Partner group : HJA (CDS/I)

Styles	Frequency (%) of fit scores per style combination for Partner group						
	6	5	4	3	2	1	0
CSD	8.3						
CS		8.3	16.7				
DS			8.3				
SD				8.3			
C				8.3			
S					8.3		
DI						8.3	
ID						16.7	
IS						8.3	
Total	8.3	8.3	25	16.6	8.3	33.3	0
	41.6			58.2			

Figure A

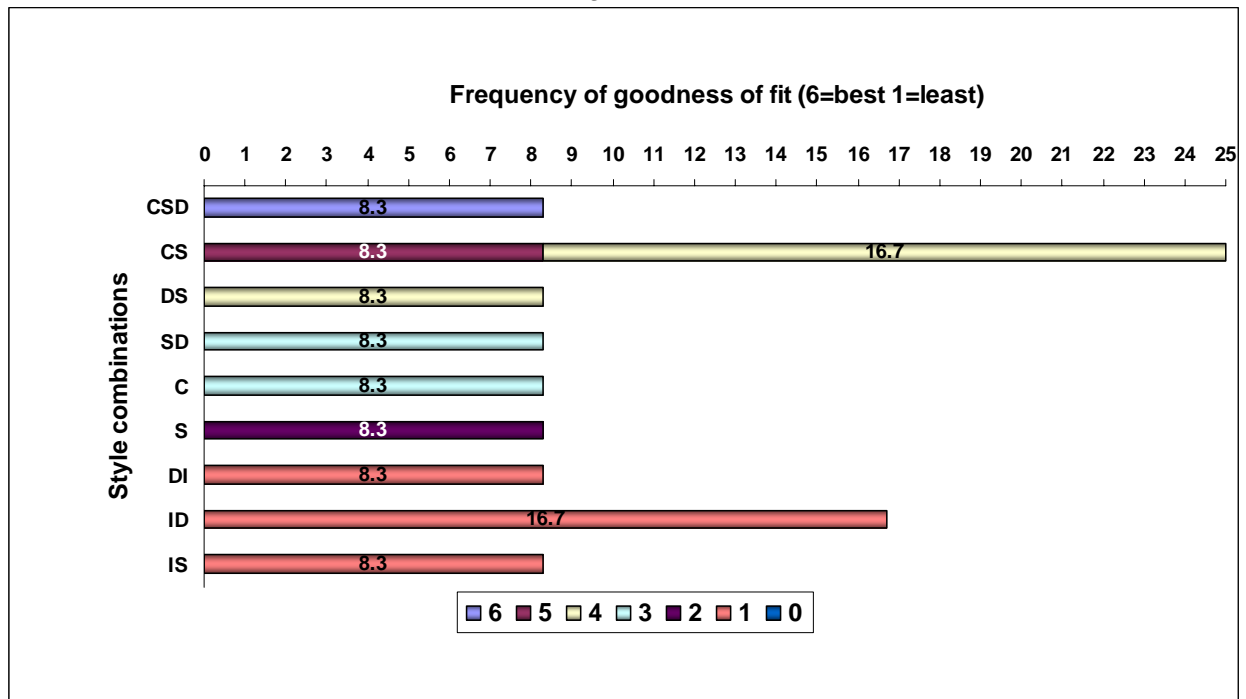


Table 4.56: P-J fit for the Partner group : HJA (CDS/I) (continued)

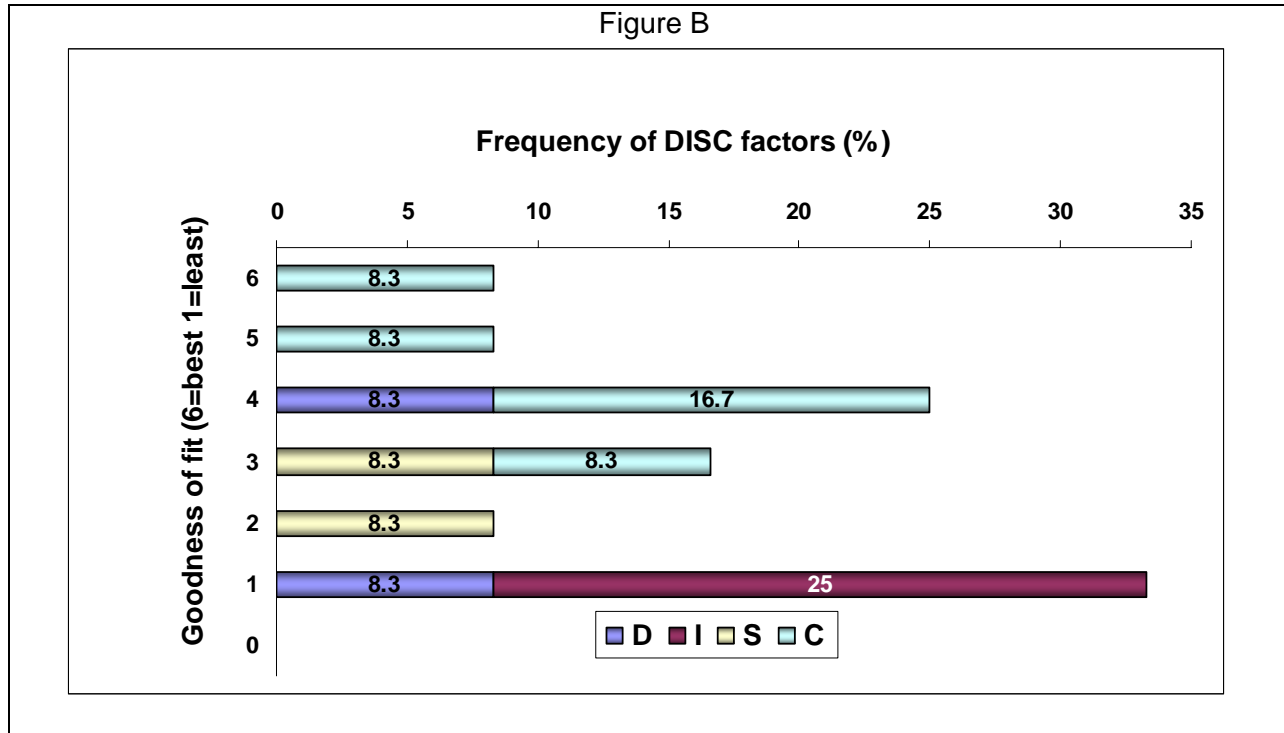


Table 4.56 shows the high CSD style combination as a best fit for the job, and the Compliance (25%) and Dominance (8.3%) display fit scores in the 5-4 score range. The Influence factor (25%), including all the high Influence style combinations, are in the one fit score range. These findings suggest that 42 percent of the Partner group falls in an acceptable range of goodness of fit and only 58 percent does not seem to be in line with the requirements of the HJA. DISC factor *structure* and frequency of style combination *patterns* in terms of goodness of fit are graphically presented in figures A and B in Table 4.56.

Table 4.56 shows no factors in the extreme low score ranges and the high CSD style combination as a best fit. The high DS and high CS factors present in the five fit score range imply that profile styles in this factor tends to be more positively related to the job requirements for the CDS/I structure. The Steadiness and Compliance style combinations are distributed towards the three to six fit score range. A percentage of 8,3% of the Dominance factors and all the Influence factors are in the low fit score ranges, which imply that profile styles in these factor combinations tend to be more negatively related to the job requirements for the CDS/I structure.

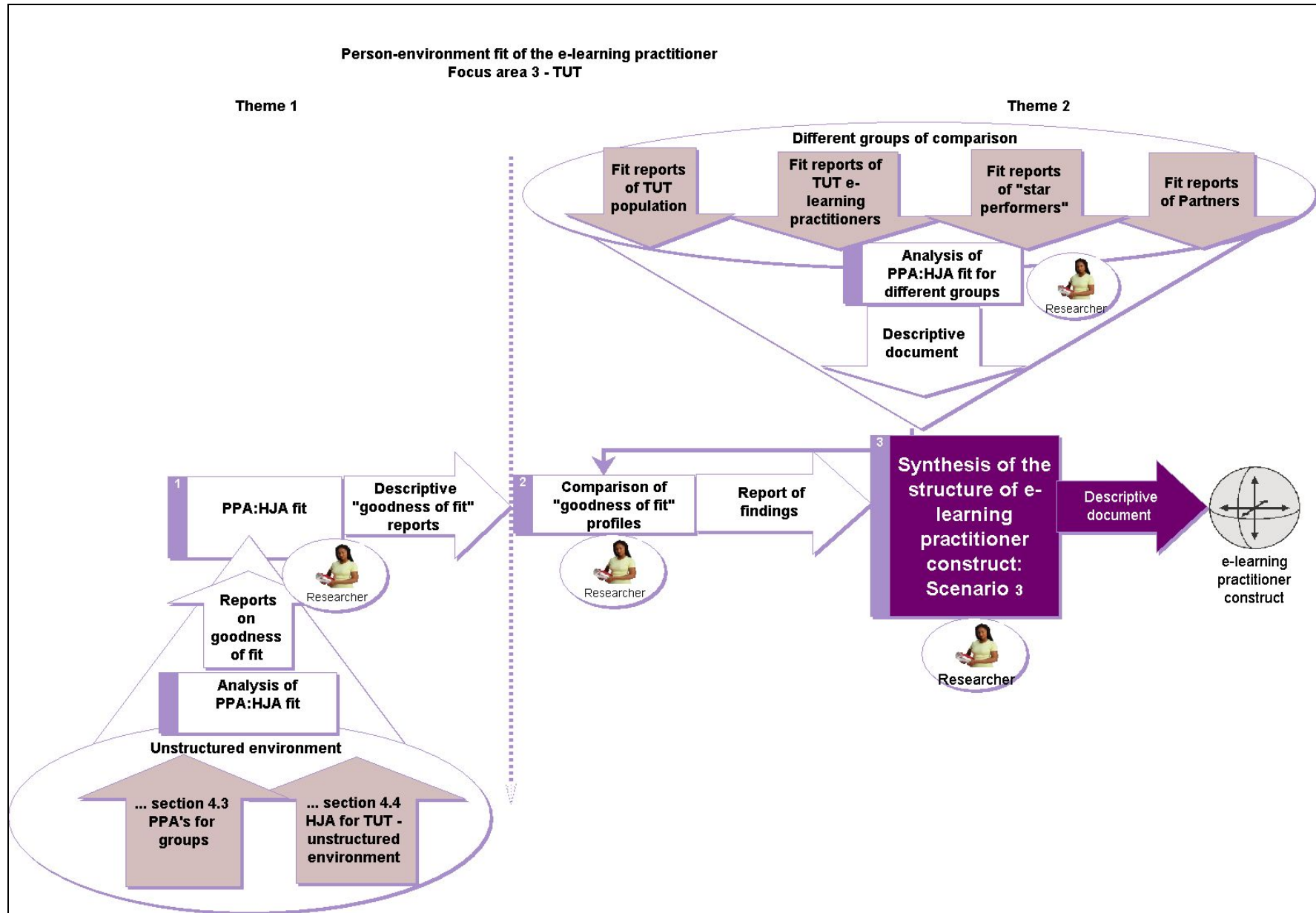
The Partner group complements the TUT population in that the Compliance factor is the most prominent, however the high CS style combination accounts for 60 percent of the style combinations in the Compliance factor. The job requirements under discussion call for a strong Compliance factor presence and 42 percent of the Partner's style combinations show an acceptable job-fit score. However the majority of the Partner's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.3 TUT domain focus area 3 : HJA (DI/CS)

Figure 4.43 illustrates the analysis process that was followed to synthesise the findings presented in this section. P-J fit (unstructured environment) between the e-learning practitioner and HJA (DI/CS) are presented for:

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group, and
- Partner group.

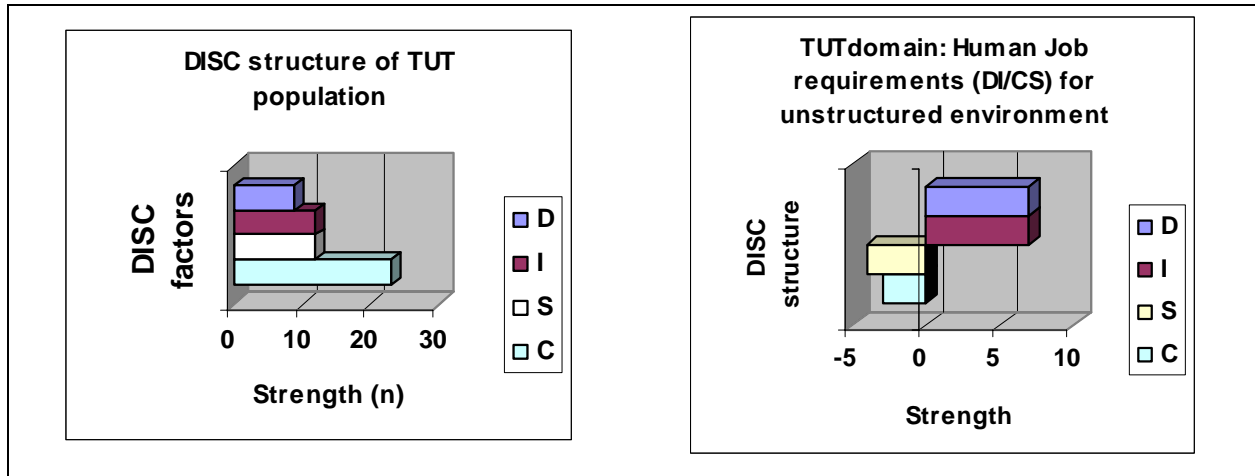
Figure 4.43: P-J fit of the e-learning practitioner and requirements from the TUT domain



4.5.2.3.1 P-J fit of the TUT population : HJA (DI/CS)

Behavioural characteristics of the TUT e-learning practitioner population captured in the PPAs were graphed and measured against the DI/CS profile (see Figure 4.44) to determine goodness of fit. The scores for the TUT population are tabulated in Table 4.57.

Figure 4.44: DISC factor distribution for TUT population vs. HJA (DI/CS)



It is evident from Figure 4.44 that the Dominance factor has the greatest strength in the human job requirements for an e-learning practitioner in an unstructured environment, but the lowest strength in the TUT population group. The Influence factor in the TUT profile is less prominent than the one for the DI/CS HJA and the TUT population shows the greatest strength in the Compliance factor, whereas the job under discussion calls for a low Compliance factor. The two graphs display two opposites Table 4.57 shows a refined fit score for the TUT population and the job.

Table 4.57: P-J fit for the TUT population : HJA (DI/CS)

Styles	Frequency (%) of fit scores per style combination for population						
	6	5	4	3	2	1	0
DI	3.6						
DIC		1.8					
ID		3.6	3.6				
CDI			1.8				
D			3.6				
DC			1.8				
DIS			1.8				
IC			1.8	1.8			
ICD			5.4				
CD				3.6	3.6		
CI				1.8			
DS				3.6			
C					1.8	3.6	
IS					3.6		
SD					3.6		
CIS						3.6	
CSD						5.4	
CSI						5.4	
ISC						1.8	
SCD						5.4	
S						1.8	
CS							10.7
SC							10.7
Total	3.6	5.4	19.8	10.8	12.6	27	21.4
	28.8			71.8			

Figure A

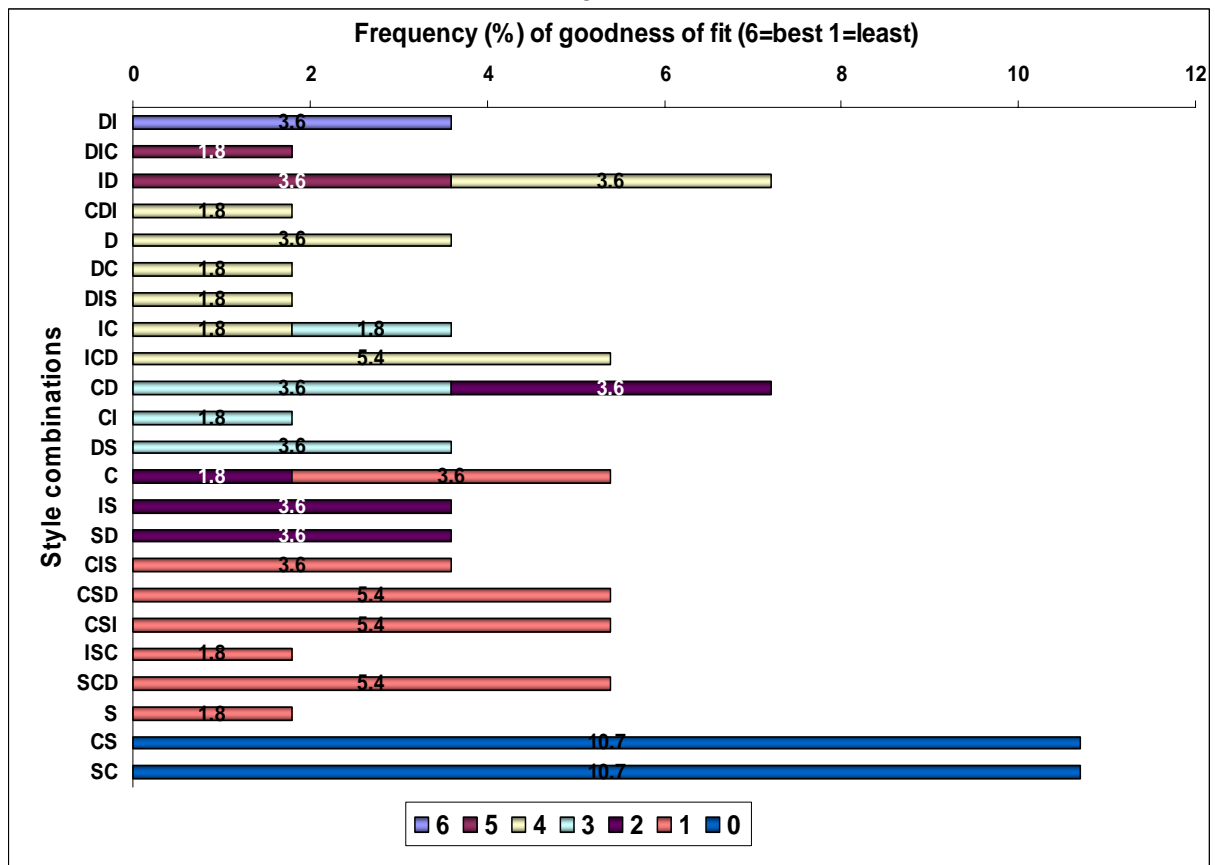


Table 4.57: P-J fit for the TUT population : HJA (DI/CS) (continued)

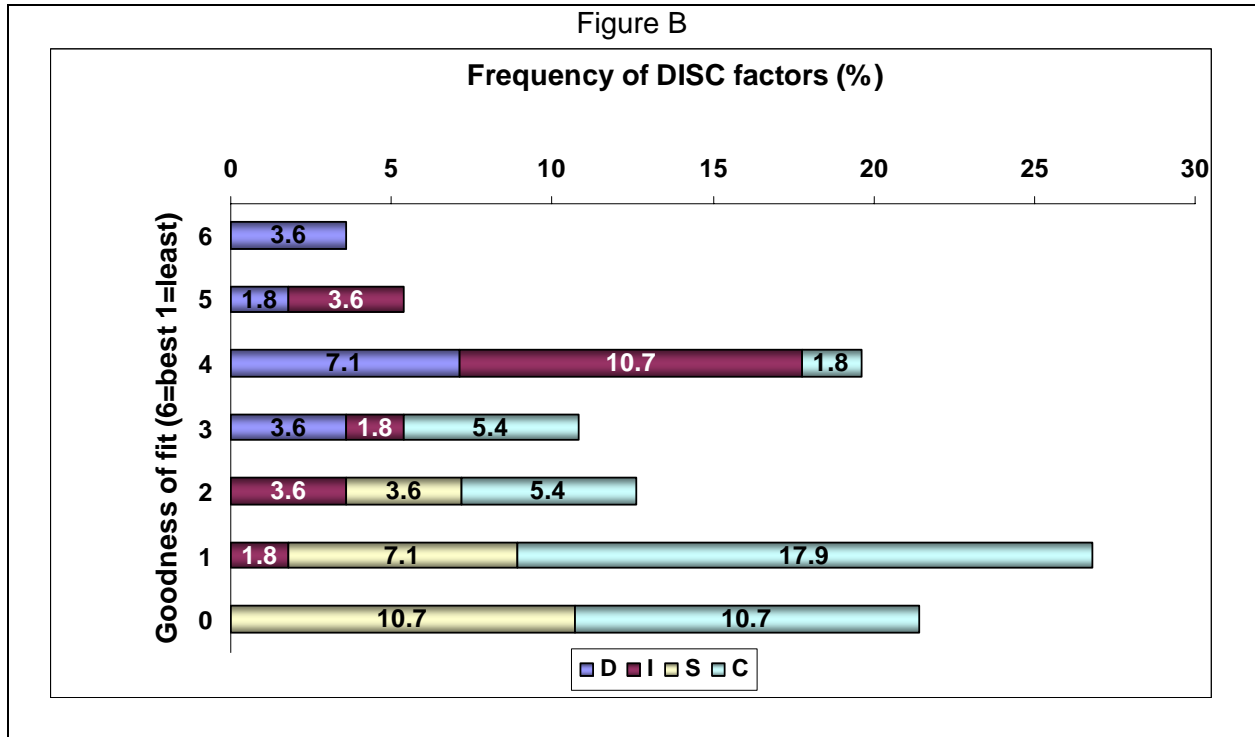


Table 4.57 shows that the best fit for the job is the high Dominance factor (style combination percentage of 3.6%), whilst other patterns of style combinations between the Dominance and Influence factors show scores between five (style combination percentage of 5.4%) and four (style combination percentage of 19.8 percent) for goodness of fit. The other combinations (71.8%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.57.

The group displaying high DIC profiles (1.8%) scored five and a percentage of 3,6% of the population in the high ID style combination scored in the five range. Because of a low style distribution difference of the low factors of the high ID style combination, another percentage of 3,5% of the population scored four and not five. The rest of the style pattern distribution shows score variations between four and one. Very prominent is the high CS and high SC style combinations in the zero score range.

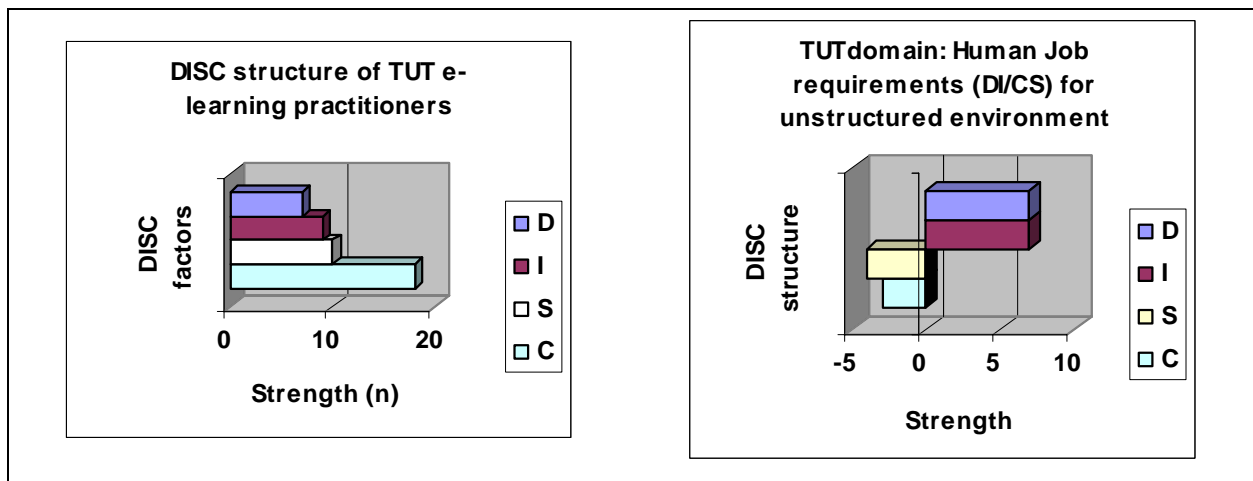
Table 4.57 shows that the Dominance factor is absent from the 0-2 score range and the only factor present in the best fit score range, which imply that profile styles in this factor tend to be more positively related to the job requirements for the DI/CS structure. The Influence factor is distributed towards the top mid range scores. Except for the presence of a very small percentage of the Compliance factor, the Dominance and Influence factors are the only factors present in the 6-4 score range of fit. The Steadiness and Compliance factors are very prominently distributed towards the lower score ranges, which implies that profile styles in this

factor tend to be more negatively related to the job requirements for the DI/CS structure. A percentage of 21,4% of the Steadiness and Compliance factors are in the zero score range of fit. These findings suggest that only 29 percent of the TUT population fall into an acceptable range for goodness of fit. Although the Dominance and Influence factors are the most prominent for goodness of job fit, the Dominance factors are the least present and the Influence factors only moderately present in the TUT population. This means that if the job requirements call for a stronger Dominance and Influence factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.3.2 P-J fit of the e-learning practitioner group : HJA (DI/CS)

Behavioural characteristics of the e-learning practitioner group captured in the PPAs were graphed and measured against the DI/CS profile (see Figure 4.45) to determine goodness of fit. The scores for the TUT e-learning group are tabulated in Table 4.58.

Figure 4.45: DISC factor distribution for groups at TUT vs. HJA (DI/CS)



It is evident from Figure 4.45 that the Dominance factor has the greatest strength in the human job requirements for an e-learning practitioner in an unstructured environment, but the lowest strength in the TUT e-learning practitioner group. The Steadiness factor in the e-learning practitioner group is more prominent than the one for the total population but in general the e-learning group and the TUT population show similar strengths. Table 4.58 shows a refined fit score between the TUT e-learning practitioner group and the job.

Table 4.58: P-J fit for the TUT e-learning practitioner group : HJA (DI/CS)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
DI	2.3						
DIC		2.3					
ID		4.5					
CDI			2.3				
D			4.5				
DC			2.3				
DIS			2.3				
IC			2.3	2.3			
ICD			6.8				
CD				4.5	4.5		
CI				2.3			
DS				2.3			
C					2.3	2.3	
IS					2.3		
SD					2.3		
CIS						4.5	
CSD						4.5	
CSI						6.8	
ISC						2.3	
SCD						6.8	
CS							6.8
SC							13.6
Total	2.3	6.8	20.5	11.4	11.4	27.2	20.4
	29.6						70.4
Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding star performers						
	6	5	4	3	2	1	0
DI	3.2						
DIC		3.2					
CDI			3.2				
DIS			3.2				
IC			3.2				
ICD			9.7				
CD				3.2	6.5		
CI				3.2			
C					3.2	3.2	
IS					3.2		
SD					3.2		
CIS						6.5	
CSD						6.5	
CSI						3.2	
ISC						3.2	
SCD						6.5	
CS							9.7
SC							12.9
Total	3.2	3.2	19.3	6.4	16.1	29.1	22.6
	25.7						74.2

Table 4.58: P-J fit for the TUT e-learning practitioner group : HJA (DI/CS) (continued)

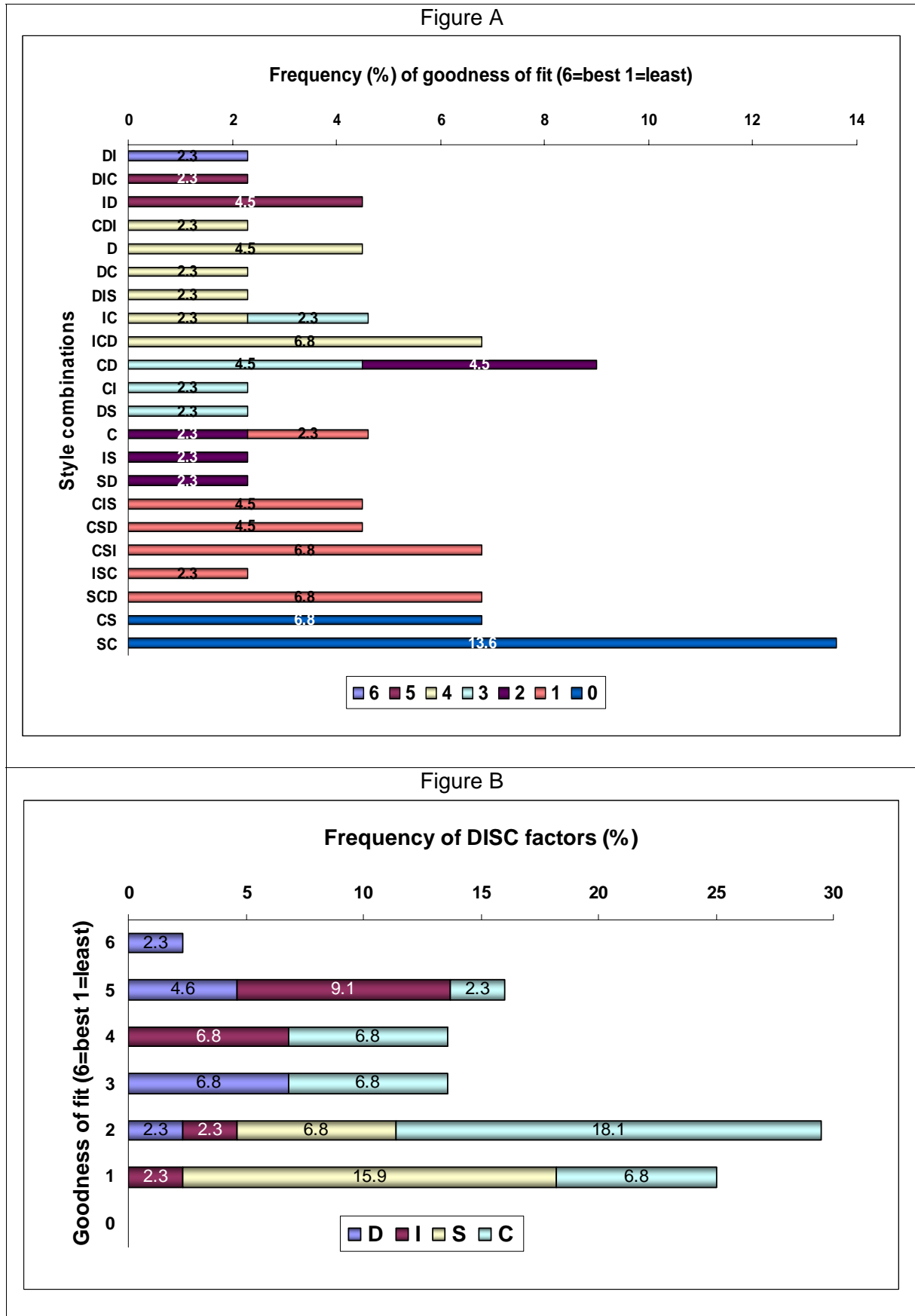


Table 4.58 shows that the best fit for the job is the high Dominance factor (style combination percentage of 2.3%), whilst other patterns of style combinations between the Dominance and

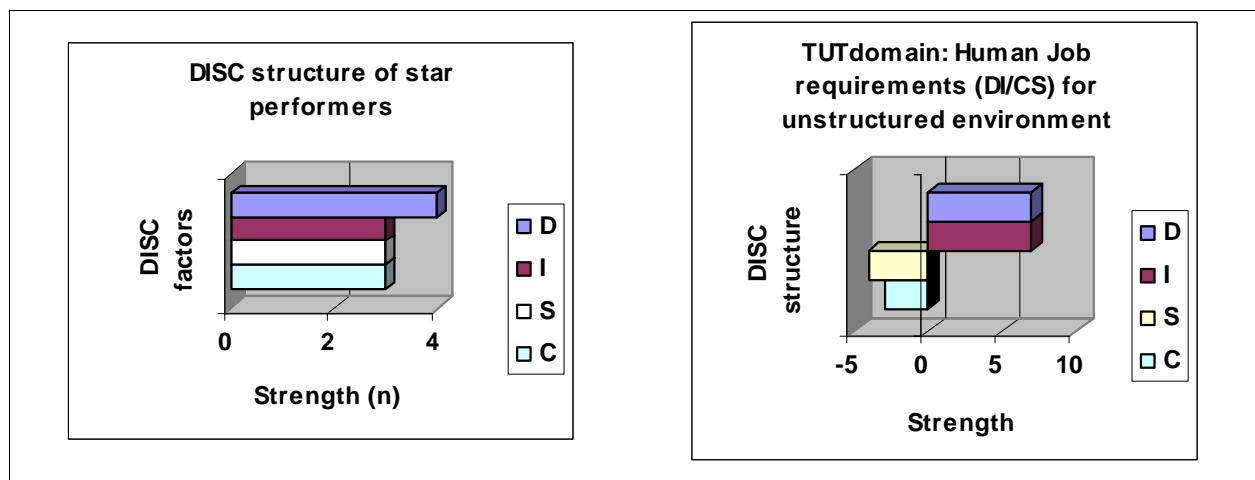
Influence factors show scores between five (style combination percentage of 6.8%) and four (style combination percentage of 20.5%) for goodness of fit. The other combinations (70.4%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.58.

Table 4.58 shows that except for the presence of a percentage of 2,3% of the Compliance factor both the Dominance and Influence factors are the only factors present in the 6-4 range of fit score. The Steadiness and Compliance factors are very prominently distributed towards the lower score ranges, which implies that profile styles in this factor tend to be more negatively related to the job requirements for the DI/CS structure. A percentage of 20,4% of the Steadiness and Compliance factors are in the zero score range of fit. These findings suggest that only 30 percent (26 percent excluding the star performers) of the TUT e-learning practitioner group fall within an acceptable range for goodness of fit. The majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.3.3 P-J fit of the star performer group : HJA (DI/CS)

Measured against the HJA (DI/CS) profile the behavioural characteristics of the star performer group as captured in the DISC personal profiles (see Figure 4.46) were assessed to determine goodness of fit. The scores for the star performer group appear in Table 4.59.

Figure 4.46: DISC factor distribution for star performers at TUT vs. HJA (DI/CS)



It is evident from Figure 4.46 that the Dominance factor has the greatest strength in the star performer group and the human job requirements for an e-learning practitioner in an unstructured environment. The DI/CS HJA calls for a high Influence factor and lower Steadiness and Compliance factors. The star performer group shows equal strength in the Compliance, Steadiness and Influence factors, whereas the job under discussion calls for less strength in the

Compliance and Steadiness factors. Table 4.59 shows a refined fit score between the star performer group and the job.

Table 4.59: P-J fit scores for the star performer group : HJA (DI/CS)

Styles	Frequency (%) of fit scores per style combination from star performers						
	6	5	4	3	2	1	0
ID		15.4					
D			15.4				
DC			7.7				
DS				7.7			
IC				7.7			
CD				7.7			
SCD						7.7	
CSI						15.4	
SC							15.4
Total	0	15.4	23.1	23.1	0	23.1	15.4
							38.5

Figure A

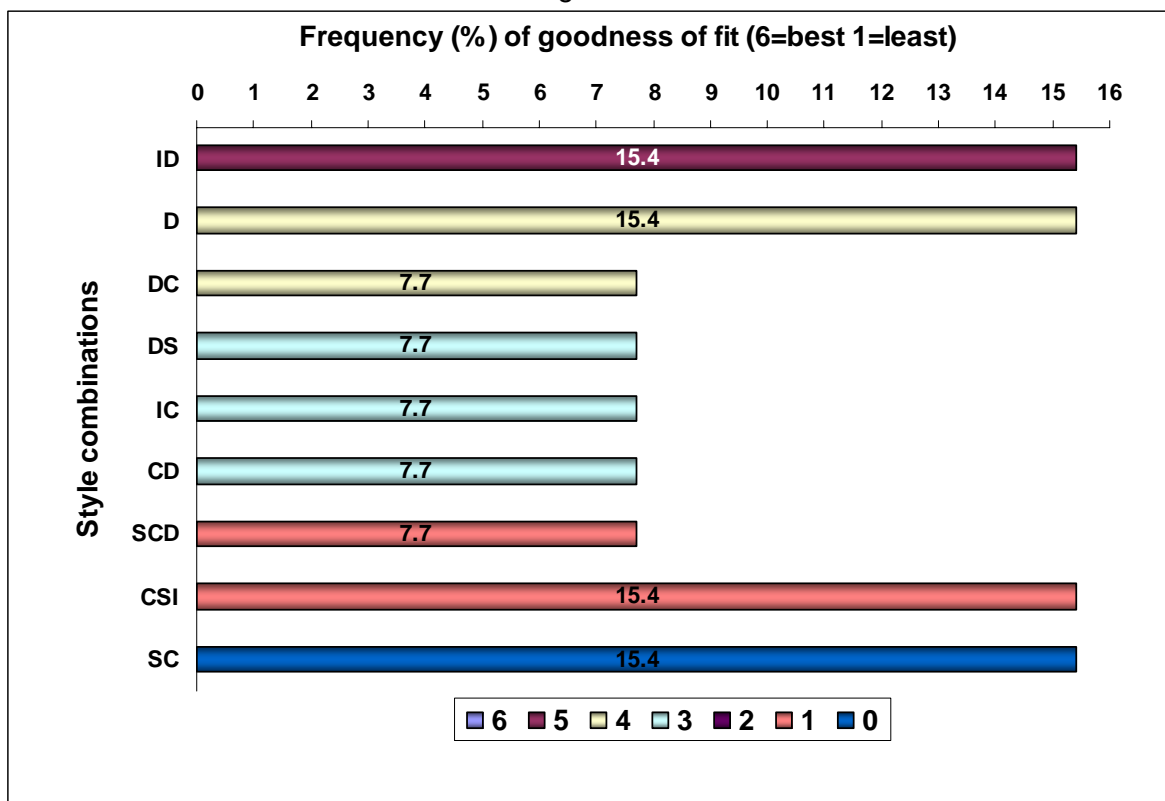


Table 4.59: P-J fit scores for the star performer group : HJA (DI/CS) (continued)

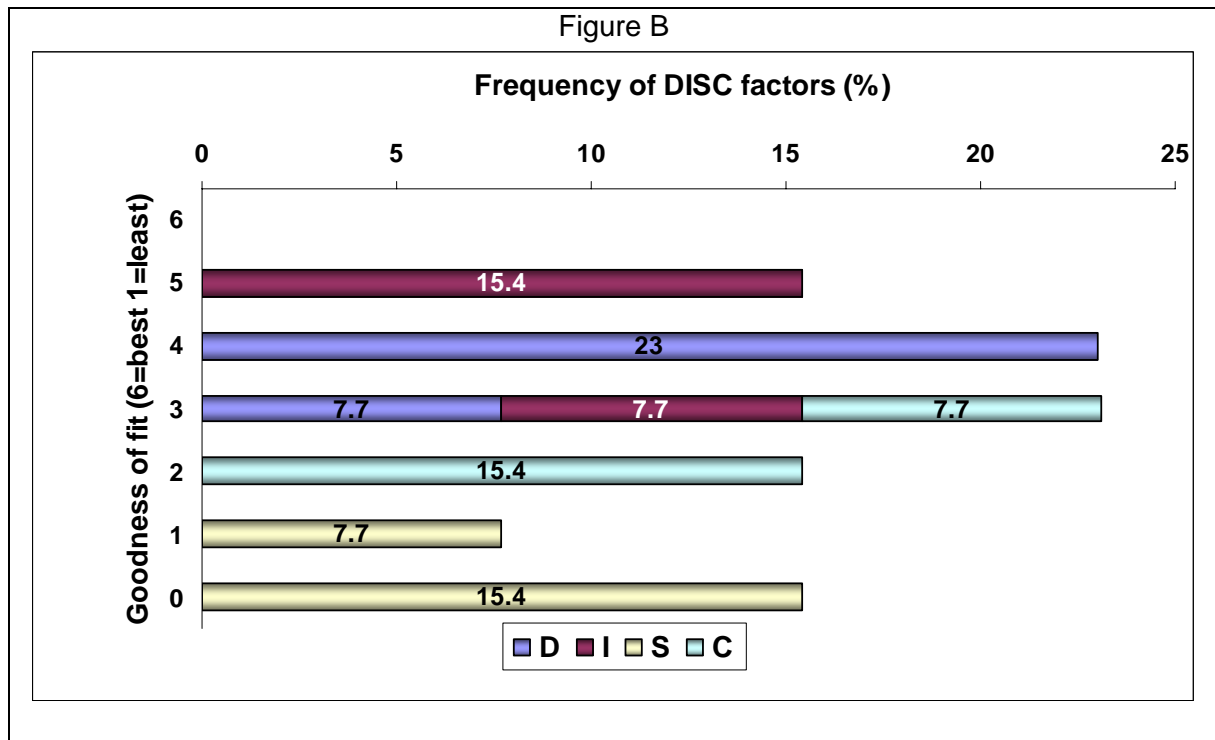


Table 4.59 shows no best fit for the job, but the two complementary style combinations, high DI, high D (15.4% each) and high DC (7.7%) in the Dominance and Influence factors show a fit range of five and four. The Compliance factor is added to the mid range of scores, and the Steadiness factor shows extremely low scores in the 1-0 score ranges. A percentage of 38,5% of the style combinations show an acceptable job fit score and 61,6 percent do not seem to be in line with the requirements of the HJA . DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.59.

Table 4.59 shows the Influence and Dominance factors present in the 5-4 fit score ranges which imply that profile styles in these factors tend to be more positively related to the job requirements for the DI/CS structure. None of the star performer group display a job fit of 6/6 but these findings suggest that 39 percent of the star performer group falls into an acceptable range for goodness of fit.

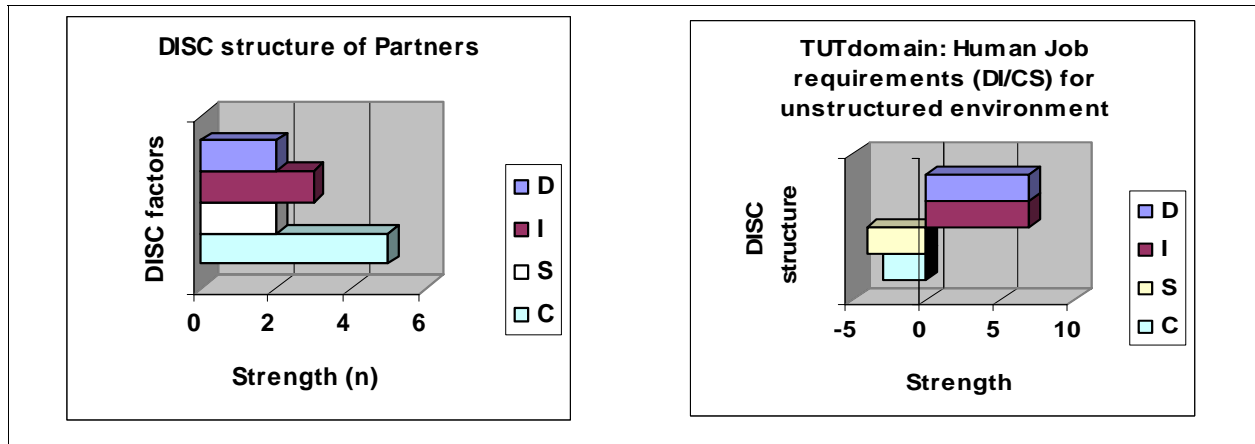
The star performer group differs from the TUT population in that the Dominance factor is the most prominent in this group but the least represented in the TUT population group, furthermore the star performer group is the only group that displays high D style combinations. Although the Compliance factor is the most prominent factor in the TUT population, the star performer group presents an equal distribution of the Compliance, Steadiness and Influence factors. Although the job requirements under discussion call for a stronger Dominance presence and the majority of the star performers' behavioural characteristics do not seem to match the requirements of the

HJA and will not be a natural fit for the job, the overall job fit of 39 percent is slightly higher than for other (CD/SI, CDS/I) P-J fit combinations.

4.5.2.3.4 P-J fit of the Partner group : HJA (DI/CS)

Measured against the HJA (DI/CS) profile the behavioural characteristics of the Partner group as captured in the DISC personal profiles (see Figure 4.47) were assessed to determine goodness of fit. The scores for the Partner group are tabulated in Table 4.60.

Figure 4.47: DISC factor distribution for Partners at TUT vs. HJA (DI/CS)



It is evident from Figure 4.47 that the Compliance factor has the greatest strength in the Partner group, but the Dominance and Influence factors are the most prominent for the human job requirements for an e-learning practitioner in an unstructured environment. The DI/CS HJA calls for lower Steadiness and Compliance factors. The Partner group shows equal strength in the Dominance and Steadiness factors, whereas the job under discussion calls for less strength in the Compliance and Steadiness factors. Table 4.60 shows a refined fit score between the Partner group and the job.

Table 4.60: P-J fit scores for the Partner group : HJA (DI/CS)

Styles	Frequency (%) of fit scores per style combination from Partner group						
	6	5	4	3	2	1	0
DI	8.3						
ID			16.7				
DS				8.3			
IS					8.3		
SD					8.3		
S						8.3	
C						8.3	
CSD						8.3	
CS							25
Total	8.3	0	16.7	8.3	16.6	24.9	25
			25				74.8

Figure A

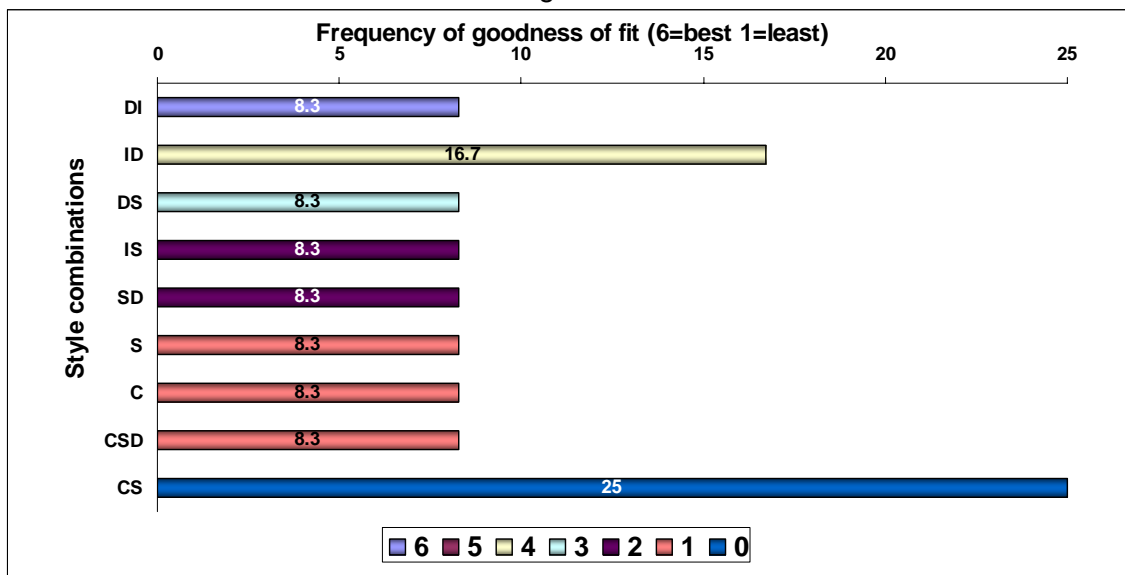


Figure B

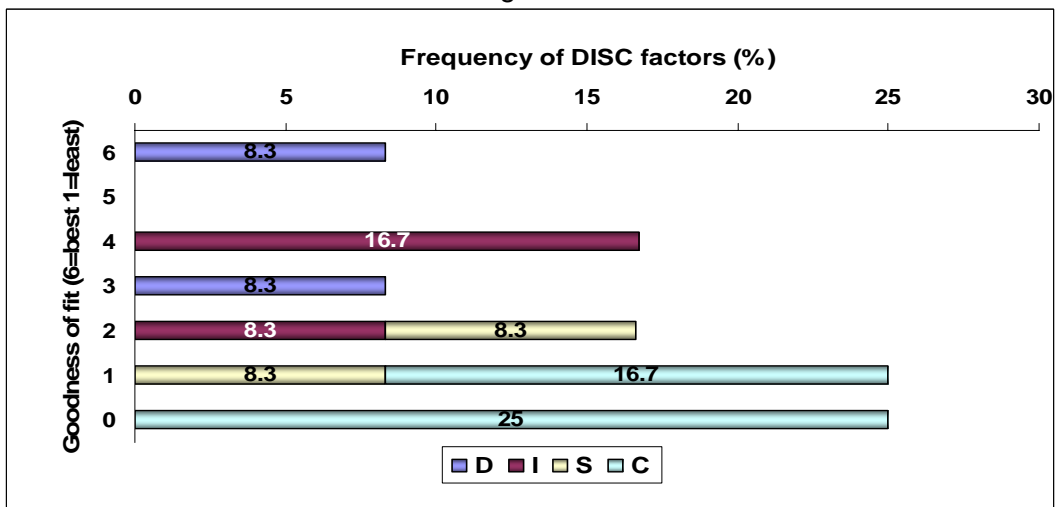


Table 4.60 shows a best fit (high DI style combination) for the job, and a fit score of four for the high ID (16.7%) complementary style combination. The Compliance and the Steadiness factor

show extremely low scores in the 1-0 score ranges. Twenty-five percent (high CS) of the fit scores are in the zero job-fit score category. Only 25 percent of the Partners' style combinations shows an acceptable job fit score and 75 percent does not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.60.

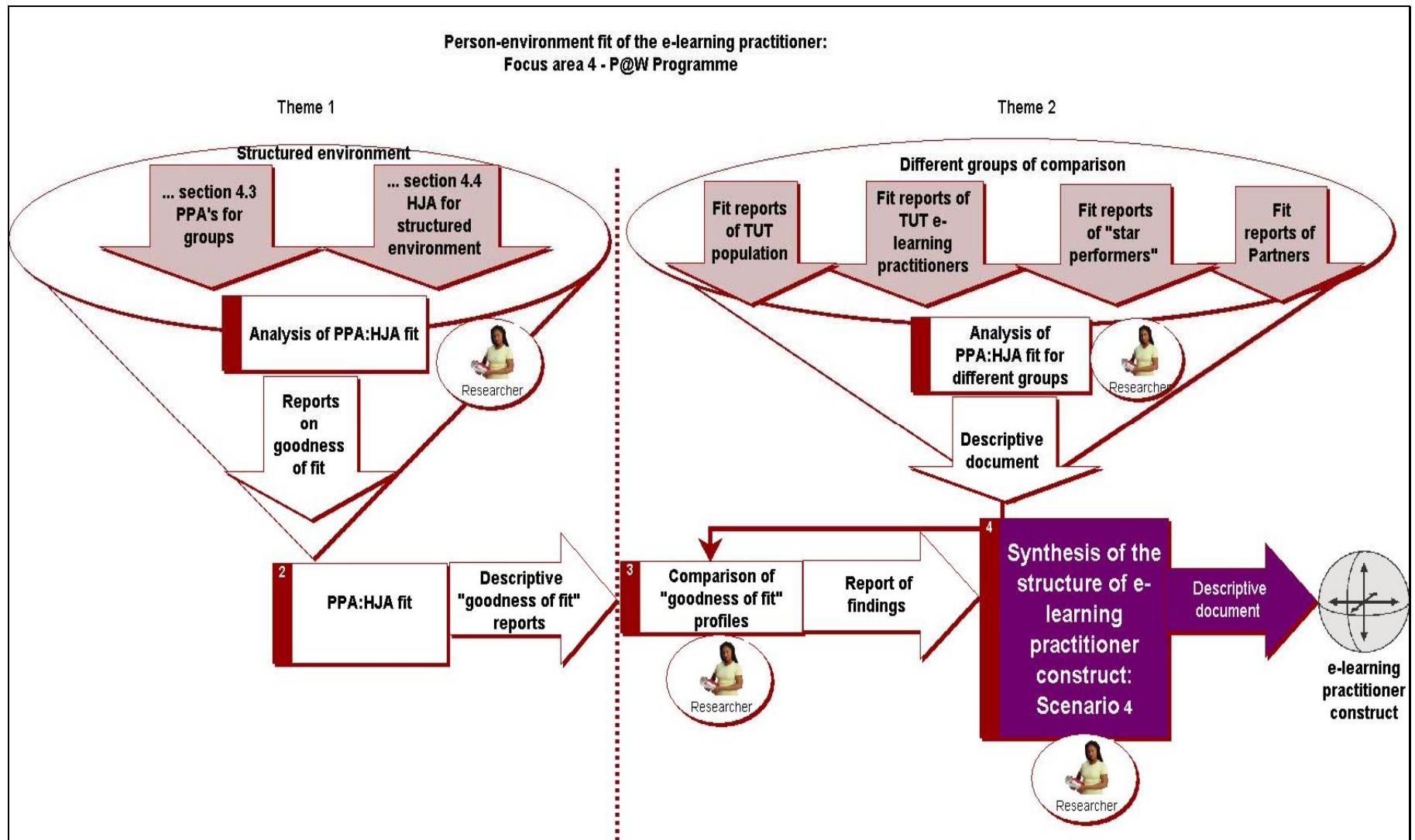
Table 4.60 shows the high DI (8.3%) style combination as being in the best fit score range and the Influence factors present in the 4 fit score range imply that profile styles in the Dominance and Influence factors tend to be more positively related to the job requirements for the DI/CS structure. Other high Influence and high Steadiness style combinations (16.3%) are displayed in the two fit score range. Fifty percent, nearly all of the Steadiness and Compliance factors, is displayed in the 1-0 fit score ranges, which implies that profile styles in these factor combinations tend to be more negatively related to the job requirements for the DI/CS structure. These findings suggest that only 25 percent of the Partner group falls in an acceptable range for goodness of fit. The majority (75%) of the Partner group's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job. The prominence of the high CS style combination does not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.4 TUT domain focus area 4 : HJA (SCD/I)

Figure 4.48 illustrates the analysis process that was followed to synthesise the findings presented in this section. P-J fit (unstructured environment) between the e-learning practitioner and the HJA (SCD/I) are presented for:

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group, and
- Partner group.

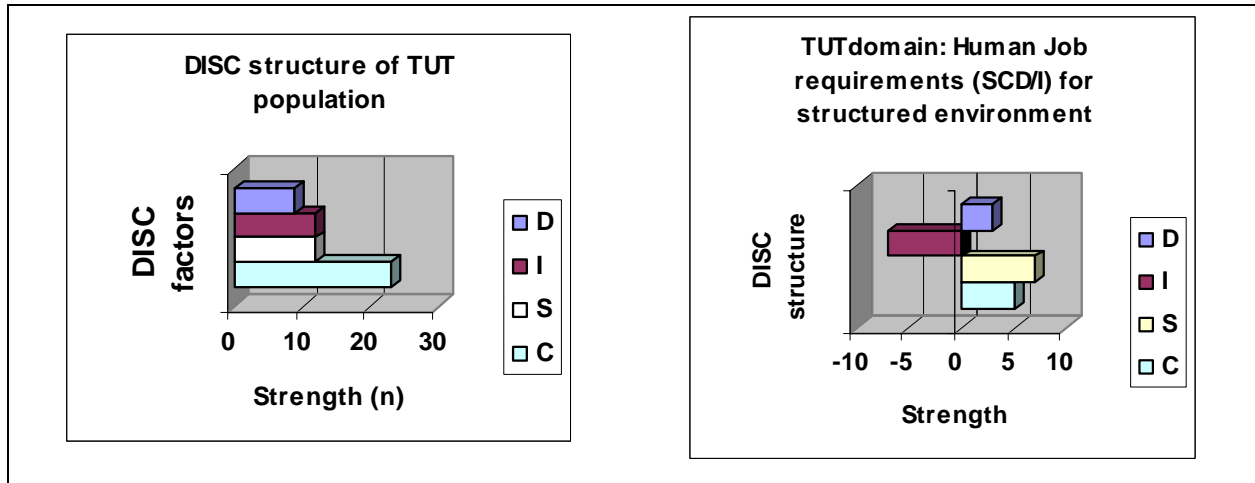
Figure 4.48: P-J fit of the e-learning practitioner and P@W domain



4.5.2.4.1 P-J fit of the TUT population: HJA (SCD/I)

Behavioural characteristics of the e-learning practitioner population captured in the PPAs were graphed and measured against the SCD/I profile (see Figure 4.49) to determine goodness of fit. The scores for the TUT population are tabulated in Table 4.61.

Figure 4.49: DISC factor distribution for TUT population vs. HJA (SCD/I)



It is evident from Figure 4.49 that the Steadiness factor has the greatest strength in the human job requirements for an e-learning practitioner in a structured environment and a moderate strength in the TUT population group. The Influence factor in the human job requirements shows the least strength but moderate strength in the TUT profile. The Compliance and Dominance factors are less prominent in the human job requirements than in the TUT population. Table 4.61 shows a refined fit score between the TUT population and the job.

Table 4.61: P-J fit for the TUT population : HJA (SCD/I)

Styles	Frequency (%) of fit scores per style combination from TUT population						
	6	5	4	3	2	1	0
SCD	5.4						
CSD		5.4					
DS			3.6				
DC			1.8				
SD			3.6				
SC			10.7				
CD			3.6	3.6			
CS			3.6	7.1			
D				1.8	1.8		
S				1.8			
C				1.8	3.6		
DIC					1.8		
DIS					1.8		
ISC					1.8		
IC					1.8	1.8	
ICD					5.4		
CDI					1.8		
CIS					3.6		
CSI					5.4		
DI						3.6	
ID						7.1	
IS						3.6	
CI						1.8	
Total	5.4	5.4	26.9	16.1	28.8	17.9	0
	37.7			62.8			

Figure A

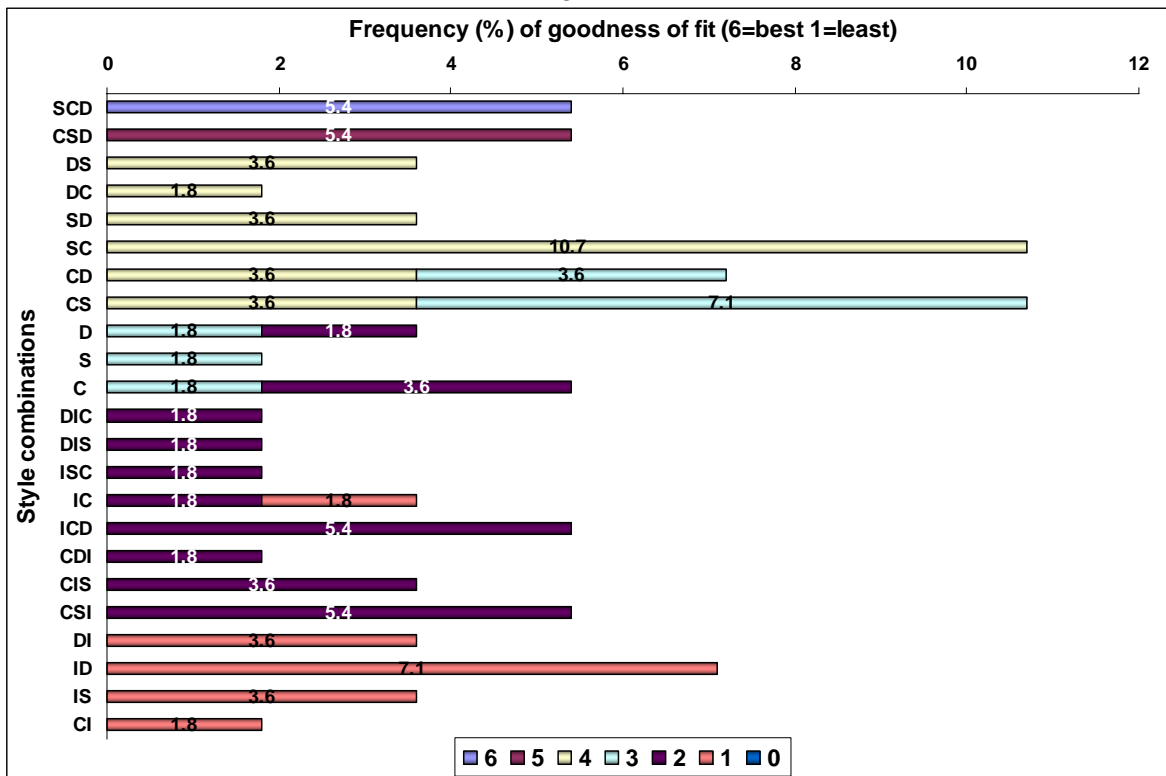


Table 4.61: P-J fit for the TUT population : HJA (SCD/I) (continued)

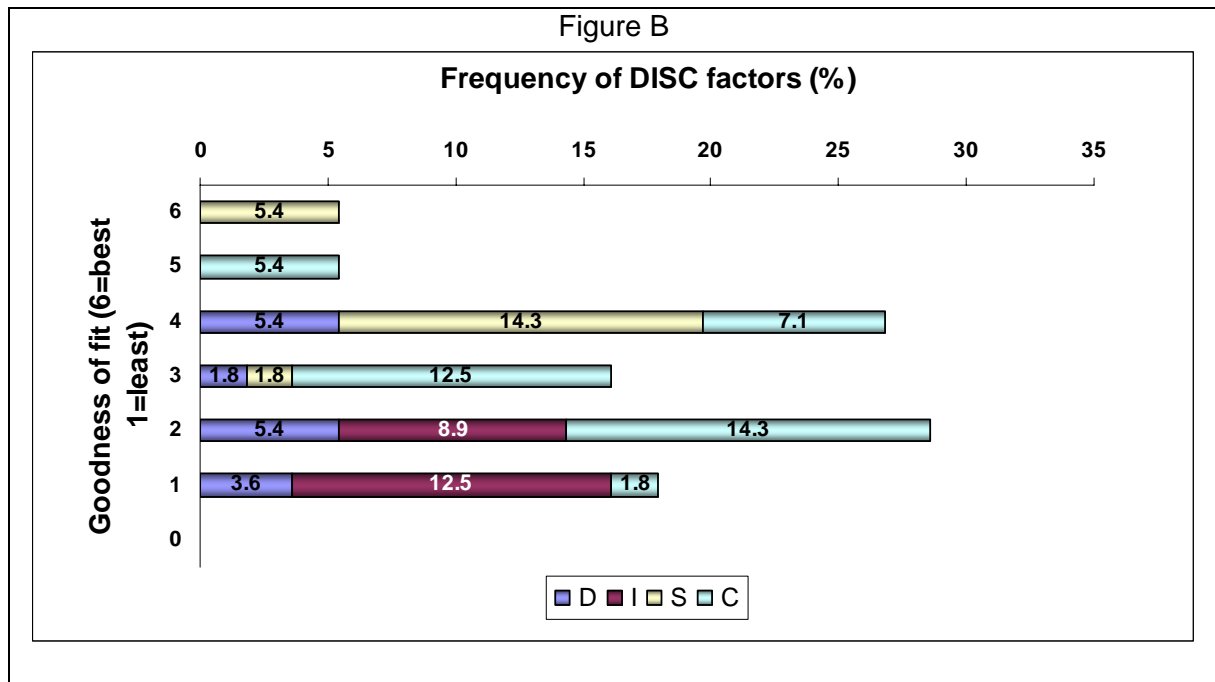


Table 4.61 shows that the best fit for the job is the high Steadiness factor (style combination percentage of 5.4%), whilst other patterns of style combinations between the Dominance, Steadiness and Compliance factors show a score of five (style combination percentage of 5.4%) and four (style combination percentage of 26.9%) for goodness of fit. The other combinations (62.8%) do not seem to be in line with the requirements of the HJA. DISC factor **patterns** and **structure** in terms of goodness of fit are graphically presented in figures A and B in Table 4.61.

A percentage of 5.4% of the group scores a best fit score. Another 5,4 percent of the group, displaying a complementary style combination of CSD, scored in the five fit range. The rest of the style pattern distribution shows score variations between four and one. Very significant are the high Influence style combinations in the one score range and no style combinations in the zero range.

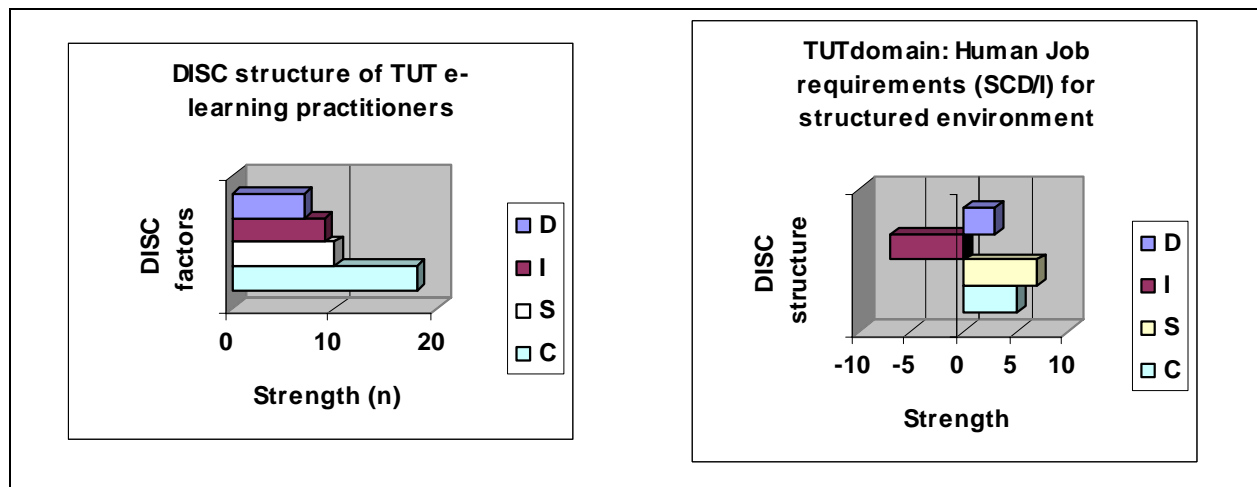
The Steadiness factor is absent from the 0-2 score range and is the only factor present in the best fit score range, which implies that profile styles for this factor tend to be more positively related to the job requirements for the SCD/I structure. Except for the best score range, the Compliance factor is evenly distributed towards all the score ranges. The Dominance factor is distributed towards the lower score ranges and the Influence factor is displayed only in the lowest score ranges which implies that profile styles for this factor tend to be more negatively related to the job requirements for the SCD/I structure. Table 4.61 shows that only three (5.4%) profiles of the TUT population display a job fit of 6/6. These findings suggest that only 38 percent of the TUT population falls into an acceptable range for goodness of fit. The Compliance factors are the most prominent and the Steadiness factors are moderately present

in the TUT population, which means that if the job requirements call for a stronger Steadiness factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.4.2 P-J fit of the e-learning practitioner group : HJA (SCD/I)

Behavioural characteristics of the e-learning practitioner population captured in the PPAs were graphed and measured against the SCD/I profile (see Figure 4.50) to determine goodness of fit. The scores for the TUT e-learning practitioner group are displayed in Table 4.62.

Figure 4.50: DISC factor distribution for groups at TUT vs. HJA (SCD/I)



It is evident from Figure 4.50 that the Steadiness factor has the greatest strength in the human job requirements for an e-learning practitioner in a structured environment and a moderate strength in the TUT e-learning practitioner group. The Influence factor in the human job requirements shows the least strength, but moderate strength in the TUT profile. The Compliance and Dominance factors are less prominent in the human job requirements than in the TUT population. Table 4.62 shows a refined fit score between the TUT e-learning practitioner group and the job.

Table 4.62: P-J fit for the e-learning practitioner group : HJA (SCD/I)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
SCD	6.8						
CSD		4.5					
DS			2.3				
DC			2.3				
SD			2.3				
SC			13.6				
CD			4.5	4.5			
CS			2.3	4.5			
D				2.3	2.3		
C				2.2	2.3		
DIC					2.3		
DIS					2.3		
ISC					2.3		
IC					2.3	2.3	
ICD					6.8		
CDI					2.3		
CIS					4.5		
CSI					6.8		
DI						2.3	
ID						4.5	
IS						2.3	
Total	6.8	4.5	27.3	13.5	34.2	13.7	0
	38.6			61.4			

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding star performers						
	6	5	4	3	2	1	0
SCD	6.5						
CSD		6.5					
SD			3.2				
SC			12.9				
CD			6.5	3.2			
CS			3.2	6.5			
C				3.2	3.2		
DIC					3.2		
DIS					3.2		
ISC					3.2		
IC					3.2		
ICD					9.7		
CDI					3.2		
CIS					6.5		
CSI					3.2		
DI						3.2	
IS						3.2	
CI						3.2	
Total	6.5	6.4	25.8	12.9	38.6	9.6	0
	38.7			61.1			

Table 4.62: P-J fit for the e-learning practitioner group : HJA (SCD/I) (continued)

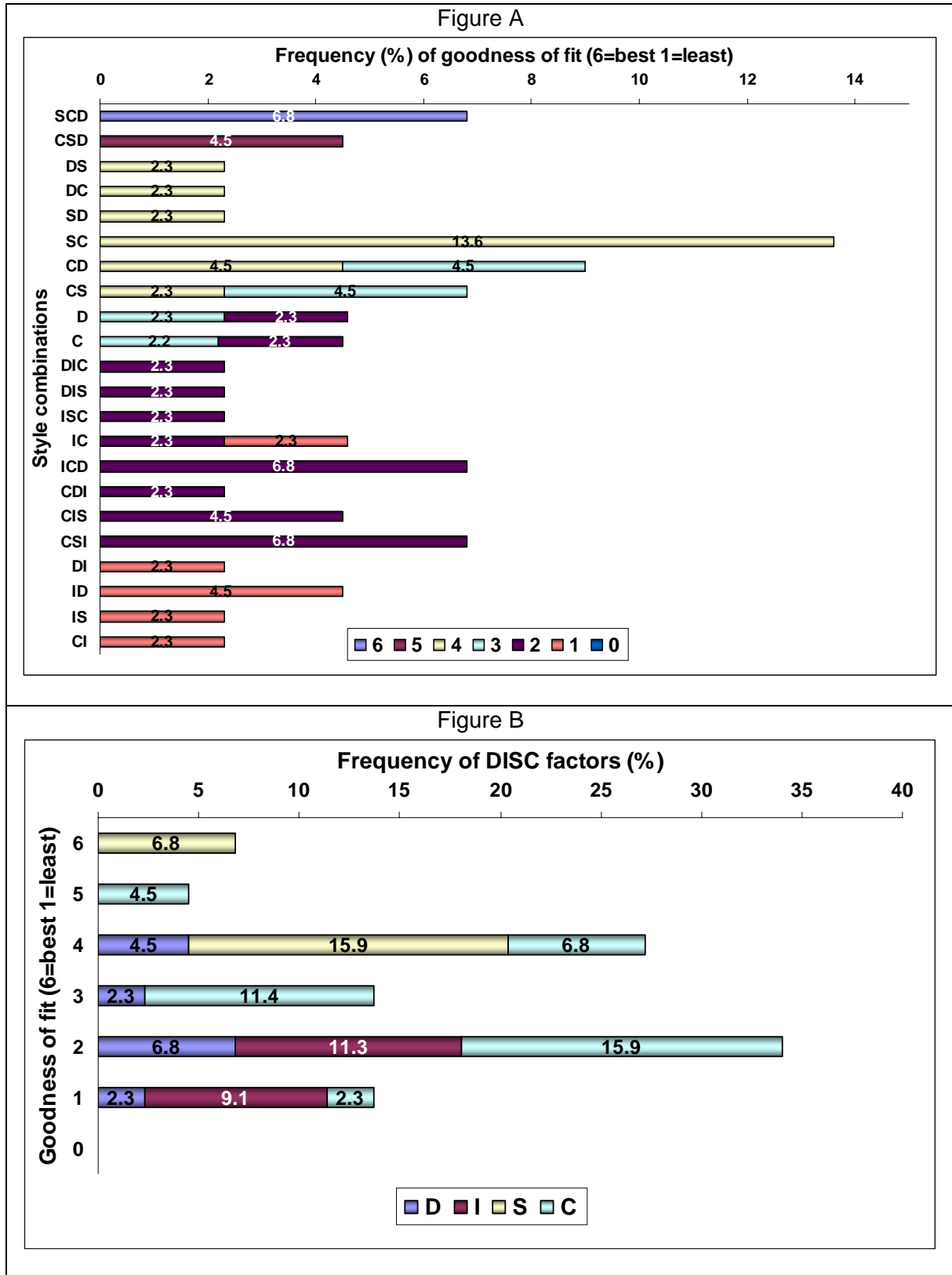


Table 4.62 shows that the best fit for the job is the high Steadiness factor (style combination percentage of 6.8%), whilst other patterns of style combinations between the Dominance, Steadiness and Compliance factors show a score of five (style combination percentage of 4.5%) and four (style combination percentage of 27.3%) for goodness of fit. The other combinations

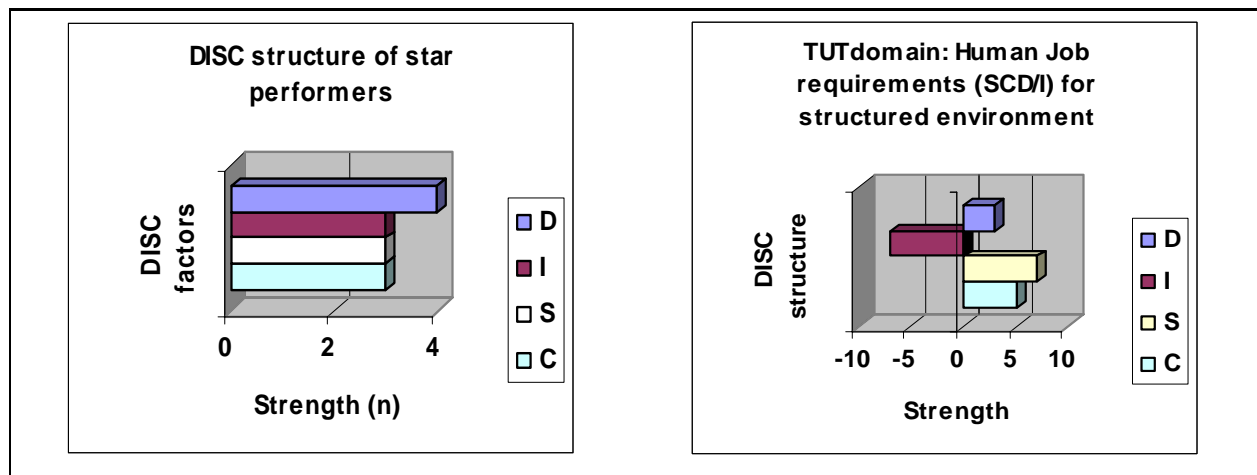
(61.4%) do not seem to be in line with the requirements of the HJA. DISC factor **patterns** and **structure** in terms of goodness of fit are graphically presented in figures A and B in Table 4.62.

Table 4.62 shows that the Steadiness factor is absent from the 0-2 score range and is the only factor present in the best fit score range, which implies that profile styles for this factor tend to be more positively related to the job requirements for the SCD/I structure. Apart from the best score range, the Compliance factor is evenly distributed towards all the score ranges. The Dominance factor is distributed towards the lower score ranges and very significant is that the Influence factor is displayed only in the lowest score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the SCD/I structure. Table 4.62 shows that only 39 percent of the TUT population fall within an acceptable range for goodness of fit. The Steadiness factors are moderately present in the TUT e-learning practitioner group which means that if the job requirements call for a stronger Steadiness factor presence the majority of the TUT e-learning practitioner's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.4.3 P-J fit of the star performer group : HJA (SCD/I)

Goodness of fit measured between the DISC personal profiles (see Figure 4.51) of the star performer group and the HJA (SCD/I) were assessed. The scores for the star performer group are given in Table 4.63.

Figure 4.51: DISC factor distribution for star performers at TUT vs. HJA (SCD/I)



It is evident from Figure 4.51 that the Dominance factor is strongest in the star performer group and the human job requirements call for high Steadiness and Compliance factors combined with a less strong Dominance factor. The Steadiness factor in the star performers' profile complements the requirements of the HJA, but the latter calls for a low Influence factor, which means that this factor is too strong for the SCD/I requirement. Table 4.63 shows a refined fit score between the star performer group and the job.

Table 4.63: P-J fit for the star performer group : HJA (SCD/I)

Styles	Frequency (%) of fit scores per style combination from star performers						
	6	5	4	3	2	1	0
SCD	7.7						
DS			7.7				
DC			7.7				
SC			15.4				
D				7.7	7.7		
CD				7.7			
CSI					15.4		
ID						15.4	
IC						7.7	
Total	7.7	0	30.8	15.4	23.1	23.1	0
	38.5			61.6			

Figure A

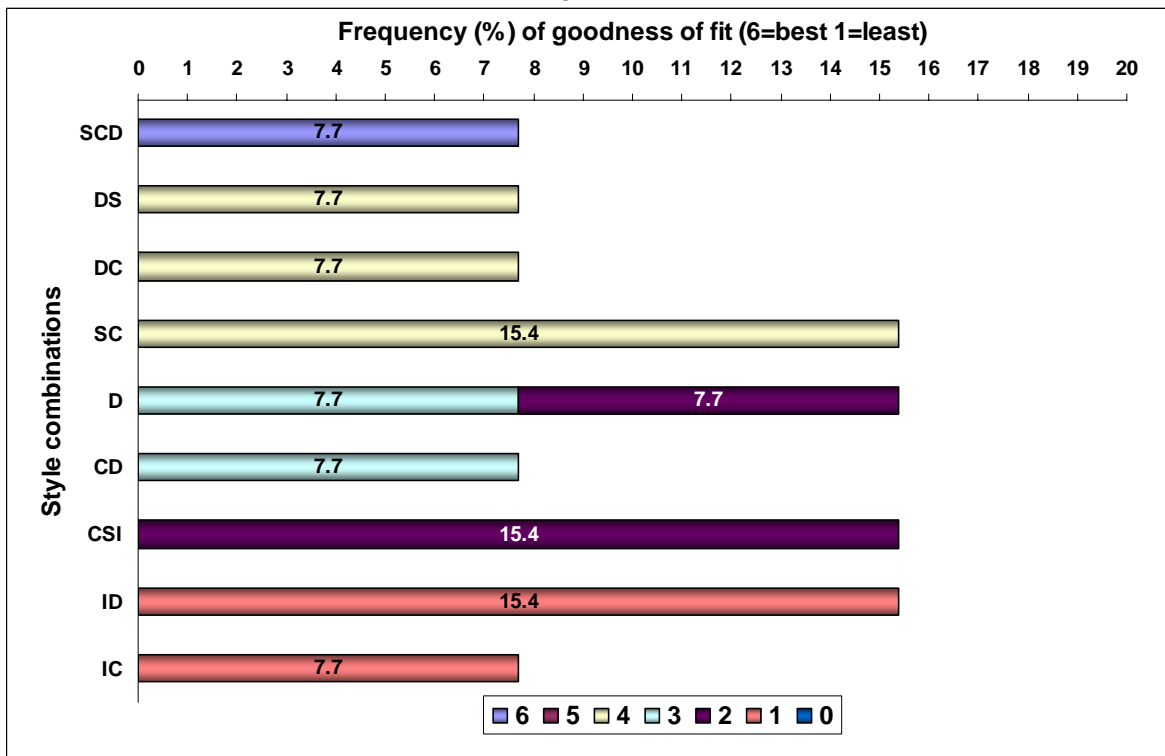


Table 4.63: P-J fit for the star performer group : HJA (SCD/I) (continued)

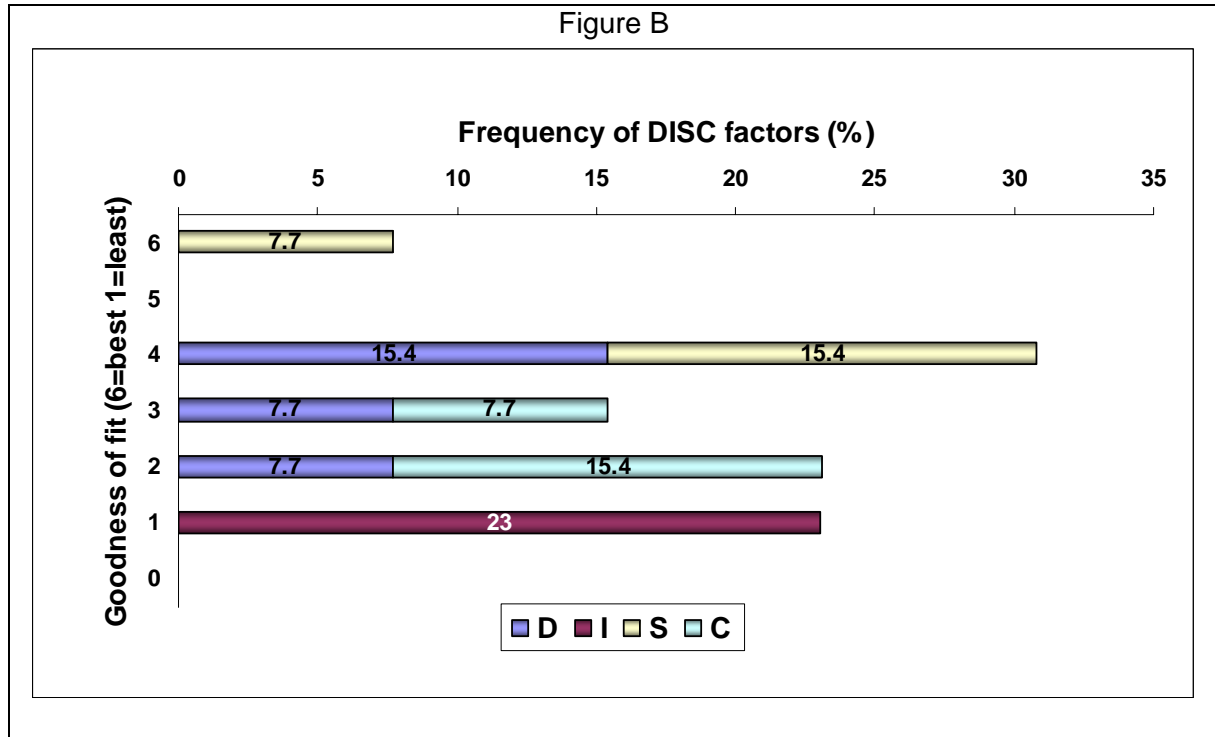


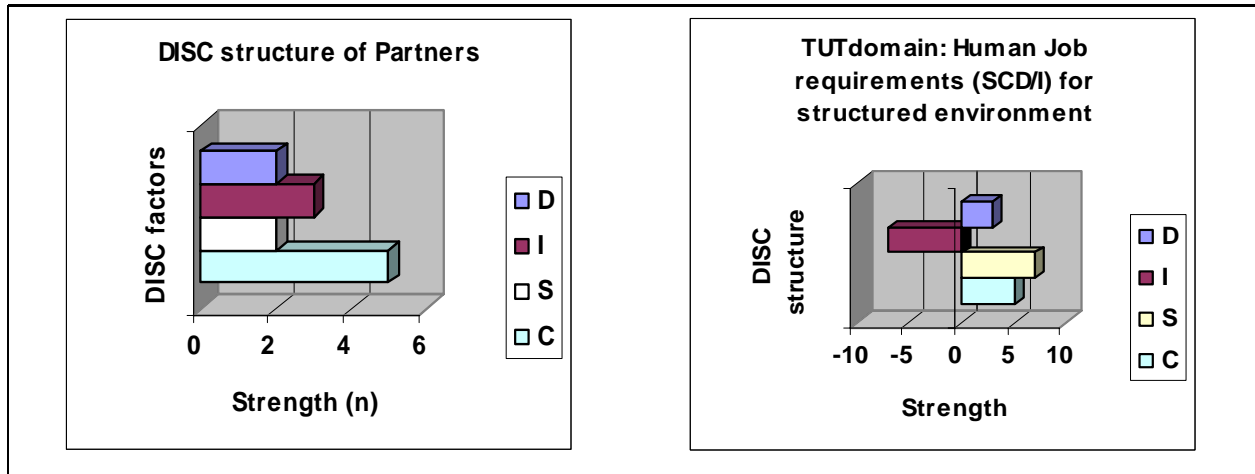
Table 4.63 shows a best fit for the job in the Steadiness (7.7%) factor. No job fit scores are displayed for the five score range. A combination of Steadiness (15.4%) and Dominance (15.4%) factors present with a fit score of four. The other Steadiness, Dominance and Compliance factors are distributed in the mid score to low score ranges. The Influence factor (23.1%), including all the high Influence style combinations, is in the one fit score range. Sixty-two percent of the star performer group does not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.63.

Table 4.63 shows no factors in the low extreme score range. The Steadiness factor is present in the best fit score range as well as in the four fit score range. This implies that profile styles for this factor tend to be more positively related to the job requirements for the SCD/I structure. The findings suggest that 39 percent of the star performer group falls within an acceptable range for goodness of fit, but the majority (62%) of the star performer group's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.4.4 P-J fit of the Partner group : HJA (SCD/I)

Measured against the HJA (SCD/I) profile the behavioural characteristics of the Partner group as captured in the DISC personal profiles (see Figure 4.52) were assessed to determine goodness of fit. The scores for the Partner group are given in Table 4.64.

Figure 4.52: DISC factor distribution for Partners vs. HJA (SCD/I)



It is evident from Figure 4.52 that the Compliance factor has the greatest strength, while the Steadiness factor has moderate strength in the Partner group. The human job requirements call for high Steadiness and Compliance factors combined with a less strong Dominance factor. The Steadiness factor in the Partner's group profile complements the requirement of the HJA, but the latter calls for a low Influence factor, which means that this factor is too strong for the SCD/I requirement. Table 4.64 shows a refined fit score between the Partner group and the job.

Table 4.64: P-J fit for the Partner group : HJA (SCD/I)

Styles	Frequency (%) of fit scores per style combination from Partner group						
	6	5	4	3	2	1	0
CSD		8.3					
DS			8.3				
SD			8.3				
CS			8.3	16.7			
S				8.3			
C					8.3		
DI						8.3	
ID						16.7	
IS						8.3	
Total	0	8.3	24.9	25	8.3	33.3	0
			33.2				66.6

Figure A

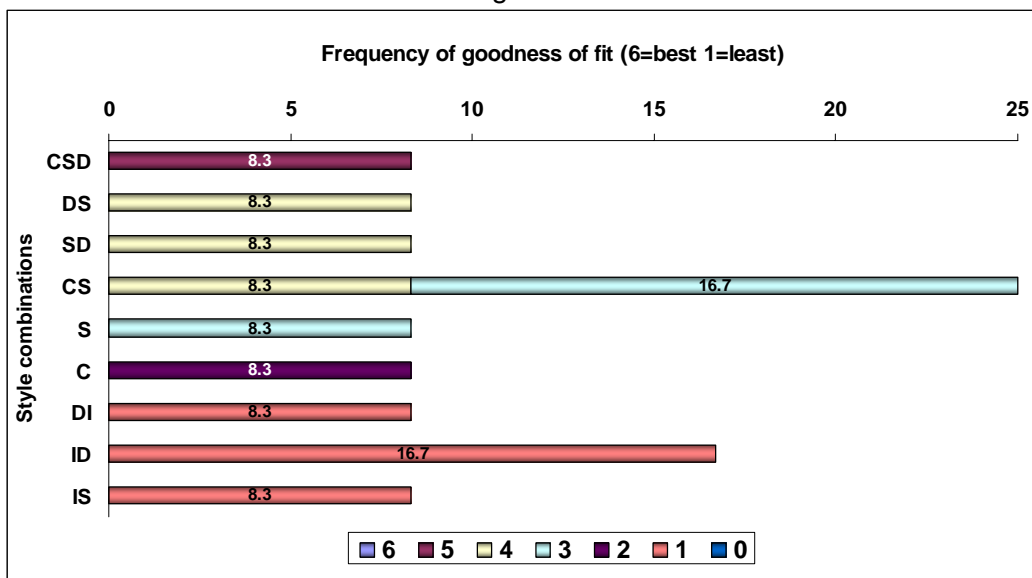


Figure B

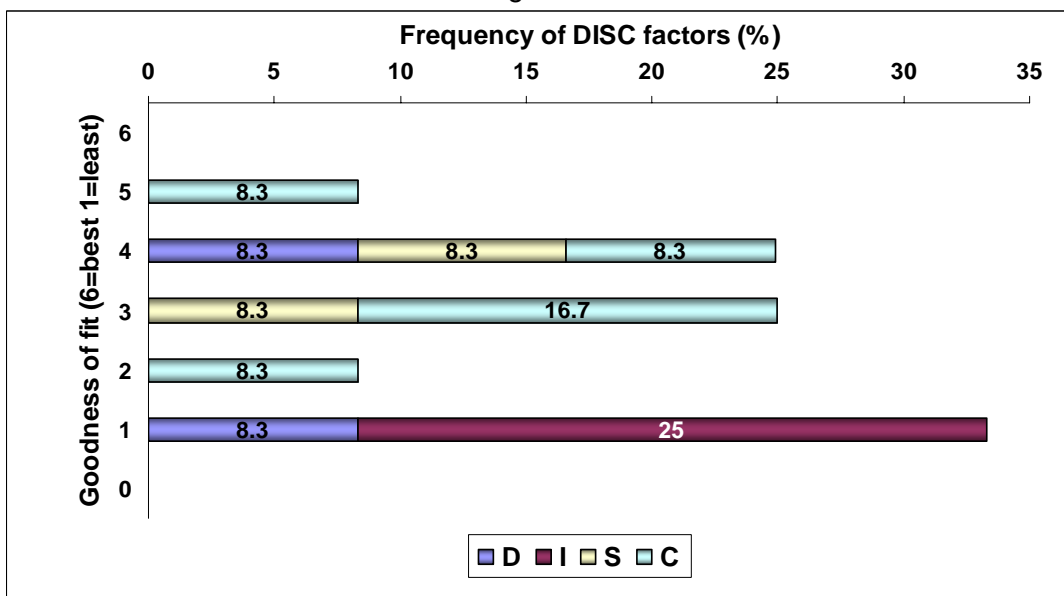


Table 4.64 shows no best fit for the job and only one style combination in the five fit score range. Combinations of Steadiness (8.3%), Compliance (8.3%) and Dominance (8.3%) factors display a fit score of four. The other Steadiness, Dominance and Compliance factors are distributed in the mid score to low score ranges. The Influence factor (25%), including all the high Influence style combinations, is in the one fit score range. A percentage of 66.6% of the Partner group does not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.64.

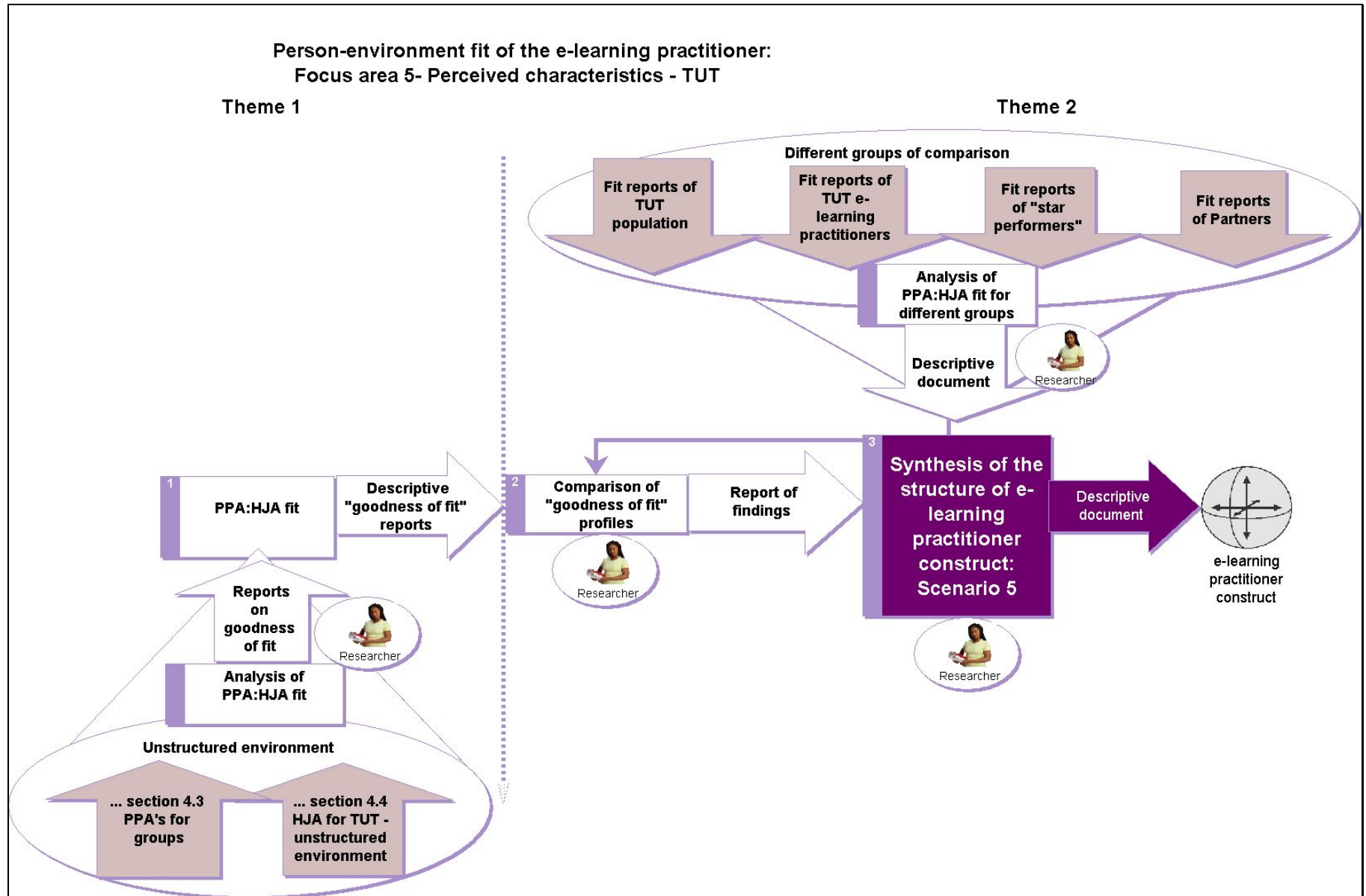
Table 4.64 shows that the high DS (8.3%), SD (8.3%) and high CS (8.3%) styles fall within the four fit range and, because of a low style distribution difference of the low factors, another 16,7 percent of the high CS style combination falls in the three fit range. The findings suggest that the majority (67%) of the Partner group's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.5 Theoretical domain focus area 5 : HJA (DIC/S)

Figure 4.53 illustrates the analysis process that was followed to synthesise the findings presented in this section. P-J fit (unstructured environment) between the e-learning practitioner and the HJA (DIC/S) is presented for:

- TUT e-learning practitioner population;
- TUT e-learning practitioner group;
- Star performer group, and
- Partner group.

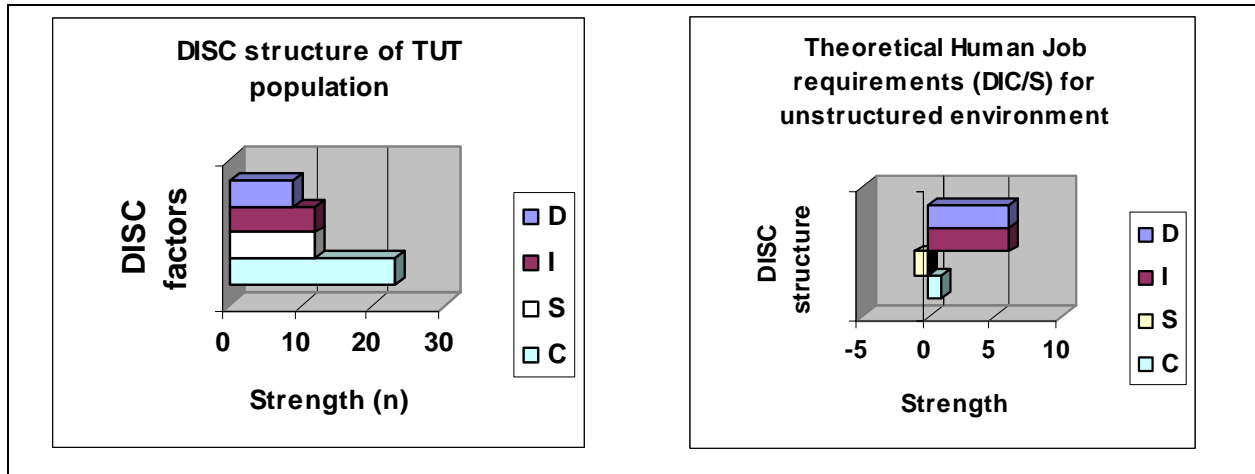
Figure 4.53: P-J fit of the e-learning practitioner and the theoretical domain



4.5.2.5.1 P-J fit of the e-learning practitioner population : HJA (DIC/S)

Goodness of fit measurements between the theoretical benchmark as set by the e-learning practitioners and the behavioural characteristics of the e-learning practitioner population were graphed and scored. (see Figure 4.54 and Table 4.65 for details).

Figure 4.54: DISC factor distribution for TUT population vs. HJA (DIC/S)



It is evident from Figure 4.54 that the Dominance and Influence factors have the greatest strength in the human job requirements for an e-learning practitioner in an unstructured environment and a moderate strength in the TUT population group. The Steadiness factor in the human job requirements shows the least strength but moderate strength in the TUT profile. The Compliance factor shows low strength in the human job requirements but the greatest strength in the TUT population. Table 4.65 shows a refined fit score between the TUT population and the job.

Table 4.65: P-J fit for the TUT population : HJA (DIC/S)

Styles	Frequency (%) of fit scores per style combination from Partner group						
	6	5	4	3	2	1	0
DIC	1.8						
CDI		1.8					
DC		1.8					
DI		3.6					
IC		1.8	1.8				
ICD		5.4					
CD			3.6	3.6			
CI			1.8				
ID			3.6	3.6			
C				1.8	3.6		
D				3.6			
DIS				1.8			
CIS					3.6		
CSD					5.4		
CSI					5.3		
DS					3.6		
ISC					1.8		
SCD					5.4		
CS						10.7	
IS						3.6	
SC						10.7	
SD						3.6	
S							1.8
Total	1.8	14.4	10.8	14.4	28.7	28.6	1.8
	27						73.5

Figure A

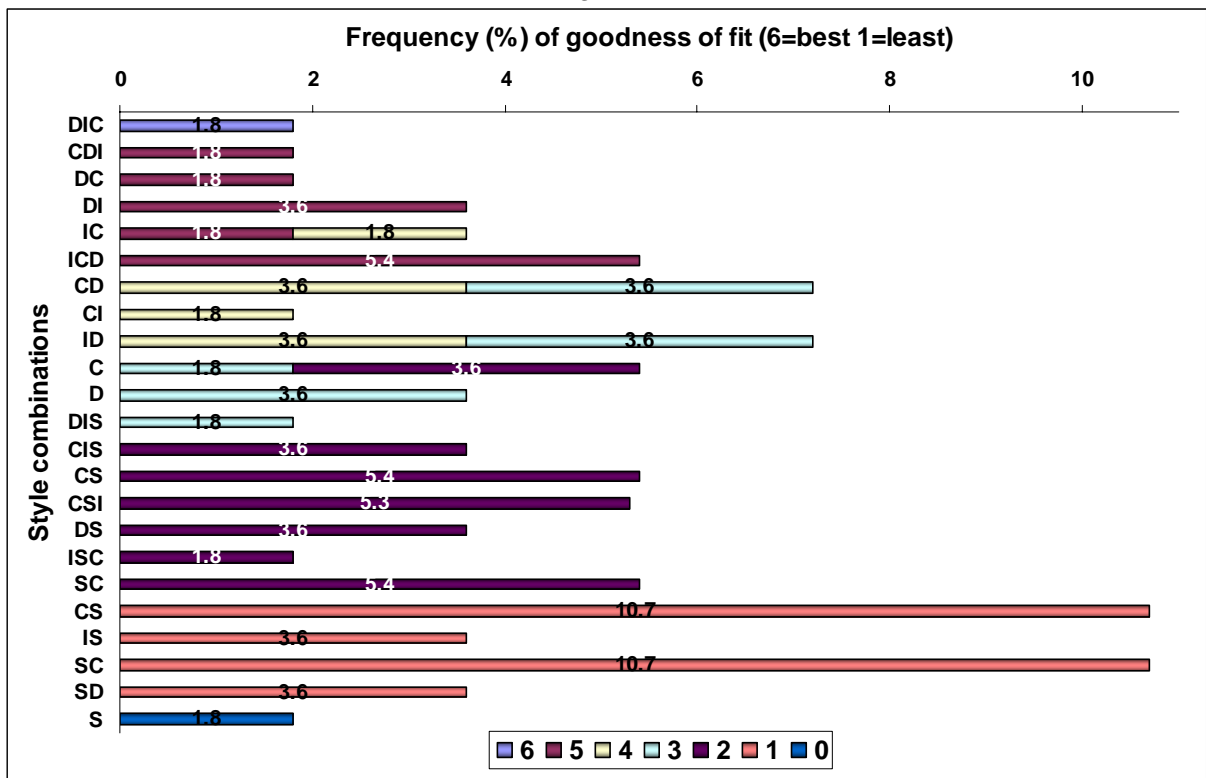


Table 4.65: P-J fit for the TUT population : HJA (DIC/S) (continued)

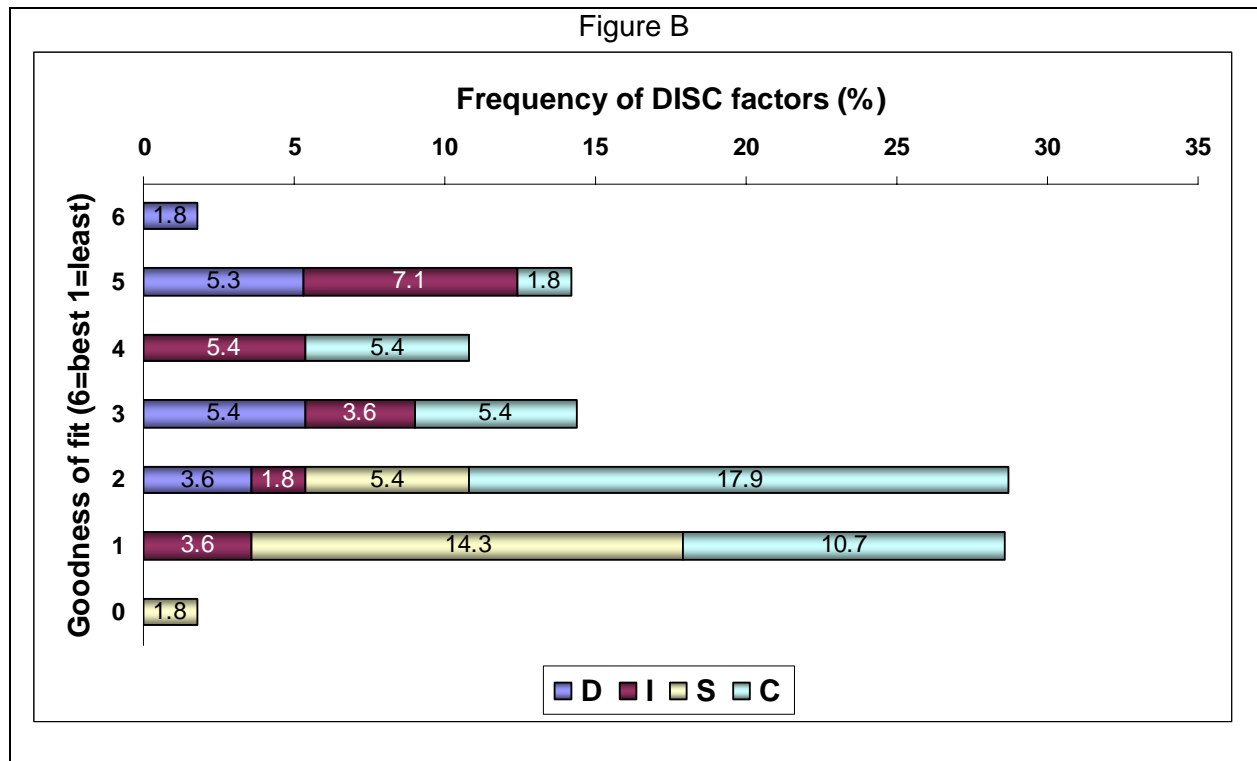


Table 4.65 shows that the best fit for the job is the high Dominance factor (high DIC style combination percentage of 1.8%), whilst other patterns of style combinations between mainly the Dominance, Influence and Compliance factors show scores between five (style combination percentage of 14.4%) and four (style combination percentage of 10.8%) for goodness of fit. The other combinations (73.5%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.65. A percentage of 1,8% of the group in the high Steadiness profile scored zero.

The Dominance factor is absent from the 0-1 score range and is the only factor present in the best fit score range, which implies that profile styles for this factor tend to be more positively related to the job requirements for the DIC/S structure. The Influence and Compliance factors are distributed towards the mid range scores. The Steadiness factor is very prominently distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the DIC/S structure. The Steadiness factor is the only factor in the zero score range of fit. Table 4.65 shows that only 27 percent of the TUT population falls within an acceptable range for goodness of fit, and that the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

4.5.2.5.2 P-J fit of the e-learning practitioner group : HJA (DIC/S)

The TUT e-learning practitioner group assessed in terms of the four DISC factors displayed similar fit patterns as the TUT population. (see Figure 4.55, Table 4.66 and Appendix D11 for details.)

Figure 4.55: DISC factor distribution for groups at TUT vs. HJA (DIC/S)

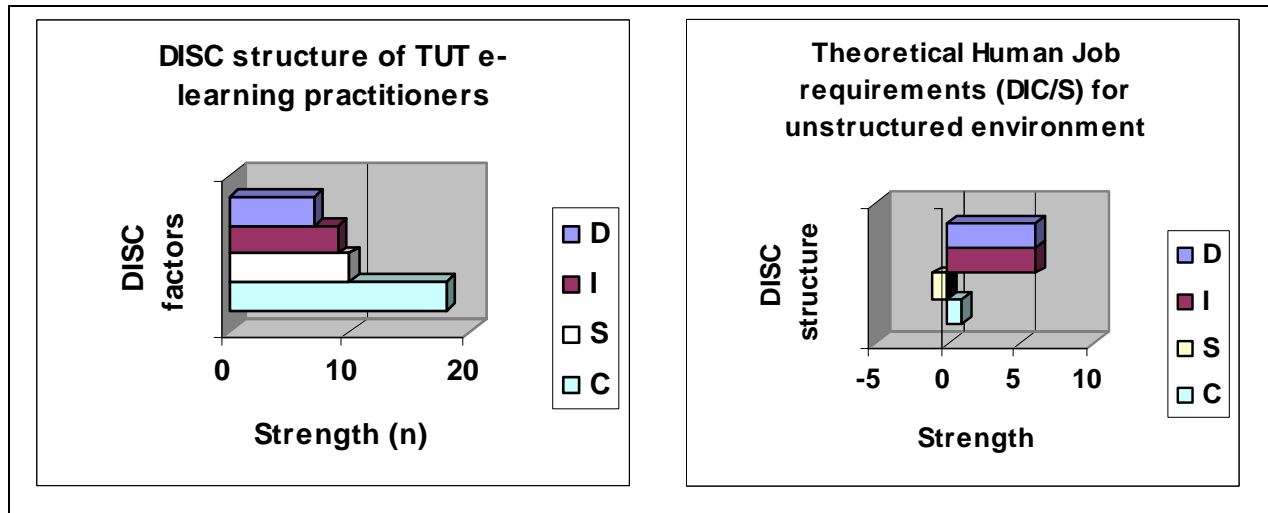


Table 4.66: P-J fit for the e-learning practitioner group : HJA (DIC/S)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
DIC	2.3						
CDI		2.3					
DC		2.3					
DI		2.3					
IC		2.3	2.3				
ICD		6.8					
CD			4.5	4.5			
CI			2.3				
ID			4.5				
C				2.3	2.3		
D				4.5			
DIS				2.3			
CIS					4.5		
CSD					4.5		
CSI					6.8		
DS					2.3		
ISC					2.3		
SCD					6.8		
CS						6.8	
IS						2.3	
SC						13.6	
SD						2.3	
Total	2.3	16	13.6	13.6	29.5	25	0
			31.9				68.1

Table 4.66: P-J fit for the e-learning practitioner group : HJA (DIC/S) (continued)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding star performers						
	6	5	4	3	2	1	0
DIC	3.2						
CDI		3.2					
DI		3.2					
IC		3.2					
ICD		9.7					
CD			3.2	6.5			
CI			3.2				
C				3.2	3.2		
DIS				3.2			
CIS					6.5		
CSD					6.5		
CSI					3.2		
ISC					3.2		
SCD					6.5		
CS						9.7	
IS						3.2	
SC						12.9	
SD						3.2	
Total	3.2	19.3	6.4	12.9	29.1	29	0
	28.9			71			

Figure A

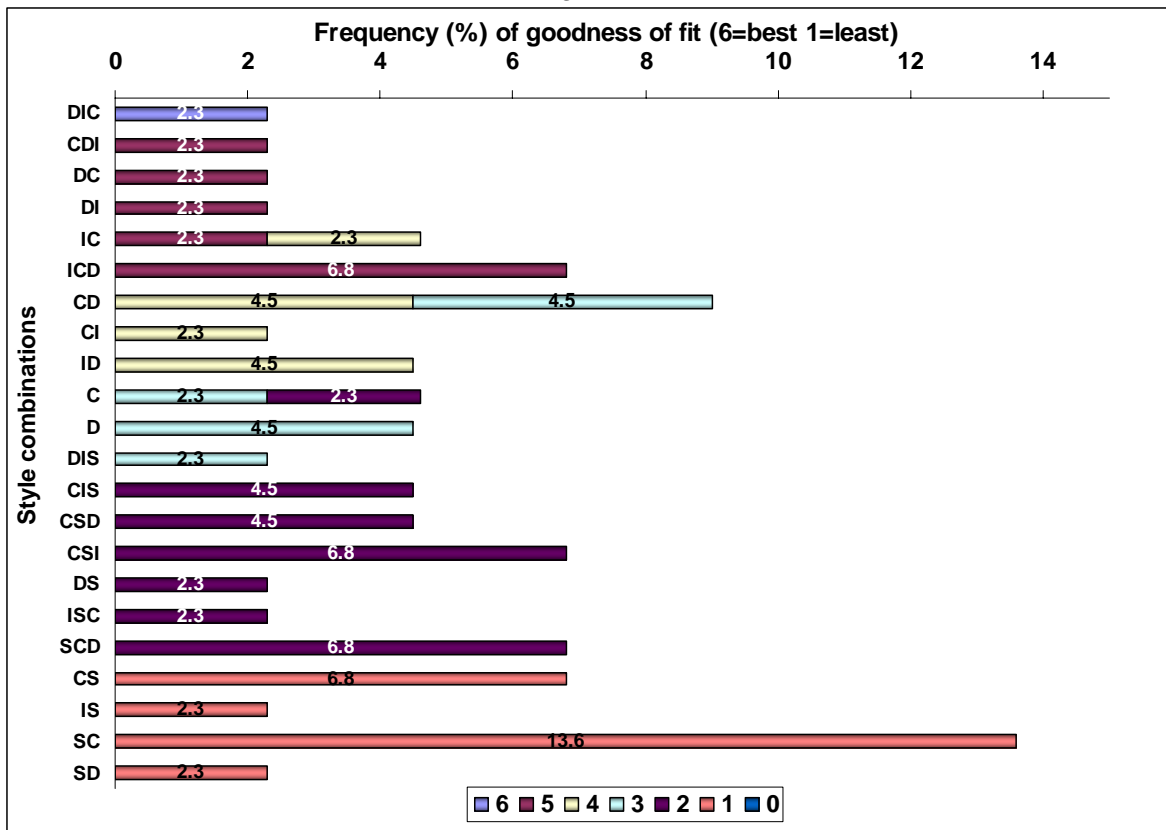
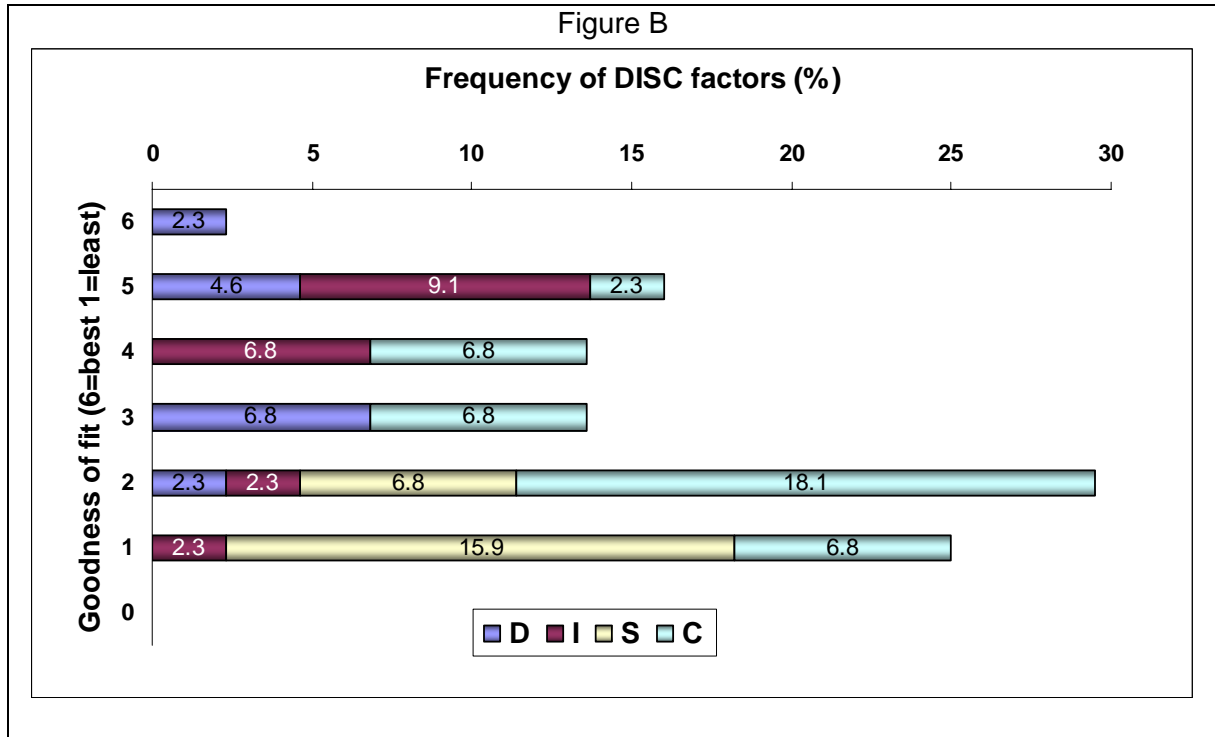


Table 4.66: P-J fit for the e-learning practitioner group : HJA (DIC/S) (continued)

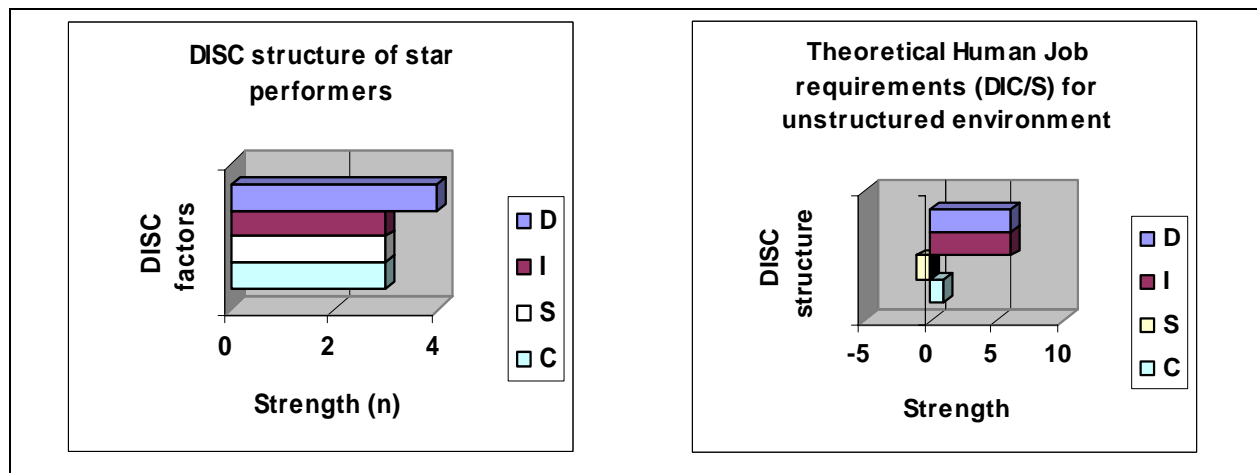


The best fit for the job is from the high DIC style combination, which represents only a percentage of 2.3% of the group. Findings suggest that only 32 percent of the TUT e-learning practitioner group falls within an acceptable range for goodness of fit.

4.5.2.5.3 P-J fit of the star performer group : HJA (DIC/S)

Measured against the HJA (DIC/S) profile the behavioural characteristics of the star performer group as captured in the DISC personal profiles (see Figure 4.56) were assessed to determine goodness of fit. The scores for the star performer group are presented in Table 4.67.

Figure 4.56: DISC factor distribution for star performers at TUT vs. HJA (DIC/S)



It is evident from Figure 4.56 that the Dominance factor has the greatest strength in both the star performer group and the human job requirements for an e-learning practitioner in an unstructured environment as theoretically perceived by the TUT e-learning practitioners. The star performer group shows equal strength in the Compliance, Steadiness and Influence factors, whereas the job under discussion calls for a high Influence factor, less strength in the Compliance and low Steadiness factors.

Table 4.67: P-J fit scores for the star performer group : HJA (DIC/S)

Styles	Frequency (%) of fit scores per style combination from star performers						
	6	5	4	3	2	1	0
DC		7.7					
ID			15.4				
IC			7.7				
CD			7.7				
D				15.4			
DS					7.7		
SCD					7.7		
CSI					15.4		
SC						15.4	
Total	0	7.7	30.8	15.4	30.8	15.4	0
	38.5			61.6			

Figure A

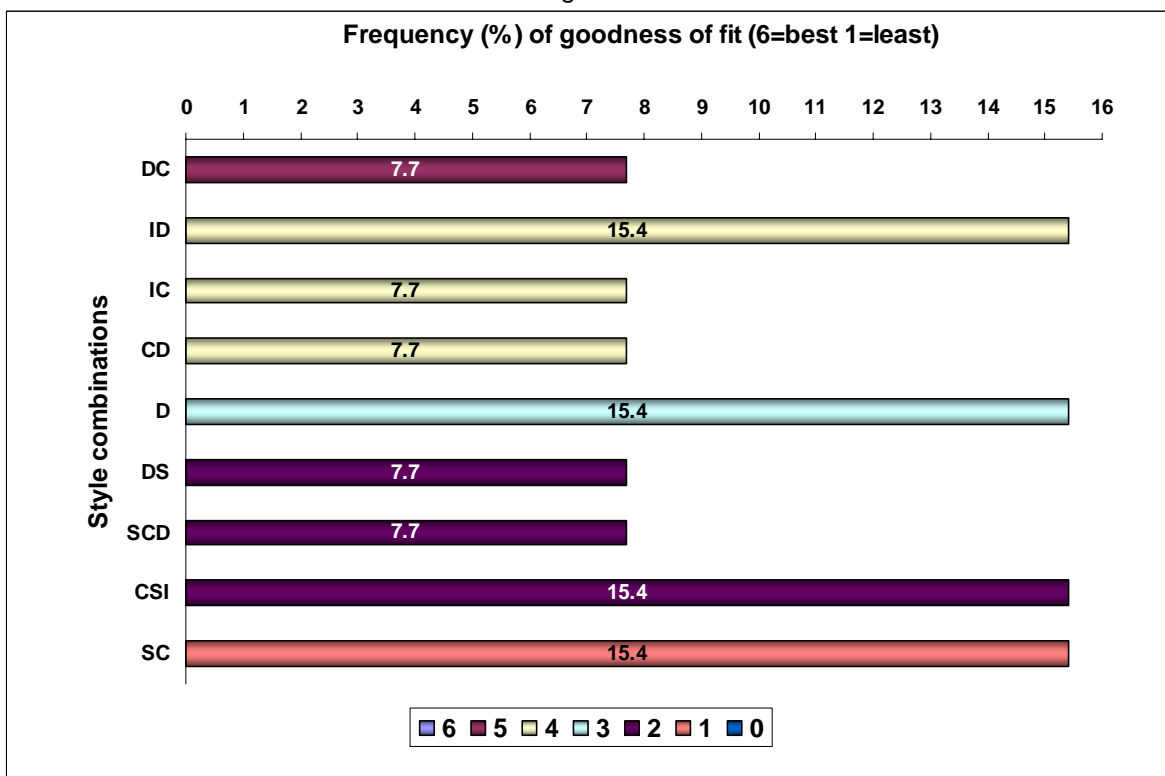


Table 4.67: P-J fit scores for the star performer group : HJA (DIC/S) (continued)

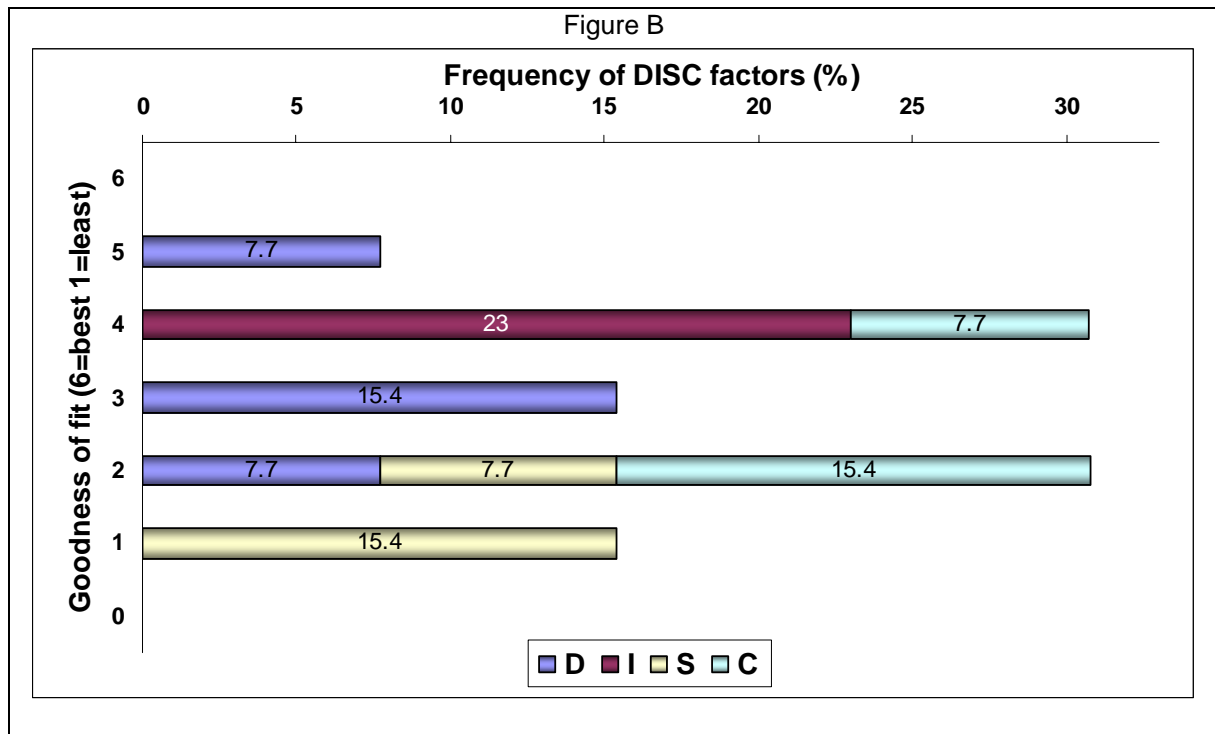


Table 4.67 shows no best fit for the job, but the two complementary style combinations, high DC (7.7%), high ID (15.4%), high IC (7.7%) and high CD (7.7%) in the Dominance and Influence factors show a fit range of five and four. The Dominance (15.4%) is the only factor with a fit score of three. Compliance and Dominance (7.7% each) factors are distributed in the two fit score category. The Steadiness factor shows scores in the one fit score category.

The Dominance factor is absent from the 0-1 score range and the only factor present in the best fit score range, which implies that profile styles for this factor tend to be more positively related to the job requirements of the DIC/S structure. The Influence and Compliance factors are distributed towards the mid range scores. The Steadiness factor is very prominently distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the DIC/S structure. The Steadiness factor is the only factor in the one score range of fit. A percentage of 38,5% of the style combinations show an acceptable job fit score and a percentage of 61,6% do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.67.

Table 4.67 shows no factors in the extreme score ranges. The Influence and Dominance factors and to a lesser degree the Compliance factor present in the 5-4 fit score ranges imply that profile styles for these factors tend to be more positively related to the job requirements for the DIC/S structure. A percentage of 38,5% of the Steadiness and Compliance factors is displayed in the 2-1 fit score ranges, which implies that profile styles for these factor combinations tend to

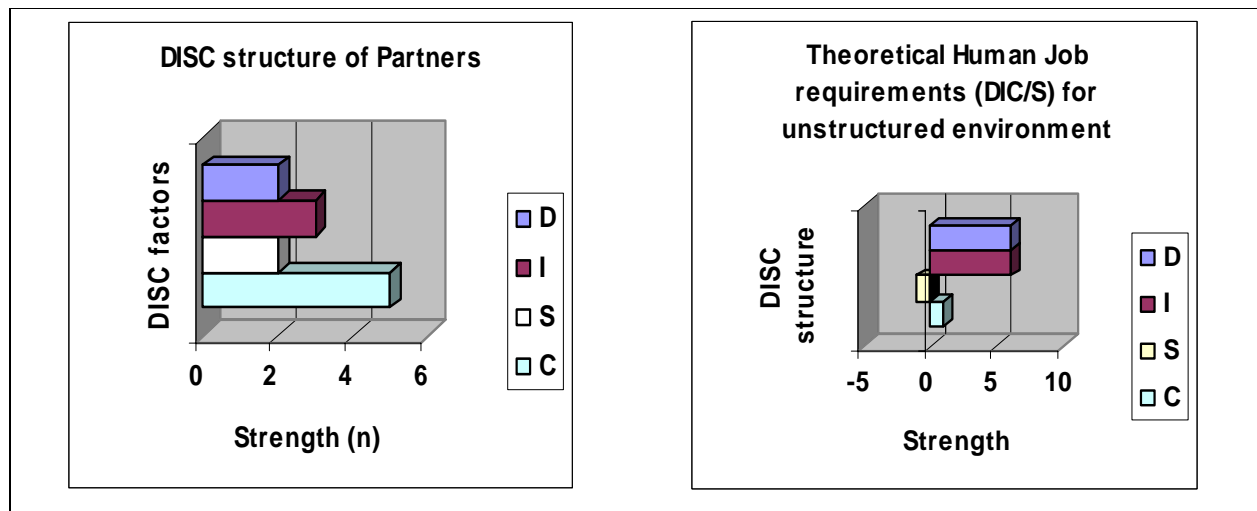
be more negatively related to the job requirements of the DIC/S structure. None of the star performer group displays a job fit of 6/6 but these findings suggest that 39 percent of the star performer group falls within an acceptable range for goodness of fit. The majority (61.6%) of the star performer group's behavioural characteristics do not seem to match the requirements of the HJA and will thus not be a natural fit for the job.

The star performer group differs from the TUT population in that the Dominance factor is the most prominent in that group but the least represented in the TUT population group; furthermore the star performer group is the only group that displays high D style combinations. Although the Compliance factor is the most prominent factor in the TUT population, the star performer group displays an equal distribution of the Compliance, Steadiness and Influence factors. Although the job requirements under discussion call for a stronger Dominance presence and the majority of the star performers' behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job, the overall job fit of 39 percent is higher than for other P-J fit combinations.

4.5.2.5.4 P-J fit of the Partner group : HJA (DIC/S)

Measured against the HJA (DIC/S) profile, the behavioural characteristics of the Partner group as captured in the DISC personal profiles (see Figure 4.57) were assessed to determine goodness of fit. The scores for the Partner group are given in Table 4.68.

Figure 4.57: DISC factor distribution for Partners at TUT vs. HJA (DIC/S)



It is evident from Figure 4.57 that the Compliance factor has the greatest strength in the Partner group, but the human job requirements for an e-learning practitioner in an unstructured environment as theoretically perceived by the TUT e-learning practitioners call for a low strength. The Partner group shows equal strength in the Dominance and Steadiness factors,

whereas the job under discussion calls for a high Dominance and high Influence factors and low Steadiness factors. Table 4.68 shows a refined fit score between the Partner group and the job.

Table 4.68: P-J fit scores for the Partner group : HJA (DIC/S)

Styles	Frequency (%) of fit scores per style combination from Partner group						
	6	5	4	3	2	1	0
DI		8.3					
ID				16.7			
DS					8.3		
C					8.3		
CSD					8.3		
IS						8.3	
SD						8.3	
CS						25	
S							8.3
Total	0	8.3	0	16.7	24.9	41.6	8.3
	8.3			91.5			

Figure A

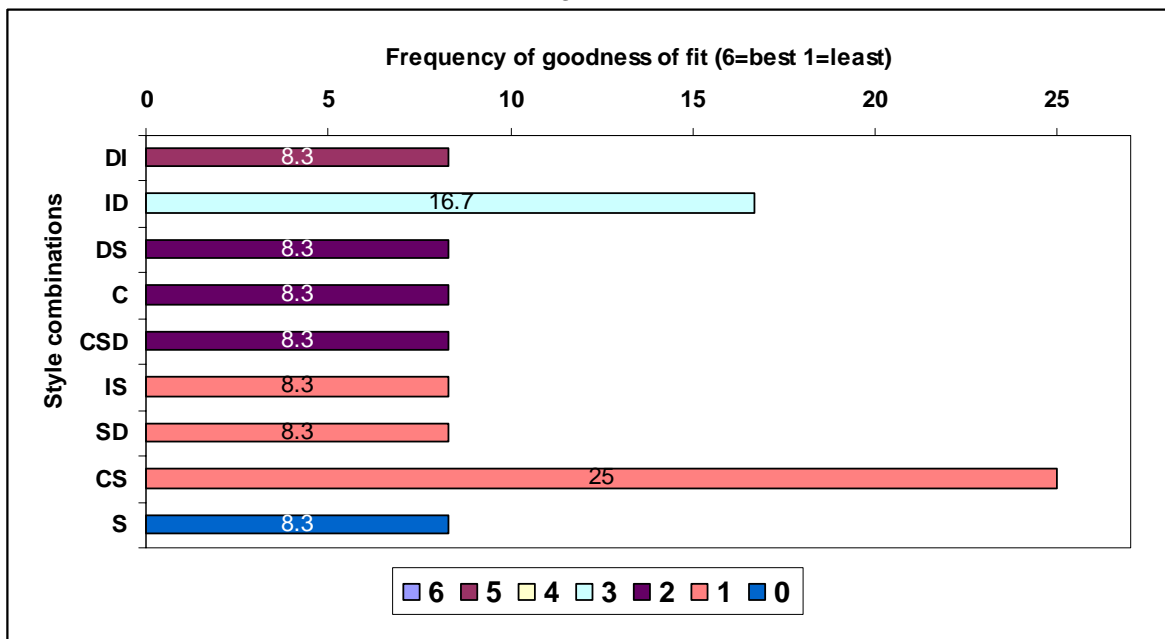


Table 4.68: P-J fit scores for the Partner group : HJA (DIC/S) (continued)

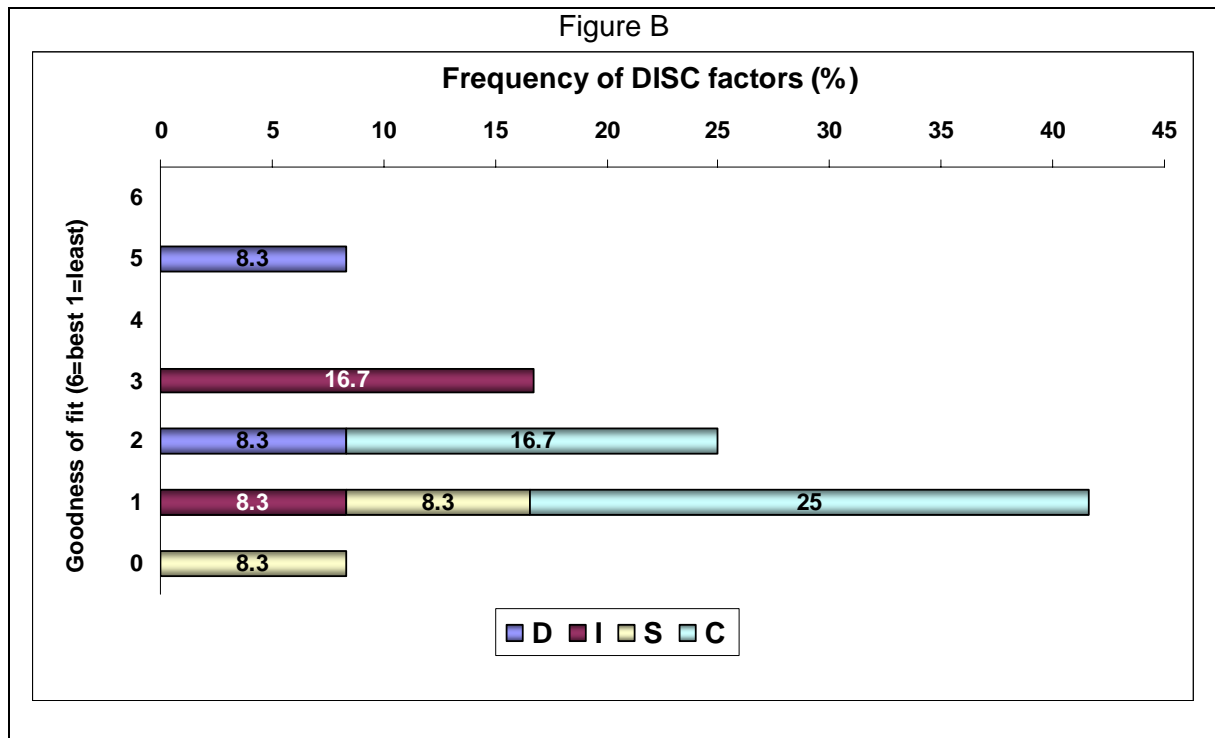


Table 4.68 shows no best fit for the job, and only one style combination, namely high DI (8.3%) in the Dominance factor in the acceptable range for job-fit. All the other factors (91.5%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.68.

Table 4.68 shows no factors in the acceptable score ranges apart from the high DI style combination. This implies that this profile style tend to be more positively related to the job requirements for the DIC/S structure. The majority of work behavioural styles as displayed by the Partners tend to be more negatively related to the job requirements for the DIC/S structure.

Subsidiary question 1:

What is the P-J fit for the different e-learning groups in different e-learning work environments?

Based on the relationships defined and described in section 4.5.2, a number of P-J fit scores were calculated. The majority of fit scores for the e-learning practitioners at TUT and job structures for unstructured and structured work environments were not a good match.

4.5.3 Theme 2: Comparison of job compatibility between the groups

The second theme in section 4.5 deals with an analysis and comparison of the relationship between the two subsystems in the e-learning environment at TUT in terms of the different groups that were studied to address the second research goal of the third research question:

Research goal 2

To identify the match between the personal profile patterns and structures of the e-learning practitioners and the human job requirement patterns and structures of the e-learning practice.

The results pertaining to acceptable compatibility reported in the previous section are integrated in this theme to form a description of the structure of the e-learning practitioner construct.

The focus areas are

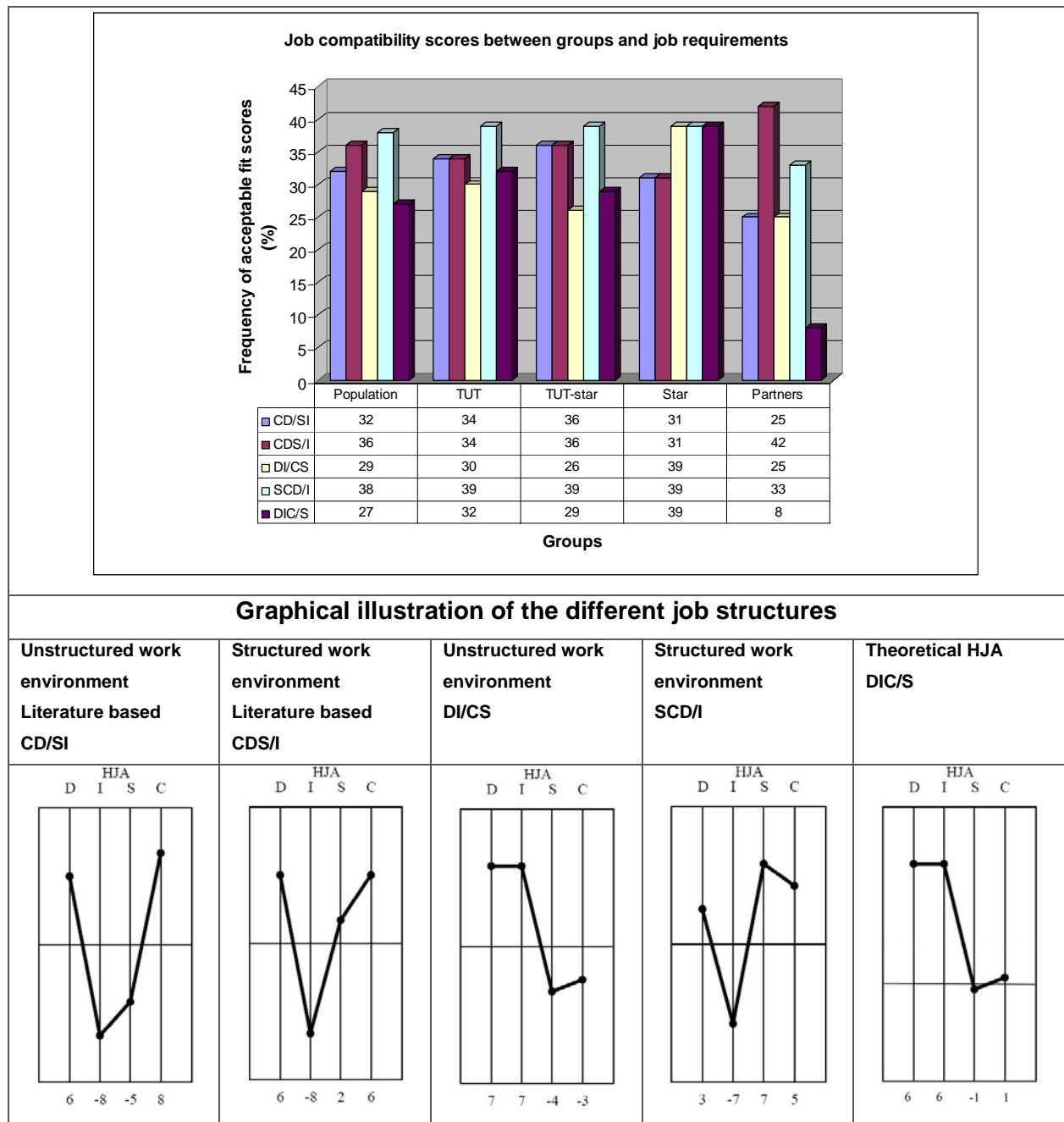
- the integration of findings on the relationships between the patterns and structure of an acceptable person-environment (P-E) fit in the different environments, and
- the integration of findings on the relationships between the patterns and structure of an acceptable (P-E) fit in the different groups⁹.

4.5.3.1 Integration of findings on P-E fit

It is evident from Figure 4.58 that the results of the job compatibility of the TUT e-learning practitioner groups and the five different human job analysis requirements reveal a low percentage of acceptable fit scores for all the groups. An acceptable fit score includes fit scores from 4/6 to 6/6. The CD/SI, DI/CS and DIC/S job structures suggest more unstructured work environments and the CDS/I and SCD/I job structures suggest a more structured work environment.

⁹ Note: It is possible that percentages shown in figures may differ slightly because of the use of approximate values.

Figure 4.58: Acceptable job compatibility scores



The structured and unstructured e-learning environments at TUT are the two opposite poles of the structuredness continuum which merge at some point on the continuum. A short discussion in the following paragraphs will highlight some of the features of the structuredness continuum.

4.5.3.1.1 Structured environment

The higher the Steadiness and Compliance factors and the lower the Dominance factor, the more the job structure tends to favour standard operating procedures and a traditional approach, maintaining the status quo. Getting things right, attention to detail, ensuring quality and standards are important factors for these positions. Structure and security are provided by clearly defined job parameters and a predictable stable work environment. The P@W

Programme provided a structured work environment, offering the Partners security and support through a well-defined programme with tangible goals and parameters for job performance. This environment may favour not only the Partners but also the majority of the TUT population. Figure 4.58 shows that all the groups scored highest for acceptable job compatibility with job structures in structured environments. This correlates closely with the finding that the Compliance and Steadiness factors are the most prominent factors in the TUT e-learning practitioner group.

The TUT e-learning practitioner group excluding the star performer group (**TUT-star**) represents 55 percent of the TUT population but shows a remarkable resemblance to the acceptable job compatibility scores of the TUT population in the CDS/I and SCD/I job structure for structured environments and correlates with the fact that the strongest DISC factor in the TUT population and TUT e-learning practitioner group is the Compliance factor including the highest clusters of style combinations, namely high CS and high SC.

The star performer group, which represents 23 percent of the TUT population, also shows a remarkable resemblance to the acceptable job compatibility scores of the TUT population in the SCD/I job structure for structured environments and correlates with some of the highest clusters of style combinations, namely high CSI and high SC in this group.

The lowest acceptable job compatibility score of eight percent was obtained by the Partner group in the DIC/S job structure, and its highest acceptable job compatibility score of 42 percent was obtained in the CDS/I job structure.

4.5.3.1.2 Unstructured environment

The higher the Dominance and the lower the Steadiness and Compliance factors, the more the job tends to favour the accomplishment of results in spite of unfavourable circumstances. Focusing on the e-learning job as a living organism, self-adaptation or self-emergence of functions and structures are relevant (Herrero, 2002). Although most of the e-learning practitioners at TUT were involved in telematic projects for teaching and learning, there were also activities in informal ad hoc projects mostly driven by the particular interested individual. In this way networks of people emerged from different parts of TUT, connected by teaching and learning goals not necessarily listed in a job description. These people are motivated and inspired by the challenging and dynamic environment and enjoy experimenting with new technologies at a fast pace. This unstructured environment instead of prescribing strict rules and procedures allows for frameworks and directions to guide people on how to act, and tolerates innovative thought, creative problem solving and independence to act. The e-learning practitioners at TUT describe the characteristics of the e-learning practitioner in the unstructured

work environment as *inter alia* creative, patient, innovative, knowledgeable, persevering, dedicated, working smarter to make life easier with less work, enthusiastic, affinity for technology, open to change, interested, and open-minded. As pointed out in section 4.3 these characteristics predominantly point to a high Dominance behavioural style, combining elements of the high Compliance and high Influence factors.

The majority of the TUT population does not show a high strength in the Dominance factor in their behavioural styles and only 16 percent falls into this category. However the star performers has a strong Dominance factor presence and these behavioural styles generally favour the unstructured work environments, showing the highest acceptable job compatibility (39%) in these job structures. In comparing all the e-learning practitioner groups (see Figure 4.58) it is evident that the star performer group displays the overall highest scores for acceptable job compatibility.

The theoretical benchmark created by the TUT e-learning practitioner group (see section 4.4) has basically the same features as the DI/SC job structure created by the expert consensus group, but differs in terms of the Compliance factor that shifted from a low (DI/CS) to a high factor (DIC/S). In comparing this job structure with the personal profiles of the TUT e-learning practitioners to assess acceptable compatibility, reveals resemblances to acceptable job compatibility scores for the TUT population as well as the star performers, but not for the Partner group.

This is interesting to note that both the enriched and perceived benchmarks for the position of e-learning practitioner show the Dominance factor as being important for the job, but in reality the majority of practitioners' profiles displayed high Compliance (41%) and Steadiness (23%) factors. These practitioners lack strength in the one factor that they themselves perceive as being very important for the job. Although the Partners' Compliance (42%) and Influence (25%) factors are the highest of all the groups, their acceptable compatibility with the DIC/S job structure is only eight percent. The Partners, influenced by their participation of nearly a year as Partners in a structured work environment, set up the job requirements for the position of e-learning practitioner and also selected a DI/CS job structure (see section 4.4). These choices correspond with the choices of the expert consensus group. The Partner group's acceptable compatibility with the DI/CS job structure was only 25 percent. Furthermore, the fact that the majority of the profiles from the group who was selected by the team from the Department of Telematic Education at TUT as star performers shows the highest strength in the Dominance factor may suggest that the Dominance factor is important for the e-learning practitioner. It is also interesting to note that the Dominance factor is the only factor identified as a high factor in all the job structures. However, the more structured the work environment becomes the less

prominent this factor seems to become, because the environment and not the person drives the initiative. This has important consequences for the e-learning practice in the real world, as will be pointed out later in this discussion.

4.5.3.2 Integration of findings on P-E fit in the different groups

The results from the acceptable job compatibility scores in terms of the different style combinations for the TUT population, TUT e-learning practitioner, star performer, and Partner groups will be discussed in this section. The TUT e-learning practitioner group represents 55 percent (excluding the star performer group), the star performers group 23 percent and the Partners group 21 percent of the total TUT population. These three groups will be compared for acceptable job compatibility against the five different job definitions as mapped by the HJA. The TUT population group will only be used as a baseline for best fit comparisons.

4.5.3.2.1 Comparison of job compatibility between the groups and HJA – CD/SI

It is evident from Figures 4.58 and 4.59 that acceptable job compatibility of the TUT e-learning practitioner groups and the CD/SI job structure is low with the best fit score coming from the TUT population and e-learning practitioner groups respectively with percentages of 3.6%, 4.5% and 6.5%. The TUT e-learning practitioner group (excluding the star performers) shows the highest (36%) and the Partner group the lowest (25%) frequency of acceptable compatibility scores.

Figure 4.59: Job compatibility scores for the different groups: HJA CD/SI

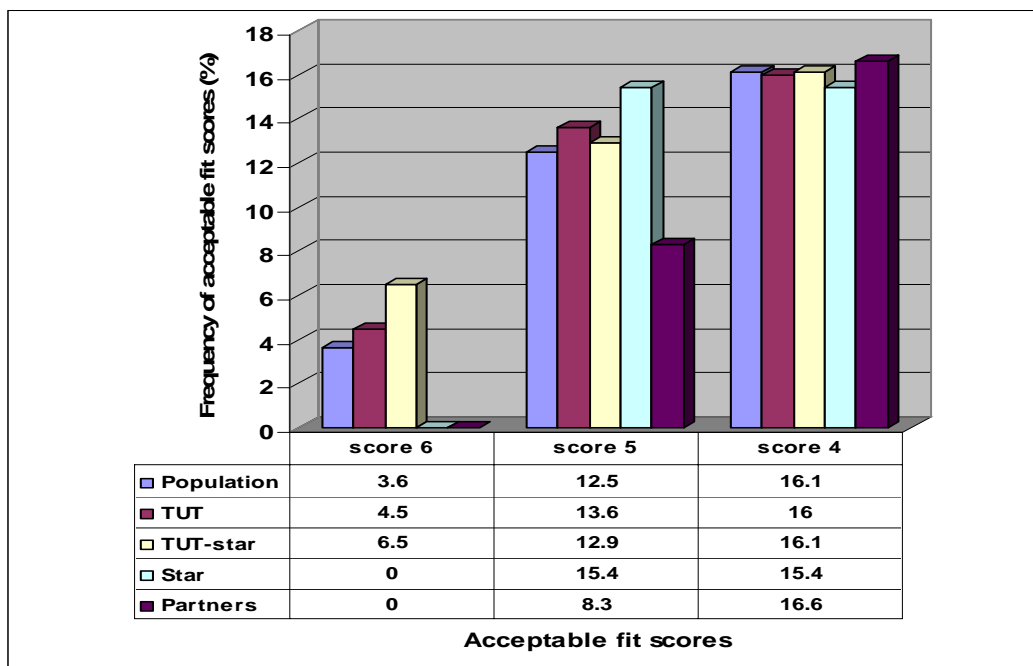
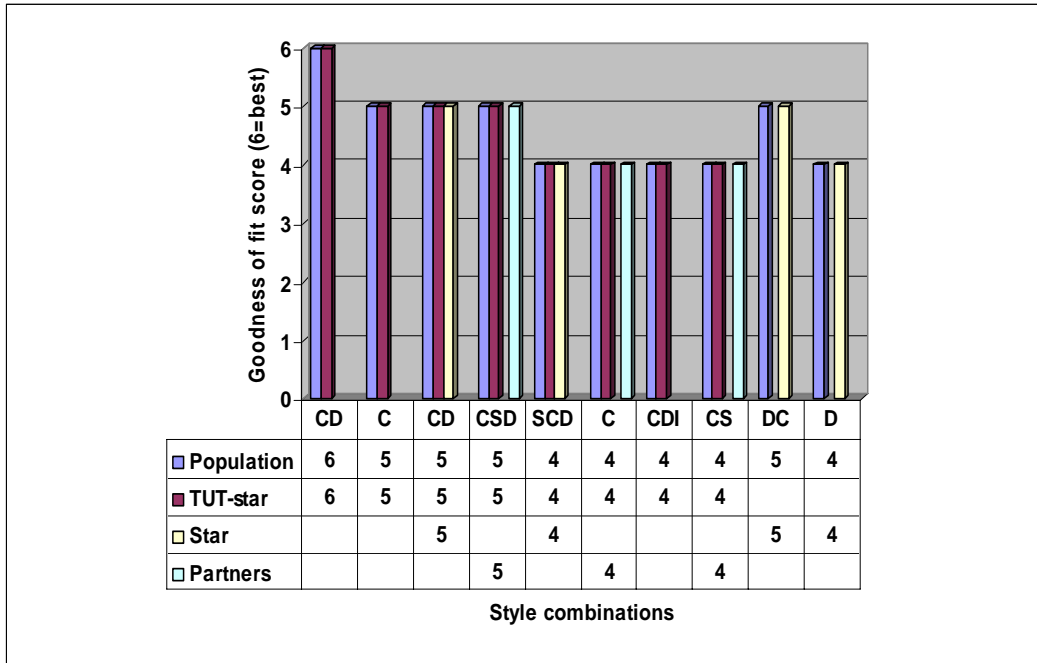


Figure 4.59: Job compatibility scores for the different groups: HJA CD/SI (continued)

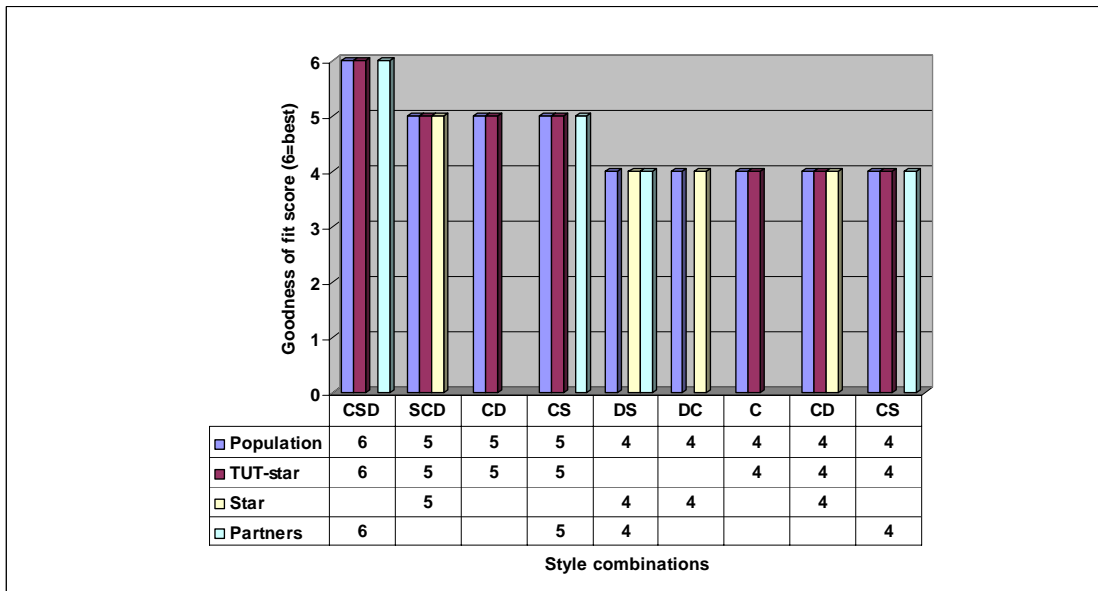
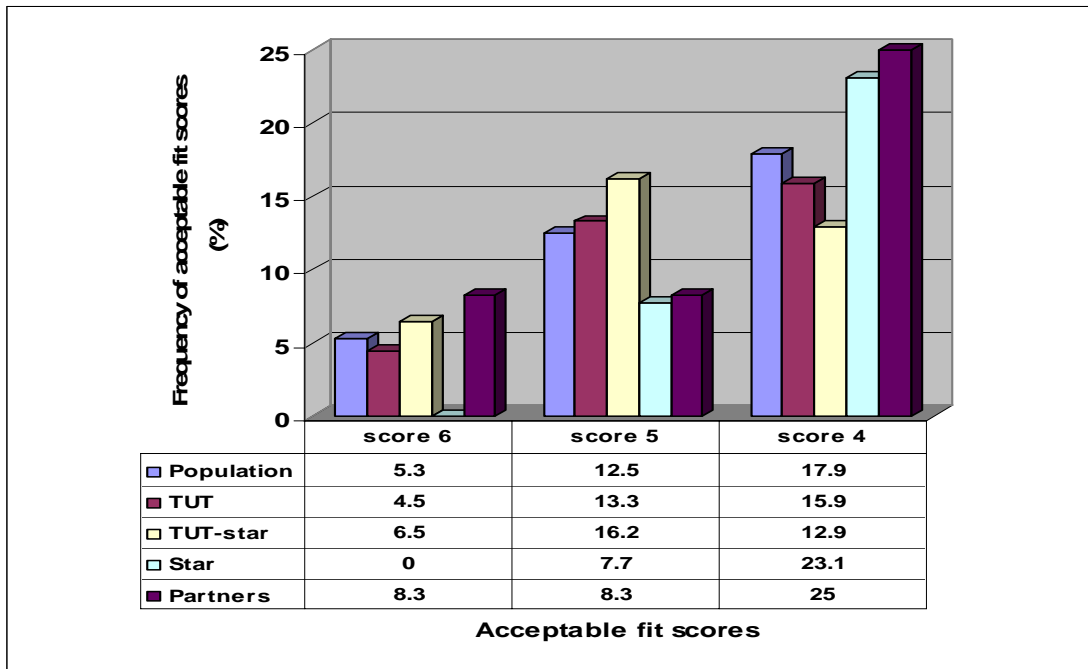


The most prominent style combinations for the job requirements are the high CD, high C and high CSD combinations. The high CD, high SCD, high DC and high D style combinations are most prominent in the star performer group with the high Dominance factors being visible in this group only. The high SCD style combination is not present in the Partner group and the other three style combinations present in the Partner group are not present in the star performer group. It is clear that the difference between the Partner and star performer groups is the result of the specific pattern difference in style combinations present in each group and that the high CD and DC combinations present in the star performer group indicate a better job compatibility with the CD/SI structure than the high CS style combinations from the Partner group.

4.5.3.2.2 Comparison of job compatibility between the groups and the HJA – CDS/I

It is evident from Figures 4.58 and 4.60 that acceptable job compatibility between the TUT e-learning practitioner groups and the CDS/I job structure is low with the best fit score from the TUT population, e-learning practitioner and Partner groups respectively with percentages of 5.3%, 4.5%, 6.5% and 8.3%. The Partner group displays the highest frequency (42%) of compatibility scores, whilst the two other groups display the same patterns as for the CD/SI job structure. It is interesting to note that the 42 percent is the highest score not only for this job structures but for all the job structures. This indicates that the Partner group fits relatively well with the job structure constructed from the literature-based information deduced from the preliminary taxonomy.

Figure 4.60: Job compatibility scores for the different groups: HJA CDS/I

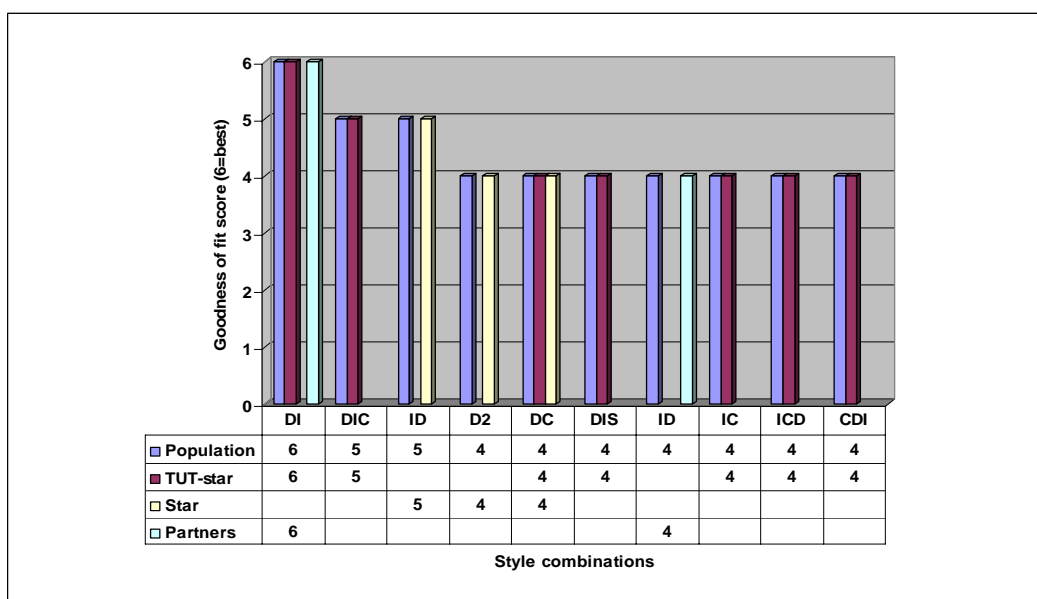
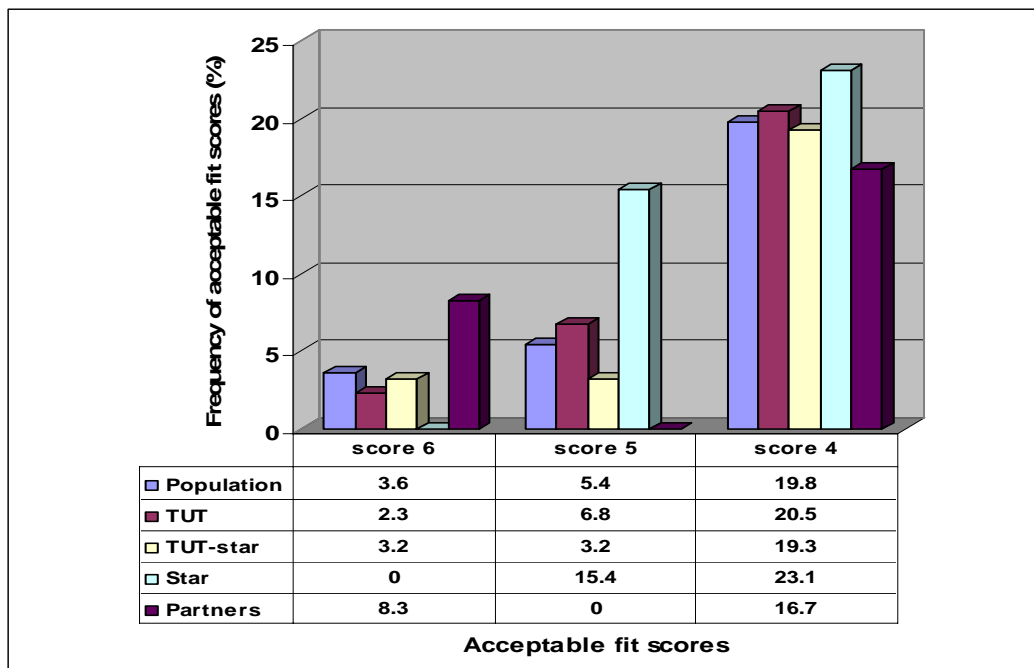


The most prominent style combinations for the job requirements are the high CSD and high SCD combinations. The high CSD and SCD style combinations are most prominent for all the groups apart from the star performer group. The same pattern of opposite groupings for the star performer and Partner groups as seen in the previous job structure is repeated in this job structure. It is clear that the difference between the Partner and star performer groups is the result of the specific pattern difference in style combinations present in each group and that the high CS combination present in the Partner group indicates a better job compatibility with the CDS/I structure than the high CD or DC style combinations from the star performer group.

4.5.3.2.3 Comparison of job compatibility between the groups and the HJA – DI/CS

It is evident from Figures 4.58 and 4.61 that acceptable job compatibility between the TUT e-learning practitioner groups and the DI/CS job structure is low with the best fit score coming from the TUT population, e-learning practitioner and Partner groups respectively with percentages of 3.6%, 2.3%, 3.2% and 8.3%. An outstanding feature is the high frequency (39%) of job compatibility between the star performer group and the job structure, whilst the other two groups show low frequencies of 26 percent and 25 percent respectively.

Figure 4.61: Acceptable job compatibility scores for the different groups: HJA DI/CS



The most prominent style combinations for the job requirements are the high DI, high DIC and high ID combinations. All the groups except the star performers are present in the best fit score category. A difference between the previous job structures and this one is that the high Influence factor is present in most of the compatible style combinations. Although the high DI combination is the best fit for this job structure, only two people from the total population fall into this category. One of these practitioners is not actively involved in practice anymore. It is therefore important to note that the job structure that was created by the expert consensus group, supported by the e-learning practitioner group for the job of the e-learning practitioner at TUT, is only minimally complemented by the population of e-learning practitioners. Although the planning of interventions for the system is not part of this study, the implications of this scenario will be touched on in subsequent paragraphs.

4.5.3.2.4 Comparison of job compatibility between the groups and the HJA – SCD/I

It is evident from Figures 4.58 and 4.62 that acceptable job compatibility between the TUT e-learning practitioner groups and the SCD/I job structure is low with the best fit score coming from the TUT population, e-learning practitioner and star performer groups respectively with percentages of 5.4%, 6.8%, 6.5% and 7.7%. An outstanding feature is the high frequency (39%) of job compatibility between the star performer as well as the TUT e-learning practitioner groups and the job structure, whilst the Partner group shows a lower frequency of 33 percent.

Figure 4.62: Job compatibility scores for the different groups: HJA SCD/I

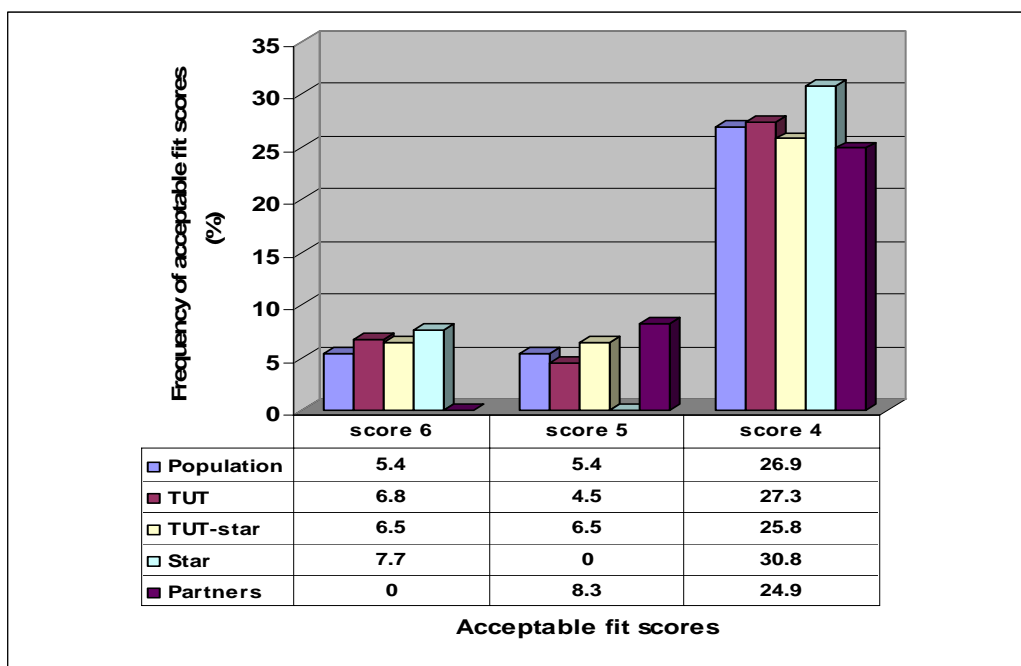
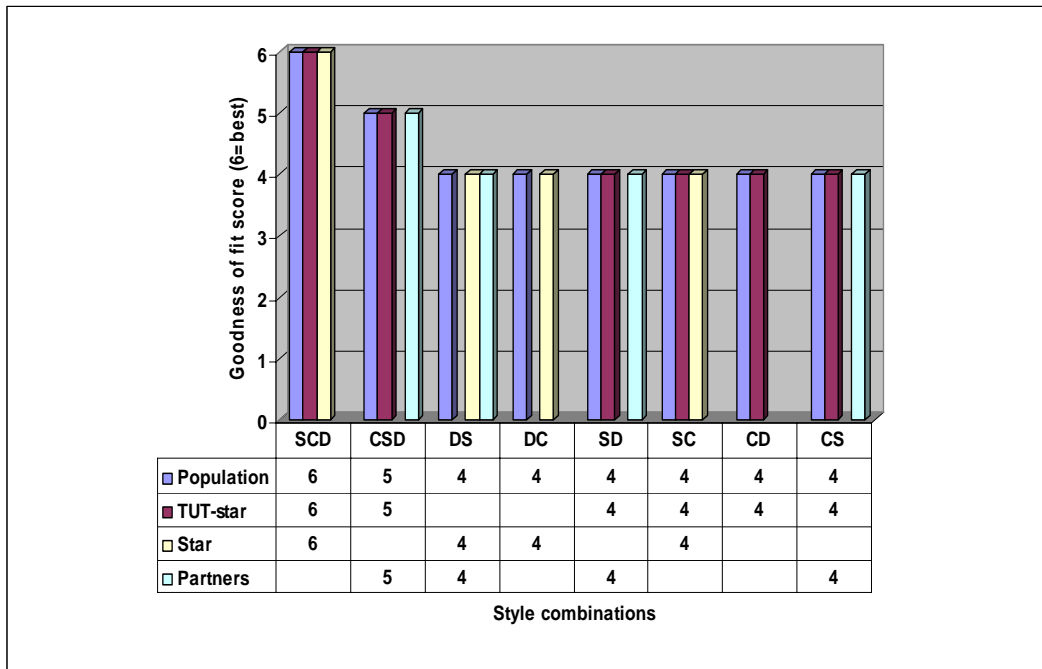


Figure 4.62: Job compatibility scores for the different groups: HJA SCD/I (continued)

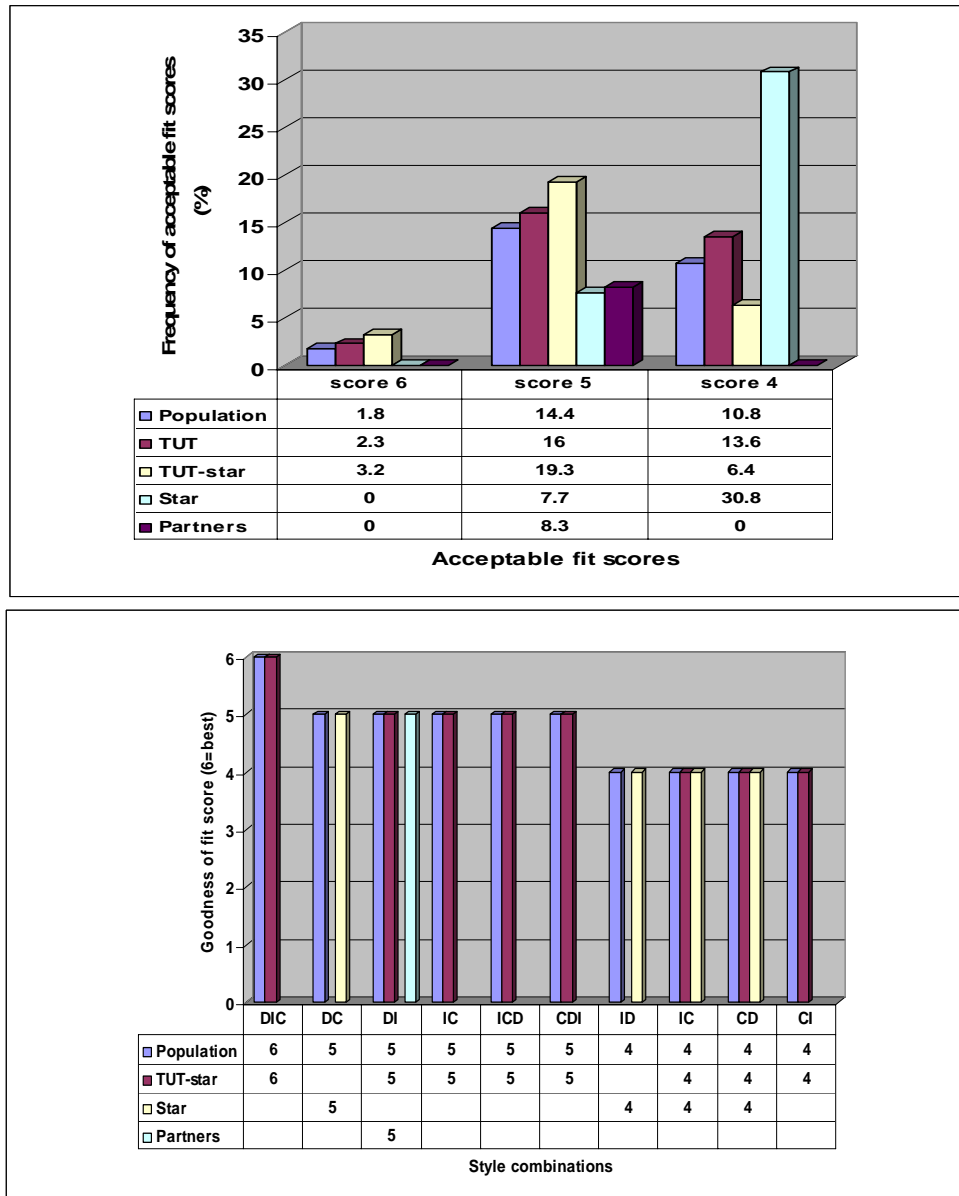


The most prominent style combinations for the job requirements are the high SCD and high CSD combinations. All groups except the Partners scored in the best fit category. The distribution pattern for compatibility between the different style combinations and the job structure is distributed between the groups. Except for a similarity in the high DS style combination, the pattern of opposite groupings for the star performer and Partner groups, as seen in the previous job structures, is repeated in this job structure. It is clear that the difference between the Partner and star performer groups is the result of the specific pattern difference in style combinations present in each group and that the high SCD combination present in the star performer group indicates better job compatibility with the CDS/I structure than the high CSD style combinations from the Partner group.

4.5.3.2.5 Comparison of job compatibility between the groups and the HJA – DIC/S

It is evident from Figures 4.58 and 4.63 that acceptable job compatibility between the TUT e-learning practitioner groups and the DIC/S job structure is low with the best fit score coming from the TUT population and e-learning practitioner groups respectively with percentages of 1.8%, 2.3% and 3.2%. An outstanding feature is the high frequency (39%) of job compatibility between the star performer group and the job structure, whilst the Partner group shows the lowest of any compatibility score frequency, namely eight percent. The TUT e-learning practitioner group (excluding the star performers) shows a moderate frequency of 29 percent.

Figure 4.63: Acceptable job compatibility scores for the different groups: HJA DIC/S



The most prominent style combinations for the job requirements are the high DIC and high DC combinations. None of the star performer or Partner groups is represented in the best fit category. In comparison with the other groups the Partner group has the highest cluster of Influence style combinations but these are not well matched to this job structure. The style patterns of the lower factors in these high ID combinations resulted in 3/6 fit scores for these profiles.

Subsidiary question 2

What is the 'goodness of fit' between the personal profile and e-learning job structures for the different e-learning practitioner groups at TUT in terms of acceptable compatibility?

Based on the relationships defined and described in the previous paragraphs, a number of P-J fit scores were calculated to report on the “goodness of fit” in terms of acceptable compatibility between the personal profile and e-learning job structures for e-learning practitioners at TUT.

To answer the main research question:

Research question 3

How do the work environment and person attributes fit together in the structure of the e-learning practitioner construct?

Based on the previous discussion the match between the person, the job and the environment is dependent on the characteristics of these three legs of the e-learning P-J fit triad. Depending on a number of different scenarios the triad may emerge differently from its latent position depending on the congruence of the three legs of the triad.

4.5.4 *Synthesis of research findings to answer the main research question*

To answer the main research question:

What is the latent structure of the e-learning practitioner construct?

The findings reported in the previous sections of this chapter need to be integrated into a holistic picture. Different lenses were used to take ‘snapshots’ in order to illuminate the separate parts (the environment, the e-learning practitioner and the e-learning practice) of the system. However, to view the system and to answer the main research question, five possible scenarios will be described. Time and context will influence the system in such a way that any one, a combination of more than one, or all of the latent scenarios may emerge as a structure for the system for a specifically defined purpose. The living dynamic system will constantly grow and develop but may sometimes divide or become parts or subsystems of other systems.

Systems thinking was used to tell the story, identify the characteristics of each subsystem, draw the graphs and highlight the patterns and their relationships within each subsystem, and to use these building blocks to create the structure of the system (how the parts fit together). The different parts work together according to a specific plan, driven by organising principles, towards a specific goal to fulfil a common purpose. The latter gives meaning to the system.

The interaction between a person and his/her job to fulfil a job purpose can either be strengthened energy if the two fit well together or, if the person has to do work which requires

strengths that he/she does not possess, self-motivation may take 30 percent of the available energy and another 20 percent energy may be wasted in frustration, which leaves only 50 percent of the available energy to do the job. People have a natural behavioural preference and there are some interventions that can be implemented to narrow the gaps between the “what is...” and the “what should be...”

A combination of inductive and abductive reasoning were used to synthesise meaning from the **“What is...?”**, the **“What should be...?”** and the **“What does it mean...?”** in each scenario. The aim of this study is to delve deeper into the structure of the e-learning practitioner construct and not to plan interventions for practical problems, thus for illustrative purposes only short reflective ideas on the implications for training and career development and possible interventions will be given.

4.5.4.1 First scenario highlighting the structure of the e-learning practitioner construct

Note: Job descriptions used in this study were provided by the analysts from Thomas International and to ensure authenticity the wording of these reports are used to describe the different positions.

What is...?

Acceptable compatibility between the TUT e-learning practitioners and a job structure (CD/SI) was discussed in the preceding paragraphs (see sections 4.5.2.1 and 4.5.3.2.1). However, the current situation at TUT present a group profile that does not seem to fit very well with the described position. The highest style combination present in the TUT population that presented with a best fit score is the high CD style displayed in percentages of 3,6% of the population and absent from both the star performers and the Partner group. The general job compatibility score for the TUT population was 32 percent.

The job profile for this position is applicable in an unstructured work environment bounded by clear-defined organisational parameters. Compliance with systems, procedures, objectives and timescales set by the organisation are key aspects of the job. Concern for the consequences of actions and alertness to quality and standards are also key aspects of the job. The job could involve a variety of activities, emphasising correct and logical results and an analytical approach.

The individual who is best suited for this job may be described as a person who is creative and results-orientated, systematic, precise, driving, careful, self-starting, inquisitive, active, rule-orientated and assertive. These individuals are motivated by clear job objectives and frames of

reference prior to starting an assignment, challenging tasks which will stimulate natural inquisitiveness and logic, freedom to act independently, and correct achievement of results. When compared to the HJA the personal strengths of the high CD profile appear to be as follows:

- “Can take decisions when called upon to do so.
- Will be proactive and is a self-starter.
- Willingly asserts authority and strives to achieve deadlines timeously.
- Competent to tackle any problems or conflicts which might threaten progress or success.
- Demonstrates an active approach and increases the pace in order to achieve goals.
- Brings a sense of urgency to most situations” (Thomas International, 2005).

Strengths that the high CD practitioner can bring to the organisation are controlling quality, complying with standards, careful planning, technical competence and specialised skills combined with an ability to perform detailed tasks and to adapt relatively quickly to new rules and procedures.

Limitations that the high CD practitioner may bring to the organisation are that they are bound by procedures, methods and detail, are demanding and perfectionist by nature and this can detrimentally affect the speed of decisions as they would want to double check all available information prior to taking any action.

As pointed out, a low percentage of the TUT population shows a best fit for this job structure and in comparing the activity profiles (see Table 4.21) of practitioners displaying the profile under discussion, it is evident that they only concentrated on the distribution of online course material and were engaged in a limited number of activities. As already pointed out in Table 4.22 reasons for this might be that the need for clear job objectives and the importance of online communication between the e-moderator and the students were not set as clear guidelines before they started their activities. The one exception is the star performer who was involved in a variety of activities and specialised not only in presenting research subjects but also used the e-learning experience to conduct own research.

What should be...?

Should the CD/SI job structure be the reality and the choice for the position of e-learning practitioner, it would imply a capitalisation of strengths and meeting the needs of practitioners complying with this job structure, as well as supporting those who do not show an acceptable compatibility with the job requirements. This might involve staff training, structuring and adapting the context of the job.

What does it mean...?

Interaction between the person and job subsystems is mainly influenced by cues from the environment pushing the person to react to an antagonistic job environment. The creative ability, problem-solving and research capabilities of these practitioners should be cherished and channelled into a supportive work environment that enables them to achieve positive results and at the same time obtain the “correct solution”. Demands from the unstructured online teaching and learning environment dictate a dynamic drive from the practitioner to influence students to participate in educational activities and to get results in terms of pass rates, student throughput and so on. Another challenge for the dynamic driver would be to involve colleagues and managers in a new way of thinking within the existing organisational parameters.

Practitioners compatible with the job structure under discussion are not naturally emotional and are more focused on “things” than people. For this job this may imply a need for a degree of self-awareness to modify behaviour towards a more communicative approach in terms of online communication with students. Tendencies to resent restrictions, particularly with regard to time and the dislike of being tied to deadlines, may be beneficial to the job in terms of accepting challenges and venturing into the unknown. However, in terms of structuring the online environment for students, reacting to students’ questions and needs and managing the course, the practitioners will need some guidelines on how to fulfil the role of e-moderator.

What are the implications for training?

Training programmes should set out clear programme objectives in terms of the training programme per se, but also pertaining to the different job roles that the person is likely to perform. Only 32 percent of the practitioners at TUT are compatible with this job structure, which implies that it would require substantial effort from these practitioners to comply to these job requirements. The training programme and structure provided by the organisation in terms of policies, regulations and procedures should compensate for the lack of inner drive amongst the majority of practitioners. Therefore, should this job structure be the reality, the training programme should include a mixture of activities for creative experimentation with new educational approaches, new technologies and applications in a constructivistic approach. However it should also provide structure in terms of the broad programme outline. The practitioner’s knowledge should be strengthened by giving guidelines for best practices and developing specialised skills. Development of expertise will motivate these practitioners and meet their need for authority vested in their specific skills.

Democratic but direct leadership from the programme presenters will best complement the needs of the practitioners. Leaders need to communicate tasks and assignments clearly, set definite timescales and well-defined programme outcomes to satisfy the practitioners’ need to

know 'why'. Reassurance, the absence of sudden or abrupt changes, and recognition of input to the organisation will energise the person with the high CD behavioural style. However, it should be borne in mind that these practitioners need a fast pace, challenging tasks and an outlet for their creativity.

What are the implications for career development?

The nature of the job will imply achievement of results of a precise and detailed nature, and may also include a variety of tasks. This means that the practitioner in this environment will strive to achieve the goals set for his/her course, applying specialised knowledge and skills that will allow learners to consistently achieve the outcomes set. The job scope provides opportunity to do research and to discuss and communicate and to present these results to other people (Thomas International, 2005). Support from the organisation in terms of the necessary infrastructure, strategic goals, policies and so on is indispensable if this job structure is to be formalised in a formal job description for the e-learning practitioner.

Roles and applications that will ideally suit the high CD profile group will be the role of researcher or specialist working in the e-learning environment with the emphasis on DRIVING TOWARDS PERFECT SOLUTIONS. Using systems terminology this job structure can be transcribed as representative of the system **DRIVER**.

4.5.4.2 Second scenario highlighting the structure of the e-learning practitioner construct

Note: Job descriptions used in this study were provided by the analysts from Thomas International and to ensure authenticity the wording from these reports are used to describe the different positions.

The CDS/I job structure show broad commonalities with the CD/SI job structure but differs in terms of the structuredness of the environment. The higher Steadiness factor requires a more secure work environment with less emphasis on fast pace, frequent changes and challenging the unknown.

What is...?

Acceptable compatibility between the TUT e-learning practitioners (see sections 4.5.2.2 and 4.5.3.2.2) and job structure CDS/I was discussed in the preceding paragraphs. However, the current situation at TUT presents a group profile that does not seem to fit very well with the position described. The highest style combination present in the TUT population that presented with a best fit score is the high CSD style, displayed in percentages of 5,3% of the TUT population, 8,3% of the Partners and absent from the star performer group. However the

highest frequency of acceptable fit scores (42%) was displayed in this job structure by the Partner group.

The job profile for this position is applicable in a structured work environment bounded by clearly defined organisational parameters and emphasis on administrative standards. The focus in this job is to push both self and others to achieve targets and solve problems that may hinder the achievement of results, despite any opposition encountered. The job includes team participation with the practitioners' input as independent experts, monitoring students' progress, and measuring achievement in terms of set outcomes and timescales. Knowledge and expertise are important factors in the job.

The individual who is best suited for this job may be described as a person who is results-orientated, assertive and inquisitive, loyal, organised and determined. The practitioner should have the perseverance to complete the job within set parameters, in a methodological, precise and systematic way. These individuals are motivated by a well-structured work environment without sudden changes. Job goals should be well defined and precise. These individuals have a need for both security and self-organisation and want to know "why" and "how". When compared to the HJA the personal strengths of the high CDS and CSD profiles appear to be as follows:

- "Can take decisions when called upon to do so.
- Willingly asserts his/her authority and strives to achieve deadlines timeously.
- Competent to tackle any problems or conflicts which might threaten his/her progress or success" (Thomas International, 2005).

Strengths that the high CSD practitioner can bring to the organisation are loyalty, steady under pressure, careful planning, technical competence and specialised skills, respectful of tradition, and an ability to make logical and systematic decisions.

Limitations that the high CSD practitioner can bring to the organisation are that they are not too concerned with people, and may have a tendency to stand back and observe what is going on rather than getting involved voluntarily and enthusiastically. They are motivated into action from forces in the environment rather than driven from force of character. They may fail to bring a sense of urgency to situations or to increase pace in order to reach or improve on timescales.

As pointed out, a very low percentage of the TUT population (see Table 4.53) shows a best fit for this job structure. Although these practitioners practised in a structured environment, secured by definite job parameters they experienced difficulty in adhering to the timescales of the programme.

What should be...?

Should the CDS/I job structure be the reality and the choice for the position of e-learning practitioner, it would imply capitalising strengths and meeting the needs of practitioners complying with this job structure, as well as supporting those who do not show an acceptable compatibility with the job requirements. This might involve staff training, and structuring and adapting the context of the job.

What does it mean...?

Interaction between the person and the job subsystems is mainly influenced by driving forces from within the job environment pushing the person into action in an antagonistic environment. Demands from the structured online teaching and learning environment are the driving forces that demand action from the practitioner in influencing students to participate in educational activities and to get results in terms of pass rates, student throughput and so on.

Reliability and loyalty to the organisation, and the problem-solving and research capabilities of these practitioners should be cherished and channelled into a supportive work environment that enables them to achieve positive results and at the same time 'get things right'. These people will become frustrated if high standards are not achieved as is illustrated by a comment on a specialist presentation of low standard: "It would have been better to read a book about those topics" (Blogger 16 June 2004). They are capable of making logical and systematic decisions uncluttered by emotion and personal involvement. The job requirements suggest that quick pace and flexibility are not very important for this job. This means that this job will tend to accommodate very specialised areas in the e-learning practice, for example e-testing. This implies a need for order, accuracy, attention to detail and specialised skills and knowledge. These individuals will get demotivated by hassle. For example: "I still feel frustrated because it didn't upload as I want it." As an independent expert, organised and well-planned actions and input are important focus areas of this job scenario for the practitioner. Being fairly cautious by nature, these practitioners fit in well with the structured, predictable work environment of the e-learning specialist. They are demotivated by insecurity, for example: "What we will do next is unknown to me, so I feel somewhat like a fish out of water" (Blogger 11 June 2004).

The somewhat higher percentage of Partners compatible with this job structure suggests that for a group such as the Partners, environmental structure and set job requirements as offered in the P@W Programme may contribute to the security that practitioners in the high CDS or CSD style combinations need to fit into the CDS/I job structure.

What are the implications for training?

Training programmes should support the need for security and a structured work environment by setting out clear programme objectives in terms of the training programme per se, as well as the different job roles that the person is likely to perform. Knowledge and guidelines about best practices and specialised skills training to develop expertise will motivate these practitioners. Programme leaders should have some form of technical or specialist background and the practitioners have a need for good communication skills. Equally, however, the leaders should be prepared to listen to ideas and should be honest and supportive and where necessary give help in the decision-making process.

Democratic but direct leadership from the programme presenters will best complement the needs of the practitioners. Leaders need to communicate tasks and assignments clearly, set definite timescales and well-defined programme outcomes to satisfy the practitioners' need to know 'how' and 'why'. Reassurance, the absence of sudden or abrupt changes, and recognition of expertise will energise the person with the high CSD behavioural style (Thomas International, 2005).

What are the implications for career development?

The nature of the job will imply achievement of results of a precise and detailed nature. This means that the practitioner in this environment will strive to achieve the goals set for his/her course, applying specialised knowledge and skills, and support and allow learners to consistently achieve set outcomes. The job scope provides an opportunity to specialise in one or more focus areas and to do research, and communicate and present these results to other people (Thomas International, 2005).

Another possible role is the one of course administrator, especially as applied in e-moderating online setting. Support from the organisation in terms of the necessary infrastructure, strategic goals, policies and so on, as well as well-planned training programmes to provide the necessary knowledge, skills and expertise, will be indispensable if this job structure should be formalised into a formal job description for the e-learning practitioner. The P@W Programme is an example of such a training programme.

Roles and applications that will ideally suit the high CDS profile group are the roles of administrator, specialist and researcher in the e-learning environment with the emphasis on **PERFECTIONISM AND ENSURING STANDARDS**. Using systems terminology, this job structure can be transcribed as representative of the system **QUALITY CONTROLLER**.

4.5.4.3 Third scenario highlighting the structure of the e-learning practitioner construct

Note: Job descriptions used in this study were provided by the analysts from Thomas International and to ensure authenticity the wording from these reports are used to describe the different positions.

What is...?

Acceptable compatibility between the TUT e-learning practitioners (see sections 4.5.2.3 and 4.5.3.2.3) and job structure DI/CS has been discussed in the preceding paragraphs. However, the current situation at TUT present a group profile that does not seem to fit very well with the described position. The highest style combination present in the TUT population that presented with a best fit score is the high DI style, displayed in percentages of 3,6% of the TUT population, 8,3% of the Partners, and absent from the star performer group. However 39 percent of the star performer group displayed acceptable job fit scores.

The job profile for this position is applicable in an unstructured/low-structured work environment. The main focus of the job should be that of getting results in terms of educational targets and outcomes set in a network for lifelong learning. There should be pressure to obtain these goals and individuals should be responsible and have the authority to act both independently and quickly without having to refer back to the set structure. The job is contextualised and bounded by the organisational parameters, but the degree of 'virtuality' will dictate the influence of detail, routine, rules and regulations. The other very important job function is to inspire and influence others to achieve a purpose; in this case not only the students in their academic endeavours, but also colleagues and managers who need enthusiasm for e-learning. Freedom to use initiative and being proactive and creative in problem solving, speeding up pace to achieve goals and set outcomes within a short time span, are important features of this job profile.

The individual who is best suited to this job may be described as a person who is creative/innovative and results-orientated, enthusiastic, optimistic, self-starting, inquisitive, active, influential, persuasive, competitive and self-confident. The majority of these characteristics were also listed by the TUT e-learning practitioner group as important for the e-learning practitioner. Prestige, position and authority, as well as freedom from unnecessary controls, routine and repetitive assignments are important motivators. Pressure to produce results and a fast work pace are very important for this profile. Goals and targets need to be measurable in terms of success obtained through the best use of people's skills. Popularity, freedom of speech and democratic relationships are also important motivational drivers (Thomas International , 2005).

When compared with the HJA the personal strengths of the high DI profile appear to be as follows:

- “A competent decision taker.
- Proactive. Possesses self-starting ability.
- Is willing to assert his/her authority in order to meet goals and deadlines.
- Competent to tackle problems, conflict situations or people who hinder the achievement of his/her objectives.
- Assists, advises and counsels others, developing trust and building sound relationships.
- If necessary can identify resources and develop networks.
- Able to analyse and debate problems and then to express his/her views and come up with innovative thoughts and ideas to overcome them.
- Demonstrates an active approach and increases the pace in order to achieve goals.
- Brings a sense of urgency to most situations” (Thomas International, 2005).

Strengths that the high DI practitioner can bring to the organisation are competitiveness, getting results, accepting challenges, venturing into the unknown, goal orientation and problem solving.

Limitations that the high DI practitioner can bring to the organisation are inattentiveness to detail, sometimes 'push too hard', impatient and impulsive, not always making decisions based on facts, sometimes relying too much on the power of their personalities.

As pointed out, a low percentage of the TUT population shows a best fit for this job structure and comparing the activity profiles (see Table 4.8) of practitioners displaying the profile under discussion, it is evident that the limited computer access for students discouraged this person from continuing as an e-learning practitioner. Being results orientated and motivated by tangible results this person decided to move away from the WebCT application. Practitioners from the Partner group practice according to their behavioural style. It is interesting to note that the star performers, who scored a 5/6 fit for this position and displayed a slightly lower Dominance and higher Influence factor, were involved in a variety of activities. They experimented with a number of new technologies and applications, generating dynamic energy in their online courses and high levels of communication between themselves and their students. Their innovative educational approaches culminated in positive results for the practitioners and students alike.

What should be...?

Should the DI/CS job structure be the reality and the selected choice for the position of e-learning practitioner, it would imply capitalising on strengths and meeting the needs of practitioners complying with this job structure, as well as supporting those who do not show an

acceptable compatibility with the job requirements. This might involve staff training, as well as structuring and adapting the context of the job.

What does it mean...?

Interaction between the person and job subsystems is mainly influenced by the driving force from within the person reacting to an antagonistic job environment. These practitioners' creative/innovative ability, energetic problem solving, good communication and people skills and networking capabilities of these practitioners should be cherished and channelled into a supportive work environment that enables them to achieve positive results through managing people and the e-learning work environment. They are people's persons who are inspirational, manipulative and influential and focused on managing others to get results. If the positive power to act is cherished by the organisation, in terms of creating opportunities for innovativeness, creative experimentation and open communication, the results may be valuable assets for the organisation. The DI/CS job structure was not only the job structure of choice by the expert consensus group, but also the one informally created by the TUT e-learning practitioner group. The most important characteristics of the e-learning practitioner that were pointed out by the TUT e-learning practitioners were creativity, innovativeness, patience, "people's person" and organised. Apart from patience, all the other choices correspond with the job structure under discussion, however, few of the current e-learning practitioners' profiles fit into this category. Although most of the e-learning practitioners at TUT do not display a best fit with this job structure, a significant section of the star performer group does fit into the acceptable fit score ranges. As pointed out in the previous sections of this chapter, the star performer group displays unique style combination patterns, which contribute to a better fit score in the unstructured environment under discussion. They will help to fulfil the need for dynamic force from the online teaching and learning environment.

Tendencies to resent restrictions, particularly with regard to time, and a dislike for being tied to deadlines may be beneficial to the job in terms of accepting challenges and venturing into the unknown. Positive communication and people skills are important drivers for positive online communication, but the practitioner might need guidelines on how to pay attention to detailed activities such as class schedules, publishing of online course materials and study guides.

What are the implications for training?

Training programmes should provide freedom of choice regarding the different job roles that the person is likely to perform, free experimentation with available technologies and applications accompanied with brain storming sessions and "show cases" on a variety of educational approaches. Idea generation and creative solutions to "real world" problems, a fast pace and dynamic energy are vital ingredients of training programmes for the DI/CS job structure. Programme leaders should be direct but participative leaders, displaying good people and

communicating skills. They should be prepared to set fair but very objective tasks, which ideally should be negotiated on a one-to-one basis. The possibility that these practitioners may enjoy being challenged by difficult assignments should be exploited and once a requirement has been agreed on they should be given sufficient authority and freedom to achieve the result.

The current situation at TUT suggests that the majority of e-learning practitioners fall outside this job structure fit range. However, by adapting training programmes slightly to accommodate the higher Compliance and Steadiness behavioural style combinations more, greater compatibility between the job structure and the e-learning practitioners is possible. The scope of the e-learning practice is rich and versatile offering a variety of roles and possibilities enriched by a number of different technologies and applications. This means that by shifting the focus of job tasks slightly a number of different job fit combinations are possible. For example the 'high D' driver suggested by the job structure under discussion is not very keen on doing the detailed administrative tasks, hence to enhance the job fit it might be beneficial to add an assistant to aid this person in these tasks. Rather than setting up a video conference (a task that may be enjoyed by the high SC style combination) the interaction and personal communication of video conferencing may be energising for the high DI style combination.

What are the implications for career development?

The nature of the job will imply that responsibilities should lie in the areas of planning, problem solving, and organising, and handling a number of concurrent projects in innovative situations where initiative is important. Authority to make decisions and independence of action, with a possibility of using administrative staff support in order to free himself/herself from the finer administrative details are important focus areas.

The job scope provides opportunity to do research and to discuss and communicate and to present these results to other people (Thomas International, 2005).

Support from the organisation in terms of formal recognition for successes and entrepreneurial freedom to act to the benefit of the organisation will be important considerations if this job structure were to be formalised in a formal job description for the e-learning practitioner.

The high DI profile group will be ideally suited for the role of e-moderator as well as for director, manager and inspiring motivator in the e-learning environment to develop new curricula, course and instructional design with the emphasis on INNOVATOR/ENTREPRENEUR. Using systems terminology this job structure can be transcribed as representative of the system **CHANGE AGENT/ACTIVATOR**.

4.5.4.4 Fourth scenario highlighting the structure of the e-learning practitioner construct

Note: Job descriptions used in this study were provided by the analysts from Thomas International and to ensure authenticity the wording from these reports are used to describe the different positions.

What is...?

Acceptable compatibility between the TUT e-learning practitioners (see sections 4.5.2.4 and 4.5.3.2.4) and job structure SCD/I was discussed in the preceding paragraphs. However, the current situation at TUT displays a group profile that does not seem to fit very well with the described position. The highest style combination present in the TUT population that displayed a best fit score is the high SCD/I style, was present in percentages of 5,4% of the TUT population and 7,7% of the star performers and absent from the Partner group. The star performer and Partner groups displayed scores of 39 percent and 33 percent respectively for job compatibility.

The job profile for this position is applicable in a structured work environment bounded by clearly defined organisational parameters, but at the same time allows for independent actions and completion of tasks. The work environment should provide opportunities for collegial interaction and a team atmosphere should be developed through hard work, honesty and integrity. As one participant straightforwardly put it: "lots of extra admin, just did it and went on with the job" (FG, 17 may 2005). A questioning and objective approach is called for within the position, focusing on work-related problems rather than personal ones. The job involves expertise and a depth of expert knowledge and a focus on getting on with the job.

The individual who is best suited to this job may be described as someone who is a "finisher completer", tenacious, structured, methodical, organised, inquisitive, factual, cautious, self-reliant, hard working with a strong need to achieve a worthwhile result (Thomas International, 2005).

"I would like the Show and Tell to be more structured, the last two weeks felt a bit disorganised" and "I haven't received any feedback on my work" encapsulate these individuals' inner need for accomplishment and achievement, as well as security from structure. When compared to the HJA the personal strengths of the high SCD profile appear to be as follows:

- "Generate and provide specialist and/or administrative services which benefit the organization and, depending on whether they are task or people-related, lead to a high level of internal and external customer satisfaction.

- Be persistent in problem solving, seeking solutions through the expertise of both self and others. Research all the facts with care and resolving problems in a timely and thorough manner.
- Apply a systematic and logical approach in order to achieve accurate results.
- Create a culture of continuous improvement.
- Set clear objectives, monitor progress, take corrective action and control performance levels” (Thomas International, 2005).

Strengths that the high SCD practitioner can bring to the organisation are performing to accepted work standards in a consistent and predictable manner, having staying power in an organisation, and being loyal and respectful of tradition.

Limitations that the high SCD practitioner can bring to the organisation are that they need a long time to adjust to change, and may affect the speed of decisions as they would want to double check all available information prior to taking any action. Once their mind is made up they will stick to their decisions and can be extremely persistent.

As pointed out, a low percentage of the TUT population shows a best fit for this job structure and comparing the activity profiles (see Table 4.17) of practitioners displaying the profile under discussion, it is evident that they concentrated their activities on using the e-learning environment for administrative and managerial tasks and low level online communication, although one person who was also a star performer used a variety of activities, including online communication and video conferencing.

What should be...?

Should the SCD/I job structure be the reality and the choice for the position of e-learning practitioner, it would imply capitalising on strengths and meeting the needs of practitioners complying with this job structure, as well as supporting those who do not show an acceptable compatibility with the job requirements. This might involve staff training, restructuring and adapting the context of the job.

What does it mean...?

Interaction between the person and job subsystems is mainly influenced by the cues from the environment encouraging the passive person to react to a favourable job environment. The qualities of these practitioners, performing to an accepted work pattern, loyalty, reliability, predictability and steady performance under pressure, should be cherished and channelled into a supportive work environment that enables them to finish tasks and to achieve positive results. They are good listeners but are more focused on 'things' and more interested in planning and organising tasks than people and they may stand back from people, slowly building their

relationships based on trust. For this job this may imply a need for a degree of self-awareness to modify behaviour to a more communicative approach in terms of online communication with students. The tendency to investigate thoroughly before taking action and to work at own pace within a secure and structured environment may cause stress in the fast paced e-learning environment. The job structure calls for an e-learning environment that is structured, focusing on specialised applications such as e-testing, online course management and research. The focus of this job structure will not be on extensive online communication between students and the practitioner, and should the job requirements change slightly, this aspect needs more attention. The practitioners will need some guidelines on how to fulfil the role of e-moderator, in order to keep in touch with the online students. Expertise and technical knowledge directed at the instructional design role would be beneficial to this job position. However, development time should be negotiated to structure deadlines.

What are the implications for training?

Training programmes should provide trainees with a structured programme, setting out a well-defined job role with tangible goals. A sense of belonging should be developed and the programme should be conducted in a friendly non-threatening atmosphere. Frequent meetings, brain storming and personal contact sessions are important motivators. Knowledge and guidelines about best practices and specialised skills training to develop expertise must be presented in a clear structured manner. It is very important to give them enough time to assess all available information. The possibility of specialising in elective programme components for the online environment will also appeal to these practitioners. For example, an in-depth focus on one specific application such as e-testing or specialised problem-solving interventions for a specific practical problem and so on. Sudden changes and snap decisions should be avoided.

The job structure under discussion is applicable in the current P@W Programme at TUT. In this programme, participants are given structure and security in the form of detailed descriptions of the programme and the programme parameters, the set programme goals, capacity building activities and a schedule of fixed timescales for programme activities. Further scaffolding and technical support are provided by the Department of Telematic Education, and the production and instructional design teams from this department. Goodness of fit between the Partners and the Programme can be enhanced by capitalising on the existing strengths of both parties. The profile of the current Partner group shows a peak in the Compliance factor with a cluster of the high CS style combination. The latter shows a 4/6 score for job compatibility and this could be enhanced by addressing the Partners' needs. As was pointed out in the previous sections of this chapter, a variety of releasers, demands and distracters were identified by the group. Interventions to address these needs may contribute to a higher compatibility between the Partner group and the job structure.

Diplomatic but direct leadership from the programme presenters will best complement the needs of the practitioners. It is important for the communication style between leaders and the group to be of a democratic nature and should take place in a friendly atmosphere, because the relevant behavioural style prefers a non-aggressive, friendly work environment. Leaders need to communicate tasks and assignments clearly, set definite timescales, well-defined programme outcomes and exact job requirements to satisfy the practitioners' need to know 'why', 'what' and 'how'. Reassurance and recognition by programme leaders for hard work and input to the organisation will energise the person with the high SCD behavioural style.

What are the implications for career development?

The nature of the job will imply achievement of results through hard work, dedication and persistent effort. This means that practitioners in this work environment will strive to achieve the goals set for their courses, applying specialised knowledge and skills. They will set an example to students through hard work and will not tolerate anything but hard work from the students. The job scope provides the opportunity to do instructional design, specialised e-learning applications and research and to discuss and communicate and present these results to other people (Thomas International, 2005). Support from the organisation should take the form of necessary infrastructure, technical and personal support, well-planned training programmes and skills training opportunities with the possibility of specialising. Support would be one of the key factors for success if this job structure were to be formalised in a job description for the e-learning practitioner.

The high SCD profile group will therefore be ideally suited for the role of specialist or instructional designer with a specialised focus, or the role of directing, managing and supervising in research and development, especially in the e-learning environment with the emphasis on SPECIALIST/TECHNICAL. Using systems terminology this job structure can be transcribed as representative of the system **PROCESSOR**.

4.5.4.5 Fifth scenario highlighting the structure of the e-learning practitioner construct

Note: Job descriptions used in this study were provided by the analysts from Thomas International and to ensure authenticity the wording from these reports are used to describe the different positions.

What is...?

Acceptable compatibility between the TUT e-learning practitioners (see sections 4.5.2.5 and 4.5.3.2.5) and job structure DIC/S was discussed in preceding paragraphs. However, the current situation at TUT displays a group profile that does not seem to fit very well with the

described position. The highest style combination present in the TUT population that displayed a best fit score is the high DIC style, present in a percentage of only 1,8% of the TUT population, and absent from the star performer and Partner groups. The job compatibility score for the star performer group is 39 percent, but only eight percent for the Partner group.

As mentioned in previous paragraphs this job structure was theoretically constructed by the TUT e-learning practitioner group and correlates with the characteristics for the e-learning practitioner that they listed. It seems that their thinking about the e-learning practitioner and the e-learning practice show remarkable conceptual similarities. Although I converted their concepts into DISC language to put it into context, it was not feasible to convert the list of e-learning practitioner characteristics into a fictional PPA report. It was however possible to use profiles from the TUT population to match with the DIC/S job structure.

The job profile for such a position is applicable in an unstructured work environment bounded by clearly defined organisational parameters. The focus of this job should be “directing and leading others to achieve in a variety of situations via the use of personal skills and expertise” (Thomas International, n.d.). A changing environment with a wide scope of practice is typical of this job profile.

The individual who is best suited to this job can be described as a person who is a natural self-starter, with a forceful and competitive nature, loves intellectual challenges, and is active and assertive. These individuals need a fast work pace, are well disciplined and methodical, and strive for high standards. They are motivated by prestige and authority, and enjoy tackling a variety of problems, with freedom to act within organisational parameters. They are friendly and enjoy contact with a variety of individuals, being part of a group and doing business in a sociable manner (Thomas International, 2005).

Strengths that the high DIC practitioner can bring to the organisation are influencing people and people skills, competence and specialised skills combined with the ability to take up challenges and to adapt quickly to new rules and procedures.

Limitations that the high DIC practitioner can bring to the organisation are that they are critical and impatient especially with colleagues who are unwilling to adapt to change or are slow to react. They may sometimes be too optimistic and trust people indiscriminately. A lack of thoroughness may be the result of taking too much on and not following a job through.

As pointed out, a very low percentage of the TUT population shows a best fit for this job structure and comparisons of activity profiles in this category are not feasible.

What should be...?

Should the DIC/S job structure be the reality and the choice for the position of e-learning practitioner, it would imply capitalising on strengths and meeting the needs of practitioners complying with this job structure, as well as supporting those who do not show an acceptable compatibility with the job requirements. This might involve staff training, structuring and adapting the context of the job.

What does it mean...?

Interaction between the person and job subsystems is mainly influenced by the driving force within the person reacting to an antagonistic job environment. The ability of these practitioners to adapt quickly to change, to move at a fast pace, to be comfortable in a variety of settings with a varied group of people, combined with a methodical approach to their work, places them in a favourable position to succeed in the e-learning environment. Although the DIC/S job structure was constructed theoretically by the TUT e-learning practitioners it might be a possible e-learning practice scenario for the more unstructured work environments. The enthusiasm, communicative abilities and influential capabilities of these practitioners may be the driving force for successful practice in the e-learning environment. Their persuasive manner should influence both students and colleagues to their viewpoint and their methodical approach may contribute to success in the role of the online e-moderator. A tendency to resent restrictions, particularly with regard to time, and a dislike of being tied to deadlines, may be beneficial to the job in terms of accepting challenges and venturing into the unknown, but most important for students might be the after hours online availability of the practitioner not bound by time and place.

What are the implications for training?

Training programmes should set out clear programme objectives in terms of the training programme per se and the different job roles that the person is likely to perform. Knowledge about and guidelines on best practices and specialised skills training to develop expertise will motivate these practitioners. Furthermore their need for prestige and authority should be addressed by creating opportunities for them to showcase their course developments and share their ideas and accomplishments with their colleagues. They would also be motivated by being offered a variety of role options, and different technologies and applications to choose from. If this job structure is the reality, a balance between a 'people's' and a 'results' approach should be kept and the strength of the Compliance factor in the job structure should counteract a too loosely defined structure.

Democratic but direct leadership from the programme presenters will best complement the needs of the practitioners. Leaders need to understand these individuals' need for challenging situations and should communicate tasks and assignments clearly, and set definite timescales

and well-defined programme outcomes to satisfy the practitioners' need to know the 'what', 'how' and 'who'. Reassurance and guidance from the leaders will support these practitioners, especially if decisions have to be made outside their area of expertise.

What are the implications for career development?

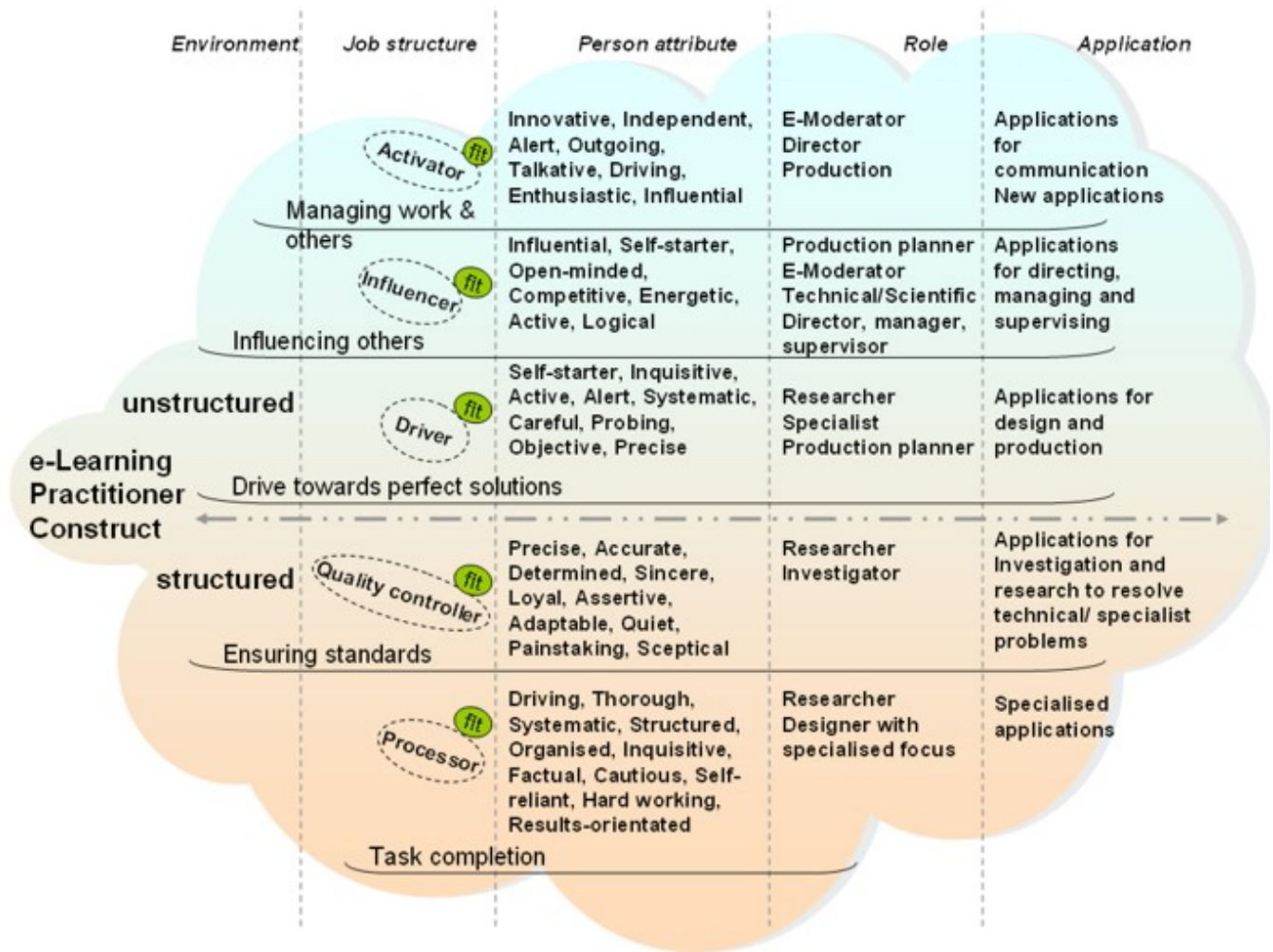
The nature of the job will include a variety of tasks in different settings using personal influence and expertise to get results. The job scope provides opportunity to do research and to discuss and communicate and to present these results to other people (Thomas International, 2005).

Should this job structure be formalised in a formal job description for the e-learning practitioner it would provide a varied scope of practice including online lecturing, production planning and management, as well as research. Therefore the high DIC profile group will ideally be suited to doing specialist work acting as e-moderator, instructional designer, project manager and researcher. The job emphasis would be on DRIVING AND INFLUENCING OTHERS (Directing, Managing, Production and Accuracy). Using systems terminology this job structure can be transcribed as representative of the system **INFLUENCER**.

4.6 Summary

The relationships of the two subsystems in the entire system were highlighted in the discussion of five different scenarios to illuminate the latent structure of the e-learning practitioner construct. To simplify the structure for better understanding, these relationships can be organised into a classifying scheme that illustrates the structure and its purpose (see Figure 4.64). Important dimensions in this classifying scheme are the three legs of the e-learning triad consisting of the e-learning environment, the e-learning job and the e-learning practitioner. These are interrelated and have a dynamic interactive nature that produces a variety of outcomes – presented in the classifying scheme as the five proposed scenarios – each of which displays different roles and applications. For example, in the unstructured e-learning environment the interventionist job structure (activator) calls for a person who is innovative, independent, outgoing and enthusiastic striving not only to manage the work but also to manage the people involved in this work environment. Matching roles and applications for this scenario are firstly those of online teacher and e-moderator, using applications for online communication, and secondly directing and producing roles that involve the application of new technologies.

Figure 4.64: Classifying scheme for e-Learning practitioner construct



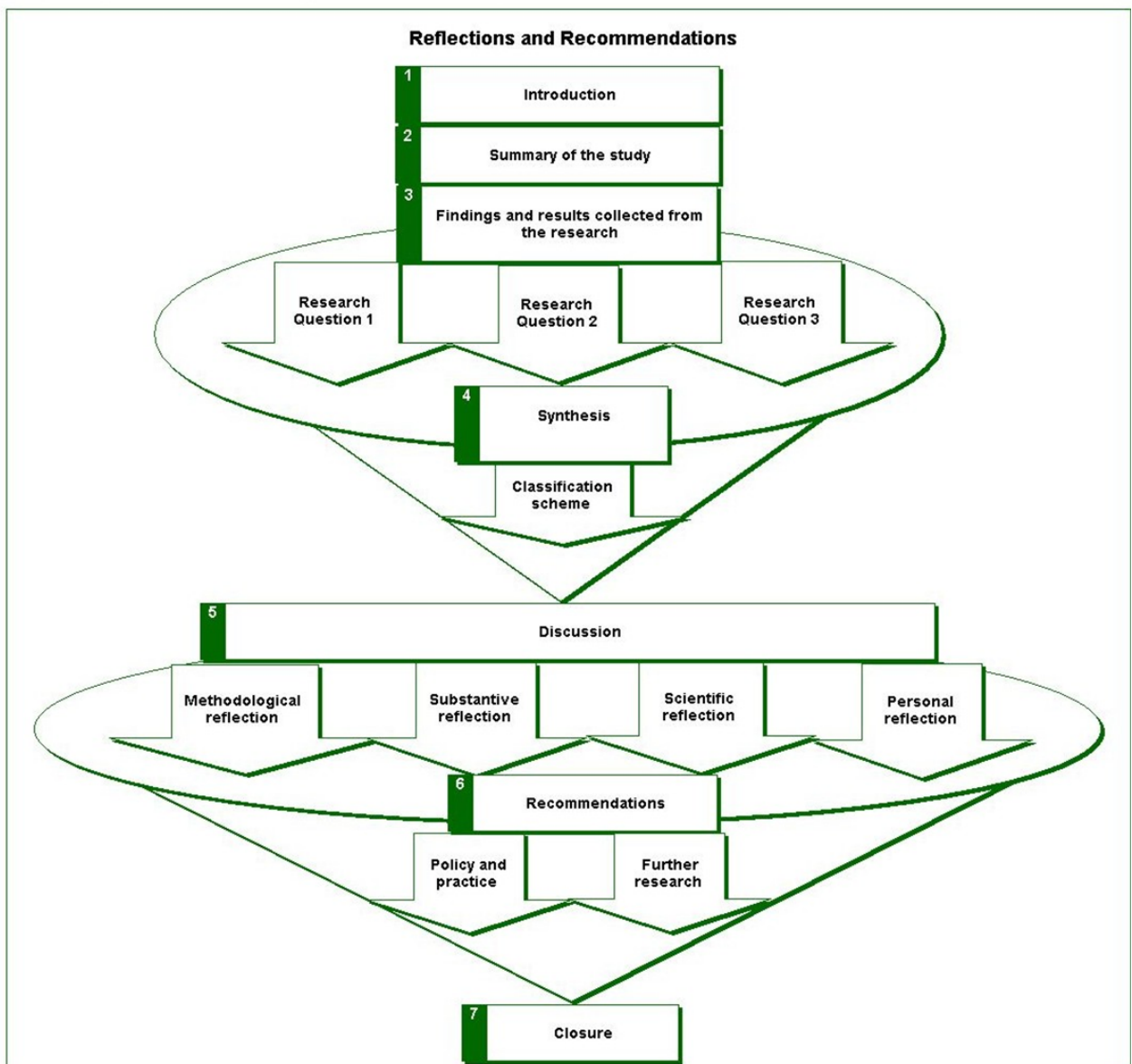
This chapter presented the research findings for this study. Chapter 5 will conclude the study report with a methodological, substantive and scientific reflection, and make recommendations for practical interventions to enhance the P-J fit in e-learning. It will also discuss further research endeavours.

Chapter 5: Reflections and Recommendations

“You cannot create experience. You must undergo it.” (Camus, n.d.)

The aim of this research was to determine the latent structure of the e-learning practitioner construct. In this chapter the findings of this study will be **interpreted and related to the context** created in the **literature review** (Chapter 2) and the **research methodology** (Chapter 3). Chapter 5 starts with a **summary of the research questions** and the **results for each question**. It discusses the **lessons learnt, presented as methodological, substantive and scientific reflections**. Lastly the chapter focuses on **recommendations** for policy and practice, further research and development. Figure 5.1 provides a synoptic presentation of the **layout structure** of Chapter 5.

Figure 5.1: Synoptic presentation of the layout structure of Chapter 5



5.1 Introduction

The historic background for this study presented the path, the roots and the thinking processes of the researcher in her search of the latent structure of the e-learning practitioner construct. The search for the '**story**' of the e-learning practitioner started with a series of research activities that set the stage for the e-learning practitioners' and Partners' stories. These stories are reflected in this study.

5.2 Summary of the study

The term 'e-learning practitioner' captures the characteristic profile of teachers/lecturers/instructors who create, use and maintain electronic teaching and learning environments for themselves and their students for pedagogical purposes. These instructors are professional educators and subject matter experts. However, the term suggests a context for the practitioner in which to conduct his/her practice. Therefore studying the e-learning practitioner construct includes a triad of person, job and work environment. The purpose of this study is **to uncover the building blocks and related structure of the e-learning practitioner: e-learning job relationship at TUT.**

Numerous studies and literature reports on the online facilitator (Backroad Connections, 2002; Illinois Online Network, 2003); e-moderator (Salmon, 2003), online mentor (Weston & Amundsen, 1999) and the participative instructor (University of Illinois, 1999; Hoffmann, 2003), as dimensions of the e-learning practitioner, suggest a need for understanding and clarifying the multifaceted nature of the e-learning practitioner. The rationale for this study stems from **various calls for research to identify and determine the nature of the characteristics of online teachers**, or in my terminology, e-learning practitioners (Kearsley, 1998; Burke, 1999; Rice, 2003; Korthagen, 2004). Behind these calls is the notion that if the different and multiple characteristics of the e-learning practitioner are valued, it may provide frameworks for the planning of interventions to enhance the productivity of e-learning practitioners and to guide the customisation of e-learning training programmes.

The framework for this study outlined in **Chapter 1**, presented the **approach, scope and context of the study** and a summary of the **research design and activities. Ethical considerations** and the value of the research were also discussed. A detailed account of the practical context of the study was given, highlighting the features of the P@W Programme and the supportive structures for e-learning practitioners at TUT. TUT reacted to e-learning challenges both strategically, by implementing the Strategic Technology Plan, and operationally, by implementing the capacity building P@W Programme, but failed to address the crucial question: "What is the nature of the phenomenon that needs to be supported?"

The **literature** states the importance of the special characteristics needed by e-learning practitioners to successfully practise e-learning (Kearsley, 1998; Gunn, 2001; Palloff & Pratt, 2001b; Salmon, 2003), but no evidence of e-learning training programmes accommodating the diversity of e-learning trainees in terms of their different person attributes could be found. Furthermore, no evidence could be found of screening or assessment procedures applied to identify the personal characteristics of these trainees prior to implementing the training programme. This implies that interventions through e-learning training programmes that do not take these very important human aspects into account firstly may fail to deliver successfully and secondly may lack the flexibility to identify specific niche areas, based on personal profiles to accommodate these e-learning practitioners.

In **Chapter 2** the main theme areas for this study, namely e-learning, e-learning practice, e-learning practitioners and person-job (P-J) fit were studied, and relevant issues and controversies were debated. The literature review process aims at finding research evidence to answer research questions, and the literature review product aims at the synthesis of the evidence into a benchmark for comparing existing research findings with the findings of this study. The literature was reviewed in respect of each of the research questions in this study and focused on studying **e-learning practice** to gain insight into the job of the e-learning practitioner (**research question 2**), and on studying the **e-learning practitioner** to gain insight into the characteristics of the person doing this job (**research question 1**), and concluded with the focus on the relationship between the person and the job in terms of **goodness of fit (research question 3)**. These topics were explored from various angles, including conceptualisations, issues and challenges in the respective fields, theoretical foundations and research initiatives, policies and current trends in the research fields. However, the literature review did not provide evidence to answer the research question adequately and therefore to answer the research question it was necessary to conduct a case study at TUT. To determine the latent structure of the e-learning practitioner construct, a holistic approach was needed.

In applying a **systems theory framework** to an integrated combination of P-J fit and interactionist theories, the researcher aimed to create a theoretical framework for positioning this study and for use as an approach to investigate the research problem and questions. Systems thinking provided the researcher with “a discipline for seeing structures that underlie complex situations, the wholes and relationships that can more readily foster an understanding of complexity” (Patton & McMahon, 1999:141). The **conceptual framework** based on this theoretical framework (see Figure 2.19) displays the relationship between the relevant study concepts and directed the research methodology followed in this study (see Chapter 3).

Chapter 3 positioned the study in terms of **philosophical and methodological approaches**, outlined the research design considerations and also focused on the quality criteria relevant to this study. To enable me to make informed choices about these aspects, I had to reflect not only on my position as researcher, but also to weigh up different ontological, epistemological and methodological stances. Therefore my choices included a study design within the parameters of the phenomenological-hermeneutic traditions, using interpretive and systems approaches to guide the enquiry. Qualitative inquiry underpinned by system thinking ontological perspectives holds that personality is seen as a living organism and part of a whole (human) system and work behavioural styles are seen as a specific expression of personality within the work context. Unique characteristics of the participants' personalities influence their behaviour in (responses to) different work situations differently because they react differently to different aspects of the same events. Systems thinking promotes our "understanding of the underlying structure responsible for the patterns of behaviour" (Bellinger, 2004). Investigation of the latter is best done in a real-life context and therefore a case study approach was chosen as research strategy.

A **bricolage** of data collection methods and instruments was applied to collect evidence for answering the research questions. Rich and varied sources of data, for example interviews, participant observation, documents and archival records, were tapped during the data collection phase. Data analysis consisted of **quantitative and qualitative analysis**, including both inductive and abductive reasoning. Inductive reasoning was used to search for patterns in the research data. This was complemented by abductive reasoning to generate the best explanation for the set of observations. The credibility of the research was enhanced by adhering to several quality standards, for example auditability and validation (triangulation, crystallisation, analytical induction and tabulations). Several ethical principles were applied to the study to ensure the ethical conduct of practice. A summary of the research design, which was designed as a blueprint for addressing the research questions, is presented in Table 1.3.

The three research subquestions complemented by a number of research goals and subsidiary questions were addressed in **Chapter 4**. This also included a detailed discussion of the results of the data analysis and the research findings. To address the first subquestion, which deals with uncovering the characteristics of e-learning practitioners, **three levels** of Personal Profile Analysis (PPA) were investigated. These levels are embedded contexts that range from the international domain, higher education in terms of the TUT domain, and programme level in terms of the P@W Programme. Distinct profiles for the different groups identified a number of important characteristics and these were discussed accordingly. Profile enrichment included several data sources that gave me insight into the characteristic patterns and relationships that form the structure of the e-learning practitioner subsystem.

The findings for the second subquestion were presented in section 4.4 in Chapter 4, in terms of five e-learning job structures in the e-learning practice subsystem. Knowledge construction through the participation and interpretation of the study participants contributed to the relationship of knower and known in terms of identifying e-learning job characteristics and job structures. These job structures were matched to the findings of the first subquestion in terms of the identified personal profiles. Results of these matching patterns, the relationships between the person and the job, and the 'goodness of fit' were reported in section 4.5. A synthesis of these research findings resulted in a multifaceted answer to the main research question: **What is the latent structure of the e-learning practitioner construct?** which was integrated into a holistic picture of the systemic whole consisting of five possible scenarios. Different lenses were used to take 'snapshots and to illuminate the separate parts (the environment, the e-learning practitioner and the e-learning practice) of the system. Systems thinking was used to tell the story, to identify the characteristics of each subsystem, to draw the graphs and highlight the patterns and their relationships in each subsystem, and to use these building blocks to create the structure of the system (how they fit together). The different parts work together according to a specific plan driven by organising principles towards a specific goal to fulfil a common purpose and this gives meaning to the system. Influences such as time and context affect the system in such a way that any one or a combination of more than one or a combination of all the latent scenarios may emerge as a structure for the system in fulfilling a defined purpose. However, to simplify an understanding of the system, the building blocks of the system and their relationships in the two subsystems are organised into a **classifying scheme** as a way of **expressing the latent structure of the e-learning practitioner construct**. This study proposes the classifying scheme as a visual illustration of the structure and purpose of the e-learning practitioner system (see Figure 4.64).

5.3 Findings and results collected from the research

This section draws together the key findings of the research according to each of the three research subquestions, highlighting the implications of these findings.

5.3.1 *Research question 1*

What is the latent structure of the e-learning practitioner construct in terms of person attributes?

The personal attributes of the e-learning practitioner as discussed in the literature, as well as two levels of PPA of the e-learning practitioner at TUT, were investigated in this study. A literature study was conducted with the purpose of gaining general insight into the construct under investigation and addressing the first research goal, namely to uncover the characteristics

of e-learning practitioners as perceived by authors in the international domain. Apart from professional knowledge and skills, technical, managerial, organisational and time management skills, which are not relevant for this discussion, the literature review identified the following person attributes as important for the e-learning practitioner:

motivated, flexible, mentoring, participative, creative, patient, student support, constant feedback, adaptable, prompt, collaborative, adventurous, listener, understanding, persistent, coping with frustration, understanding language needs, good sense of humour and reflective.

The survey analysis showed the most important characteristics to be motivation and time management, planning and organisational skills, but also listed motivation, creativity and adaptability as the most important person attributes.

These characteristics **differ** from those captured by the PPAs of e-learning practitioners at TUT, listed as Precise, Logical, Accurate, Thorough, Careful, Systematic, Amiable, Dependable, Independent, Assertive, Detailed and Persistent. Independence and accuracy show the highest frequency in the Partner group, whilst the combination of independent activity, mobility and directness characterised the star performers. The most important descriptive characteristics of the e-learning practitioners at TUT show them to be logical, precise and accurate individuals.

In addition to these characteristics the practitioners themselves constructed a list of characteristics that they perceived as important for e-learning practitioners. They listed the following: creative, patience, innovative/new ideas, organised, peoples person, knowledge skills, communication, enthusiasm, dedicated, perseverance, compassionate and persistent. It is important to note here that these responses capture perceptions and not necessarily the reality of actual behaviour. Furthermore, these perceived characteristics differ widely from those selected by the participants in the screening survey and even more distinctly from the actual characteristics of the e-learning practitioners as reported on the PPA forms. Table 4.32 gives a comparison of these findings. It is interesting to note that of the most frequently mentioned characteristics that are perceived as important, creativity and patience display a low frequency on the lists derived from the PPA reports. These perceptions also featured as important influences in the HJA by the e-learning practitioners from TUT.

The results from this PPA only partly reflects the current thinking in the literature on e-learning practitioners. Palloff and Pratt (2001b) are of the opinion that introverted online teachers are more successful than those with charismatic personalities which does not correspond with the TUT choices of "peoples person" as being important. An interesting observation is that the list of e-learning practitioner skills and characteristics synthesised from the literature shows a

remarkable resemblance to a list compiled by teachers who participated in the NCVET project “One size doesn’t fit all: Pedagogy in the online environment” reported by Brennan (2003b:48). They listed the characteristics of a good online teacher as active, communicative, facilitative, adventurous, prepared to “have a go”, knowledgeable about content and medium, possesses a vision for the future, good manager/planner, organised, patient, creative, motivated, positive, emphatic, supportive, prompt, persistent, technically competent, someone who monitors student progress, pedagogical adept, compassionate, perceptive, collaborative, confident, committed to learning, adaptable, someone who doesn’t need sleep and has a good sense of humour. These characteristics correlate partly with the profiles of the TUT star performers.

However, the results from this research study are more complex than suggested by the lists of characteristics in the literature review. A PPA of the e-learning practitioner at TUT and the Partners in the P@W Programme at TUT, aimed not only at identifying the personal characteristics of e-learning practitioners, but also at reporting on comprehensive work behavioural style profiles. I analysed these personal profiles in terms of patterns, relationships and structure to deepen understanding of the construct under investigation. Analysis revealed that the DISC factor distribution for the total population of e-learning practitioners was divided equally between the Influence and Steadiness factors with a frequency of 21 percent each, the lowest frequency in the Dominance (16%) and the highest, namely 42 percent, in the Compliance factor. Therefore it does make sense that characteristics such as logical, precise and accurate, typical of persons with a high Compliance behavioural style will be the most prominent descriptive words for the e-learning practitioners at TUT. An exception is the behavioural styles of the star performer group which were the most prominent in the Dominance factor and evenly distributed in the other factors. This accounts for the star performers being typically described as independent active, mobile and direct.

Based on the previous discussion the basic structure of the e-learning practitioner construct in terms of person attributes as presented by the e-learning practitioners at TUT can be described as consisting of a CSID configuration. It is evident from these findings that there is a **discrepancy between the perceived** importance of behavioural styles with the Dominance factor, **and the reality** of existing TUT e-learning practitioners’ high Compliance style combinations. Judging from evidence produced by the star performer group, it may well be most important to have a high Dominance DISC structure configuration for e-learning practitioners. As the aim of this study is not to investigate job performance or to make value judgements of specific DISC structure configurations, the relationship between work behavioural style and job performance might be an interesting follow-up research study. It is important to remember that although personal attributes stay fairly constant over time, work behavioural styles may show changes and reactions to certain environmental influences. Findings indicate that the structure

of the e-learning practitioner construct in terms of person attributes is not a static structure. As discussed previously, the e-learning person attributes are viewed as a living subsystem of the e-learning practitioner system, displaying certain characteristics, patterns and relationships. They may emerge differently from their latent position depending on a number of influences, for example environmental structuredness.

5.3.2 *Research question 2*

What is the latent structure of the e-learning practitioner construct in terms of the work environment context?

Three levels of job analysis for the position of e-learning practitioner at TUT were investigated. The first area focused on the analysis of important job characteristics identified by a meta-analysis of the literature. Findings resulted in two HJA reports: one for the e-learning practitioner job definition in a structured environment and one for an unstructured working environment. Characteristics pertaining to these job structures involve a variety of challenging activities in which emphasis is placed on achieving results in a logical and factual manner. Ideally the person who is best suited to the role seems to be systematic, precise, careful, shrewd, probing, objective, reserved, serious, self-starting, inquisitive, mobile, active and alert and with a desire to get things done quickly and accurately. Quality, organisation, self-control and an analytical approach are also likely to be important factors in the success of this job. Based on the job requirements for an unstructured environment the job structure displays a CD/SI configuration. For a structured environment the job structure displays a CDS/I configuration and the job requires a person who is forceful, assertive, results orientated and has the ability to work in a steady, thorough, well-organised, logical and systematic manner. The job content is likely to include work that is challenging and requires investigation and research in order to resolve technical or specialist problems.

The second focus area analysed e-learning practice at TUT. Findings pertained to a job definition in an unstructured working environment calling for a person who is inspirational, manipulative and has the drive to achieve. The job is likely to require that definite, measurable results are obtained despite opposition or constraints. There may be pressure to meet deadlines in an environment characterised by unexpected interruptions and a wide variety of problems. Communication and people skills are also important aspects of the job. The person filling this role should be self-starting, competitive, imaginative, direct, influential, persuasive and self-confident. Independence, mobility, activity, pace and authority are also factors that could be important for this position. Based on the job requirements for an unstructured environment at TUT, the job structure displays a DI/CS configuration.

The views of e-learning practitioners from TUT and the Partners from the P@W Programme produced valuable data on how they perceive the job requirements for e-learning practice at TUT, and analysis of their construed HJAs provided me with a theoretical benchmark for e-learning job requirements for an unstructured environment at TUT. The job structure displays a DIC/S configuration, which showed similarities to the DI/CS structure, but added job requirements such as the job holder should also be systematic, precise, careful, shrewd, probing and objective. Although the DIC/S job structure is of a theoretical nature, it combined job requirements from both sides of the structuredness continuum to provide a usable option for e-learning practice at TUT.

The third focus area analysed e-learning practice embedded in the P@W Programme at TUT. Findings resulted in an adapted HJA report for job requirements in a structured working environment. The job is likely to involve concepts, equipment, ideas and problem solving where a sound depth of knowledge and expertise are a strong requirement. Persistence and the ability to see a job through to its conclusion seem to be important to the role, as is security and a structured working environment. Based on the job requirements for a structured environment in the P@W Programme, the job structure displays a SCD/I configuration.

The above-mentioned findings revealed that a high Dominance factor was identified as an important job requirement on all three job levels. The importance of this factor correlates with the degree of environmental structuredness in terms of the degree of environmental virtuality. Autonomy is one of the most important values of virtual organisations (Shin, 2004) and employees are expected to be self-motivated, self-directed and goal-orientated and to get results. Thus employees who value this type of work arrangement are likely to be a better fit for this job.

Choices made by all the groups involved in the construction of the HJA culminated in job requirements that pointed to a high Influence factor. Virtual teams rely heavily on electronic communication and although communication is the life blood of any team it is more important in virtual teams (Cascio, 2000, in Shin, 2004) because it is necessary for effective collaboration and for building trust (Shin, 2004). Electronic communication enables team members to connect across time and space. However, indices from the preliminary taxonomy and job requirements for the Partners in a structured work environment suggest a low Influence factor, bringing values like “working alone; can work in a job that requires little personal contact; preferring things to people, orientated to problem solving, trouble shooting and planning” to the job. Findings thus indicate that variation in the degree of importance of the Steadiness factor correlates with the pace of the environment – the fast pace of the unstructured environment

calls for a low Steadiness factor. This was also proposed by the report based on an analysis of literature. Adhering to an accepted work pattern requires a higher Steadiness factor. Movement of the Compliance factor from above the line to below the line in the different job analyses suggests environments that vary in terms of controlled operation and working independently. These variations are important considerations for a developing job such as e-learning practice at TUT, because flexible approaches to job design may contribute to enhanced P-J fit matches.

As mentioned previously the complexity of the e-learning practitioner job, contextualised in different settings, with a variety of available job roles, provides a kaleidoscope of job opportunities to accommodate different behavioural styles in various combinations. However, according to the above findings it would be safe to argue that two significant patterns, namely a high DI style combination and a high CS style combination, emerged. As discussed in the preceding paragraphs, these two opposite combinations at the ends of a continuum, contextualised in a specific working environment, will interact with the organisation to produce unique job requirements.

Situational job features that influenced practice were identified by the Partners. The lack of infrastructure was identified as the most important job distracter. Empowerment by acquiring new knowledge and skills, and the creative application and implementation of these acquired assets, as well as positive outcomes for their projects in terms of the set criteria, counteracted some of the job distracters. Encouragement and support offered by various groups were frequently mentioned as releasers and motivators.

The basic structure of the e-learning practitioner construct in terms of work environment context consists of **five possible configurations** namely: CD/SI, CDS/I, DI/CS, SCD/I and DIC/S. As discussed previously the e-learning job is a living subsystem of the e-learning practitioner system, displaying certain characteristics, patterns and relationships. Influences such as environmental structuredness and situational contexts may impact on job structure.

The research approach followed in terms of job redesign and job analysis is in line with modern approaches in fast moving organisations, namely to “assign a person to a specific project, and when the project changes the person’s tasks and responsibilities will change accordingly” (Grobler *et al.*, 2004:104). Manipulation of the work environment may also change the job characteristics and structure. Multitasking, a popular approach in many organisations, suggests the worker of the future “will be far more independent and self-directed than today’s” (Grobler *et al.*, 2004:104).

5.3.3 *Research question 3*

How do the work environment and person attributes fit together in the structure of the e-learning practitioner construct?

The main premise of this study is that in the work environment individual personal attributes have no meaning outside the context and that human job characteristics come to life in the relationship with the individual person. (Parts have meaning only in reference to the whole which is greater than the sum of its parts.) This relationship emphasises ongoing change through negative and positive feedback loops.

The PPA results were matched and scored against five different HJA results, according to the provided formula by Thomas International.

Findings pertaining to job requirements for the CD/SI structure suggest that only 32 percent of the TUT population fall within an acceptable range for goodness of fit. Although the Compliance factor is the most prominent factor in the TUT population, the Dominance factor is the least represented which means that if the job requirements call for a stronger Dominance factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and would not be a natural fit for the job.

Findings pertaining to job requirements for the CDS/I structure suggest that only 36 percent of the TUT population fall within an acceptable range for goodness of fit. Although the Compliance factors are the most prominent and the Steadiness factors are moderately present in the TUT population, the Dominance factor is the least represented which means that if the job requirements call for a stronger Dominance factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

Findings pertaining to job requirements for the DI/CS structure suggest that the best fit for the job is the high Dominance factor (style combination percentage of 3.6%), whilst other patterns of style combinations between the Dominance and Influence factors show scores between five (style combination percentage of 5.4%) and four (style combination percentage of 19.8%) for goodness of fit. The other combinations (71.8%) do not seem to be in line with the requirements of the HJA.

Findings pertaining to job requirements for the SCD/I structure suggest that the best fit for the job is the high Steadiness factor (style combination percentage of 5.4%), whilst other patterns of style combinations between the Dominance, Steadiness and Compliance factors show a score

of five (style combination percentage of 5.4%) and four (style combination percentage of 26.9%) for goodness of fit. The other combinations (62.8%) do not seem to be in line with the requirements of the HJA.

Findings pertaining to job requirements for the DIC/S structure suggest that the best fit for the job is the high Dominance factor (style combination percentage of 1.8%), whilst other patterns of style combinations between mainly the Dominance, Influence and Compliance factors show scores between five (style combination percentage of 14.4%) and four (style combination percentage of 10.8%) for goodness of fit. The other combinations (73.5%) do not seem to be in line with the requirements of the HJA.

The higher the Steadiness and Compliance factors and the lower the Dominance factor, the more the job structure tends to favour standard operating procedures and a traditional approach, maintaining the status quo. Getting things right, attention to detail, ensuring quality and standards are important factors for these positions. Structure and security are provided by clearly defined job parameters and a predictable stable work environment. The P@W Programme provides a structured work environment, providing security and support for the Partners through a well-defined programme with tangible goals and parameters for job performance. This environment would favour not only the Partners but also the majority of the TUT population. Figure 4.58 shows that all the groups scored the highest for acceptable job compatibility with job structures in structured environments. This correlates well with finding that the Compliance and Steadiness factors are the most prominent factors in the TUT e-learning practitioner group.

The TUT e-learning practitioner group (excluding the star performer group) represents 55 percent of the TUT population but shows a remarkable resemblance to the acceptable job compatibility scores of the TUT population in the CDS/I and SCD/I job DISC structure for structured environments and correlates with the fact that the strongest DISC factor in the TUT population and TUT e-learning practitioner group is the Compliance factor including the highest clusters of style combinations, namely high CS and high SC.

The star performer group representing 23 percent of the TUT population also shows a remarkable resemblance to the acceptable job compatibility scores of the TUT population in the SCD/I job DISC structure for structured environments and correlates with some of the highest clusters of style combinations, namely high CSI and high SC in this group.

Findings indicate that the lowest acceptable job compatibility score of 8 percent was obtained by the Partner group in the DIC/S job structure, and their highest acceptable job compatibility score of 42 percent was obtained in the CDS/I job structure.

The higher the Dominance and the lower the Compliance factors, the more the job tends to favour the accomplishment of results in spite of unfavourable circumstances. Focusing on the e-learning job as a living organism, self-adaptation or self-emergence of functions and structures are relevant (Herrero, 2002). Although most of the e-learning practitioners at TUT were involved in telematic projects for teaching and learning, there were also activities in informal ad hoc projects mostly driven by the particular interested individual. In this way networks of people emerged from different parts of TUT, connected by teaching and learning goals not necessarily described in a job description. Persons displaying these profiles are motivated and inspired by the challenging and dynamic environment and enjoy experimenting with new technologies at a fast pace. This unstructured environment instead of prescribing strict rules and procedures allows for frameworks and directions to guide people on how to act, tolerating innovative thought, creative problem solving and independence to act. The e-learning practitioners at TUT describe the characteristics of the e-learning practitioner in the unstructured work environment as *inter alia* creative, patient, innovative, knowledgeable, perseverant, dedicated, working smarter to make life easier with less work, enthusiastic, affinity for technology, open to change, interested, and open-minded. As pointed out in section 4.1 these characteristics predominantly point to high a Dominance behavioural style, combining elements of the high Compliance and high Influence factors.

The majority of the TUT population does not show great strength in the Dominance factor in their behavioural styles and only 16 percent falls into this category. However, thirty-one percent of star performers has a strong Dominance factor and these behavioural styles generally favour the unstructured work environments, showing the highest acceptable job compatibility (39%) in these job structures. In comparing all the e-learning practitioner groups (see Figure 4.58), it is evident that the star performer group displays the overall highest scores for acceptable job compatibility in the DI/CS, SCD/I and DIC/S job structures.

The theoretical benchmark as perceived by the TUT e-learning practitioner groups (see section 4.2) has basically the same features as the DI/SC job structure created by the expert consensus group, but differs in terms of the Compliance factor which shifted from a low (DI/CS) to a high factor (DIC/S). In comparing this job structure with the personal profiles of the TUT e-learning practitioners to assess acceptable compatibility reveals resemblances to acceptable job compatibility scores for the TUT population as well as for the star performers, but not to the Partner group.

It is interesting to note that both the enriched HJA and the perceived benchmarks for the position of e-learning practitioner show the Dominance factor as being important for the job, but in reality the majority of practitioners' profiles show high Compliance (41%) and Steadiness (23%) factors. They lack strength in the one factor that they themselves perceive as very important for the job. Although the Partners' Compliance (42%) and Influence (25%) factors are the highest of all the groups, their acceptable compatibility with the DIC/S job structure is only 8 percent. The Partners in setting up their job requirements for the position of e-learning practitioner, and influenced by their participation for nearly a year in a structured work environment, also selected a DI/CS job structure (see section 4.4). These choices correspond with the choices of the expert consensus group. The Partner group's acceptable compatibility with the DI/CS job structure was only 25 percent. Furthermore the fact that the majority of the profiles of the group selected by the team from the Department of Telematic Education at TUT as star performers show the highest strength in the Dominance factor may suggest that the Dominance factor is important for the e-learning practitioner. It is also interesting to note that the Dominance factor is the only factor identified as high factor in **all the job structures**. However, the more structured the work environment becomes the less significant this factor seems to be because the environment and not the person drives the initiative – which has important consequences for the e-learning practice in the real world, as will be pointed out later in this discussion.

5.3.4 **Synthesis**

To view the systemic whole and to answer the main research question,

What is the latent structure of the e-learning practitioner construct?

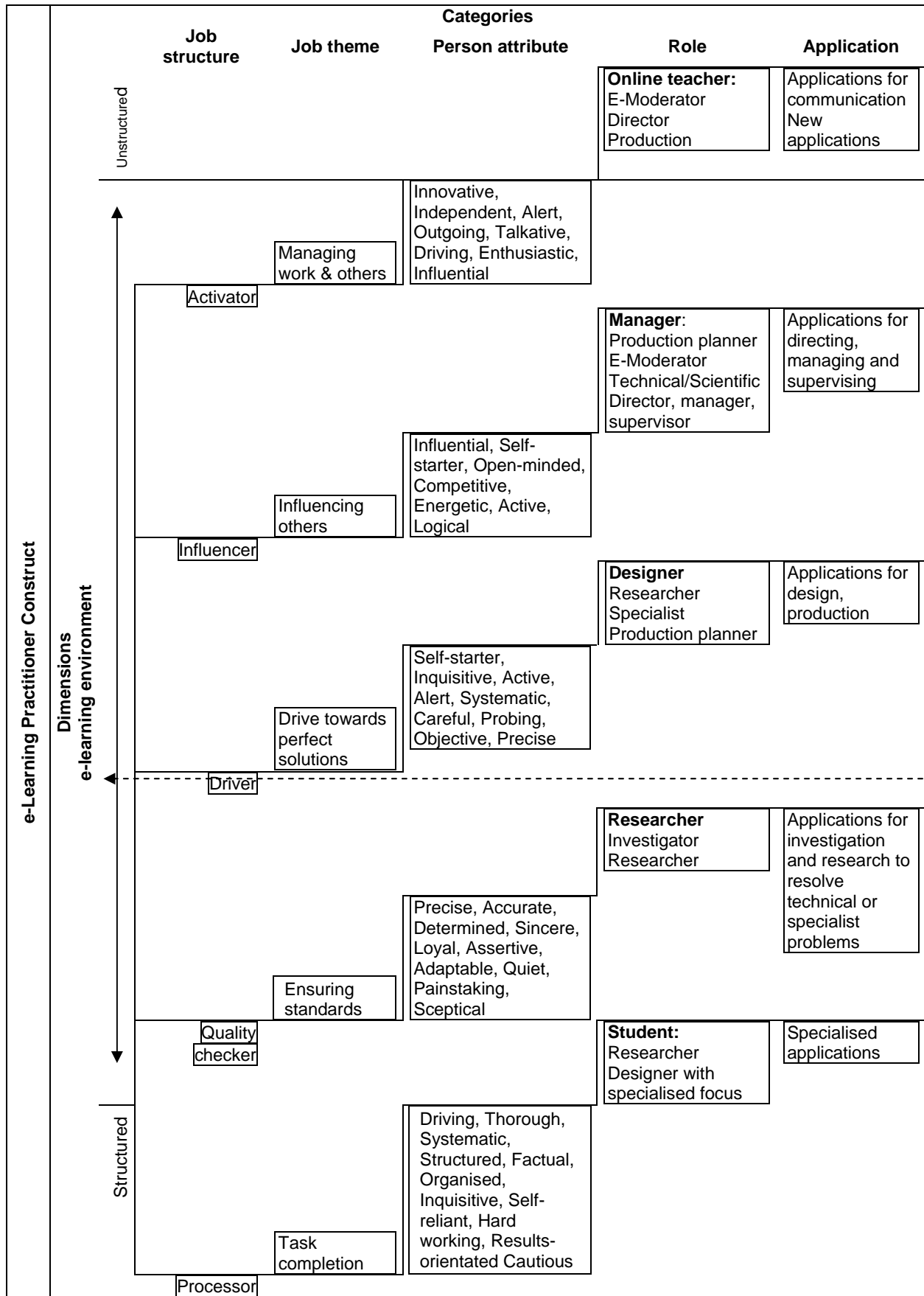
five possible scenarios were described. A combination of inductive and abductive reasoning were used to synthesise meaning from the *What is...?*, the *What should be...?* and the *What does it mean...?* in each scenario. These were mapped onto a classification scheme for the e-learning practitioner construct (see diagram in Figure 5.2).

The classification scheme consists of two vertical dimensions that represent the e-learning practice environment. These environments lie on a continuum, blended at midline and becoming increasingly unstructured to more structured at the two poles. Influences impacting on the structuredness of the environment vary in strength and frequency, which implies a dynamic relationship that may from time to time change the interaction between the subsystems in the e-learning practitioner system. The proposed five scenarios are distributed along the continuum according to the job structure's environmental preference, for example the job structure for the Activator/Innovator is listed at the top, because this job structure calls for people who prefer

unstructured work environments that provide opportunities for experimenting with new ideas. Although the Activator and Influencer job structures tend to prefer an unstructured work environment, the Driver may also blend in with a more structured work environment. The Quality checker and Processor prefer the safety of a structured environment.

The scenarios are classified into five categories namely job structure, job theme, person attributes, roles and applications. Each scenario classification presents a different aspect of the e-learning practitioner construct. The main job themes also describe the purpose of each job structure, for example the Influencer being influential, a self-starter, open-minded, competitive and so on will get things done by influencing others to achieve in a variety of situations, or the Processor whose purpose is to 'get on with the job' and to complete tasks. A number of personal characteristics are listed in the person attribute category and were identified as those best suited to complement the job structures to fulfil specific job roles. It is important to note that these allocations are in no way prescriptive but rather present the 'best fit' scenario. For example, e-learning practitioners need training to keep up their practice and also to equip and empower them to cope with challenging jobs, therefore they most probably play the roles of life-long learner and student at some stage in their practice. The Partners in the P@W Programme in particular were outstanding students and those who fitted the profile of Processor were particularly comfortable in this role.

Figure 5.2: Diagram of the classification scheme for the e-learning practitioner construct



To conclude this discussion it would be fair to argue that the multifaceted nature of the e-learning practitioner construct cannot easily be summarised in a brief description. The story that emerged from the research findings suggests that the phenomenon under investigation presented itself as a dynamic product of multidirectional feedback with a multidimensional living structure, reacting to ongoing change by self-regulation to maintain stability. Interaction between the e-learning practitioner and the e-learning job is influenced by a number of situational features. Interactionist theory focuses on person-situation interaction on the premise that “trait activation is the process by which individuals express their traits when presented with trait-relevant situational cues” (Tett & Burnett, 2003:502). Application of interactionist theory in this study contributes to an understanding of the influence of situational features such as job demands, distracters and releasers as positive and negative cues for the activation of person attributes in e-learning practitioners, resulting in varying degrees of goodness of fit between the e-learning practitioner and the e-learning job (section 4.4.3.4 in Chapter 4).

Practical interventions may change the leverage point to achieve positive or negative adaptations of the P-J fit. However, the aim of this study was to delve deeper into the structure of the e-learning practitioner construct and not to plan interventions for practical problems. Therefore recommendations for possible interventions and the implications for training and career development will follow in a subsequent section on recommendations for practice.

5.4 Discussion

This section discusses what I learnt from this research in terms of methodological, substantive and scientific lessons learnt. It is a reflective section on the methodological choices made in this study, as well as a commentary on the strengths and limitations of the applied methodology. Substantive reflection refers to the alignment of the research findings with some of the research findings from the literature. This reflective section concludes with a discussion on the research contribution to the scientific body of knowledge and a few personal comments from the researcher.

5.4.1 Methodological reflection

Justification for the methodological choices made for this study were discussed in Chapter 3, however, as highlighted in Chapter 1, the historical background of this study had a profound influence on methodological choices made. The unfolding of the initial research project presented me with a number of tough choices to make, for example the initial research design included an online survey as data collection method and a taxometric data analysis to determine what taxonomic features were present. The results of this investigation would have provided me with the participants' perceived image of the characteristics of e-learning practitioners, which would have been compared to a real-life situation in terms of the profiles

from the Partners in the P@W Programme. As explained in Chapter 1, the pilot study exposed this methodology as risky and therefore this route was discarded. Another pitfall may have been the use of positivist approaches for data analysis, for example factor or taxometric analysis that may be too limiting in their applications.

The title of this study implies more than merely a statistical analysis of the construct under investigation. Three important issues relate, firstly the study focus in terms of the **scope**. A too wide, undefined focus may result in a general taxonomy without discriminative features for the e-learning practitioner per se. Secondly, although the study proposed to synthesise 'shared meaning' from the online survey participants, there are limitations pertaining to **contextualisation** and **embeddedness** in an **e-learning practice** subsystem. Different thinking paradigms, the lack of a uniform theoretical framework and the diverse perceptions of the participants displayed when describing the construct under investigation may however prove beneficial to the study in terms of the richness of the collected data. Thirdly, the speculative nature of data (not being anchored in real-world situations) could also be a serious limitation to the study. A large sample of participants is crucial to ensure validity and reliability of such contributions by online participants. As this was not envisioned for this study, the focus narrowed to e-learning practitioners at TUT.

Transcribing this into systems thinking means that the two subsystems, e-learning practitioner (person) and e-learning practice (job), and their interacting relationship have no meaning without an environment. However, a mechanical input, process and output approach would also have limited the study. Therefore to compensate for the ontological and language limitations (Patton & McMahon, 1999) inherent to the systems theory approach, interpretive dimensions were added. However systems theory provided an alternative to statistical, taxometric approaches to constructing analysis by emphasising holistic approaches that assume that the whole is more than the sum of the parts of the whole. Both the hermeneutic and systems theory approaches suggest ways to understand textual data; to question, validate and reflect continuously (Mak & Elwyn, 2003) in an attempt to express interpretation of the 'whole'. Multiple text descriptions of their 'lived experience' by the e-learning practitioners were analysed and the hermeneutic cycle played an important role in the understanding of these texts.

The hermeneutic cycle involved reading the texts holistically, projecting meaning onto the texts and then going back to parts of the text to either confirm or reject that meaning. Successful interpretations involved understanding the participants' definition of the situation and therefore the case study was the chosen research strategy for this study. Because it investigates a phenomenon in its real-life context by using multiple sources of evidence (Yin, 1989), sensitivity to subtle meanings and nuances contributed to an enriched story to describe the latent structure

of the e-learning practitioner construct. Qualitative data analysis was very time consuming; the multiple data sources provided large volumes of rich texts that I had to unravel carefully and then reconstruct to ensure validity. Data triangulation and crystallisation were applied to enhance validity in the study.

A strength of this study was the bricolage approach, using mixed methods and a blend of qualitative and quantitative approaches to enrich data analysis.

Qualitative text analysis corroborated with quantitative PPA in terms of self-reported feedback from the participants.

All activities regarding the PPA/HJA data collection, analysis and reporting were done under the supervision of a registered industrial psychologist at TUT:

- The computerised analysis of the data and the computerised generation of the data reports were done by the Thomas International System at the Centre of Continuing Professional Development at TUT.
- Computerised analysis of the HJA was done by a registered as analyst, consultant and employee of Thomas International, Pretoria.
- Consultation services and quality checks were done by the industrial psychologist from the Centre of Continuing Professional Development at TUT, who is also registered as analyst for Thomas International, a registered analyst, consultant and employee of Thomas International, Pretoria as well as two registered analysts, consultants for Thomas International, Cape Town.

Reasons for choosing TI measuring instruments:

- Then PPA and the HJA complement each other to provide the researcher with a **very comprehensive** description of the P-J fit.
- The PPA gives an **accurate description** of the person attributes. The characteristics outlined in the Profile fitted the actual person extremely well.
- The reports given by the System are **person specific** and not merely vague, generic reports automatically generated by a computer.
- They are **validated reliable instruments** with international status.
- The instruments are **customised** for the South African working environment.

I completed a training course at Thomas International (23-24 August 2005), Cape Town and received PPA/HJA accreditation and therefore I acquired the necessary knowledge to understand and interpret PPA and HJA results. It was important for me to understand the

relevant concepts and terminology and to learn the DISC language. Interpretation depends on language.

I did not influence the data that was used in this study. The PPA and the reports were computer generated and done by consultants from Thomas International. The enrichment questionnaire/essay given to the Partners was administered by an objective external facilitator during a specific focus group session on 17 May 2004. The Partners' participation in the P@W Programme involved reflective diaries, blogs, summaries and essays about their experiences as Partners in the programme. These documents were archived at the Department of Telematic Education as part of a documentation process of the P@W Programme. These data sources were not generated for this study, and I did not influence the archival data.

A limitation of this study is that the e-learning practitioner case study at TUT is bound by time and context and therefore cannot be generalised. The small number of participants also affects the overall ability to generalise the results. This study does not include e-learning practitioners from institutions other than TUT; although it described the case as a dynamic reality it does not claim universality.

Informal conversational interviewing between the researcher and each of the e-learning practitioners at TUT took place during the first contact session, where a non-threatening, open-ended question was asked to put the respondent at ease. The conversation was free flowing and no field notes were taken. The fact that field notes were made after the conversations took place might be a weakness in terms of the limitations of the researcher's memory. However, great care was taken to keep quotes as close to the original as possible. Although the open-ended questions created unique response opportunities, they may have limited the responses of those participants who did not feel comfortable expressing themselves in their second or third language.

The instructional designers' involvement in identifying the star performers, as well as the expert consensus group's input into the HJA to develop the job structure for e-learning practice at TUT, contributed to rigor of the research process.

5.4.2 Substantive reflection

Despite the changing focus from technology to a more humanistic approach to e-learning (Atwell, 2004), I could find very few empirical research results on the subject of the e-learning practitioner as a person in a changing world of work and the literature review revealed a gap in this regard (Kearsley, 1998). The renewed emphasis on human beings as part of the online

teaching and learning process assumes that e-learning practitioners are important role players in the e-learning environment.

However, one the most important features of individuals in the work environment, namely their person attributes, are not illuminated by research initiatives. Although various authors (Kearsley, 1998; Gunn, 2001; Palloff & Pratt, 2001b; Salmon, 2003) suggest some important person attributes, a lack of empirical research on this subject is evident from the literature. Pratt's research findings on the characteristics of the e-learning practitioner (Palloff & Pratt, 2001b) suggest that introverted people do well online, and that the extroverted person is not so comfortable with the online environment. He is of opinion that because introverted people, in the absence of bodily gestures and cues, are more inclined to reflect on text messages from students, they are better online communicators than extroverted people who rely on personal contact and personality cues for communication. Evidence provided by this study suggests that this might be the case in a structured environment, supported by various support systems such as formal e-learning projects, personal assistance from the Telematic team and so forth. In such cases the focus is on the role of e-moderator or online teaching and not necessary on the role of project manager. Some of the star performers identified in this study displayed high CS or SC work behavioural styles, which are similar to an introvert communication style. These star performers thrive in a structured, well-supported e-learning environment. However, the findings of this study indicate that the **opposite** was also true.

The star performers in the unstructured e-learning environment displayed the highest percentage of high Dominance work behavioural style, sometimes in combination with a high Influence style. These star performers thrive in a challenging, changing environment with a high degree of virtualness. The most important characteristics of these individuals are independence, drive, enthusiasm and they are influential self-starters. Some of these characteristics may complement those of the extroverted person. Another interesting finding from this study is that the perceptions of the e-learning practitioners at TUT indicated the most important characteristics of e-learning practitioners as *inter alia* creativity, innovativeness and being people's persons. These findings complement observations by Gilly Salmon (2003:54-55) and Kemshal-Bell (2001). Kemshal-Bell's (2001:12) categorisation of the skills and attributes needed by the e-learning practitioner to fulfil the different job roles differentiate three main task areas: technical, facilitation and managerial skills. Some of the important attributes are interpersonal communication, including questioning, listening and feedback skills, relationship building and teamwork, motivation and being influential, a positive disposition, innovative/creative and experimental. These findings concurred with those proposed by the preliminary taxonomy of the characteristics of e-learning practitioners.

Opinions voiced by practitioners themselves were captured by Joy (2004) in a qualitative study on “Instructors Transitioning to Online Education”. Comments on the question: “What personality characteristics are needed for the e-learning practitioner?”, vary from *online teaching is not for everyone; takes a certain type of person to teach online; and matter of style and personality to Key to online is reflection and listening and teacher is receiving, not giving*. However, the opinions mentioned by Joy (2004) are somewhat vague and not very specific on this topic. Perceptions of the characteristics of the e-learning practitioner voiced by the e-learning practitioners at TUT had a tendency to view characteristics such as creativity, patience, innovativeness, organised and as being a people’s person as important.

A scan of the literature revealed just one study on profiling the online teacher using the Myers Briggs inventory (Fuller *et al.*, 2000) and one other study focusing on specific personality characteristics, namely cognitive playfulness, innovativeness and belief of essentialness (Dunn, 2004). Fuller *et al.*’s (2000) study using the Myers-Briggs Type Indicator (MBTI), and Anthony Gregorc’s Transaction Ability Inventory to determine teaching tendencies and styles, concluded that some preferred teaching styles may be more compatible with the dynamics of distance learning formats. They recommend that if the instructor’s preferred style of interaction is known it would be helpful in the e-tivities selection process aimed at meeting both the instructor’s and the learner’s needs (Fuller *et al.*, 2000). This implies a focus on a micro level of e-learning implementation.

This study had a broader focused including a micro level in terms of the personal characteristics of the e-learning practitioner and the job characteristics, a meso level in terms of the P-J fit, involving the person–job–environment triad, and a macro organisational level in terms of proposed practical interventions. According to Attwell (2004), it is important to approach the issues from both the micro, institutional viewpoint and from a macro policy perspective. He is of opinion that “for policy to be effective it requires changes in practice. Equally, effective practice has to be generalised to develop sustainable responses to the challenge of e-learning” (Attwell, 2004:3).

Dunn (2004) found a significant correlation between specific characteristics and the individual’s sustained ability to use technology at a high level in the classroom. These findings complement the findings of this study in terms of the following:

- The characteristics investigated by Dunn (2004) are also prominent in the work behavioural styles of the star performers at TUT in terms of the high Dominance factor present in the star performer group.

- A number of star performers also used different technologies at a high level in their e-learning practice over long periods.

Dunn (2004) also refers to yet another gap in current research on the adoption of innovation, namely the focus on factors affecting immediate change, with few studies referring to enduring or lasting change. However, her study focuses on very specific characteristics and not on personality characteristic profiles or behavioural types, as was the case in this study.

In my view, continuous change in the e-learning environment, sustainability pertaining to e-learning and e-learning practice, professional development and training to cater for the increasing demand for empowered e-learning practitioners are prominent trends and issues that emerged from the literature review on e-learning in higher education (Gunn, 2001; Twigg, 2001; Oliver, 2002; Browne & Jenkins, 2003; Salmon, 2003; Attwell, 2004; Vuorikari, 2004; Nichols & Anderson, 2005; Thompson, 2005). Research on the use of staff development programmes to promote effective teaching are prominent in the literature (Sparks & Loucks-Horsley, 1998; Bennett *et al.*, 1999; Hyde, 2002; Oliver & Dempster, 2002; Meyen & Yang, 2003), with authors repeatedly emphasising that the e-learning practitioner needs empowerment for coping with work demands, which implies a learner role for the practitioner. One of the Partners' roles in the P@W Programme was the role of learner/student. Their feedback on this role points to feelings of confusion and being overwhelmed by the tough programme demands and distracters, but they experienced the group's positive, enthusiastic participation, and perseverance and encouragement as releasers and motivators in the programme.

In spite of a vast number of research studies (Sanders, 2001; Kippen, 2003; Brennan, 2003b:38,58; Illinois Online Network, 2003) done on the importance of recognising diverse learning styles in the teaching and learning process, no evidence could be found on transfer of knowledge to the domain of the e-learning practitioner acting as a learner. I missed studies done explicitly on the learning styles of teachers or for that matter work behavioural styles of these "learners" as part of a holistic approach to professional development or as part of self awareness programmes for e-learning practitioners.

Brennan (2003a:27) identifies a some characteristics important for effective e-learning practice as "technological acumen, active learners, flexibility, high levels of intrinsic motivation, high levels of teacher *goodwill*, problem-based learning, independent learning, adult learning and teaching styles, literacy skills beyond a functional level and persistence". Australian practitioners' responses to a question about the nature of their every day online practices indicated job characteristics such as instructional design, online communication, assessment and e-mentoring (Kemshal-Bell, 2001:36). Experiences from participants in this study

complemented those mentioned by the Australians, but also included video conferencing, and video and multimedia production. It is important to keep in mind that the concept “job characteristics” used for this study focused on the human job in terms of work behaviour styles, which suggests a very specific approach emphasising the relationship between job and personality attributes. Therefore, although the work of those researchers who focused on identifying moderators in the relationship between personality measurement and job performance (Barrick & Mount, 1993; Van der Walt *et al.*, 2002) focused on job performance, their findings in terms of conditions that influence personality expression in the workplace provided me with stimulating food for thought, which crystallised in the application of ideas borrowed from both the interactionist and P-J theories.

Interactionist theories developed in reaction on the trait versus situation debate, recognising that individual behaviour is influenced by both personal traits and situational context (Haaland & Christiansen, 2002). Barrick and Mount (1993) cite various researchers who argue that situational strength, either weak or strong, moderates the relationship between personality characteristics and behaviour. Weak situations are those in which there are few demands to conform to the situation and strong situations are the opposite, where persons are restricted in the range of behaviours to exhibit. Strength and the relevance of the situation to the trait of interest are two distinct situational characteristics useful for understanding how traits relate to patterns of behaviour (Haaland & Christiansen, 2002; Tett & Burnett, 2003). Trait activation theory suggests that “situations activate the expression of traits when they provide trait-relevant cues” (Wilson & Witt, n.d:9) and the trait activation process follows when individuals express their traits when presented with trait-relevant situational cues (Tett & Burnett, 2003:502). The model proposed by Tett and Burnett (2003) was applied in this study and is consistent with person-situation interactionism. A number of ideas are relevant for this study (adapted from Tett & Burnett 2003:501):

- “work behavioural styles allow predictions about future behaviour on the basis of past behaviour;
- personal characteristics are latent potentials residing in the individual; understanding what triggers them is critical for understanding the role of personality in the work place;
- personal characteristic inferences are interpretations of overt behaviour;
- understanding personal characteristic expression calls for consideration of relevant situational features;
- person-job fit can be moderated by certain personal characteristics/job characteristics, and
- the person-situation interactionist model of job performance provides a framework for investigating situational issues in person-job relationships that were studied.”

Shifting the focus to the **process** of person-situation interaction, the model proposed by Tett and Burnett (2003) integrates several relevant assertions, for example traits are expressed in work behaviour as responses to trait-relevant cues; sources of cues can be grouped into task, social and organisational levels and trait-expressive work behaviour is distinct from job performance. This implies that work behaviours suitable for one job may not be ideal for another. The consequence of this assertion in terms of e-learning practice is to know **what** work behaviours are suitable for the job, and secondly to **differentiate** between the different job roles and career paths to optimise and utilise P-J fit to the advantage of the person and the organisation.

Five situational features relevant to personality expression at work are mentioned by Tett and Burnett (2003). From above discussion on interactionist theory and the person-situation interactionist model is the role of situational features in triggering responses is evident. Aiming at an HJA for the e-learning practitioner, this study focused only on three trait activators, namely job demands, distracters and releasers studied as positive and negative influences on P-J interaction. Results from this study identified a lack of infrastructure as the most prominent distracter. Although several innovative measures and alternatives were implemented to counteract this distracter, they were not sufficient to meet the demands and needs of the e-learning environment. As is argued by Atwell (2004) and others, sustainability is one of the key success factors in the implementation of e-learning, and results from this study underlined that programme sustainability without a supportive infrastructure in terms of availability of technology, fast Internet access and adequately equipped classrooms and computer laboratories would be under question. Study results also revealed that the fast pace and huge workload of the P@W Programme and Partners lack of knowledge and skills were experienced as exhausting demands. Empowerment through acquiring new knowledge and skills, the creative application and implementation of these acquired assets, as well as the positive outcomes of their projects in terms of the set criteria, counteracted some of the distracters. Encouragement and support offered by various groups were frequently mentioned as releasers and motivators and that a participative, interactional communication model is vital for this environment.

Although Boonzaier *et al.*, (2001) are of opinion that the Job Characteristic Model (JCM) is the most influential, well-known and widely discussed theory of job redesign, they question some of the postulated relationships proposed in the model. In their conclusion they maintain that future research goals relating to the JCM should be the identification, definition and measurement of appropriate worker and work environment characteristics (person and environment factors) that would account for significant amounts of variance in motivation and satisfaction beyond the influence of the job characteristics and so enhance the predictive validity and practical

usefulness of the model. Their plea and other research initiatives pertaining to the JCM are not relevant for this study, but they did **trigger a process of analogue thinking**, with consequent job redesign implications that will be discussed in subsequent paragraphs.

- Theme focuses evident from the empirical research on the JCM relate to factor structure of the job characteristics and subjective, objective and additional job characteristics (Boonzaier *et al.*, 2001).
- “Subjective ratings of job incumbents can be regarded as a sufficient and valid indicator of the extent of the job characteristics present in their jobs” (Boonzaier *et al.*, 2001:16).
- Energy wasted on frustrating environmental factors, negatively influences the relationships between the job characteristics and work behaviour (Oldham, 1976, in Boonzaier, *et al.*, 2001).
- Depending on the purpose and context, job descriptions may vary from broad to precise descriptions applied in various situations by human resource professionals.
- The success of the organisation depends on its employees (Grobler *et al.*, 2004) and therefore organisations should optimise on workforce benefits such as the behavioural style diversity of the workforce, P-J fit and cultural cohesion (Shelton *et al.*, 2002). This has the implication of recognising the individual’s needs and reinforcing positive motivational influences.
- In the research review conducted by Boonzaier *et al.* (2001:23), the authors conclude by saying that “according to these criteria, three dominant sets of variables constitute the world of work, namely the characteristics of the job, characteristics of the worker and characteristics of the work environment”.

The ideas embodied in the above statements inspired various reasoning and thinking processes. Analogue thinking was applied to link the HJA and the person-situation interactionist model to the JCM resulting in conceptualising an enriched HJA:

- HJA techniques were selected to analyse a job that does not formally exist, the resulting job description provides a broad holistic overview of the job scope characteristics and structure. The aim of the study is not to design a job description for e-learning practitioners, but to explore the job characteristics and their relationships in the job structure.
- The enriched HJA used the HJA technique to identify job characteristics and a factor structure of the e-learning practice.
- Subjective and objective ratings from different sources were used. Various groups of people, for example an expert focus group, specialist groups and e-learning practitioners were asked to participate in the analysis process and to give their subjective opinion on

the job characteristics of e-learning practice. The outcome of these analyses was an enriched HJA.

- Descriptions of trait activators as perceived by job incumbents were used.
- The outcome was presented as a broad narrative job description.
- A PPA was used to identify diverse behavioural styles from the participant group.
- HJA was applied to the results of the PPA to determine P-J fit.

Results from this study revealed that job redesign for e-learning practice resulted in a number of alternative job scenarios catering for a diverse job role distribution and a variety of work behavioural styles from the e-learning practitioners. Current research on e-learning practice seems to overlook the importance of HJA in the world of work. Furthermore, the literature review revealed a gap in the literature regarding formal studies done on the characteristics and profiles of the e-learning job. Therefore I had no benchmark for this study, but argued the case that knowledge of the characteristics of e-learning:

- practitioners and how these characteristics fit together in various **profiles and person attribute structures** may contribute to our understanding of the e-learning practitioner construct;
- practice (the e-learning job) and how these characteristics fit together in various **profiles and job structures** may contribute to our understanding of the e-learning practitioner construct, and
- practitioners and e-learning practice (the job) and how these characteristics fit together in terms of **goodness of fit** may contribute to our understanding of the e-learning practitioner construct in terms of a number of possible P-J fit scenarios.

P-E fit conveys the idea that for “optimal occupational performance employee characteristics must be congruent with the characteristics of the work environment” (Bergh & Theron, 2001:316) and that the degree of congruence will determine the satisfaction of both the employee and the employer.

Perceived fit is the subjective judgement that a person fits well in the environment, whilst actual or **objective fit is the comparison between separately rated person and environmental characteristics**. This is particularly relevant for this study in terms of the fit of PPA and HJA.

Little is known about “**which characteristics of people and environments are crucial for establishing fit**” (Van Vianen, 2001), however. These observations underline the importance of distinct conceptualisation of relevant concepts to ensure accurate operationalisation of the construct under investigation. Clear differentiation of the **fit type** may be useful in these endeavours, for example using *P-J fit type* as the theoretical framework of choice to measure

goodness of fit between the *person characteristics* of the e-learning practitioner and the *characteristics* of the e-learning job. Using customised measuring instruments such as the PPA and the HJA to measure the similarity between the person and the job characteristics.

The most important key issue in person-environment fit is in determining the relevant person and environment characteristics for that particular environment or situation (Shin, 2004:735).

I am of opinion that current research on e-learning and P-E fit in higher education does not provide sufficient answers to questions about the fit between the e-learning practitioner and the e-learning job. It seems that the principle of congruence between the characteristics of person and job, well recognised in the domain of human resource management, has been overlooked in the higher education e-learning domain. Furthermore, the literature review revealed a gap in the literature regarding formal studies done on matching the characteristics of the e-learning practitioner and the e-learning job in the e-learning environment. This study aimed at uncovering the **relationship between the e-learning practitioner and the e-learning practice** and how the **person and the job fitted together in the higher education work environment**.

Research results in this regard revealed that the highest job compatibility score between the different e-learning groups at TUT and the different job requirements presented by the five job structures was only 42 percent, which was obtained by the Partner group matching the CDS/I job structure. The lowest job compatibility score, 8 percent, was also obtained by the Partner group matching the DIC/S job structure. The job compatibility score for all the groups varied between 27 and 39 percent, which clearly indicates a relatively low compatibility. The interaction between a person and his/her job to fulfil a job purpose may be enhanced if the two fit well together. If, however, the person has to do work that requires strengths that he/she does not possess, it may take 30 percent of the available energy for self-motivation and another 20 percent of energy may be wasted in frustration, leaving only 50 percent of the available energy to do the job (Berens, 1999).

This study reported on the interactions between the e-learning practitioners, preferring a specific behavioural style, and their e-learning practice. Suggestions for practical interventions, such as the implementation of support programmes, job redesign and career development that may be applied as leverage points to change the output in terms of strengthened energy, are discussed in the following section on recommendations for practice.

Elaborating on the P-E fit model, Shin (2004) points out that this model

may be useful to P-E fit research in terms of four distinct theoretical implications namely, taking account the different degrees of virtuality; attempting to examine Person-Organisational fit (P-O fit), Person-Group fit (P-G fit), and Person-Job fit (P-J fit) simultaneously; delineating the simultaneous effect of different types of fit and their antecedents and specifying the moderating effect of organisational dispersion on the relationship of the three types of fit and individual outcomes (Shin, 2004:737-738).

Taking cognisance of degrees of virtuality was especially important for positioning e-learning at TUT. Results showed that in the unstructured TUT environment, e-learning practitioners chose the degree of virtuality in their e-learning practice for themselves. Some lectures preferred an e-learning component as enrichment for their traditional classes, whilst others implemented e-learning that spanned time, space, culture and boundaries.

Although this study may have partly addressed Shin's (2004) call for further research on aspects such as degrees of virtuality and the examination of employee qualities that are important for achieving a good fit, it also contributed to the understanding of another dimension not noted by Shin's model, namely that of environmental structuredness. The importance of degrees of structuredness in the virtual teaching and learning environment regarding P-J fit research was illustrated by the research results of this study. Understanding the e-learning practitioner construct clearly calls for recognising the importance of environmental and situational influences. As was revealed in the results of this study, the lack of infrastructure with respect to Internet, classroom and laboratory facilities, slow Internet access and student demands were the most prominent negative stressors on the e-learning practitioners. Positive influences on workload were the availability of new technologies and the support provided by assistants; furthermore nearly all the Partners mentioned the use of new technologies and the application of acquired knowledge as releasers that counteract the constraints. One example of this is the use of local WebCT servers in computer laboratories to cater for the slow Internet access speed; however, these interventions sometimes increased the administrative burden, which then again became a negative stressor.

5.4.3 Scientific reflection

This research has a number of unique contributions to make. Matching the characteristics of the e-learning practitioner and the e-learning job in the e-learning environment to establish goodness of fit, has remained largely unresearched and little is known about "which characteristics of people and environments are crucial for establishing fit" (Van Vianen, 2001). This research has attempted to use a number of lenses to focus the spotlight on this process. In

applying a **systems theory framework** to an integrated combination of **P-J fit** and **interactionist theories**, I aimed to create a theoretical framework to position this study and to use as an approach to investigate the research problem and questions. System thinking offered me a language that could restructure my thinking by providing me with a “discipline for seeing structures that underlie complex situations, the wholes and relationships that can more readily foster an understanding of complexity” (Patton & McMahon, 1999:141).

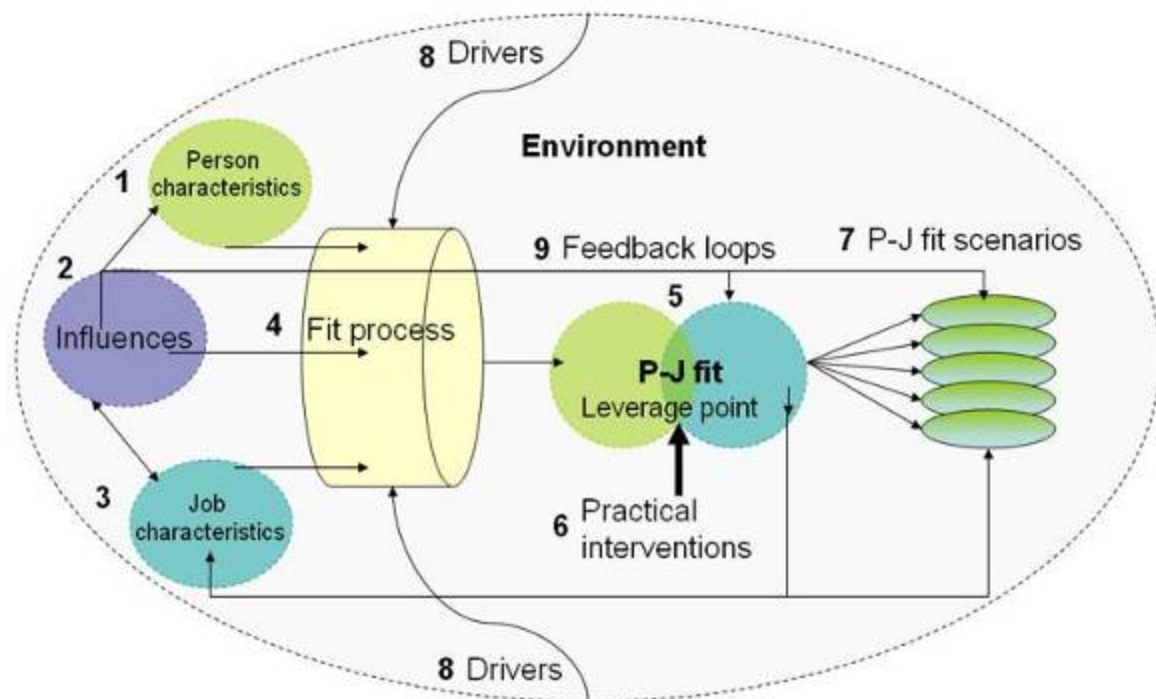
The combination of the languages of systems thinking and DISC complemented each other in my search for the latent structure of the e-learning practitioner construct. Systems thinking contributed to my understanding of the e-learning practitioner construct as a living system, including the two subsystems of e-learning practitioner and e-learning practice within the context of the e-learning and P@W Programme environments in the TUT organisation. Identification of the interactive styles and the movement of the influences within and between the systems is an attempt to give a “snapshot” of the dynamic interaction between the person and the job within the context of the work environment. The main premise is that systems can “best be understood by first examining their functioning in the context of the wider and hierarchical systems that surround them” (Bergh & Theron, 2001:476). Therefore this “snapshot” is an image of the e-learning context at TUT and generalisation to other systems in a different context may not necessarily yield the same results.

Bergh and Theron (2001) cite researchers such as Cattell, Eysenck and Kelly who used different references as examples of structural concepts to describe the personality system’s structure. They refer to personality structure in terms of traits or cognitive constructs and Roger utilised the self-concept of behaviour responses as an integrative structural concept (in Bergh & Theron, 2001:321).

In this study I used work behavioural styles expressed in terms of DISC language to describe a particular aspect of work personality structure. A PPA was used to uncover the person characteristics and work behavioural styles of e-learning practitioners (person subsystem), and the HJA, a personality-orientated job analysis, was applied to identify and describe job characteristics and job structure (job subsystem). To illustrate the relationships between these subsystems nested as dynamic parts of the e-learning practitioner systemic whole, I developed an interactionist model of the e-learning practitioner system (see Figure 5.3). The model illustrates the dynamic interaction between the person and the job subsystems in terms of the person characteristics of the individual (Figure 5.3#1) and the characteristics of the job (Figure 5.3#3) within the e-learning context. These are the inputs into the e-learning practitioner system. Interaction between the subsystems (Figure 5.3#4) led to certain outputs, for example P-J fit (Figure 5.3#5), moderated by environmental influences (Figure 5.3#2) and constantly monitored

by feedback systems (Figure 5.3#9). Environmental changes act as drivers (Figure 5.3#8) in the system, and practical interventions (Figure 5.3#6) such as the implementation of training and support programmes, job redesign and career development may be applied as leverage points to change the output. The output manifests as a number of P-J fit scenarios (Figure 5.3#7). The input-output is illustrated in Figure 5.3 in terms of a dynamic interactionist model of the e-learning practitioner system.

Figure 5.3: A dynamic interactionist model of the e-learning practitioner system



I developed this model to provide me with a theoretical framework that I could use as a roadmap to guide my reasoning and thinking processes. The ontological and epistemological positions of this study hold that the only reality is the reality construed by the observer in interaction with the observed. “This perspective is related to that of constructivism, which seeks to gather multiperspectival data in an attempt to glean richer knowledge from many perspectives” (Patton & McMahon, 1999:142). In an attempt to understand the structure of the e-learning practitioner construct, meaning was constructed by applying a matching process between self-knowledge and world-of-work knowledge as perceived by e-learning practitioners within the context of the e-learning work environment. For the pattern of organisation to be visible, it needs to be embodied in a structure that, in living systems, is an ongoing process. “Thus the process criterion is the link between pattern and structure. So system thinking means both contextual thinking and process thinking” (Capra, 1997).

Interaction between the e-learning practitioner and the e-learning job is influenced by a number of situational features. Application of interactionist theory in this study contributes to

understanding the influence of situational features such as job demands, distracters and releasers as positive and negative cues for the activation of person attributes in e-learning practitioners, resulting in varying degrees of congruence between the e-learning practitioner and the e-learning job. Results from this study reveal the stories of the e-learning practitioners in terms of these influences, highlighting a number of them applicable in the various roles that that e-learning practitioners fulfilled. Qualitative analysis of the participants' reflections captured in their bloggers, essays and other textual data revealed how these influences activated personal attributes in terms of their voiced reaction.

The adoption of an integrated theoretical framework based on systems theory, P-J fit and interactionist theory contributed to coherence in this study by providing a comprehensive conceptualisation of the theories and concepts relevant to understanding the e-learning practitioner construct. P-J fit theory offers a general model for measurement of person-job congruence applicable in a variety of contexts, therefore complying with principles of usefulness and simplicity, was the reason for choosing this model. Strengthened and complemented by principles of interactionist and systems theory, this model provided capacity for the building of a conceptual framework for this study. A conceptualisation of e-learning, e-learning practice and the e-learning practitioner, being the building blocks of the structure of the e-learning practitioner construct, attempted not only to clarify these concepts, but also to deepen an understanding of their interrelationships. Systems theory principles offered a broad framework, in terms of input, process and output, for analysing the complex e-learning practitioner system, its constituent parts and the way in which they interact. Principles of the interactionist theory enrich our understanding of these interactions by focusing on situational influences that impact on the process.

The systems thinking principle of nested arrangement of structures, each contained within the next was applied to the organisation of the e-learning environment in terms of international, organisational and programme environment levels and the characteristics of structured and unstructured e-learning environments on all three of these levels contextualised the systemic process of interaction. A graphical presentation (see Figure 3.4) is used to illustrate the relationship between these conceptualisations.

The DISC model was applied to identify and describe person and job attributes from the two subsystems in the e-learning practitioner system. The DISC model focused on work behavioural styles and human job requirements as embodiments of person and job characteristics, and offered an elegant classification scheme that partitioned information on characteristics both of the person and the job and defined the relationships among the pieces. For this reason I chose the DISC approach to classify, analyse and relate information pertaining to the characteristics of

e-learning practitioners and e-learning practice. Operationalisation of these concepts using the PPA, the HJA) and P-J fit measured goodness of fit and resulted in five possible P-J fit scenarios. This thesis suggests that the latent structure of the e-learning practitioner construct can be extracted from these scenarios. Ongoing change and environmental influences may impact differently on each of these scenarios to elicit overt manifestation.

5.4.4 *Personal reflection*

The miracle is not that we do this work, but that we are happy to do it
(Mother Teresa, n.d.).

This journey taught me to appreciate life and the uniqueness of individuals, to appreciate knowledge as the gateway to understanding and to appreciate interaction with dedicated, dear, wonderful colleagues. This journey was both energising and exhausting, and the fact that the research process took a rather circuitous route instead of a more direct one underlines the very nature of research in that getting to the end point is in itself an accomplishment, but it has been the journey that has made it all worthwhile.

5.5 Recommendations

The following section makes a few recommendations from this study that may be useful from a policy, practical and research point of view.

5.5.1 *Recommendations for policy and practice*

This study provides a classifying scheme for e-learning practitioners that may be used as:

- A planning framework for
 - the selection of new incumbents, as well as for the placement of staff in e-learning positions;
 - staff development programmes to accommodate different work behavioural styles, to allow for and capitalise on the strengths and limitations of these different styles for the e-learning job;
 - the use of scenario techniques to provide 'best-fit' options between e-learning practitioners and e-learning jobs;
 - support programmes for the enhancement of self-awareness, and
 - organisational/institutional interventions in terms of work environment and infrastructure.
- A reflective model to overcome reality with alternatives.
- Scientific knowledge to apply in an e-learning work environment to accommodate the behavioural style differences of practitioners. Line managers and staff developers need

to take cognisance of e-learning practitioner behavioural style patterns acting as pointers to specific person characteristics. Behaviour style variety is a key factor to take into consideration when work- and networked learning groups need to be established. Collaboration, as one of the niche areas of e-learning, offers possibilities not only for the e-learning practice but also for continuous professional development initiatives. Online networking involves a “hybrid of familiar forms of communication” (Salmon, 2003:19), which satisfies a variety of style preferences. Based on the findings from this study it is recommended that the use of open discussions on work style preferences may enhance work group dynamics, interaction and communication and ultimately job satisfaction and job performance.

Assumptions from P-J fit theory applied to this study hold that

- the greater the congruence between the personal characteristics of the e-learning practitioner and job requirements, the greater the likelihood of success and positive outcomes for the e-learning practitioners. P-E fit assumes an environmental context for the fit, therefore the person and job characteristics form a triad with the environment, resulting in interactional relationships;
- identifying the person characteristics of the e-learning practitioner, measuring their congruence with the e-learning practice attributes, to determine their relationship and their goodness of fit, contribute to our understanding of the structure of the e-learning practitioner construct, and
- misfits may result in a number of outcomes: dissatisfaction or ill-health; lead the person to become more self-aware; may provide opportunity for self development; or may prove to be a good match in a different situation.

Although the aim of this study was not to propose interventions to enhance P-J fit, a number of recommendations, based on the scientific knowledge about the latent structure of the e-learning practitioner construct gained through this research journey, will illustrate its practical application. The findings of this study reveal that the average P-J fit score is below 40 percent, therefore to enhance the match between practitioners and their jobs, the following interventions on the strategic as well as the operational level of organisation are recommended.

A number of strategies, such as the Strategic Technology Plan, the Multimode Teaching and Learning Strategy and the P@W Programme, are guiding strategic management of the e-learning initiative at TUT. On a strategic level, TUT experiences the same policy issues as most other organisations in higher education. Major policy areas such as funding, quality assurance, intellectual property, tuition and fees (EduTools, n.d.a-f), link to issues in the organisational/institutional, socio-economic and pedagogic domains (see Chapter 2 for detailed

discussion). This study indicates that these issues were also raised by the e-learning practitioners at TUT as

- lack of infrastructure especially in terms of Internet, classroom and laboratory facilities, slow Internet access and student demands;
- long exhausting hours spent battling to master new technologies, and to acquire the necessary knowledge and skills;
- feelings of confusion and being overwhelmed by tough programme demands and distracters;
- time restraints resulting in feelings of frustration and of being pressurised, and
- demands such as management of students and courses as well as interdepartmental communication.

The above-mentioned issues were experienced by e-learning practitioners as negative influences on P-J congruence, therefore to optimise the environment for e-learning implementation and to enhance programme sustainability, organisations **should not only take cognisance** of the importance of these issues, but strategic managers should also **intervene** in such a way that these influences are minimised in the P-J fit equation. Strategic planners for e-learning should be concerned about crucial aspects for successful implementation of e-learning such as infrastructure, accessibility and bandwidth. Without a supportive infrastructure in terms of availability of technology, fast Internet access and adequately equipped classrooms and computer laboratories, e-learning sustainability will be under question. Visionary strategic planners have the difficult task of weighing the needs of the present and the future complicated by the ever-changing e-learning environment. Debates about hardware and software applications, uncertainty about standards and lack of knowledge amongst policymakers do not alleviate their decision-making tasks. e-Learning as a 'moving target' "is a collection of technologies, products, services and processes – all in a state of constant evolution hurried along by the forces of competition" (Morrison, 2003:21). Adaptation to this rapidly changing environment is crucial for survival, therefore strategic planners should relook at the way they perceive e-learning. Mobile devices such as cellphones and PDAs are becoming extremely popular especially in Third World countries. This means that the m-learning wireless substitutes for the traditional computer network systems might be considered as possible solutions for some of the dilemmas that organisations are faced with. Higher education institutions are investing heavily in e-learning management systems, and the expense of continuous hardware and software upgrades has serious financial implications for these institutions. It is recommended that policymakers should also consider Open Source Software as a possibility for opening **different venues** for educational software. Attwell (2004) points out that open content development entails incentives for shared material, quality assurance and alternative licences to

the traditional copyright and that the use of Creative Common Licence aims at building a layer of responsible copyright by using “private rights to create public goods” (Attwell (2004:41).

Another important intervention that may enhance congruence and equilibrium in the P-J fit triad pertains to development and change. Higher education should strive for the creation of **sustainable work systems** that involve development by “re-generating resources” (Van Eijnatten, 2002:13). I agree with Van Eijnatten (2002) that only a system that is continuously developing itself can be called ‘sustainable’ and that a sustainable work system is one in which the “quality of work (i.e. employees health, well-being and personal development); the quality of the organisation (productivity, efficiency,...) and the quality of connections with the environment (both nature and society ...) are constantly kept at the same levels” (Van Eijnatten (2002:8).

Therefore to contain sustainability, the e-learning practitioner system should strive towards the development of its two subsystems contextualised in the e-learning work environment. This implies, on the one hand, a constant state of movement towards equilibrium and sustainability in the system, while on the other hand, over a period the dynamic movement may also result in a state of instability, calling for new developments and the regeneration of resources. Interaction between the subsystems and the environment make the system “both dynamic and complex” (van Eijnatten, 2002:8).

Policymakers at higher education institutions should take cognisance of the importance of environmental influences in the P-J fit scenario, as this study indicates that the presence or absence of environmental structuredness, support systems and development programmes may impact positively or negatively on the relationship between the e-learning practitioner and the e-learning job. This study indicates that workload and time demands on e-learning practitioners were frequently mentioned as exhausting job demands from e-learning practice. It is widely recognised that institutions need put in place policies and benchmarking procedures to accommodate changing job structures (Attwell, 2004). It is thus recommended that a good starting point might be to develop a formalised job structure for the e-learning job, with options for redesign as proposed by the scenarios outlined in the classification scheme for e-learning practitioners. Serious commitment from organisations to the implementation of e-learning suggests that these organisations would rethink the position of the e-learning practitioner in terms of job description and position.

Job redesign to formalise the e-learning practitioner job and to assign formal job descriptions and job specifications is crucial for the development of e-learning career paths. This study indicates that there are a variety of possible job structures that can be used creatively to suit the needs of both the organisation and the individual practitioner. Reflective approaches from

organisations, supported by both the scientific knowledge, and the scenario options indicated in this study, may contribute to appropriate redesign. This can enable micro-structural adjustments which, and I agree with Van Eijnatten (2002:13), “propose insights into practices that cumulatively allow for sustained innovation by incremental steps to radical change”.

Sustainable e-learning practitioner systems are not only about job redesign and “about learning how to work, but also about learning to know oneself” (Van Eijnatten, 2002:10). This study highlighted the importance of congruence between e-learning practitioners’ work behavioural styles and their jobs’ requirements for compatibility in the work environment. Van Eijnatten (2002:4) quotes Moldaschl (2000) to define “work intensity as a dyadic misfit between situational and personal characteristics”, and that “intensive work systems develop by consuming resources that are generated and provided by the social environment of the work system or organisation”. Therefore to respond to the P-J misfit indicated by the research results, interventions in terms of professional and personal development may act as leverage points to positively influence the subsystem relationship. Interventions such as the development of the e-learning practitioner’s knowledge and skills; self-awareness in terms of personal behavioural style strengths and limitations; and enhancement of personal capabilities may strengthen the matching capabilities of the e-learning practitioner subsystem to accommodate the fast changing e-learning world of work.

Organisational policymakers should re-evaluate the contribution of sustainable work systems in terms of regenerating resources. Promoting the congruence between the e-learning practitioner and the e-learning job may contribute to job satisfaction and general wellness at work. However, regeneration of human resources is only possible when the employee actively takes steps towards renewal, supported by opportunities provided by the organisation or institute.

Organisations also need to look at staff selection policies in terms of the recruitment of new incumbents for e-learning positions or placement of existing staff. As this study indicates, different personal profiles and work behavioural styles require specific job structures to enhance the goodness of P-J fit, and it is therefore indicated that if selection policies cater for these differences, informed choices could guide the recruitment and placement of staff in the e-learning environment. A laissez faire approach, without proper consideration of individual differences, might have negative economic and job performance consequences. If organisations commit to these practices, this will also imply PPA screening of recruits and e-learning practitioners, as well as proper analysis of the specific human job requirements.

Atwell (2004:3) links policy and practice as two major issues in e-learning by stating that: “For policy to be effective it requires changes in practice. Equally effective practice has to be

generalised to develop sustainable responses to the challenge of e-learning.” The above-mentioned recommendations and suggestions may contribute to “effective practice”, but are by no means a comprehensive list, and have only tapped into a few prominent issues.

5.5.2 Recommendations for further research

In my search to uncover the latent structure of the e-learning practitioner, the rich, fast moving e-learning context provided scope for a number of exciting research possibilities. Listed below are a few potential research topics:

- In this study, PPA and HJA measured work behavioural style and human job requirements respectively. Replication of this study using a different set of lenses, for example the Myers Briggs Inventory and the Work Profiling System as measuring instruments, or application on a more comprehensive scale including participants from a variety of e-learning environments, may reveal more building blocks and patterns in the latent structure of the e-learning practitioner construct and could also confirm and verify the findings of this case study.
- Unique combinations of characteristics and personal profiles were displayed by the star performer group, and these findings need verification by means of replication at other higher education institutions.
- Applied research could determine the long-term effects of misfit or low compatibility between the e-learning practitioner and the e-learning job. Current P-J fit research indicates that misfit in the work environment leads to a variety of negative reactions. How would these negative reactions impinge on the e-learning practitioner system? How would they impact on the sustainability of the system?
- Practical interventions aimed as leverage points to enhance the e-learning P-J fit were recommended in the previous section. Further investigation is needed to determine the actual contribution of these interventions in terms of goodness of P-J fit.
- Future researchers may wish to take a practical in-depth look at specific scenarios outlined by the classification scheme for the e-learning practitioner construct.
- Definition of research themes by the European SUSTAIN network (Van Eijnatten 2002:15) highlighted the study of human resources regeneration in work organisations as a “large research task”. They call for more holistic and longitudinal research approaches that include the history of the system based on a methodological paradigm based on Cha-ordic Systems Thinking (Van Eijnatten 2002:7). Cha-ordic Systems Thinking conveys the idea that chaos and order are not opposites in the description of complex, dynamic, non-linear behaviour in organisations.

- Exploration of (a) the dynamic interaction between e-learning team members with diverse work behavioural styles and (b) the characteristics of e-learning work teams may provide useful pointers to guide the composition of effective e-learning work teams.

5.6 Final word

Wachterhauser (1986:22) states that "[o]ur very ability to understand at all comes from our participation in the contexts that make reality meaningful in the first place".

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Appendix A:

Appendix A1: Research history

Prelude

The following paragraphs will briefly describe the roots and progress of this research project and the way in which the original research project grew into the current thesis. The brief research history will take the reader through the different phases of the original research project and the four turning points in the research process, and will highlight the relevant course of events to illustrate the logic of the process.

Research phase 1

Original title

“Multi-dimensional key factors in the sustainable use of an electronic support system by e-learning practitioners”

At the Tshwane University of Technology (TUT) an intervention was required to address the gap between the competency level of the novice WebCT practitioner and the entry level of the WebCT environment. Owing to a lack of technical skills, the ineffective utilisation of resources and time constraints, WebCT practitioners, who are not necessarily trained instructional designers, struggle to design and develop course material for application in a learning management system (LMS). A steep learning curve is necessary in order to achieve the standards set for the development of quality didactic materials. As an instructional designer trying to support and guide these lecturers, I asked myself a number of questions:

- How can this problem be solved and what do we need to know in order to solve the problem?
- Would an intervention in the form of an electronic support system make a difference?
- What is the multidimensional set of critical factors involved in the sustainable use of an electronic support system by WebCT practitioners?
 - What are the **distinguishing features** of a usable **web-enabled support system** for WebCT practitioners?
 - What are the key **human factors** that influence the sustainable use of the electronic support system?
 - What are the **characteristics** and the personal **profile** of e-learning practitioners?
 - What are the key environmental/Institutional factors that influence the sustainable use of an electronic support system? (Issues that have to be considered include infrastructure, technical, social, educational, organisational and work environments.)

With these questions in mind I formulated my main question:

What is the multi-dimensional set of critical factors (technological, human, and environmental) involved in the sustainable use of an electronic support system for e-learning practitioners?

The aim was to identify the key issues, role players and distinguishing features with regard to a useful electronic support system for e-learning practitioners.

At TUT a one-on-one approach, “just enough, just in time, just for you”, was followed. However, this is time-consuming and has a huge impact on human resources. Not all lecturers have a background in education, as many of them are specialists in their subject field in industry and do not have the necessary didactic skills. WebCT practitioners do not necessarily possess instructional designer skills and sometimes have to go through a steep learning curve in order to achieve the standards set for quality didactic materials. Thus, to optimise the Multimode Teaching and Learning initiative, the Partners@Work Programme¹ was implemented in June 2004. The focus now was on a few very important issues for the institution, rather than on a lot of intermittent smaller uncoordinated projects. The approach shifted to a structured capacity-building programme stretching over a year. Scaffolding, guidance and support are very important programme elements for these lecturers to ensure quality and excellence in teaching and learning.

Researchers (Landauer, 1995; Norman 1996; Long 1996; Cook, 2002) call for more research on ways to design systems that match the cognitive capacities of users, or mesh smoothly with the social and organisational settings in which the system will be used. Many existing IT systems have not been successful because these factors have not been incorporated in their design. The first main research aim of the project attempted to address precisely this plea, and investigated the user-defined quality attributes, as perceived by e-learning practitioners, relating to the usefulness of an electronic support system.

Practitioners need simplified design tools, examples of best practices and “show-me” options, design templates and communication networks, as well as access to knowledge-building communities. Various examples (Conole & Oliver, 1998; Conole, 2000a; Conole, 2000b; Petrides,

¹ P@W Programme

The P@W Programme is a formal capacity-building programme for e-learning practitioners at TUT. The Partner group consists of 14 members who follow the programme for 6 months and then practise what they have learned for another 6 months.

2000; Conole, Crewe, Oliver & Harvey, 2001; Leask, 2001; Wiley, 2002; Conole, 2002) of such aids are cited in the literature, but fail to explain the critical factors or dynamics involved in the sustainable use of support systems. In an attempt to explore the role of an electronic support system as supporting agent in the instructional design process in a WebCT environment at TUT, the original project focused on WebCT practitioners' experiences of, perceptions of and attitudes to the usefulness of an electronic support system (TESS) for instructional design. The research process that commenced was guided by the research proposal with detailed descriptions of the research questions, goals, design, methodology, research methods, tools and techniques. Research findings showed promising results and positive feedback from the participants.

However, the question remained as to whether technological support in the form of electronic support systems, frameworks, toolkits, templates and wizards can play a sustainable supportive role (Conole & Oliver, 2002b; Cook & Olivier, 2002). A continuing cycle of design and revised work practice will answer the question of whether TESS can play a sustainable supportive role in the P@W programme. As was stated in the original research questions, however, other critical key factors in sustainability also come into play. Therefore the research focus shifted to the human and environmental/institutional factors.

Research phase 2

Research progress: First turning point in the searching process

As I explored the domain of the e-learning practitioner in my search to answer questions about the key human and environmental factors, I realised that this research area has a wealth of possibilities and that it might spread the research focus too wide and therefore become unfocused if the thesis were to include all the original research questions. Advice and expert opinion I received from participants in the departmental research proposal defence, which took place on 24 February 2004 at the University of Pretoria, suggested that I limit the study to focus on the e-learning practitioner only. Thus the focus narrowed to the human factors in the study and zoomed in to focus on the original research question:

*What are the **characteristics** and the personal **profiles** of the e-learning practitioners?*

Further refinement of this question resulted in a study titled: ***"In search of the latent structure of an e-learning practitioner construct"*** embodied the following main research questions:

- 1 What is the latent structure of the e-learning practitioner construct in terms of person attributes?**
- 2 What is the latent structure of the e-learning practitioner construct in terms of the work environmental context?**
- 3 How do the environmental and person attributes fit together in the structure of the e-learning practitioner construct?**

Naturally the study of a specific practitioner will always include a work context to give structure and meaning to the construct under investigation. Therefore for the purpose of this project the work environment was narrowed down to the e-learning practice and the P@W programme at TUT.

What are the reasoning processes behind this shift in focus?

Using systems theory as a theoretical basis for reasoning I will outline the succession of activities and thinking processes that formed the foundation and starting point of this thesis. As explained in the preceding paragraphs, the triad of person, job and context are embedded in the TUT organisational system. The interaction and relationship between the person and the job are influenced by a large number of influences from the micro-, meso- and macrolevels of the organisation. The practical problem of the e-learning practitioners not coping with the electronic teaching and learning environment was addressed by the practical intervention of TESS as a possible solution. One leverage point for intervention was identified as electronic support for e-learning practitioners. However, other support strategies, for example training and environmental adaptations, were implemented as well. The P@W Programme as an intervention is one example of this. These practical interventions again triggered questions about their success. Before any success can be measured, however, one needs to think about the “who”, “what” and “how” of the situation. The “who” became the focus of this study and is reiterated in the study title: “In search of the latent structure of an e-learning practitioner construct”.

The question about latent structure in terms of systems theory immediately brings phrases like “characteristics”, “patterns”, “relationships” and “purpose” to mind. Focusing on the meaning and implications of these terms of reference, I realised that the e-learning practitioner construct embodies not only the characteristics of the person doing the job, but also the characteristics of the

job being done. To have meaning, the interactional relationship between the person and the job needs to be situated in a specific context. Influences from within the person, the job, and the context will interact and form relationships not only with the relevant system or subsystem, but also with the other systems and subsystems in the organisation. These influences can either be positive or negative and the resulting feedback loops will impact on the outcome produced by the system. Interventions in terms of capitalising on the activation of cues present in the environment may result in positively valued behaviour from the system. Since a number of possibilities are available, knowing which interventions to impose where, in order to get the valued outcome, poses a problem. Examples of possible interventions that may contribute to congruence between the two subsystems include

- changing the environment to a more supportive environment
- changing the interaction between the person and the job by changing the job characteristics
- strengthening the interaction and relationship between the person and the job by adding positive influences (motivators and releasers) as cues to activate certain characteristics of the person
- strengthening the interaction and relationship between the person and the job by decreasing negative influences (demands and distracters) as cues to activate certain characteristics of the person

It follows that if certain information about the systems' input characteristics is known and the process of interaction and the resulting relationships between the subsystems in the system are identified, it might be possible not only to pinpoint the leverage point for practical interventions, but also to uncover the nature of these interventions.

After careful consideration I decided not to include a detailed account of the planning of practical interventions as part of this study, but rather to propose practical interventions as recommendations for enhanced practice. Therefore guided by my reasoning framework and the research activities discussed in the previous paragraphs, I continued the **search** journey with a literature study to identify the characteristics of the e-learning practitioner.

Research phase 3

Research progress: Second turning point in the searching process

Pre-study activities

After a thorough literature search on the characteristics of e-learning practitioners, I came to the conclusion that many words were spoken but few prevailed. The concept 'e-learning practitioner' is not a term preferred by many authors and substitute concepts, for example online professor, online teacher, e-moderator and others were used as search words to compile records about the characteristics of the e-learning practitioner. From the literature search I analysed the information gathered in terms of categories, themes, and characteristics of the e-learning practitioner to enable me to construct a framework or preliminary taxonomy for the characteristics of e-learning practitioners. I used this preliminary taxonomy as basis for a pilot survey that was conducted at the WebCT conference in April 2004 in Stellenbosch. A synopsis of these activities is presented in the following paragraphs (refer to Chapter 2 for an in-depth discussion on these activities).

Phase 1: Pilot screening survey

The following research activities took place:

1. The **pilot questionnaire** with statements on e-learning practitioner characteristics was developed.
2. The **survey was piloted at the WebCT Conference, 5-6 April 2004, Stellenbosch.**
3. Sixty-six questionnaires **were distributed, 20 were completed.**
4. The aim of this pilot study was to

- make **contact** with e-learning practitioners
- **screen** for possible characteristics of e-learning practitioners **add** contributions from e-learning practitioners to the literature information

The response rate on the survey was 30 percent, which may be viewed as fairly satisfactory.

Phase 2: Development of an initial framework for the characteristics of the e-learning practitioner

The following research activities took place

1. **Indicators of characteristics** of practitioners derived from the WebCT survey results, as well as from the data provided by the literature study, were combined to develop an initial

framework for the characteristics of e-learning practitioners.

2. The aim of the **framework for characteristics** of e-learning practitioners that was developed was to construe a classifying scheme of indices. Analysing the responses from the participants, I realised that the classification system was too broad to be useable; I therefore started a series of discussions and brainstorming sessions with experts in the field of psychology. The aim of these sessions was to focus and streamline the framework.

The industrial psychologist from the Centre for Continuing Professional Development at TUT assisted me in the combing process. One of the main concerns was the focus of the questionnaire. The existing framework included a variety of styles, skills and person attributes. Thus the compelling question was “what is the focus area in terms of characteristics?”. We had lengthy discussions about this and taking previous and concurrent research studies into consideration we decided that it would be wise to focus on personal styles and attributes in the context of personality characteristics; the reason being that the inclusion of personal skills or competencies could subtly change the focus of the survey away from the intrinsic characteristics of the e-learning practitioner, and the participants might have focused their attention on the roles of the e-learning practitioner.

Phase C: Online survey

The following research activities took place

1. Used the new framework developed for drawing up a **questionnaire** on the characteristics of the e-learning practitioner in terms of person attributes. Tested and evaluated a questionnaire published **online** using the programme *Perception for Web*. Participants were members of the Centre for Continuing Professional Development, instructional designers from the Department of Telematic and Partners in the P@W Programme.
 - The aim was to **pilot** the questionnaire before sending it out to the online knowledge building communities on the **IT Forum** mailing list, as well as to e-learning practitioners at **South African universities**.
 - The aim of the **survey** was to obtain **self-stated importance statements** and **expert opinions** from practitioners in the field of e-learning practice. The questionnaire would guide them in their thinking and their answers would provide content to guide the researcher in synthesising their answers into mental models of elicited shared meaning about the characteristics of e-learning practitioners.
3. One method of **data analysis** for determining patterns and themes from the collected data is to conduct a factor or taxometric analysis.

- Therefore, if < 300 respondents completed the survey, do:
 - multivariate analysis: **factor** and **cluster analysis**
 - factor analysis: used to reduce the number of variables, to detect structure in the relationship between variables, and to classify cluster analysis (also called taxonomy analysis): used to identify homogenous groups of cases in a population, and encompasses a number of different classification algorithms

- If > 300 respondents completed the survey, do **taxometric analysis**
 - Taxometrics is a statistical procedure for determining whether relationships among observables reflect the existence of a latent taxon (type, species, category, entity).
 - The use of taxometric analysis to determine the latent structure of constructs is cited in the literature as a valid method for determining whether the structure under investigation is taxonic or dimensional.
 - The aim of taxonomy development is to identify latent structure, plot the taxonomy, identify taxa and characteristics of each taxon, and the profile of the e-learning practitioner.
 - However, these methods focus on specific elements present in the construct under investigation, and may lack holistic situated and contextualised descriptions of aspects of the particular construct.
 - Keeping these limitations in mind, I decided to proceed with this approach, but to enrich the data by adding qualitative data sources and including anecdotal data from the participants at TUT. After data analysis the classification scheme or taxonomy that resulted was to be applied to a case study at TUT in an attempt to integrate theory and practice.

The pilot online survey was available to participants for a trial time period of two months (November 2004 – January 2005). However, for various reasons, for example workload, pressure to participate in a mini research conference, and end-of-the-year syndrome, the response rate was very low. I also realised that no matter what the specific conditions might be, this scenario might be typical for other e-learning practitioners as well. In spite of knowing that a low response rate to online surveys and questionnaires is more the rule than the exception in the online environment, I optimistically hoped for a significant reaction, but after only a few responses to the request for

participation, I accepted the situation. This had implications for the study in terms of the proposed taxometric analysis of data. The original research goal was to collect data on the characteristics of the e-learning practitioner from relevant international knowledge-building communities (e.g. members of the ITForum discussion group). The analysed data would have been used firstly to identify whether the emerging pattern types are dimensional or taxonic and secondly to describe the profiles of each pattern type. Then, putting theory into practice by mapping the profiles of the Partners in the P@W Programme against these described profiles, it would have been possible to synthesise an in-depth description of the characteristics of the e-learning practitioner. However, for the following two reasons, I did not take that road. Firstly, although a taxometric analysis may be an excellent method for identifying a dimensional or a taxonomic classification scheme for e-learning practitioner features, it might not provide sufficient depth for an enriched description of the profiles of e-learning practitioners. Meehl (1999:165) describes taxometrics as a statistical procedure for determining whether relationships between observables reflect the existence of a latent taxon, but adds that anecdotal data should be included to add quality to taxometric research. Secondly, to conduct a valid taxometric analysis a minimum of 300 data sets is needed. I made provision for the possibility that the response rate might fail to deliver 300 data sets, and thus planned for an alternative factor analysis to cater for a smaller number of data sets. However, after the poor reaction to the pilot questionnaire, I decided that this alternative was not worthwhile. It also became apparent from the experience of my fellow researchers and colleagues that a low response rate to a call for participation in online questionnaires and surveys is a general limitation to research studies at higher education Institutions. I thus had to make a decision about the way forward.

Research phase 4

Research progress: Third turning point in the searching process

Further brainstorming sessions with colleagues and various experts from the Departments of Human Resource Management and psychologists from the Centre for Continuing Professional Development about possibilities for the way forward crystallised in the following:

- streamline the process by narrowing the focus onto existing taxonomies
- use validated, reliable and tested measuring instruments for profiling
- narrow the focus to e-learning practitioners at TUT (It would not have been a cost-effective decision to use online profiling instruments.)

The next paragraphs will elaborate on the choices made.

Streamlining the process by narrowing the focus

Patton and McMahon (1999:10) describe the intrapersonal system of the individual as “composed of several intrapersonal content influences, including gender, age, self-concept, health, ability, disability, physical attributes, beliefs, personality, interests, values, aptitudes, skills, world of work knowledge, sexual orientation, and ethnicity”. This complex intrapersonal system interacts with other interrelated systems, for example social and environmental systems, and processes between these systems are explained by means of the recursive nature of interaction within and between these systems, change over time and change (Patton & McMahon, 1999).

Through the ages, understanding human behaviour and interaction with the self, social and environmental systems has been both an intriguing and elusive endeavour. In our modern world, steamrollered by the pace and magnitude of technological advancements, human behaviour and interpersonal communication come under immense pressure to adapt to new and changing environments. Understanding how people behave and deal with their environment, especially their work environment, becomes more complex. This is illustrated by the explosion of activity in the research domains of human behaviour and industrial psychology. Research on personality in the workplace has resulted in a vast number of theories / models / taxonomies and typologies on personality types, traits and factors, for example the Big Five taxonomy, Holland’s RIASEC model, and Schutz’s FIRO-B model. Bergh and Theron (2001:310) define personology (the study of personality) as being “about the consistent and repetitive patterns of behaviour, in both unique and universal aspects. Which affect people’s functioning in the context of their environments?” They include all domains of human behaviour in the study of personality and continue by saying that

personality theories provide conceptual and integrative systems or paradigms for explaining, describing and predicting human behaviour. Every system, including personality, is defined by essential characteristics that are interrelated, and the configuration of relationships is the pattern within the system, organised from within by rules that govern their behaviour. Furthermore, Berens (1999) states that systems are "driven" to operate in certain ways. Understanding and working with the inherent operating principles can save energy. Conversely, by forcing a system to behave in ways inconsistent with its nature, we expend energy and encounter resistance.

The e-learning practitioner as a complex system interacts with the work environment system in terms of working practice. Numerous influences, for example personality traits, job demands, distracters and releasers, are constantly impacting on the dynamics of the interacting systems. "One cannot know a complex living system in any definite way, since it is constantly changing, adapting and evolving" (Berens, 1999) and it is not within the scope of this study to do a comprehensive study on human personality or human behaviour as a living system. As mentioned by Berens (1999), "systems cannot be measured, they can only be mapped by using different lenses of focus". Therefore, looking at the person attributes or essential characteristics of the e-learning practitioner, contextualised in an e-learning work environment, can for the purpose of this study best be mapped by using the lens of measuring behavioural work styles manifesting themselves in behavioural responses in the work environment.

Choosing validated, reliable and tested measuring instruments for profiling

The Thomas International Personality Profile Analysis (PPA) was chosen as the measuring instrument. The PPA has been described as "a validated, non-critical, behavioural analysis that will emphasise a person's strengths and capabilities in the work environment" (see Chapter 2 for a detailed description of the Thomas International System). Human behavioural style patterns translated into the *DISC language* describe four basic organising principles. Combinations of these factors, expressed in a variety of different ways, provide an assessment of a person's behavioural style. A DISC profile reports a style or characteristic of behaviour in a work situation. Four factors (dimensions) or "typical patterns of interaction" (Thomas Disc Systems, n.d.) of the person in his working environment are important, namely:

- "Dominance (an active positive posture in an unfriendly environment), it represents how people react to challenges;
- Influence (an active, positive posture in a favourable environment), it represents how people

influence other people to their own view point;

- Steadiness (passive agreeableness in a favourable environment), it represents how people respond to the environmental pace, and
- Compliance (a cautious, undecided response to an antagonistic environment designed to calm the degree of antagonism), it represents how people respond to rules and procedures set by others.” (Thomas Disc Systems, n.d.)

Each DISC profile shows the relevant importance of the four DISC factors in a person’s behaviour. These four factors have different properties and subtraits and may lead to more than 1400 variations of analysis (Thomas International Career Consultants, 2003). These combinations facilitate complex interpretations that report on behaviour style.

Narrowing the focus to e-learning practitioners at TUT

Although the PPA is not a clinical instrument, nor is it intended for diagnosis of abnormal behaviour, only trained registered people may perform a PPA. In South Africa, Thomas International offers their services to business organisations, not to individuals. Thus it would have been difficult, if not impossible, for me to use the PPA on a wide scale. I thus contacted the registered Thomas International analyst (industrial psychologist) employed by TUT, who liased closely with a consultant analyst from Thomas International, and we decided that it was possible to use the PPA for data capturing and analysis of the characteristics of the e-learning practitioner at TUT.

These decisions directed the study into the next research phase described in section 1.2 under the heading **Research phase 5**.

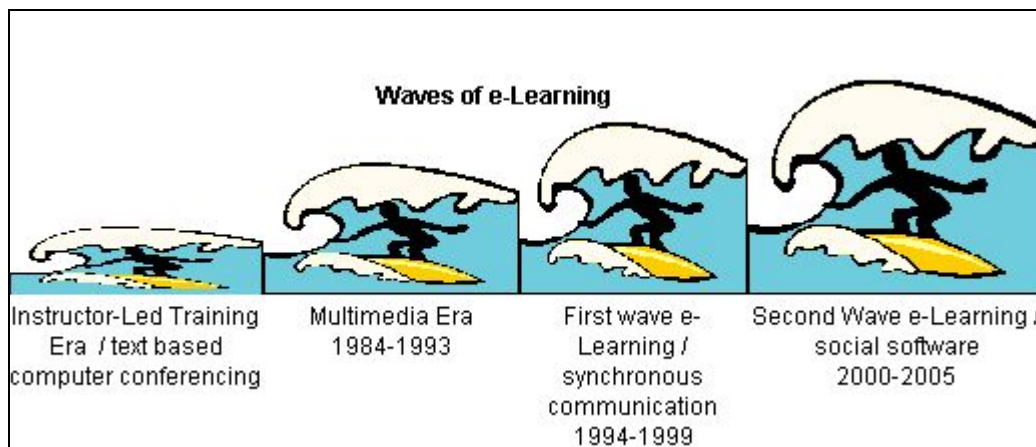
Appendix B

Appendix B1: Historic overview of e-learning development

A brief historic overview of the evolution of e-learning is necessary **to understand and position the TUT environment in an e-learning setting**. Understanding of the historic origin of current trends will contribute to an understanding of the dynamics involved in the e-learning environment that impact on the e-learning practitioner and the e-learning practice.

Generations of online teaching and learning (Dirckinck-Holmfeld, 2002 in Salmon, 2003) or **waves in e-learning** (Thomson NETg, 2005) are often used to describe the history of e-learning (see figure 2.4 for a summary of the different e-learning waves.).

Figure B1.1: Summary of generations / waves of e-learning (from Dirckinck-Holmfeld, 2002, in Salmon 2003; Thomson NETg, 2005)



The **pre-era** prior to 1983 included instructor-led initiatives and continued in the 1990s with online learning environments using asynchronous text-based computer conferencing and Internet-based training (Thomson NETg, 2005). These activities were followed by the **multimedia era** which started in 1984 and continued till 1993 (Dirckinck-Holmfeld, 2002 in Salmon 2003:3). Realisation that reading e-learning courses online lacked something, multimedia was added to bridge the gap, thus moving into the next era of hypertext and multimedia web-based teaching and learning (Dirckinck-Holmfeld, 2002, in Salmon 2003:4). Expectations to provide cost-effective Internet-based training were unfulfilled and predictions by IDC that "in 1999 of 100% annual growth rates for e-learning and a worldwide market by 2003 exceeding \$34b", were not realised (Training Foundation, 2004b:2).

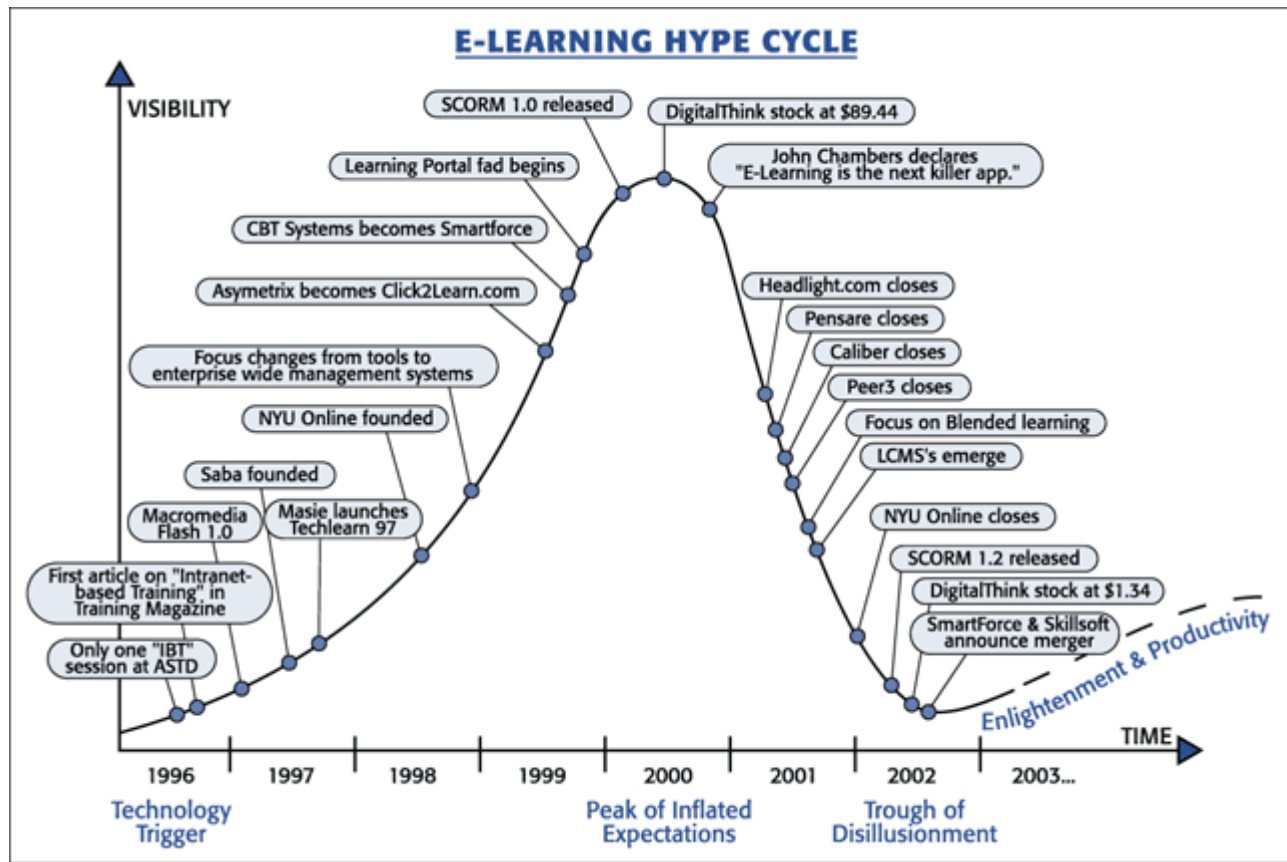
The hype around e-learning is well-known and according to Leinonen (2005:4) is a classical example of creating needs by building an e-learning industry, “even it was not proven that anyone (except the IT managers) needed these products”. The Training Foundation (2004b) identifies a number of fundamental flaws in e-learning implementation, and statements such as you cannot practise e-learning without expensive learning management software; e-learning should be driven by technology; trainers should use commercial learning content; learners should do it themselves and teachers could be replaced by technologies to save on costs were proven wrong (Training Foundation, 2004b). Many organisations realised that e-learning should be in the hands of e-learning professionals, who are concerned about the learner and who drives the teaching and learning process (Training Foundation, 2004b).

Leading to the third era in e-learning was the idea of synchronous communication (Dirckinck-Holmfeld, 2002 in Salmon 2003:4). Communication became a focus area, changing the roles of the learner and e-learning practitioner alike (Salmon, 2003:52). Developing required skills, understanding the capabilities of a diverse range of technologies, changing pedagogical approaches, designing and producing own teaching materials and moderating e-learning became priorities for the e-learning practitioner (Training Foundation, 2004a:3).

The era of social software and free and open content (Leinonen, 2005:5) integrating emerging mobile technologies brought another dimension to e-learning. Communication with learners, peers and colleagues is becoming increasingly easier with the implementation of tools such as bloggers and wikis (Leinonen, 2005:5). Initiatives to stimulate thinking about free and open content are demonstrated by projects such as Creative Commons and Wikipedia (Leinonen, 2005) and by the visionary steps taken by institutions such as MIT , and are typical illustrations of current e-learning trends.

In the debate on the current status of e-learning (Kruse, 2002; Mackintosh, 2004; Zemsky & Massy, 2004; Twigg, 2004) there are opposing views on the survival of e-learning. Kruse (2002:1) supports the idea of “waves of e-learning” and illustrates the e-learning hype cycle through the lens of Gartner’s Technology Hype Cycle (see figure 2.5). The cycle shows “unrealistic expectations, followed by a period of ambivalence from a weary and disappointed market” (Kruse, 2002:1). According to Kruse (2002:1) this is also a positive wave moving the cycle on towards enlightenment and productivity.

Figure B1.2: Gartner's Technology Hype Cycle for e-learning (Kruse, 2002)



Kruse (2002) believes that there is a symmetry to the technology curve and as it took four years to move from the triggers to the peak, it may take another four years to reach the enlightenment and productivity stage (Kruse, 2002:1). According to Kruse (2002:2) e-learning is now moving towards the stage of enlightenment and productivity and the key in this dynamic movement upwards towards productivity, impacting positively on teaching and learning, lies in **sustainability**.

However, an opposing view to Kruse's (2002) is reflected in the report by Bob Zemsky and Bill Massy (2004) on the implementation of technology at selected campuses in the United States, entitled "Thwarted innovation: What happened to e-learning and why". As pointed out by Twigg (2004), Zemsky and Massy (2004) use past tense verbs to describe e-learning, reflecting a rather negative stance. Much controversy in the e-learning community was triggered by this report and Twigg (2004) questions the expert opinion of Zemsky and Massy in the field of e-learning. She is of opinion that they are distinguished researchers but not necessarily experts in the field of e-learning (Twigg, 2004). Furthermore, Twigg (2004) is critical of Zemsky and Massy's (2004) research sample, saying that their sample is not representative of higher education in the United States of America and she concludes her article with "A little knowledge is a dangerous thing" (Twigg, 2004). However, Mackintosh (2004)

points out that the findings in the report are well-known to people practising in the field and that if organisations do not recognise the need for mixed-team efforts to develop effective e-learning resources, they are likely to experience the problems reported by Zemsky and Massey. Mackintosh (2004:1) also quotes Christensen, Aaron and Clark (2003:45) by saying that distance learning is growing at three times the rate of conventional campus-based delivery in the United States. These observations are reiterated by official US government statistics stating that the proportion of college learners using computers in their classes rose from 63 percent in 1997 to 85 percent in 2003 (NCES: 2004). Mackintosh (2004) also emphasises **sustainability** as a key issue in e-learning, and says that lessons can be learnt from past experiences: “transforming for e-learning futures by managing the tensions between sustainable economics and innovation and capitalising on significant future trends” (Mackintosh, 2004:5).

Implications for this study

Sustainability as a key issue in e-learning is important for this study in terms of environmental characteristics. Sustainable e-learning practice may contribute to a stable work environment which in turn may influence interaction with the different work behavioural styles of e-learning practitioners.

Appendix B2: Personality-orientated job analysis

Job analysis has come a long way from emphasis on task analysis to descriptions of systematic procedures for data collection on work behaviours that can be task or worker related (Harvey, 1991:72); or behaviours that interact with machines, tools or technologies, performance rating, working conditions and personnel requirements such as skills, personality traits (Harvey, 1991:73), aiming at the isolation of specific tasks, roles and responsibilities involved in the job (Bergh & Theron, 2001; Grobler, Wörnich, Carrell, Elbert & Hatfield, 2004:78). Ilgen and Hollenbeck (1991) view jobs and job roles as “represented patterns of behaviours of organisational members” and differentiate between jobs and roles in terms of established versus emergent task elements (Ilgen & Hollenbeck, 1991:172). In organisation structural terms a position is the “most basic structural entity” (Harvey, 1991:79) in an organisation, representing the collection of duties, work tasks, practical activities (elements), responsibilities and “associated contextual characteristics that are assignable to a single person, this person is termed the position incumbent” (Harvey, 1991:79). Harvey (1991:79) further points out an important difference between an incumbent, who is a real person, and the position, which is a “hypothetical construct” that can be changed at the discretion of the employing organisation. Likewise, a job is a “collection of similar positions” sharing the same job title (Harvey, 1991:79). Job analyses use positions and jobs as units of analysis, whereas the job holder frequently serves as a source of information about the position or job – the person is not the unit of analysis (Harvey, 1991:80-81). Job families are collections of jobs that share a purpose (Harvey, 1991:80), for example instructional designers and educational technologists in e-learning practice. Further conceptual groupings in terms of organisational structure are job classes and occupations.

Specific orientations may direct the job analysis process towards selected job foci, for example personality- or trait-orientated job analysis to link job descriptions and the type of person expected to perform the job well. After the purpose of the job analysis is defined, the next step in the job analysis process is to identify the core issues about the work to be done. Different taxonomies of job analysis methods, focusing on “nominal or dimensional categories” (Harvey, 1991:81), and “task- or person-oriented approaches” (Robinson, 2001) can be applied to assist in the choice of a job analysis method. Popular job analysis methods are Critical Incident Technique, Hierarchical Task Analysis, Position Analysis Questionnaire, and Fine’s Functional Job Analysis (Harvey, 1991:86; Robinson, 2001; Hartley, 2004). Outcomes such as job descriptions and job specifications are derived from the job analysis process (Grobler et al., 2004:78). Typically the job description focuses on tasks, responsibilities and duties that the incumbent must perform, whilst job specification focuses on describing the skills, knowledge and abilities that are needed to perform the job (Grobler et al.,

2004:95). According to various South African authors, renewed interest in job selection processes (and by implication job descriptions) in South Africa is the result of revised labour and employment equity legislation (Bergh & Theron, 2001:312; Grobler et al., 2004:175). Depending on the purpose and context, job descriptions may vary from broad to precise descriptions applied in various situations by human resource professionals, for example Grobler et al. (2004:90) list a number of major uses including recruitment, interviewing, orientation, training, job evaluation and salary surveys.

Modern approaches in fast-moving organisations are to assign a person to a specific project and when the project changes the person's tasks and responsibilities will change accordingly and, according to Grobler et al. (2004:104), multitasking, that is, working on more than one project simultaneously, is becoming a popular approach in many organisations. Experts agree that the worker of the "future will be far more independent and self-directed than today's" (Grobler et al., 2004:104).

Recent research in the private and public sector in South Africa has revealed that in more than 500 companies almost no use is made of flexible working arrangements, or teleworking and home-based work, which is an indication that true flexibility has not reached the South African workplace (Grobler et al., 2004:126). Would it be fair to reason that higher education institutions are displaying the same pattern and that this might be a reason for the slow adoption of the idea of virtual offices for e-learning practitioners?

Job redesign is becoming more important to organisations and the focus is shifting towards customer satisfaction and empowering employees (Grobler et al., 2004:104). "The success of the organisation depends on its employees" (Grobler et al., 2004:104) and therefore organisations should optimise on workforce benefits such as the behavioural style diversity of the workforce, person-job fit and cultural cohesion (Shelton, McKenna & Darling, 2002) This has the implication of recognising the individual's needs and reinforcing positive motivational influences (Grobler et al., 2004:105).

Models for job redesign

Recent interest in theory and research on job redesign emphasise the importance of human factors, motivational characteristics and job characteristics (Boonzaier, Ficker & Rust, 2001:11). Hackman and Oldham's (1975) job characteristic model (JCM) is well-known and is widely accepted (Parker & Wall, 1998; Kuk, Kivimaki, & Elovaino, 1999:4; Boonzaier et al., 2001:11; Thomas, Buboltz, & Winkelspecht, 2004:205). The basic JCM model presents a relationship between five job characteristics (independent variables) and personal and work relevant outcomes as dependent variables, mediated by three psychological states (Ilgen & Hollenbeck, 1991:178; Boonzaier et al., 2001:12). Three job characteristics, namely skill variety, task identity and task significance, foster the emergence of the

first critical psychological state – “experienced meaningfulness of work” (Boonzaier et al., 2001:12). The fourth job characteristic, autonomy, contributes to perceptions of “experienced responsibility for outcomes of the work” and “knowledge of results of the work activities” (Boonzaier et al., 2001:12) is determined by feedback from the job (Ilgen & Hollenbeck, 1991:178). One of the assumptions of the JCM is that the potential of a job to prompt self-generated motivation is the highest when all five job characteristics are present (Ilgen & Hollenbeck, 1991:179).

Theoretical interest in this model inspired various research studies, for example validity studies by Boonzaier et al. (2001); proposed integrated model studies (Kuk et al., 1999) and job characteristics and personality as predictors of job satisfaction (Thomas et al., 2004). Thomas et al. (2004:215) used the Job Characteristics Inventory, the Myers-Briggs Type Indicator and the satisfaction scale of the Job Diagnostic Survey to investigate the nature of the relationship between job characteristics, personality and job satisfaction. Their findings indicate that “personality had neither a direct effect on satisfaction nor a moderating effect on the job characteristics-job satisfaction relation” (Thomas et al., 2004:205). Therefore the study did not support findings from Agho et al. (1994) that “personality impacts on behavioural responses of individuals in their work environment” (Thomas et al., 2004:215). However Van den Berg and Feij (1993:337) support Agho et al.’s (1994) findings. They found that personality traits had several significant longitudinal effects on the job experience criteria, including job satisfaction.

Assessment of research on the JCM by Boonzaier et al. (2001) reveals that the Job Diagnostic Survey is the most widely used instrument in job redesign research and that the JCM has generated the most research and discussion of all the job redesign theories. However, criticism has been voiced regarding shortcomings in the model and the survey instrument. Parker and Wall (1998:14-15) comment on some of these shortcomings by saying that the model fails to identify the relationships between the outcome variables and that the model has not stood up to the empirical test. Their observations are reiterated by Boonzaier et al. (2001:23) who state that in spite the fact that the model is flawed, the model does offer directives for diagnosing work situations.

According to Boonzaier et al. (2001:14) and Parker and Wall (1998:13), the JCM is considered the most influential, well-known and widely discussed theory of job redesign. However, in their research review on this model Boonzaier et al. (2001) question the postulated relationships between job characteristics and psychological states, as well as the relationships between psychological states and personal and work outcomes (Boonzaier et al., 2001:24). In their conclusion they plead that future research goals relating to the JCM should be the “identification, definition and measurement of appropriate worker and work environment characteristics (person and environment factors) which

would account for significant amounts of variance in motivation and satisfaction beyond the influence of the job characteristics and so enhance the predictive validity and practical usefulness of the model” (Boonzaier et al., 2001:25). Research initiatives pertaining to the JCM are more focused on quantitative analysis techniques not relevant for this study, but which did however **trigger a process of analogue thinking**, with consequent job redesign implications that will be discussed in proceeding paragraphs.

Implication for this study

- Theme foci evident from the empirical research on the JCM relate to “factor structure of the job characteristics and subjective, objective and additional job characteristics” (Boonzaier et al., 2001:14).
- “Subjective ratings of job incumbents can be regarded as a sufficient and valid indicator of the extent of the job characteristics present in their jobs” (Boonzaier et al., 2001:16).
- Energy wasted on frustrating environmental factors, negatively influences the relationships between the job characteristics and work behaviour (Oldham 1976 in Boonzaier et al., 2001).
- Depending on the purpose and context, job descriptions may vary from broad to precise descriptions applied in various situations by human resource professionals (Grobler et al., 2004:89-90).
- “The success of the organisation depends on its employees” (Grobler et al., 2004:104) and therefore organisations should optimise on workforce benefits such as the behavioural style diversity of the workforce, person-job fit and cultural cohesion (Shelton et al., 2002). This implies recognising the individual’s needs and reinforcing positive motivational influences.
- Commenting on the research review conducted by Boonzaier et al. (2001), these authors concluded by saying that “according to these criteria, three dominant sets of variables constitute the world of work, namely the characteristics of the job, characteristics of the worker and characteristics of the work environment” (Boonzaier et.al. 2001:23).

The ideas embodied in the above statements inspired various reasoning and thinking processes. Analogue thinking was applied to link the Human Job Analysis (HJA) and the person-situation interactionist model to the JCM resulting in conceptualising an enriched HJA.

- HJA techniques were chosen to analyse a job that does not formally exist – the resulting job description provides a broad holistic overview of the job scope, characteristics and

structure. The aim of the study is not to design a job description for e-learning practitioners but to explore the job characteristics and their relationships in the job structure.

- The enriched HJA used the HJA technique to identify the job characteristics and factor structure of the e-learning practice.
- Subjective and objective ratings from different sources were used. Various groups of people, for example an expert focus group, specialist groups and e-learning practitioners were asked to participate in the analysis process and to give their subjective opinion on job characteristics of e-learning practice. The outcome of these analyses was an enriched HJA;
- Descriptions of trait activators as perceived by job incumbents were used.
- The outcome was presented as a broad narrative job description.
- The PPA was used to identify diverse behavioural styles in the participant group.
- HJA was applied to the results of the PPA to determine person-job fit.

With respect to the second research question, human job analysis in terms of the DISC dimensions is important for this study to describe the (1) characteristics of the e-learning practice, (2) the job profiles and (3) the job structures.

Appendix B3: Definition of personality in the work context

Globalisation and changing socio-political order influence “scientists to rethink their theories, concepts and methodologies in explaining and assessing human behaviour” (Bergh & Theron, 2001:314). Bergh and Theron continue by saying that South Africa is already showing signs of organisational restructuring and changes in the composition of the workforce in reaction on the new socio-political order, but cautioned against using cultural heritage as an excuse to exclude any existing psychological idea or practice that best explains individual differences and similarities within a certain context. The South African Employment Equity Bill (Government Gazette. Notice 1840 of 1997:23) regulates equity in the workplace and guides affirmative action strategies and other policies for empowering people. The latter must be based on principles of justice and equity. It is important to distinguish between applying individual differences optimally and being prejudiced or discriminating because of those differences (Bergh & Theron, 2001:12). Debates on the application of individual differences in job recruitment and selection processes being elitist practices need to be contextualised in terms of point of departure.

Definitions make one’s assumptions explicit, so the way in which one defines personality is quite consequential: “it affects how one selects variables when studying personality phenomena” (Saucier & Goldberg, 2003), which implies that no universally excepted definition exists. However, Bergh and Theron (2001) are of opinion that there is some agreement on a number of aspects that should be included in a definition of personality. These aspects include “external, visible and observable physical appearances, behaviour and traits”, for example personal attractiveness; “possible covert behaviours, emotions, attitudes, values, thoughts and feelings; enduring patterns”, as well as “the dynamic nature of behaviour; uniqueness”; “wholeness and differentiation in personality”; acceptance that personality refers to “a living human being able to adapt in situations” (Bergh& Theron, 2001:320).

Bergh and Theron (2001:320) provide a useful summary of definitions from the literature that successfully integrate some or all of these aspects in their definitions of personality, for example definitions from Allport, Michel, Cattell, Sullivan and Meyer. Personality described as “the dynamic organisation within the individual of those psychophysical systems that determine his characteristic behaviour and thought” (Allport, 1961:28) is a widely accepted view of the systemic, interactional and integrated nature of personality. Pervin and John (1997:4) provide a definition of personality as “those characteristics of a person that account of consistent patterns of feeling, thinking and behaving”. From a work perspective personality might be seen as those characteristics that “fit the demands of the working environment” (Bergh & Theron, 2001:320).

Assumptions and controversies with regard to personality

Assumptions about the workplace are mostly influenced by American and European schools of thought – emphasising the positivistic and empirical paradigm of human behaviour.

Influences from African and Asian cultures, which place emphasis on a metaphysical and spiritual tradition. are limited (Bergh & Theron, 2001:317-318); but in spite of a variety of approaches and controversies with regard to personality in the work environment, many commonalities in personality structure and processes exist. Examples are concepts such as traits, response, habit and type to describe personality structure or “dynamic motivational concepts” (Pervin & John, 1997:7) to describe process.

These concepts provide possibilities for comparison and differentiation between different personality theories. Some theories postulate that personality is more than the sum of the “parts” and that personality can be studied in interaction with its other subsystems and surrounding systems such as work. Other approaches such as trait theories also use elements of behaviour to explain personality. Arguments about the influence of heredity versus environment in human behaviour are well known (Pervin & John, 1997:14; Bergh & Theron 2001:317, 325).

A complete theory of personality should consider five areas of personality, namely the **structure** (i.e. “characteristics of the person and how are they organised” (Dawda, 1997), **process** (i.e. “characteristics develop and change over different contexts”), **growth** and **development**, **psychopathology** (i.e. nature and cause of disordered personality functioning) and **change** (how people change and why they resist change) (Pervin & John, 1997:5) to be able to address the issue of both individual differences and similarities and the “intra-individual complexity of personality organisation and dynamics” (Dawda, 1997). Various personality theories, based on different conceptual and integrative systems or approaches, try to explain personality and to predict human behaviour. These theories are reflected in the different definitions of personality (Bergh & Theron 2001:320-325).

Approaches to personality in the work context

A number of theories relevant for the South African work context are listed by Bergh and Theron (2001:315-319) and include:

- psychodynamic or psychoanalytic theories
- behaviouristic or learning theories

- humanistic, phenomenological, existential approaches
- factor or trait theories
- cognitive theories
- occupational-orientated personality theories
- biological perspectives
- African and other perspectives
- personality psychology and integrated science

Two of these theories are relevant for this study, namely factor or trait and occupational-orientated personality theories.

➤ **Factor or trait theories**

Many factor theories have been proposed and are the most widely used career development theories (Patton & McMahon, 1999:14). These approaches assume that human behaviour is characterised by consistent patterns of behaviour described as dimensions, traits, factors and types, and that these different capacities can be measured (Patton & McMahon, 1999:15; Bergh & Theron, 2001:375). Trait theorists agree that human behaviour and personality can be organised into a hierarchy (Pervin & John, 1997:6) where **traits** can be defined as consistent patterns of thoughts, feelings or actions that distinguish people from one another. These tendencies remain stable across the life span but the characteristics of behaviour can change considerably through adaptive processes (Carlton, 2000).

Factors can be described as higher level dimensions in a hierarchical model of the variables in the domain (Goldberg, 1999a). A number of assessment instruments, based on factor analysis, are available to identify the trait profiles of individuals (Goldberg, 1999b; Patton & McMahon, 1999:15). Although the development of many assessment instruments has been a major contribution to career counselling, criticisms have been directed toward counselling practices based solely on trait factor models (Patton & McMahon, 1999:16). Models such as the Five-Factor Model of personality; the NEO Five Factor Model and the 16 Factor model are typical of these theories (Pervin & John, 1997:258-259; Goldberg, 1999a). Type theorists such as Jung and Eysenck also developed typologies of personality (Pervin & John, 1997:144, 234, Buchanan & Huczynski, 2004:52). Jung identified two broad personality categories (extrovert and introvert) and four personality types (Buchanan & Huczynski, 2004:146). His approach focuses on the information-processing characteristics of the individual, presented as the sensing, thinking, feeling and intuition four personality types (McKenna, 2000:58). Another prominent type theorist is Eysenck, who identified two basic dimensions, extroversion/introversion and neuroticism/stability in the structure of personality (Buchanan & Huczynski, 2004:52). He added a third dimension namely 'psychotic' at a later stage and postulated

his Three-Factor Model and the Eysenck personality inventory to measure dimensions of personality (Pervin & John, 1997:234-235; McKenna, 2000:52-54).

According to Patton and McMahon (1999), empirically related models such as the Big Five and the Five Factor Model are changing the view on personality at work and offer much for the understanding of the construct of personality (Patton & McMahon, 1999:19). According to Goldberg (1993 in Pervin & John, 1997:257) “the electrifying burst of interest in the most fundamental problem of the field [is] the search for a scientifically compelling taxonomy of personality traits” However, meta-analytic research on the relationship between the Big Five factors of personality and job criteria indicates that conscientiousness and emotional stability are valid predictors across job criteria and occupational groups, and according to Salgado (1997:30), the remaining factors are valid only for some criteria and for some occupational groups.

Trait factor theory is prominent in the career development domain and the work of Frank Parsons is seen as “a lasting influence” (Patton & McMahon, 1999:12) in the field of career guidance and he is best known for his contribution to career selection. He identified three key elements of the career decision-making process (Patton & McMahon, 1999:13):

- Gaining self-understanding: each individual has unique attributes that must be understood by the person himself
- Obtaining knowledge about the world of work: for example job opportunities, requirements and conditions of success in different job areas
- Reasoning about the relations of these two groups

➤ **Occupational-orientated personality theories**

Evolution formed the static trait-and-factor theory to more developmental and dynamic approaches that assume that the principle of give and take is a feature of the **person-environment fit** approach (Patton & McMahon, 1999:19). Chartrand (1991 in Patton & McMahon, 1999:19) proposes that “the greater the congruence between personal characteristics and job requirements, the greater the likelihood of success”. Furthermore, the person and the environment change continuously in ongoing adjustments (Patton & McMahon, 1999:19).

This assumption is central to Holland’s theory of vocational choice. Building on Parson’s tradition, Holland describes his typology as a structure for organising information about jobs and people (Bimrose, n.d.). Holland’s RIASEC model defines relations and interactions between six personality types: realistic (**R**), investigative (**I**), artistic (**A**), social (**S**), enterprising (**E**) and conventional (**C**) and

environments (Holland, 1992). According to Holland (1992:26), “a person’s personality pattern is the profile of resemblances to the personality types”. He summarises types as models for assessing people to derive hypotheses about people’s career paths, organising knowledge and conceptualising personality (Patton & McMahon, 1999:22-23). Personality types may be defined by vocational interest (de Bruin, 2002) and, according to Holland’s definition, teachers may be classified as being from the *social* personality type (Holland, 1992:25). According to Patton and McMahon (1999) one assumption of Holland’s model is that “individuals seek out work environments that are compatible with their attitudes and values and that allow them to use their skills and abilities” and that interaction between the person and the environment determines behaviour (Patton & McMahon, 1999:21). Outcomes such as job satisfaction can be predicted from knowledge of personality types and environmental models (Patton & McMahon, 1999:22).

In addition to the development of a theory to predict occupational selection based on individual differences, Anne Roe developed a classification system listing eight occupational groups and six levels of occupations from which several interest inventories were developed (RCEP, 2004).

Practical applications of occupational-oriented personality theories are vocational assistance, explanation and predictions using vocational data, facilitation of career interventions and application in social and educational research (Holland, 1992).

Implication for this study

Although pure trait factor models have largely faded into more dynamic person-environment fit models, assumptions from trait factor theory that are important for this study are that

- trait factor theory does not attempt to understand the development of personality or predict human behaviour in the workplace
- it focuses on identifying personal characteristics and profiles of e-learning practitioners and the e-learning practice

Person-environment fit theory addresses the

- relationship between the characteristics of e-learning practitioner and e-learning practice
- congruence between the person and the job

Appendix B4: Person-organisational fit (P-O fit) defined

Broad definitions of P-O fit refer to P-O fit as the congruence between a person and the organisation, which suggest that there are two distinct entities, “the person (P) and the organisation (O)” (Van Vianen, 2001). Some authors treat the P and the O as independent and the relationship between them as dependent on the specific nature of the components and how the components are assessed (Van Vianen, 2001). Hollenbeck (2000) developed a theory of ‘fit’ derived from structural contingency theory, stating that an integrated theory of P-O fit should include both internal and external fit approaches. He defines internal fit as a “fit between the organisation’s structure and its own members” and external fit as a fit between the “organisation and its environment” (Hollenbeck, 2000). Hollenbeck (2000) argues that organisations can be differentiated along three dimensions of structure which interact on the one hand with the environment (external fit) and on the other hand with the members of the organisation (internal fit). Performance is determined by the interaction between the internal and external fit, “such that the lack of fit on one dimension can neutralise the otherwise positive effects of a good fit on the other dimension” (Hollenbeck, 2000). Hollenbeck (2000) identifies two main dimensions of organisational structure as being centralisation and departmentation and is of opinion that “no one structure is ideal across all environments” (Hollenbeck, 2000). For example, structures high in centralisation functioning in stable environments tend to perform best but not so efficiently in unpredictable environments. “Decentralised and divisional structures tend to perform better” [in unstructured and unpredictable environments] “because they promote flexibility” (Hollenbeck, 2000).

In the fast changing world of work, organisations not only need **efficiency**, where one type of structural configuration is applicable, but also **flexibility**, the outcome of another type of structure. To address this dilemma Hollenbeck (2000) adds another critical dimension – **adaptability**. “An adaptive structure is one that tries to achieve **responsiveness** by changing structural configurations on line in order to match the current operating environment” (Hollenbeck, 2000). According to Hollenbeck (2000), these changes involve “horizontal movement from functional to divisional departmentation, vertical movement from centralised to decentralised authority or diagonal movement across both dimensions of structure”. The three dimensions, efficiency, flexibility and adaptability are components for a good external fit (Hollenbeck, 2000).

Hollenbeck (2000) continues by saying that components of internal fit focus on dimensions such as the structure of the team or subunits, and the nature of the organisational structure impacts on the role requirements that exist in the subunits, which has implications for the type of people best suited to such roles. Thus it is important to establish the characteristics of the person to be able to describe the

internal fit in terms of structure-person fit. “In matching people to structures these dimensions can be used to understand how and why certain types of people are variable suited to different types of structures” (Hollenbeck, 2000). The structurally based model for person-organisation fit proposed by Hollenbeck (2000) using a multidimensional approach posits that for person-organisation fit, a good external fit between the **organisational structure** and **the environment** and a good internal fit between the **organisational structure** and **the members** of the organisation are needed.

According to the structural contingency theory the fit between individual characteristics and organisational characteristics influences outcomes such as work performance (Lindholm, 2003), intention to quit and job satisfaction (Cable & DeRue, 2002). In an empirical examination of Kristof’s conceptualisation of the multidimensional nature of P-O fit, Westerman and Cyr (2004:258) investigated supplementary fit (measured by values congruence and personality congruence) and needs-supplies fit (measured by work environment congruence) and found that personality congruence was a direct predictor of employee intention to remain with the organisation. Westerman and Cyr (2004:252) listed various researchers who indicated the importance of P-O fit for organisations by significant relationships between P-O fit and a number of categories (see table 2.19).

Table B4.1: Important P-O fit relationships for organisations as indicated by a number of researchers

Important P-O fit relationships for organisations	
Researchers	Category
Cable & DeRue, 2002	Relationships between P-O fit and turnover
Dawis & Lofquist, 1984; Cable & DeRue, 2002	Relationships between P-O fit and work attitudes
O’Reilly & Chatman, 1986; Cable & DeRue, 2002	Relationships between P-O fit and organisational citizenship behaviours
Posner, 1992	Relationships between P-O fit and teamwork
Posner, Kouzes & Schmidt, 1985	Relationships between P-O fit and ethical behaviour
Matteson & Ivancevich, 1982	Relationships between P-O fit and stress
Tziner, 1987	Relationships between P-O fit and work performance
Tett & Burnett, 2003	Relationships between P-O fit and job performance

But there is a gap in the research literature – no reference is made to the relationships between person-organisation fit in terms of the role of staff development or staff training programmes.

There is agreement amongst researchers and practitioners on the importance of P-O fit as a key element in maintaining a flexible and committed workforce, optimising effectiveness of the organisation (Shelton et al., 2002; Sekiguchi, 2004:184). However, there is no consensus on the operationalisation of the P-O fit construct. In an attempt to address this issue, Kristof (1996) conducted an extensive literature review and identified the following as examples of the operationalisation of P-O fit: measuring “similarity between characteristics of persons and organisations”; “goal congruence between organisational leaders and peers”; matching “individual needs and organisational systems and structures” and matching “individual personality characteristics and organisational climate’ (personality) (Sekiguchi, 2004:182). **However, little is known about “which characteristics of people and environments are crucial for establishing fit”** (Van Vianen, 2001).

These observations underline the importance of a distinct conceptualisation of relevant concepts to ensure accurate operationalisation of the construct under investigation. Clear differentiation on the **fit type** may be useful in these endeavours, for example using person-job fit type as the theoretical framework of choice to measure goodness of fit between the person characteristics of the e-learning practitioner and the characteristics of the e-learning job. Customised measuring instruments such as the PPA and the HJA may be helpful in operationalising the measurement of the similarity between the person and the job characteristics.

Person-organisation fit issues

Ryan and Kristof-Brown (2003) shift the focus back to the individual by pointing out four important issues regarding the role of personality in P-O fit assessments. They highlight the relevance of personality in P-O fit; positive and negative influences of P-O fit on personality; accuracy of fit perceptions and fit related to adaptability as key issues in P-O fit (Ryan & Kristof-Brown, 2003:263). In short this implies that because of the stability and visibility of personality over time, assessment based on personality should not change dramatically over time and therefore personality can be seen as relevant in P-O fit (Ryan & Kristof-Brown, 2003:265, 269). Information supplied by Thomas International supports Ryan and Kristof-Brown’s opinion that perceptions of misfits may sometimes lead the person to become more self-aware and even to perceive the misfit as an opportunity for self-development (Thomas International Resources, n.d.; Ryan & Kristof-Brown, 2003:273). Furthermore, misfit in one dimension may prove to be beneficial to another application.

Accuracy of fit perceptions relate to subjectivity and willingness to change, especially in the fast changing world of work where “employees will hold multiple jobs over the course of their employment” (Sekiguchi, 2004:186). Perceptions about goodness of fit relate to a variety of fit types and, as modern

organisations are dynamic and fluid, a good fit depends on the adaptability of the person in terms of their ability and motivation to adapt (change) to fit the situation (Chatman, Caldwell & O'Reilly, 1999; Ryan & Kristof-Brown, 2003:282).

On the other hand it is challenging for organisations to coordinate behavioural style diversity, person-job (P-J) fit and cultural cohesion, and “many organisations now use behavioural style and personality assessments in their screening process in order to better optimize job/person fit” (Shelton et al., 2002). In their article titled “Leading in the age of paradox: optimizing behavioural style, job fit and cultural cohesion” Shelton et al. (2002) emphasise the importance of optimisation of behavioural style diversity to the benefit of not only the individual worker but also the organisation. These authors highlight a paradox in terms of the optimisation of behavioural style, P-J fit and cultural cohesion in organisations and propose the creation of quantum organisations to bridge the gap (Shelton et al., 2002). Lindholm's (2003:130) stance supports this line of thinking by pointing out that researchers in higher education have studied a number of the component parts of P-O fit using quantitative approaches which lack subtleness in terms of the identification and “interpretation of variations between individuals and across organisational contexts” (Lindholm, 2003:130). Lindholm (2003) calls for a qualitative approach to the study of P-O fit, to enable an understanding of the “causes and consequences of people's experiences and behaviour at work” (Lindholm, 2003:130).

Person-organisation fit research

General research initiatives pertaining to higher education have focused on a variety of components of P-O fit, for example culture, climate, faculty expectations and socialisation (Lindholm, 2003:130). Cross-cultural research on P-O fit is emerging slowly and evidence of one study by Parkes, Bochner and Schneider (2001) was found. They investigated individualism and collectivism across Australian and Asian cultures. Lindholm (2003:130) points out that elements such as culture, climate and socialisation are not integrated into conceptual models of P-O fit and that there is a lack of coherence. Researchers are urged to apply **qualitative approaches** to investigate P-O fit in terms of work behavioural style (Lindholm, 2003:130), focusing on cross-cultural perspectives, simultaneous effects of fit type combinations and research on **organisational learning** and the way team members operate when they employ virtual teams as communities of practice (Andrews & Schwartz, 2002; Cascio, n.d.).

Ryan and Kristof-Brown (2003) agree with Hollenbeck's (2000) caution against a too narrow a focus on only one type of fit, considering the fact that a poor fit in one dimension may neutralise a good fit in another dimension. The idea of multiple fit possibilities not only stimulates creative thinking in terms of how these possibilities may spur research opportunities, but also creates awareness of the minefield

of complexities that exists. This is underlined by a number of P-O fit issues mentioned in the literature, which were discussed in the previous section..

Appendix C

Appendix C1: PPA Form

Example of the PPA form:

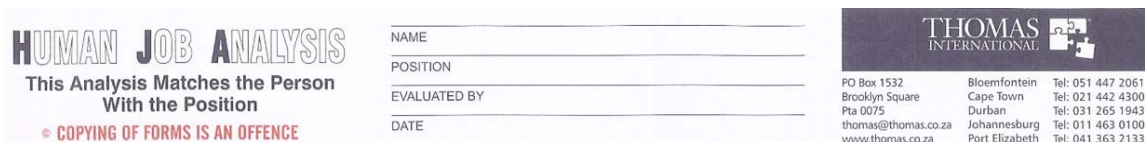
Copying forms from Thomas International is illegal therefore to represent the PPA form only the logo is displayed.



Appendix C2: HJA Form

Example of the HJA form:

Copying forms from Thomas International is illegal therefore to represent the HJA form only the logo is displayed.



Appendix C3: Face-to-face interview data sheet

Example of Face-to-Face interview data sheet

Face-to-Face interview data sheet							
Faculty	Department	Name	Identity code	Date	Comment from participant	Category	Data code

Appendix C4: Participant observation sheet for ECG meeting

Participant observation sheet for expert consensus group meeting on 24 June 2005

Participant observation sheet		
Statement number	Statement	Notes on participant behaviour and comments made by them

Appendix C5: ECG member checking and verification of the HJA

Expert consensus group (ECG) : Member checking and verification of the HJA done by the expert consensus group done on 24-29 June 2005.

Translated e-mail to invite participants from the expert consensus group to verify the constructed HJA sent on 29 June 2005

From: Hermien Johannes
To: A,B,C,D,E
Date: 29 June 2005 12:37:40 AM
Subject: Feedback on HJA

Dear colleagues

Once again many thanks for your input into the Human Job Analysis on Friday. I am sending you each a copy of the HJA as we discussed it.

HJA Graph and data sheet inserted here

This graph is only a theoretical benchmark and in order to increase its validity it is compared with "star performers" in the profession – actual benchmarks.

The process goes even further, however, and if you are interested you may take it further: **READ THE LIST OF CHARACTERISTICS BELOW** and indicate whether you agree that it is an acceptable version of the way in which you see the person who fills this position.

Descriptive words:

- Self-Starter (selfbeginner); Daring (Onverskrokke); Assertive (selfgeldend); Decisive (Beslis); Inquisitive (nuuskierig);
- Influential (invloedryk); Persuasive (oorredend); Positive (positief); Participating (deelnemend) Communicative (kommunikerend), and
- Independent (Onafhanklik); Persistent (Volhardend); Strong-willed (Wylskragtig); Firm (Ferm).
- Directing and Leading;
- Individuality – (Antagonistic situations require taking direct and positive action where there may be little or no precedent to go on. The job carries freedom to act and the authority to make decisions even when they may be unpopular), and
- Self-confidence – (Contact situations require motivating and influencing people where there is little protocol or precedent available to serve as guide. He/she may be required to commit himself/herself by taking a position or "stand" which is controversial).

The next step is to indicate one block in each descending column (the same colour) in the Master Job Graph below that best describes the characteristic that the person needs for the position (use the number for reference).

The analyst from Thomas International will then be able to draw up a profile and we can try to obtain a more complete picture from the data collected.

'MASTER JOB GRAPH INTERPRETATION' document inserted here

I would greatly appreciate your comments on this.

Kind regards

Hermien.

Appendix C6: Invitation to e-learning practitioners to participate (Char1)

Invitation to the e-learning practitioners at TUT to participate in this research study and to give their feedback on three questions (Char1)

Dear Colleague,

I am an Instructional Designer at the Tshwane University of Technology conducting a research study on the characteristics of the e-learning practitioner.

The term e-learning practitioner includes online educators, online course developers (instructional designers) and online course presenters.

Uncovering the profile of these practitioners is the primary goal of this research initiative.

It would be much appreciated if you can give your valuable input to this research inquiry by completing a "Personal Profile Analysis". The aim of this profile analysis is to get a behaviour analysis of what people think of themselves in the work situation.

Personal details are not important for this study, however if you would like to receive feedback on the Personal Profile Analysis and the Human Job Analysis please provide your details.

1. Instructions on how to complete the PPA and/or HJA are on the answer sheet.

This profile analysis should take no more than 15 minutes of your time to complete.

2. If you would like to **match your profile** with your job profile, complete the "Human Job Analysis" as well. Add your details if you would like feedback on the match

3. Participation in this study

Participation in this study is voluntary.

All the data that you provide will be handled confidentially, which means that access to your data will be strictly limited to the investigator (Hermien Johannes) and the data analyst (), registered Psychologist, from the Department of Staff Development, TUT).

The data obtained from this study will not be used to report on individual participants. Participants may request feedback on their own results for personal use.

4. Request

We would like to request your permission to do the following during and/or after the study:

- to integrate your profile results with other research findings with the aim of uncovering the characteristics of the e-learning practitioner.
- for publication as research reports
- for publication in reputable scientific journals.
- in presentations at scientific meetings (congresses)

Consent:

Do you agree to take part in this study?

YES NO

Research participant signature

Date

Thank you for your participation.

Friendly regards

Hermien Johannes.

What is/was the time period that you acted as online teaching and learning facilitator?

- a. **None**
- b. **1-6 months**
- c. **7-12 months**
- d. **13-18 months**
- e. **19-24 months**
- f. **2-3 years**
- g. **More than 3 years**

In your opinion, what are the outstanding **personal attributes (characteristics)** of an e-learning practitioner?

Appendix C7: Invitation to virtual group to participate (VG)

Invitation to the members of the Department of Telematic Education (VG) to participate in a discussion on job analysis for e-learning practitioners

From: Hermien Johannes

To: A,B,C,D,E,F,G,H

Date: 07 July 2005 12:23:56 PM

Subject: support

Dear Colleagues,

IF possible, could you please help me with answers to the following questions? I need this information for the completion of the e-learning practitioner job analysis. The following questions pertain to: Details on specific job functions of the e-learning practitioner as perceived by practitioners from the Department of Telematic Education

1. What are the specifics of acceptable or excellent performance for this job?
2. What functions will the e-learning practitioner perform?
3. Is this job essentially pro-active or re-active?
4. What are the most critical characteristics which are non-negotiable?
5. What is the management style of the person to whom the position reports?

The following questions pertain to: Star performer as perceived by practitioners from the Department of Telematic Education.

1. How would you describe a star performer in the field of e-learning practice at TUT?
2. Can you name any star performers in your faculty?

I am very dependent on your support and want to thank you sincerely for everything that you have done to help so far.

Friendly regards

Hermien

Appendix C8: Invitation to the Partners to participate (Essay)

Invitation to the Partners to participate in research activities on 17 May 2005 (essay).

Partners@Work Programme
17 May 2005

Time	Activity
08:00 – 08:30	Coffee/Tea
08:30 – 9:00	Welcome & Finalisation of arrangements for the 'Graduation'
09:00 – 11:00	Focus Group 1
11:00 – 11:15	Coffee/Tea
11:15 – 13:00	Focus Group 2
13:00 – 13:30	Lunch
13:30 – 14:30	Research projects & Individual Video Diaries
14:30 – 16:00	Project Summaries & Individual Video Diaries



Activities

17 May 2005

Assignment 3: Research assistance

Please complete the questionnaires provided with regards to your experience on the Partners@Work programme.

Appendix C9: Invitation to e-learning practitioners to participate (Blog)

Invitation to the Partners to participate in writing reflective diaries (blog).



Homework for...

...14 July 2004

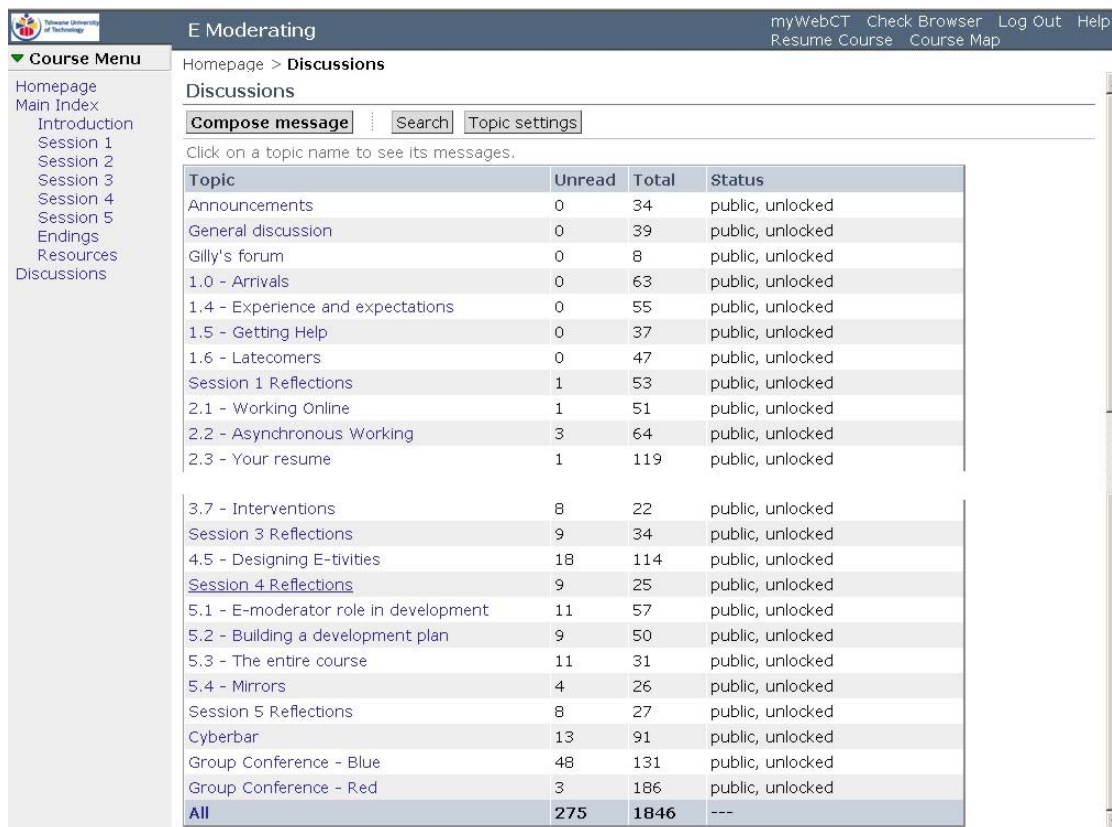
1. In your **Blogs**, reflect on your experience of today's worksession, and
2. Create links in your blog to the different items in your e-portfolio.

...20 July 2004

1. In your **Blogs**, reflect on your experience of today's worksession.
2. Complete the **survey** for Worksession 3 (13 - 14 July 2004) in WebCT.
Remembering that the surveys are *completely anonymous* – please feel free to be as critical and honest as you feel you need to be.

Appendix C10: Invitation to e-learning practitioners to participate (eMod)

Invitation to the Partners to participate in e-Moderating course discussions (eMod).



myWebCT Check Browser Log Out Help
Resume Course Course Map

E Moderating

Homepage > Discussions

Discussions

[Compose message](#) [Search](#) [Topic settings](#)

Click on a topic name to see its messages.

Topic	Unread	Total	Status
Announcements	0	34	public, unlocked
General discussion	0	39	public, unlocked
Gilly's forum	0	8	public, unlocked
1.0 - Arrivals	0	63	public, unlocked
1.4 - Experience and expectations	0	55	public, unlocked
1.5 - Getting Help	0	37	public, unlocked
1.6 - Latecomers	0	47	public, unlocked
Session 1 Reflections	1	53	public, unlocked
2.1 - Working Online	1	51	public, unlocked
2.2 - Asynchronous Working	3	64	public, unlocked
2.3 - Your resume	1	119	public, unlocked
3.7 - Interventions	8	22	public, unlocked
Session 3 Reflections	9	34	public, unlocked
4.5 - Designing E-tivities	18	114	public, unlocked
Session 4 Reflections	9	25	public, unlocked
5.1 - E-moderator role in development	11	57	public, unlocked
5.2 - Building a development plan	9	50	public, unlocked
5.3 - The entire course	11	31	public, unlocked
5.4 - Mirrors	4	26	public, unlocked
Session 5 Reflections	8	27	public, unlocked
Cyberbar	13	91	public, unlocked
Group Conference - Blue	48	131	public, unlocked
Group Conference - Red	3	186	public, unlocked
All	275	1846	---

Compiled Messages:

Message no. 40

Posted by E- Convenor (Emod) on Tuesday, October 5, 2004 09:47

Subject: Check in here regularly please!

Hi everyone,

I just wanted to suggest that this is a good discussion area to check regularly as I will be posting any general news or items here.


cheers

Econvenor

Appendix C11: Invitation to the Partners to participate (RS)

Invitation to the Partners to participate in research activities on 17 May 2005 (RS).

Partners@Work Programme 17 May 2005	
Time	Activity
08:00 – 08:30	Coffee/Tea
08:30 – 9:00	Welcome & Finalisation of arrangements for the 'Graduation'
09:00 – 11:00	Focus Group 1
11:00 – 11:15	Coffee/Tea
11:15 – 13:00	Focus Group 2
13:00 – 13:30	Lunch
13:30 – 14:30	Research projects & Individual Video Diaries
14:30 – 16:00	Project Summaries & Individual Video Diaries



Activities

17 May 2005

Assignment 1: Summaries

TUT Prepare a summary of your Partners@Work project in no less than 300 words. Include the reason why you choose to use technology in the first place (i.e. What was the problem?). Then summarise what you did, and why. Follow this up with a succinct summary of your results. End off with a paragraph identifying in short what it is that you are particularly proud of.

Add this Word document as an attachment to a message on the Bulletin Board in the Partners@Work course before 16:00 today.

These summaries will mainly be used by Corporate Relations during the course of the year as a basis for stories that will be published in eTutor and Tutor, as well as potentially in Rhythm. These are some of the internal and external communication channels of the University and will provide you with some well-deserved publicity. The summaries will also be uploaded onto the website, where we will create an archive for each year's Partners@Work group.

Appendix C12: Invitation to the Partners to participate (Char2)

Invitation to the Partners practitioners to participate in study (Char2).

“In search of the latent structure of an e-learning practitioner construct”

Thank you for your interest in this survey. I am doing research on the characteristics of the e-learning practitioner. **The term e-learning practitioner includes educators, who may include course developers, course presenters, and e-moderators who facilitate online teaching and learning processes.** Uncovering a profile of these practitioners is the primary goal of this research initiative. You are invited to participate in this survey. The 8 questions should take no more than 20 minutes of your time to complete.

Regards

Hermien Johannes.

1. Please provide your name:	2. What is/was the time period that you acted as online teaching and learning facilitator? h. None i. 1-6 months j. 7-12 months k. 13-18 months l. 19-24 months m. 2-3 years n. More than 3 years
------------------------------	---

3. In your opinion, what are the outstanding **personal attributes (characteristics)** of an e-learning practitioner.

4. In the role as **Online teacher/facilitator/e-moderator** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands; (e.g. I reacted on numerous e-mails from students by working longer hours in the evening for example I got 60 replies from students and it took me 5 extra hours to reply to them)
2. Distracters; (e.g. During an online WebCT training session the internet went down and I didn't know what to do and decided to phone my instructional designer).
3. Releasers (e.g. New knowledge about different online teaching and learning strategies activated me to change my teaching approach).

5. In the role as **Instructional designer** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;

3. Releasers.

6. In the role as **Learner/student** that you played during the Partners@Work programme, you experienced various positive and negative influences. . How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

7. In the role as **Researcher** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

8. In the role as **Manager** that you played during the Partners@Work programme , you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

Thank you for your participation.

Appendix C13: Invitation to the Partners to participate (FGQues)

Invitation to the Partners practitioners to participate in study (FGQues).

“In search of the latent structure of an e-learning practitioner construct”

Thank you for your interest in this survey. I am doing research on the characteristics of the e-learning practitioner. **The term e-learning practitioner includes educators, who may include course developers, course presenters, and e-moderators who facilitate online teaching and learning processes.** Uncovering a profile of these practitioners is the primary goal of this research initiative. You are invited to participate in this survey. The 8 questions should take no more than 20 minutes of your time to complete.

Regards
Hermien Johannes.

1. Please provide your name:	2. What is/was the time period that you acted as online teaching and learning facilitator? o. None p. 1-6 months q. 7-12 months r. 13-18 months s. 19-24 months t. 2-3 years u. More than 3 years
------------------------------	--

3. In your opinion, what are the outstanding **personal attributes (characteristics)** of an e-learning practitioner.

4. In the role as **Online teacher/facilitator/e-moderator** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands; (e.g. I reacted on numerous e-mails from students by working longer hours in the evening for example I got 60 replies from students and it took me 5 extra hours to reply to them)
2. Distracters; (e.g. During an online WebCT training session the internet went down and I didn't know what to do and decided to phone my instructional designer).
3. Releasers (e.g. New knowledge about different online teaching and learning strategies activated me to change my teaching approach).

5. In the role as **Instructional designer** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

6. In the role as **Learner/student** that you played during the Partners@Work programme, you experienced various positive and negative influences. . How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

7. In the role as **Researcher** that you played during the Partners@Work programme, you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

8. In the role as **Manager** that you played during the Partners@Work programme , you experienced various positive and negative influences. How did you react (what did you do) on:

1. Programme demands;
2. Distracters;
3. Releasers.

Thank you for your participation.

Appendix C14: Validity and reliability of PPA in South African context

Thomas International validation documents



12 April 2005

Thomas International Management Systems SA
A division of JCS Human Dynamics (Pty) Ltd – Reg No 1998/12919/07
Director: J.C. Schutte (Managing)

www.thomas.co.za

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Pretoria
0001

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Suite 201, Brookfield Park, 273 Middel Street
New Muckleneuk, Pretoria

Pretoria	(012) 346 3721 T	(012) 346 5965 F
Bloemfontein	(051) 447 2081 T	(051) 447 2061 F
Cape Town	(021) 442 4300 T	(021) 447 9139 F
Durban	(031) 265 1943 T	(031) 265 1950 F
Johannesburg	(011) 783 7474 T	(011) 884 3235 F
Port Elizabeth	(041) 363 2133 T	(041) 363 9078 F

Dear

RE: THE PPA IN THE SOUTH AFRICAN CONTEXT: REQUEST

Herewith the information regarding the academic research work in South Africa on our instruments, as requested by Tshwane University of Technology.

(a) Validation & Reliability in the International Context

Here I refer to International Resource Book by Prof Sidney H Irvine, PhD FBPS IBSN 0-9544 897-0-5.

The above publication describes and demonstrates all the various international studies and requirements for us to comply with the International Test Commission's (ITC) regulations.

I have also attached as a separate file, Prof Irvine's summary, Chapter 10 of the above publication.

(b) Research in the South African Context

Thomas International are committed to continuous research. As we are satisfied that the international studies established the construct and criterion related validity, internal consistency and test-retest reliability of the PPA under various circumstances we have chosen to focus initially on normative studies (see information provided below). In addition we have followed the draft suggestions of the International Test Commission (ITC) to ensure that we comply with international criteria of computer based assessment procedures. Our company will have a representative at the World Psychology Conference when the ITC draft criteria are expected to be adopted as standard operating procedure.

We are committed to continuous research not only to comply with the Labour Act of South Africa, but also to provide a scientifically based service to an international business community of nearly 70 000 organisations in 52+ countries across more than 40 language groups.

In terms of South African law the main questions to ask are:

(i) Has the instrument scientifically been shown to be valid and reliable?

Please see publications indicated above.

(ii) Can it be applied fairly to all employees?

Please see publications indicated above. In addition it should be noted that the instrument has been used extensively and successfully for an extended period of time in a number of different countries.

We service multinational clients, e.g. IKEA, Sony, Starwood Hotels Groups, ABB, Inter-Continental Hotels, etc.

(iii) Is it not biased against any employee or group?

Rhetorical evidence suggests that the instrument can be used with great success across different cultures. The populations of the USA, Britain and Europe are by no means culturally homogenous, and one may expect more heterogeneity between so-called Western people and Eastern cultures. Yet the PPA has been used for an extended period of time across these different cultures.

However, in South Africa we do not accept international norms on face value. The answer is already obvious, given the international usages and popularity in many countries. We have to be realistic - just as the South African White population is a cosmo-genetic world of collection, so are the black populations in the USA and England for example, also a cosmo of genetic collections. They have already been included in the academic studies and thus form part of the overall international results as published. Language "barriers" or country cultural specific interpretations can influence the constructs of our instruments and thus need regular research to adopt with changes as generations move along. A classic example would be the word "gay", used on the original UK construct that was understood as meaning happy, jovial, outgoing 20 years ago, which is today referred to as interpretation of a sexual orientation. Therefore adjustment had to be made and is continually made to keep up with the dynamics of the global world we are evolving to. In South Africa, Thomas International has embarked on an extensive research programme. Part of this exercise is to build a comprehensive database under supervision of Prof SH van Deventer. At present the database contains more than 10 000 records and we have been able to conduct preliminary research studies based on these cases. However, due to past legacies we still have insufficient numbers on some sub-groupings. At this stage the general norm for South Africa was calculated using a sample of 3738 individuals of age 20+, with an education level of 4+ and consisting of 54% Black, 28% White, 13% Coloured and 5% Indian/Asian; Gender: 54% Male and 46% Female; Education level: 52% level 4, 26% level 5, 15% level 6 and 7% NQF 7/8. Due to the database growing from industries using the PPA, we suspect that the proportion of the various racial groups corresponds with proportions found in the work environment, but we do not have empirical information to support this notion.

(c) Reasons for our present focus on norms

The PPA is an ipsative measure and concerns intra-individual comparisons. From this perspective it is irrelevant to ask for South African norms. The reason for our interest in South African norms is not to determine a norm to compare one person to another. It is to determine whether the questionnaire "works" for South Africans. From a personological perspective there is no reason to think that the questionnaire would not work. South Africans are, after all, human beings, and the PPA's Technical Manual indicates that the test "works" for human beings. However, there are practical factors that may influence the responses provided by South Africans, for example language proficiency and attitudes towards psychometric evaluation. Thus the aim of the norm study is to calculate standard scales on which to plot South African profiles.

(d) Preliminary findings

The norms we have calculated thus far support the notion that the South African standard scale deviates only slightly from the PPA standard scale. In other words, the shape of a profile plotted on the standard PPA scale would be similar to the shape of a profile plotted on the South African scale as illustrated in the table below:

Source	US Mean Hendrickson 1958	US Mean N=283 1998	UK Mean N=4083 1983-86	UK Mean N=4083 1983-86	SA Pretoria N=327 1997	SA Mean N=3738 1997	Population Std Dev 1996	SA Population Std Dev 2003
<i>Dominance_Most 1</i>	6.5	5.10	7.2	6.76	5.53	5.23	3.5	3.03
<i>Dominance_Least 2</i>	5.0	5.54	4.2	5.54	5.20	5.04	2.9	2.67
<i>Dominance_Self3</i>	1.5	-0.43	3.0	1.42	0.32	0.20	5.8	4.96
<i>Influence_Most1</i>	4.0	5.10	5.7	4.50	4.60	4.71	2.4	2.07
<i>Influence_Least2</i>	4.0	4.01	3.1	3.98	4.15	4.62	1.9	2.18
<i>Influence_Self3</i>	-0.0	1.08	2.6	0.51	0.45	0.09	3.6	3.53
<i>Steadiness_Most1</i>	4.5	5.79	4.0	5.35	4.73	4.97	2.6	2.22
<i>Steadiness_Least2</i>	6.1	5.00	6.5	5.15	5.90	5.74	2.6	2.24
<i>Steadiness_Self3</i>	-1.6	0.79	-2.5	0.20	-1.17	-0.77	4.5	3.77
<i>Compliance_Most1</i>	3.7	3.98	4.1	3.57	5.28	5.44	1.8	2.03
<i>Compliance_Least2</i>	6.5	6.25	7.7	6.54	5.05	5.41	2.3	2.23
<i>Compliance_Self3</i>	-2.8	-2.28	-3.6	-2.98	0.23	0.05	3.3	3.41

Note: Most1 refers to distribution for Most Like Me words: Least2 refers to Least Like Me word ranks: and Self3 is the sum of Most-Least rank totals.

This information clearly shows that we can concur with the following remark made by Prof Erwin in the technical resource book: "The Table is nevertheless remarkable in one respect. The averages are similar regardless of origin and have a robust consistency within limits of reliability. The last column provides an estimate of the standard deviation of the word totals. Inspection shows that the difference among the averages is not great in terms of the total variance and limits to scale reliability. Only minor adjustments to the profile graph were needed to harmonise the system with the responses of personnel in United Kingdom companies."

The fairness application of the PPA is the joint responsibility of Thomas International and the company using the instrument. The processes and procedures in which our systems are being utilised are therefore carefully considered in a consulting process between our trained and accredited consultant and our team of psychologists on the one hand, and the accredited person from the various companies on the other. The accreditation process aims to ensure that the application of our instruments complies with the fairness as regulated by the EEA.

I sincerely hope the above addressed your request relating to the PPA validation and reliability studies.

If you have any questions in this regard, please feel free to contact me and I will refer you to the relevant party/parties.

Yours sincerely

Appendix C15: Ethical clearance from the University of Pretoria

Ethical clearance from the University of Pretoria

ANNEXURE D



UNIVERSITY OF PRETORIA
FACULTY OF EDUCATION
RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE <u>DEGREE AND PROJECT</u>	CLEARANCE NUMBER : CS11/01 PhD Curriculum Studies In search of the latent structure of an e-learning practitioner construct
<u>INVESTIGATOR(S)</u>	H Johannes
<u>DEPARTMENT</u>	Curriculum Studies
<u>DATE CONSIDERED</u>	November 2005
<u>DECISION OF THE COMMITTEE</u>	APPROVED

This ethical clearance is valid for 3 years and may be renewed upon application

CHAIRPERSON OF ETHICS COMMITTEE	Dr C Lubbe
DATE	23 November 2005
CC	Prof JG Knoetze Mrs J Beukes

This ethical clearance certificate is issued subject to the following conditions:

1. A signed personal declaration of responsibility
2. If the research question changes significantly so as to alter the nature of the study, a new application for ethical clearance must be submitted
3. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

S6680/03

Appendix C16: Ethical clearance from the Tshwane University of Technology

Ethical clearance from the Tshwane University of Technology



Tshwane University
of Technology
We empower people

Ethics Committee

14 February 2005

Ref# :2004/11/027/AddendumA Name : Johannes H Student : N/a

Ms H Johannes
Telematic Education
Pretoria campus

Dear Ms Johannes

TITLE : "In search of the latent structure of an e-learning practitioner construct".

INVESTIGATOR : H JOHANNES

Enrolled for PhD at the University of Pretoria, Department of Curriculum Studies.

Ethics Committee letter dated 19 January 2005 refers.

Kindly **take note** that the Committee evaluated aforementioned researchers proposal on **23 November 2004** and not 23 November **2005** as incorrectly stated in the letter.

Sincere apology for any inconvenience caused in this regard.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'L Meyer', written over a faint circular stamp.

L MEYER (Ms)
Senior Administrative Officer: Ethics Committee
(Ref#2004=11=027=JohannesH=AddendumA)

cc FRC Chairperson: N/a
HOD: N/a
Faculty Officer: N/a
Other: N/a

We empower people

Appendix C17: Application for research approval

Approval of research involving human respondents from the Tshwane University of Technology

19 January 2005

Ref# : 2004/11/027 Name : Johannes H Student : N/a
--

Ms H Johannes
Telematic Education
Pretoria campus

Dear Ms Johannes

TITLE : "In search of the latent structure of an e-learning practioner construct".

INVESTIGATOR : H JOHANNES

Enrolled for PhD at the University of Pretoria, Department of Curriculum Studies.

Thank you for submitting the proposal for Ethics Committee notification.

The Ethics Committee of Tshwane University of Technology, on 23 November 2004, has taken note of your enrollment at the University of Pretoria for your PhD studies.

The Committee wishes you well with your research.

Yours sincerely,



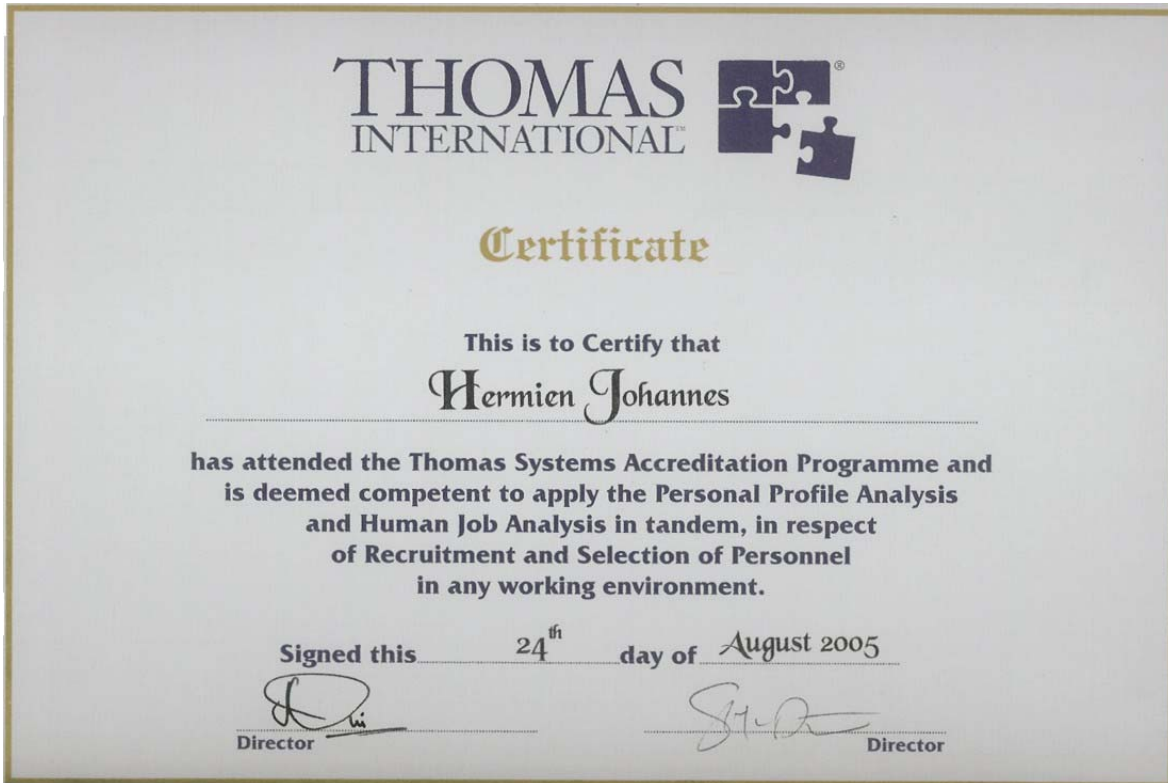
D DU TOIT (Prof)
Chairperson: Ethics Committee
(Ref#2004=11=027=JohannesH)

cc FRC Chairperson: N/a
HOD: N/a
Faculty Officer: N/a
Other: Mrs A Bothma

We empower people

Appendix C18: Thomas International (TI) certification

Thomas International certification



Appendix C19: Consent form: Partners

Consent form: Partners

“In search of the latent structure of an e-learning practitioner construct”

Dear Partner,

I am an Instructional Designer at the Tshwane University of Technology conducting a research study on the characteristics of the e-learning practitioner.

The term e-learning practitioner includes online educators, online course developers (instructional designers) and online course presenters. Uncovering the behavioural profile of these practitioners in a work situation is the primary goal of this research initiative.

It would be much appreciated if you can give your valuable input to this research inquiry by:

- completing a “Personal Profile Analysis” form. The completed form will be analysed by a computerised system from Thomas International under the supervision of Me Mariana Pretorius (registered industrial psychologist, from the Centre of Continuing Professional Development, TUT). The aim of this profile analysis is to analyse work behaviour in terms of what people think of themselves in the work situation. The profile obtained from the analysis will be generated by the computerised system into a printed report. The data from the profile reports will be used as research data. **Personal details are not important for this study, however if you would like to receive feedback on the Personal Profile Analysis (PPA) and the Human Job Analysis (HJA), please provide your details.**
- completing the 8 questions on the attached questionnaire. This questionnaire should take no more than 20 minutes of your time to complete.

1. **Instructions** on how to complete the PPA and/or HJA are on the answer sheet. This profile analysis should take no more than 15 minutes of your time to complete.

2. If you would like to **match your profile** with your job profile, complete the “Human Job Analysis” as well. Add your details if you would like feedback on the match

3. Participation in this study

Participation in this study is voluntary and you may withdraw from the research project at any time.

All the data that you provide will be handled confidentially, which means that access to your data will be strictly limited to the investigator (Hermien Johannes) and the data analyst, Me Mariana Pretorius, registered industrial psychologist, from the Centre of Continuing Professional Development, TUT.

The data obtained from this study will not be used to report on individual participants. Participants may request feedback on their own PPA/HJA results for personal use.

4. Request

We would like to request your permission to do the following during and/or after the study:

- to integrate your profile results with other research findings with the aim of uncovering the characteristics of the e-learning practitioner;
- to use excerpts from your answers to the open-ended questions stated in the attached questionnaire. These excerpts will be used anonymously and your name or any indication of your identity will not be revealed.
- to use direct quotations from your reflective notes on your experiences as Partner in the P@W Programme to illustrate aspects of the e-learning practitioner profiles. These excerpts will be used anonymously and your name or any indication of your identity will not be revealed.
- to use research findings for publication as research reports;
- to use research findings for publication in reputable scientific journals, and
- for presentations at scientific meetings (congresses)

Consent:

If you are willing to participate in this study, please sign this letter as a declaration of your consent, i.e. that you participate in this project willingly and that you understand that you may withdraw from the research project at any time. Participation in this phase of the project does not obligate you to participate in follow up individual interviews, however, should you decide to participate in follow-up interviews your participation is still voluntary and you may withdraw at any time. Under no circumstances will the identity of interview participants be made known to any person including any person, group or interested parties from TUT.

Do you agree to take part in this study?

YES

NO

Research participant's signature

Date

Researcher's signature

Date

Thank you for your participation.

Friendly regards

Hermien Johannes.

Appendix C20: Consent form: e-Learning practitioners

Consent form: e-Learning practitioners

Dear Colleague,

I am an Instructional Designer at the Tshwane University of Technology conducting a research study on the characteristics of the e-learning practitioner.

The term e-learning practitioner includes online educators, online course developers (instructional designers) and online course presenters.

Uncovering the profile of these practitioners is the primary goal of this research initiative.

It would be much appreciated if you can give your valuable input to this research inquiry by completing a "Personal Profile Analysis". The aim of this profile analysis is to get a behaviour analysis of what people think of themselves in the work situation.

Personal details are not important for this study, however if you would like to receive feedback on the Personal Profile Analysis and the Human Job Analysis please provide your details.

1. **Instructions** on how to complete the PPA and/or HJA are on the answer sheet.

This profile analysis should take no more than 15 minutes of your time to complete.

2. If you would like to **match your profile** with your job profile, complete the "Human Job Analysis" as well. Add your details if you would like feedback on the match

3. Participation in this study

Participation in this study is voluntary.

All the data that you provide will be handled confidentially, which means that access to your data will be strictly limited to the investigator (Hermien Johannes) and the data analyst (), registered Psychologist, from the Department of Staff Development, TUT).

The data obtained from this study will not be used to report on individual participants. Participants may request feedback on their own results for personal use.

4. Request

We would like to request your permission to do the following during and/or after the study:

- to integrate your profile results with other research findings with the aim of uncovering the characteristics of the e-learning practitioner.
- for publication as research reports
- for publication in reputable scientific journals.
- in presentations at scientific meetings (congresses)

Consent:

Do you agree to take part in this study?

YES NO

Research participant signature

Date

Thank you for your participation.

Friendly regards

Hermien Johannes.

Appendix C21: Validity and reliability of the TI System Instruments

Validity and reliability of the Thomas International System Instruments (Source: International Resource Book by Prof Sidney H Irvine, PhD FBPS IBSN 0-9544 897-0-5).

CHAPTER 10

The Personal Profile Analysis Technical Resource Book: Summary and Discussion

By 1997, the stage had been set for the revalidation of Personal Profile Analysis by the creation of the experimental forms Assertive(D) Personable(i) Nurturant(S) Quiet(C) (APNQ) and The Job Satisfaction/Job Prescription Profile and the Thomas International Employee Evaluation Form. These instruments were capable of addressing critical aspects of Personal Profile Analysis reliability; and content, convergent, construct and criterion validity. With the contribution of other materials that were not derivatives of the original Personal Profile Analysis, including The Air Force (Christal) Self Description Inventory, The (Irvine) Self Inventory the Biological Adaptation to Night and Day Situations and Health-Related QoL at Work, an extensive reference framework for restandardisation was in place.

There is perhaps only one technical point to address here. I hope readers will be able to tolerate a small but critical parenthesis. This particular array of instruments not only meant that the qualities in Personal Profile Analysis could be assessed by quasi-parallel forms (APNQ and JSP). They could also be assessed by measures that were normative, and not ipsative in origin. The Air Force (Christal) Self Description Inventory and The Self-Inventory are both Tupes-Christal Big Five Theory inventories using rating scales and not, as in Personal Profile Analysis ranking methods. In short in the revalidation of Personal Profile Analysis we were able to appraise multi-traits by multi-methods, a classical research paradigm seldom achieved in real life.

Towards the end of Part 3 the full impact of these studies becomes apparent. Briefly, reliability estimates, whether internal consistency or parallel form, are not only good in the main, they are always very consistent, regardless of context. D is always reliable as are I and S. The C scale has not always emerged as consistently reliable as the others, but it is, as Marston reveals, a complex construct worthy of more research. The APNQ C scale has proved more consistent with improved reliability; but it was made with the benefit of hindsight.

The validity studies are as thorough and as rigorous as modern methods will permit. Broad pictures are provided through data reduction methods. The factors underlying the strengths of Personal Profile Analysis are always present and consistent. In short, the Dominance vs. Compliance/Quietude and Influence vs. Steadiness/Nurturance bipolar domains are the 'generic inheritance' of Personal Profile Analysis in all its forms and isomorphs. The availability of the Tupes-Christal Big Five Theory inventories reveal that Personal Profile Analysis is not marked by other personality domains such as Cognitive Habit of Mind or Neuroticism. These are qualities that Personal Profile Analysis does not pretend to surface in individuals because it is not a global psychometric personality test restricted to psychologists.

For all its apparent simplicity as a means of conducting a structured interview, Personal Profile Analysis proves to be indicative of an intuitively certain and scientifically verifiable array of behaviours present in other inventories. The extensive definitional studies using the large sample sizes to regress items against Dominance Influence Steadiness and Compliance word tallies (Graph3) have had a major impact on the revalidation process. In table after table, in Chapter 8, the positive and negative weight items provide complete independent definitions of what the word choices portend for the same

set of subjects. People who choose certain words in Dominance Influence Steadiness and Compliance can be relied upon to define their actions in the other items presented in different instruments.

These definitions are not unique to one mode or cultural context of form completion. The paper-and-pencil and computer-delivered cohorts were very similar in the behaviours endorsed. The same definitions emerged when the Dutch and Turkish samples were combined at the risk of confounding translations and cultures.

This was a central event in the revalidation of Personal Profile Analysis because it meant that Personal Profile Analysis had proved to have invariant qualities across modes of delivery, language barriers and different Tupes-Christal Big Five Theory inventories. Consequently, this resource book finally establishes Personal Profile Analysis as a consistent and, within its prescribed and limited range, valid indicator of how people see themselves in these domains; and how that vision may be described in easily understandable terms.

In retrospect, the efforts of those who have striven to perfect the product and to make it available to people with no specialist psychological training have been vindicated by these old and new studies. Technically, the revalidation of PPA has proven to be a worthwhile research enterprise involving years of data collection and months of considered analyses. Others will rightfully view the results from commercial considerations. Because all the facts and inferences provide the necessary resources, they may now evaluate for themselves what Personal Profile Analysis might contribute to their own business enterprise. They will not have far to look to enable an informed judgment.

At the beginning of this section I confessed how in the early days of my association with Personal Profile Analysis I thought that it would be much easier to attack it than to defend it. There was at that time little or no verifiable evidence of its function and meaning. The research and synthesis in this The PPA Technical Resource Book need no defence; nor, in my view does the present-day user of Personal Profile Analysis - given proper training and access to professional advice whenever difficult decisions have to be made.

Finally, as long as the published employment policy and practice of the user foster a climate of equal opportunity, the careful and considered use of Personal Profile Analysis within the structured interview should provide support for both policy and practice. Not only has Personal Profile Analysis proven to be technically sound, it is also administratively convenient: and, in the hands of a discerning and sensitive user, should prove to be politically defensible. Personal Profile Analysis has finally come of age with the publication of this resource book.

Appendix C22: Preliminary taxonomy survey forms

Preliminary Taxonomy survey forms

"What is an e-learning practitioner?"- Survey

Thank you for participating in this survey.

I am a PhD student from the University of Pretoria conducting a research study on the characteristics of the e-learning practitioner.

The term e-learning practitioner includes online lecturers, online course developers and online course presenters.

Uncovering the profile of these practitioners is the primary goal of this research initiative.

As a result of completing this questionnaire you will receive a free summary report on the profile of an e-learning practitioner.

The questionnaire should take no more than 15 minutes of your time to complete.

Please respond to this questionnaire by 8/04/2004 in order to receive your **free results** report.

Email johannesh@tut.ac.za if you would like to receive a Word document of the survey for your review.

Regards

Hermien Johannes.

Please create a unique ID code by using your email address

Which title most closely matches your current job?

- a. Higher Education - Instructional designer
- b. Higher Education – Lecturer
- c. Higher Education - Student
- d. Higher Education - Support Staff

- e. Higher Education – Administration
- f. Higher Education - Curriculum specialist
- g. Higher Education - Online facilitator
- h. Higher Education - Courseware developer
- i. Higher Education - Technical Staff
- j. Primary School – Teacher
- k. Secondary School – Teacher
- l. Self-Employed
- m. Not applicable/Prefer not to say

Do you make use of a learning management system?

- a. Yes
- b. No
- c. Prefer not to say

If you answered "No" or "Prefer not to say" on the previous question please proceed to question 4. If you answered "Yes" on the previous question please proceed to question 1 "

question 1

Select the learning management system that you use currently?

- a. Blackboard
- b. WebCT
- c. eCollege
- d. Other

question 2

In what capacity are you using this Learning Management System?

- a. Designer
- b. Student
- c. Teaching assistant
- d. Other
- e. Prefer not to answer

question 3

Rate your experience as a Learning Management Systems user

- a. Power user
- b. Advanced
- c. Intermediate
- d. Novice
- e. Prefer not to say

question 4

Select all the indices (character properties) of the character profile of an e-learning practitioner that you feel are important. Please add more possibilities to the existing list in the block below.

- a. Professional knowledge and skills
- b. Technical skills
- c. Curriculum skills
- d. Management style
- e. Teaching skills
- f. Personal/affective traits
- g. Communication style
- h. Teaching style
- i. Brain preference

- j. Personality traits
- k. Learning style

question 5

Select all the technical skills that you feel are important for the e-learning practitioner .

Please add more possibilities to the existing list in the block below.

- a. Understanding site design
- b. Using a discussion board
- c. Instructional design skills
- d. Program development in the LMS
- e. Email skills
- f. Coping with new programs and packages
- g. Keyboard/mouse skills
- h. Authorising skills

question 6

Select all the curriculum skills that you feel are important for the e-learning practitioner .

Please add more possibilities to the existing list in the block below.

- a. Program development
- b. Development of course material
- c. Assessment competencies

question 7

Select all the management skills that you feel are important for the e-learning

practitioner. Please add more possibilities to the existing list in the block below.

- a. Time management
- b. Planning skills
- c. Organisational skills

question 8

Select all the teaching skills that you feel are important for the e-learning practitioner.

Please add more possibilities to the existing list in the block below.

- a. Motivating
- b. Listening
- c. Mentoring
- d. Mediating chat
- e. Active participation
- f. Creative
- g. Reflective
- h. Understanding

question 9

Select all the personal/affective skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.

- a. Patience
- b. Persistence
- c. Coping with frustration
- d. Flexibility
- e. Problem solving
- f. Coping with time demands

- g. Compassionate

question 10

Select all the communication skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.

- a. Student support
- b. Counselling skills
- c. Constant feedback
- d. Understanding language needs
- e. Focus on one-to-one communication
- f. Active approach
- g. Interpersonal skills
- h. Responsiveness
- i. Flexibility

question 11

Select all the teaching styles that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.

- a. Delegator: Concerned with developing students' capacity to function in an autonomous fashion
- b. Formal authority: Possesses status among students
- c. Facilitator: Emphasizes the personal nature of teacher-student interactions
- d. Personal model: Believes in "teaching by personal example"
- e. Expert: Possesses knowledge and expertise that students need

question 12

Select all the personality attributes that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.

- a. Take chances
- b. Prompt
- c. Does not need sleep
- d. Good sense of humour
- e. Perceptive
- f. Collaborative
- g. Adventurous
- h. Creative
- i. Motivated
- j. Adaptable

question 13

Select all the learning styles that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.

- a. Likes to: read, write and tell stories.
- b. Likes to: do experiments and figure things out,
- c. Likes to: draw, build, design and create things, daydream, and to look at pictures/slides
- d. Learns best by: rhythm, melody and music.
- e. Learns best by: touching, moving, interacting with space and processing knowledge through bodily sensations.
- f. Learns best by: studying natural phenomenon, in a natural setting, learning about how things work.
- g. Learns best by: sharing, comparing, relating, cooperating and interviewing.

- h. Learns best by working alone, individualized projects, self-paced instruction and having own space.

Thank you for your participation. Please add comments and recommendations in the block below.

Appendix D

Appendix D1: PPA and HJA form collection and analysis activities

Examples from PPA and HJA form collection and analysis activities

Table D1.1 Example of Excel data sheet for PPA and HJA form collection

Date Contacted	Mode of appointment	Appointment	Delivery mode	Received back	PPA received	PPA done	DISC	HJA received	HJA done	DISC	Notes
1/6/2027	email		Personally	yes	yes	yes	D=-1, I=5, S=-4, C=-2	no	no		
1/6/2005		9/6/2005	Personally	yes	yes	invalid	no	yes	yes	D=10, I=8, S=1, C=2	
1/6/2032	email		Personally	yes	yes	yes	D=1, I=6, S=-5, C=-2	no	no	no	
1/6/2051	email	10/6/2005	Personally	yes	yes	yes	D=3, I=-9, S=1, C=-1	no	no	no	
1/6/2053	email	10/6/2005	Personally	yes	yes	yes	D=1, I=6, S=-5, C=-4	no	no	no	
1/6/2058	email	7/6/2005, 9/6/2005	Personally	yes	yes	yes	no	no	no	no	
2005/05/23	telephone	23/5/2005	Personally	yes	yes	yes	D=-8, I=1, S=6, C=4	yes	yes	D=8, I=6, S=5, C=7	Use WebCT for quizzes, animations and multimedia in online class presentation.

Table D1.2: Summary of the TUT groups' work style combinations

TUT: style combinations	Frequency	TUT Population style combinations	Frequency	TUT excluding star performers: style combinations	Frequency	Star performers: style combinations	Frequency	Partners: style combinations	Frequency
C/IDS	1	C/IDS	1	C/IDS	1	CD/IS	1	C/SID	1
C/SDI	1	C/SDI	1	C/SDI	1	CSI/D	2	CS/DI	1
CD/IS	2	C/SID	1	CD/IS	1	D/CSI	1	CS/ID	2
CD/SI	2	CD/IS	2	CD/SI	2	D/ISC	1	CSD/I	1
CDI/S	1	CD/SI	2	CDI/S	1	DS/CI	1	DI/CS	1
CI/SD	3	CDI/S	1	CI/SD	3	IC/DS	1	DS/IC	1
CS/DI	3	CI/SD	3	CS/DI	3	ID/CS	2	ID/SC	2
CS/ID	1	CS/DI	4	CS/ID	1	SC/ID	2	IS/DC	1
CSD/I	1	CS/ID	3	CSD/I	1	SCD/I	1	S/CID	1
CSI/D	3	CSD/I	2	CSI/D	1	DC/IS	1	SD/IC	1
D/CSI	1	CSI/D	3	DI/CS	1	Total: 10	13	Total: 10	12
D/ISC	1	D/CSI	1	DIC/S	1				
D/SCI	1	D/ISC	1	DIS/C	1				
DC/IS	1	D/SCI	1	IC/DS	1				
DI/CS	1	DC/IS	1	ICD/S	3				
DIC/S	1	DI/CS	2	IS/CD	1				
DIS/C	1	DIC/S	1	ISC/D	1				
IC/DS	2	DIS/C	1	SC/DI	1				
ICD/S	3	DS/IC	1	SC/ID	3				
ID/CS	2	IC/DS	2	SCD/I	1				
IS/CD	1	ICD/S	3	SCI/D	1				
ISC/D	1	ID/CS	2	SD/IC	1				
SC/DI	1	ID/SC	2	Total:22	31				
SC/ID	5	IS/CD	1						
SCD/I	2	IS/DC	1						
SCI/D	1	ISC/D	1						
SD/IC	1	S/CID	1						
Total: 27	44	SC/DI	1						
		SC/ID	5						
		SCD/I	2						
		SCI/D	1						
		SD/IC	2						
		Total: 32	56						

Excerpt D1.1: Thank you letter to participants

From: Hermien Johannes
To: --- -- -- -- --
Date: 13 June 2005 09:42:31 AM
Subject: Thank you

Dear Colleagues,

Sincere thanks for your participation in my e-learning practitioner project. We will send you the PPA results as soon as available.

Regards

Hermien

Excerpt D1.2: Correspondence between researcher and analyst from Thomas International

From: Hermien Johannes
To: -@thomas.co.za
Date: 17 June 2005 10:32:24 AM
Subject: TUT PPA

Hallo --

-- and myself had a discussion on PPA profiles from "e-learning practitioners" at TUT and she suggested that I contact you to arrange, if possible, for a meeting between me and you. Would it be possible for us to meet before 24 June 2005 as I will be out of town from that date.

I have played around with the scores of a specific group of "e-learning practitioners" (attached) and have a few questions to you.

1. Is it possible/advisable to get a group profile on the PPA and the HJA.
2. Is it worth anything to draw up a group profile?
3. Can one make valid conclusions from a frequency list of the descriptive words assigned to each individual profile, by adding all the descriptive words from the group into one spreadsheet? By sorting the frequency of each descriptive word can one deduct that a certain factor is more dominant than the others.

I attached the spreadsheet.

If possible I would like to discuss personally different conclusions that one can draw from the PPA and HJA.

Friendly regards

Hermien

Appendix D2: Examples of Human Job Analysis

Appendices are not available online.

Appendix D3: Analysis of responses on conversational question (F2F)

Analysis of responses on conversational question asked before participants completed the PPA

Category	e-Learning practice motivators / de-motivators	Re-action / interventions from e-learning practitioner
1. Lack of infrastructure:	1. Not enough computer labs for number of students	Present classes in group sessions Stopped using WebCT Stopped using WebCT in 2001 and since then this person became re-interested only recently. Does not present multimode classes anymore.
	2. Not enough computers available for number of students	Group students together. Allocate sufficient time for students to do online work in their own time in the library or ERC's Due to improvements in the infrastructure, e-learning activities may be taken up again
	3. Computer labs are not equipped for class presentations, e.g. no data projectors, white boards	Try additional resources and ad hoc funds Utilised ad hoc funds Utilised additional resources
	4. Computer labs are not suitable for class presentations, e.g. high noise levels, bad acoustics no curtains or blinds	Try additional resources and ad hoc funds
2. Accessibility	1. Very slow internet connections.	Students use memory sticks to transfer data from the source to their own computers. Does not present multimode classes anymore. Stopped using electronic tests.
	2. Unreliable internet connections	Task groups at TUT to try and resolve technical problems. Stopped using electronic tests.
3. Static courses	1. Little student participation	Staff training to encourage the use of e-tivities. Student training Need for staff training
	2. Low level and frequency online communication	Staff training to encourage the use and quality of online communication. Student training
4. Lack of skills	1. Lack of skills and knowledge	Staff and student WebCT training and course to enhance computer literacy.
5. Participation in e-Learning practice	1. Staff development	WebCT training, e-moderating and online facilitating training.
	2. Encouragement	Encourage students and e-learning practitioners to participate
	3. Available Telematic Education support	

	4. Available project funds	
6. Multimode teaching and learning	1. Use WebCT integrated in face-to-face class presentation. .	Accepted the job challenges and kept on developing and improving courses Used communication tools to provide feedback and to identify problems Utilised available resources
	2. Use e-tests as pre and post tests	Used e-tests
7. Practical subject	1. Used visual material to stimulate process and procedural thinking skills	Successful application of multimedia. Will repeat in the future
8. Video conferencing	1. Used electronic communication for example video conferencing to enrich the teaching and learning experience for learners. .	Had several video conferencing sessions with peers internationally
	2. Used the medium to communicate academic work to peers in other locations	Had several video conferencing sessions with peers internationally
9. Time constrains	1. Too much to do in too little time	Asked for more in-depth training and to become a Partner next year Diminish pressure on person, provide extra support from TE Use additional administrative support staff
	2. Do you know of somebody who can help us to maintain WebCT courses and to develop more WebCT material.	Called for help with instructional design aspects of WebCT
10. Personal feelings	1. I love to teach	
	2. I am disillusioned with WebCT	Wanted to stop using WebCT
	3. I don't want to use WebCT any more, too much hassles	Wanted to stop using WebCT
	4. I can not guarantee quality service to the students, so I am not going to use WebCT in the next semester.	Wanted to stop using WebCT
11. Computer related problems	1. Technical problems with computers	Support from TE
	2. Problems with specific software	Support from TE
12. Personal growth	1. Learnt new skills	Personal appointment with ID to learn new skills. Eager to explore and learn more about new program facilities and new applications. Accepted the job challenges and kept on developing and improving courses. Built capacity Self-starter who took responsibility for

		own learning
	2. I learnt to use more WebCT tools	Accepted the job challenges and kept on developing and improving courses. Became more and more independent Did WebCT training
	3. I learnt new WebCT applications	Accepted the job challenges and kept on developing and improving courses. Became more and more independent Did WebCT training
13. Do not use WebCT to full capacity	1. Use only for management of marks	
	2. Use only for distribution of course material	
	3. Only developed material, did not used it actively	
	4. I want to talk to ---, one of the Partners to learn more about how to use digital content.	
14. Personal support	1. I need more personal support from the TE team.	Personal contact / support sessions with Instructional designer Needs help with instructional design aspects of WebCT courses.
	2. The TE group are too busy, I would like more support from them.	Personal appointment with ID to discuss problems Alternative support resources utilised
15. Status quo	1. Every thing is going fine	
16. Skills training	1. Use WebCT for skills training	Accepted the job challenges and kept on developing and improving electronic tests Update WebCT course regularly
	2. Use e-testing for skills training	Kept on developing and improving new e-tests in spite of numerous difficulties
	3. Use e-testing for selection of students	
17. Administrative help	1. Trained administrative person to do administrative tasks in WebCT	Trained administrative person to do administrative tasks in WebCT
18. Course development	1. Time consuming Students do not use webCT	
19. Innovations	1. Unexpected surprises	Accepted the job challenges and kept on developing and improving courses.
20. Supplementary video instruction	1 Use video to enhance teaching and learning experience	.
21. Assessment	1. Use e-testing for selection of students	Continue successful application of technology in secure environment

Appendix D4: Responses to open-ended question (Char1)

Answers from TUT e-learning practitioners to open-ended question on consent form

Number	Answers on open-ended question	Number	Answers on open-ended question
1	0	29	0
2	0	30	0
3	Patience	31	0
4	0	32	
5	0	33	Perserverence, Attention to detail, Available time
6	Enthusiasm, patience, original	34	Creative, Visionary, hands-on, Felxibile, Fearless, Open-minded, Desire to uplift others, Determined, Persistant, Willing to stand up after something does not work and try again. Not to be controleed by negative non-elearning type.
7	Patience, Clarity of thought	35	0
8	0	36	0
9	"Vermoe om te kan oordeel of die studente genoeg weet om sukses in die eksamen te behaal	37	0
10	0	38	0
11	0	39	Must enjoy doing it and be excoted about new technologies. His excitement must grow into his students, He must also participate in further reading and research regarding eL
12	Dedication	40	Persistence, creativity, self-discipine
13	0	41	Planner, time manager
14	0	42	Ondernemend, Doelgerig, Volhardend, Geduldig
15	Enthusiasm, Passion to improve skills, Creativity	43	Patience, Accommodating, Organised
16	Innovative, "Oordeelkundigheid"	44	A person without a family-life who to work is his/her life.
17	0	45	0
18	0	46	
19	Uses multiple instructional methods to teach and transfer knowledge.	47	
20	Love if teaching, Innovativeness, Wanting to make life easier and less work for bettter results	48	CD produced for Electronics 1, not using WebCT
21	0	49	0
22	0	50	0

23	Inovativeness, Creative	51	0
24	Iemand wat 'n uitdaging raaksien in oets wat hy/sy niks of bitter min van weet en dit ontwikkel	52	0
25	Effective communication and language to provide feedback. Patience and listening skills in order to know what the real problems are.	53	Openmindedness, Creativity, Disciplined
26	0	54	Innovative, Working smarter, Creative
27	Creativity	55	Curiosity, Time management
28	0	56	As admin assistant I feel that you should have outstanding organisational skills. Patience is also required

Appendix D5: Summary of descriptive words

Summary of descriptive words of the behavioural characteristics of the e-learning practitioners at TUT extracted from their PPA reports

Partners	(n)	TUT	(n)	Population	(n)
independent	6	precise	37	precise	42
accurate	5	logical	27	logical	32
logical	5	accurate	22	accurate	27
precise	5	systematic	18	thorough	22
sceptical	5	thorough	18	dependable	18
thorough	5	dependable	16	systematic	18
adaptable	4	detailed	15	detailed	17
sincere	4	serious	14	probing	17
amiable	3	cautious	13	amiable	15
direct	3	friendly	13	inquisitive	15
firm	3	inquisitive	13	serious	15
patient	3	mobile	13	assertive	14
probing	3	amiable	12	cautious	14
reflective	3	assertive	12	friendly	14
active	2	careful	12	persistent	14
analytical	2	persistent	12	careful	13
assertive	2	probing	12	mobile	13
deliberate	2	quiet	11	quiet	13
dependable	2	nonaggressive	10	sceptical	13
detailed	2	sceptical	10	direct	12
fair	2	active	9	independent	12
inquisitive	2	direct	9	nonaggressive	12
kind	2	perfectionist	9	reflective	12
non-aggressive	2	positive	9	active	11
non-antagonistic	2	reflective	9	adaptable	11
outgoing	2	restless	9	patient	11
painstaking	2	sincere	9	sincere	11
persistent	2	alert	8	analytical	10
quiet	2	patient	8	perfectionist	10
self-confident	2	specific	8	positive	10
serious	2	adaptable	7	restless	10
strong-willed	2	analytical	7	alert	9
suspicious	2	deliberate	7	deliberate	9
systematic	2	disciplined	7	kind	9
verbally influential	2	factual	7	outgoing	9
versatile	2	kind	7	tenacious	9
probing	2	loyal	7	loyal	8
accommodating	1	outgoing	7	reserved	8
alert	1	reserved	7	steady	8

articulate	1	anxious	6	stubborn	8
calm	1	eager	6	suspicious	8
careful	1	energetic	6	disciplined	7
cautious	1	forceful	6	eager	7
communicative	1	hard working	6	factual	7
competitive	1	independent	6	forceful	7
concerned	1	persuasive	6	hard working	7
confident	1	strong	6	non-demanding	7
decisive	1	stubborn	6	persuasive	7
determined	1	competitive	5	withdrawn	7
driving	1	conventional	5	anxious	6
eager	1	good listener	5	competitive	6
forceful	1	modest and peaceful.	5	energetic	6
friendly	1	non-demanding	5	strong-willed	6
gregarious	1	self starter	5	concerned	5
hardworking	1	talkative	5	conventional	5
innovative	1	concerned	4	good listener	5
investigative	1	critical	4	modest and peaceful.	5
just	1	demonstrative	4	organised	5
lenient	1	non-antagonistic	4	peaceful	5
loyal	1	organised	4	self assured.	5
methodical	1	peaceful	4	self-confident	5
objective	1	predictable	4	specialist	5
opinionated	1	specialist	4	thoughtful	5
organised	1	steady	4	confident	4
peaceful	1	tenacious	4	critical	4
perfectionist	1	confident	3	demonstrative	4
persuasive	1	diplomatic	3	lenient	4
positive	1	drive	3	non-antagonistic	4
practical	1	hesitant	3	objective	4
relaxed	1	lenient	3	predictable	4
reserved	1	objective	3	sociable	4
restless	1	results oriented	3	strong	4
self-starter	1	rule orientated	3	articulate	3
specialist	1	sociable	3	communicative	3
stubborn	1	suspicious	3	diplomatic	3
sympathetic	1	tense	3	drive	3
tenacious	1	achiever	2	fair	3
worrier	1	aloof	2	firm	3
analytical	1	articulate and communicative	2	hesitant	3
		authoritative	2	investigative	3
		communicative	2	methodical	3
		compliant	2	painstaking	3
		conservative	2	relaxed	3
		cordial	2	rule orientated	3
		demanding	2	self starter	3
		flexible	2	specialised authority	3

helpful	2	achiever	2
humble	2	aloof	2
indecisive	2	authoritative	2
influential	2	compliant	2
internally modest and peaceful	2	conservative	2
investigative	2	cordial	2
methodical	2	demanding	2
non-demonstrative	2	flexible	2
relaxed	2	gregarious	2
reliable	2	helpful	2
self-controlled	2	humble	2
suspicious	2	indecisive	2
thoughtful	2	influential	2
tough	2	internally modest and peaceful	2
blunt	1	non-antagonistic	2
considerate	1	practical	2
consistent	1	reliable	2
correct	1	self-conscious	2
domineering	1	sympathetic	2
easy going	1	talkative	2
empathetic	1	tolerant	2
enforcing	1	verbally influential	2
enthusiastic	1	versatile	2
exact	1	accommodating	1
fair	1	blunt	1
fault finding	1	calm	1
finisher	1	considerate	1
gently persuasive	1	consistent	1
genuine	1	correct	1
gregarious	1	decisive	1
impatient	1	determined	1
individualistic	1	domineering	1
initiates	1	driving	1
intolerant	1	easy going	1
introspective	1	empathetic	1
meticulous	1	enforcing	1
non-communicative	1	enthusiastic	1
non-social	1	exact	1
non-trusting	1	fault finding	1
outwardly confident	1	finisher	1
painstaking	1	gently persuasive	1
participative	1	genuine	1
practical	1	impatient	1
quick-paced	1	individualistic	1
self assured.	1	inflexible	1
self-conscious	1	initiates	1

sensitive	1	innovative	1
inflexible	1	intolerant	1
specialised authority	1	introspective	1
suspicious	1	just	1
sympathetic	1	meticulous	1
tolerant	1	non-communicative	1
withdrawn	1	non-social	1
		non-trusting	1
		opinionated	1
		outwardly confident	1
		participative	1
		quick-paced	1
		results oriented	1
		self-controlled	1
		sensitive	1
		specific	1
		tense	1
		tough	1
		worrier	1

Appendix D6: Descriptive words of the star performers

Descriptive words of the behavioural characteristics of the star performers at TUT extracted from their PPA reports

Descriptive words for "Star performers" at TUT					
active	6	authoritative	2	concerned	1
direct	6	critical	2	confident	1
precise	6	deliberate	2	demanding	1
independent	5	forceful	2	diplomatic	1
mobile	5	hesitant	2	drive	1
alert	4	impatient	2	enforcing	1
dependable	4	kind	2	humble	1
factual	4	lenient	2	individualistic	1
logical	4	loyal	2	introspective	1
reflective	4	modest	2	non-demonstrative	1
reserved	4	participative	2	non-trusting	1
self-starter	4	patient	2	outgoing	1
systematic	4	perfectionist	2	practical	1
anxious	3	persuasive	2	promoter	1
assertive	3	predictable	2	reliable	1
cautious	3	probing	2	restless	1
detailed	3	rule-orientated	2	results-orientated	1
eager	3	sceptical	2	self-assured.	1
energetic	3	specialist	2	self-controlled	1
friendly	3	specific	2	self-critical	1
gregarious	3	strongwilled	2	serious	1
non-demanding.	3	suspicious	2	sincere	1
peaceful	3	talkative	2	steady	1
persistent	3	tense	2	tenacious	1
positive	3	accurate	1	tough	1
stubborn	3	amiable	1	sincere	1
thorough	3	careful	1	steady	1
aloof	2	communicative	1	tenacious	1
analytical	2	compliant	1	tough	1

Appendix D7: VG discussion on e-learning practitioner activities

Excerpt 4.5: Example of Virtual Group discussion on e-learning practitioner activities

From: --
To: Hermien Johannes
Date: 08 July 2005 11:22:04 AM
Subject: Re: support

>>> Hermien Johannes 2005/07/07 12:23 PM >>>

Dear Colleagues, IF possible 3. Is this job essentially pro-active or re-active? Both, depending on the model that is followed by the unit that delivers this service. In the case of the Partners, we act pro-actively, in the case of all the other ad-hoc projects, it is mostly re-active. 4. What are the most critical characteristics which are non-negotiable? Dynamic personality, Leadership, Managerial ability, Ability to work well with others as part of a team, Creativity, Problem-solving nature. Knowledge, Skill and Attitude is also critical.....

1. How would you describe a "star performer" in the field of e-learning practice at TUT? A self-starter, with a dynamic, unyielding will to make this work. Someone who already believes in the benefits that technology brings, and who is willing to take a knock here and there based on the firm belief that things can be improved by means of technology. Willing to experiment, willing to change the way they teach, someone with strong planning and management abilities, and someone with heaps of innovative ideas.

Example of e-learning practitioner activity sheet compiled by a participant in the Virtual Group discussion

From: --
To: Hermien Johannes
Date: 04 July 2005 09:53:04 AM
Subject: Jou navraag (Your enquiry)

e-Learning practice at TUT				
Name	1	2	3	4
Faculty				
Roles	*		*	
1. Online Teaching/facilitating/e-moderating				X
2. Instructional design		X		
3. Research		X		
4. Management				
5. Life long learner/Student				
Applications/technologies				
WebCT:				
1. Course material distribution		X		X
2. Online Communication				X
3. E-Testing		X		X
4. Multimedia: -PowerPoint, audio, animations, video clips		X		
5. Management: student marks, assignments, tests				
Perception: e-tests for subjects				
Perception: e-tests for selection				
Video Conferencing				
DVD/Video production for tutorials, testing		X		
Other				
Difficulties in e-learning practitioner job				
Interventions to solve difficulties				

Appendix D8: Preliminary Taxonomy survey results

Preliminary taxonomy survey results

Question	Choices	Frequency (n)
Which title most closely matches your current job?	Higher Education - Instructional designer	1
	Higher Education - Lecturer	12
	Higher Education - Student	
	Higher Education - Support Staff	2
	Higher Education - Administration	
	Higher Education - Curriculum specialist	1
	Higher Education - Online facilitator	1
	Higher Education - Courseware developer	2
	Higher Education - Technical Staff	1
	Primary School - Teacher	
	Secondary School - Teacher	
	Self-Employed	11
	Not applicable/Prefer not to say	1
	Do you make use of a learning management system?	Yes
No		3
Prefer not to say		0
question 1		
Select the learning management system that you use currently?	Blackboard	2
	WebCT	14
	eCollege	
	Other	
question 2		
In what capacity are you using this Learning Management System?	Designer	14
	Student	
	Teaching assistant	1
	Other	
question 3		
Rate your experience as a Learning Management Systems user	Power user	2
	Advanced	6
	Intermediate	5
	Novice	2
	Prefer not to say	
question 4		

Select all the indices (character properties) of the character profile of an e-learning practitioner that you feel are important. Please add more possibilities to the existing list in the block below.	Professional knowledge and skills	15
	Technical skills	12
	Curriculum skills	12
	Management style	2
	Teaching skills	12
	Personal / affective traits	2
	Communication style	8
	Teaching style	8
	Brain preference	
	Personality traits	4
	Learning style	8
question 5		
Select all the technical skills that you feel are important for the e-learning practitioner . Please add more possibilities to the existing list in the block below.	Understanding site design	12
	Using a discussion board	12
	Instructional design skills	15
	Program development in the LMS	8
	Email skills	11
	Coping with new programs and packages	4
	Keyboard/mouse skills	5
	Authoring skills	2
	Extra: Webpage development	1
question 6		
Select all the curriculum skills that you feel are important for the e-learning practitioner . Please add more possibilities to the existing list in the block below.	Program development	9
	Development of course material	18
	Assessment competencies	17
question 7		
Select all the management skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Time management	15
	Planning skills	15
	Organisational skills	15
question 8		
Select all the teaching skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Motivating	14
	Listening	10
	Mentoring	14
	Mediating chat	4
	Active participation	14
	Creative	14
	Reflective	7
question 9		

Select all the personal/affective skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Patience	14
	Persistence	9
	Coping with frustration	9
	Flexibility e. Problem solving	15
	Problem solving	15
	Coping with time demands	11
	Compassionate	5
question 10		
Select all the communication skills that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Student support	14
	Counseling skills	1
	Constant feedback	14
	Understanding language needs	9
	Focus on one-to-one communication	3
	Active approach g. Interpersonal skills	5
	Interpersonal skills	6
	Responsiveness	6
	Flexibility	9
question 11		
Select all the teaching styles that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Delegator: Concerned with developing students' capacity to function in an autonomous fashion	10
	Formal authority: Possesses status among students	3
	Facilitator: Emphasizes the personal nature of teacher-student interactions	13
	Personal model: Believes in "teaching by personal example"	4
	Expert: Possesses knowledge and expertise that students need	11
question 12		
Select all the personality attributes that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Take chances	6
	Prompt	11
	Does not need a lot of sleep	
	Good sense of humour	7
	Perceptive	3
	Collaborative	10
	Adventurous	10
	Creative	13
	Motivated	17
	Adaptable	13

question 13		
Select all the learning styles that you feel are important for the e-learning practitioner. Please add more possibilities to the existing list in the block below.	Likes to: read, write and tell stories.	4
	Likes to: do experiments and figure things out.	12
	Likes to: draw, build, design and create things, daydream, and to look at pictures/slides.	5
	Learns best by: rhythm, melody and music.	
	Learns best by: touching, moving, interacting with space and processing knowledge through bodily sensations.	4
	Learns best by: studying natural phenomenon, in a natural setting, learning about how things work.	1
	Learns best by: sharing, comparing, relating, cooperating and interviewing.	14
	Learns best by working alone, individualized projects, self-paced instruction and having own space.	6

Appendix D9: Excerpts from PPA reports

Appendices are not available online.

Appendix D10: Examples from PPA and HJA fit results

Appendices are not available online.

Appendix D11: P-J fit detail

Detail for section 4.5.2.1.2

P-job fit of the TUT e-learning practitioner group and HJA (CD/SI) report for unstructured environment

Behavioural characteristics of the e-learning practitioner as lined out in the literature review were mapped and an HJA for an unstructured environment was set up and graphed by the analyst from Thomas International (discussed in section 4.4 of this study). The TUT e-learning practitioner group assessed in terms of the four DISC factors displayed 22 behavioural style combinations. The highest frequency of style combinations was in the Compliance (36.4%) factor, followed by the Dominance (27.3%), Influence (22.7%) and Steadiness (13.6%) factors (see table 4.47).

Table 4.47: Frequency of style combinations of the TUT e-learning practitioner group

Style combinations	Frequency (%) of Style combinations in each DISC factor	DISC personal profiles (reference Table 4.2)	
D			
DC			
DI	6 (27.3%)		
DIC			
DIS			
DS			
IC			
ICD			
ID	5 (22.7%)		
IS			
ISC			
S		<p>DISC personal profiles (reference Table 4.30 and Figure 4.19)</p>	
SC	3 (13.6%)		
SCD			
SD			
C			
CD			
CDI			
CI	8 (36.4%)		
CIS			
CS			
CSD			
CSI			
Total	23 (100%)		<p>CD/SI profile (reference Figure 4.27)</p>

Table 4.48: P-J fit for the TUT e-learning practitioner group : HJA (CD/SI)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
CD	4.5	4.5					
DC		2.3					
C		2.3	2.3				
CSD		4.5					
D			2.3	2.3			
SCD			6.8				
CDI			2.3				
CS			2.3	4.5			
DS				2.3			
DIC				2.3			
IC				2.3	2.3		
ICD				6.8			
CI				2.3			
DI					2.3		
ID					4.5		
SD					2.3		
SC					13.6		
CIS					4.5		
CSI					6.8		
DIS						2.3	
ISC						2.3	
IS							2.3
Total	4.5	13.6	16	22.8	36.3	4.6	2.3
	34.1				66		
Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding the star performers						
	6	5	4	3	2	1	0
CD	6.5	3.2					
C		3.2	3.2				
CSD		6.5	3.2				
SCD			6.5				
CS			3.2	6.5			
DIC				3.2			
IC				3.2			
ICD				9.7			
CI				3.2			
DI					3.2		
SD					3.2		
SC					12.9		
CIS					6.5		
CSI					3.2		
DIS						3.2	
ISC						3.2	
IS							3.2
Total	6.5	12.9	16.1	25.8	29	6.4	3.2
	35.5				64.4		

Figure A1

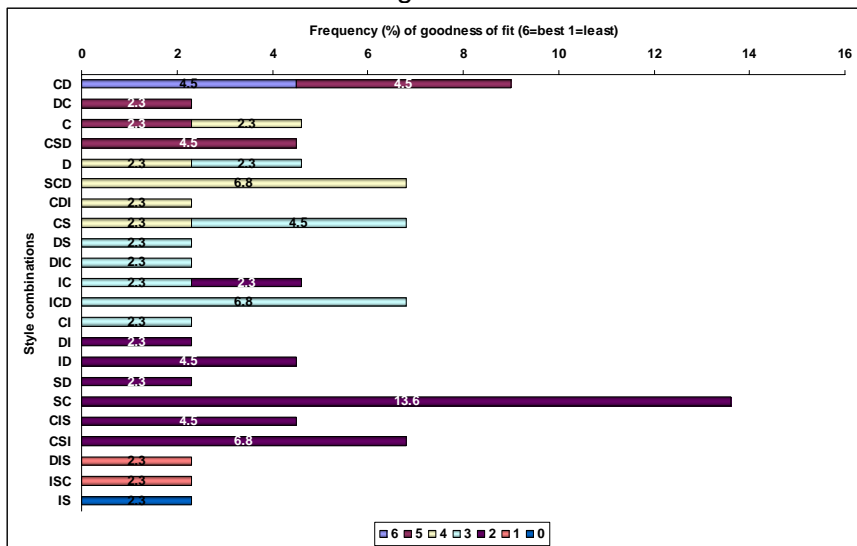


Figure A2

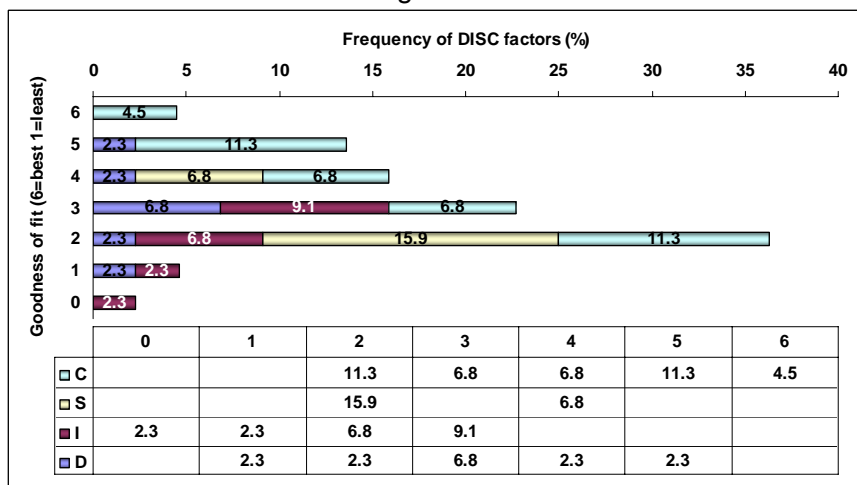


Figure B1

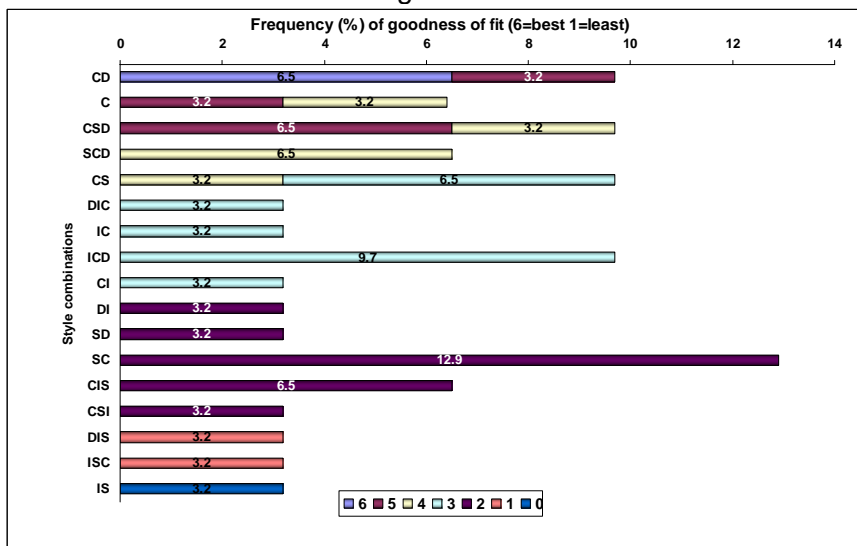
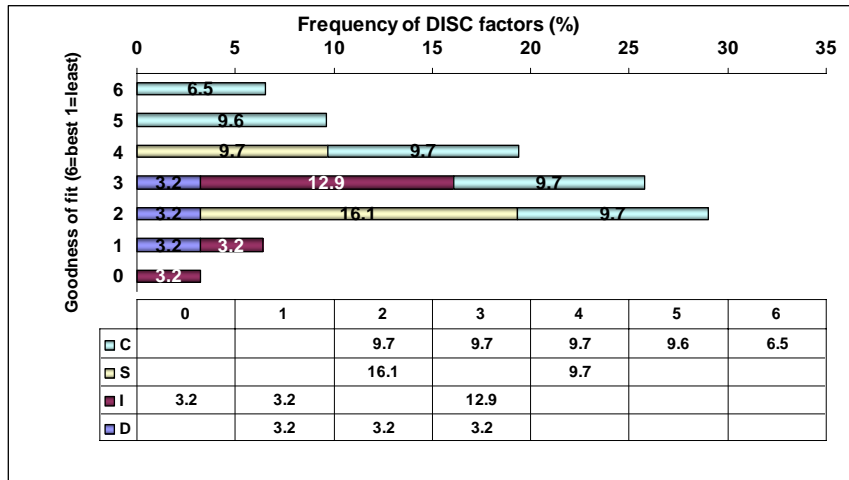


Figure B2



It is evident from the graphs in table 4.47 that the Compliance factor has the greatest strength in both the TUT e-learning practitioner group and the human job requirements for an e-learning practitioner in an unstructured environment. The TUT e-learning practitioner group shows the least strength in the Dominance factor, whereas the job under discussion calls for a stronger Dominance factor. Table 4.48 shows small variances between the fit patterns from the inclusive and exclusive e-learning practitioner groups.

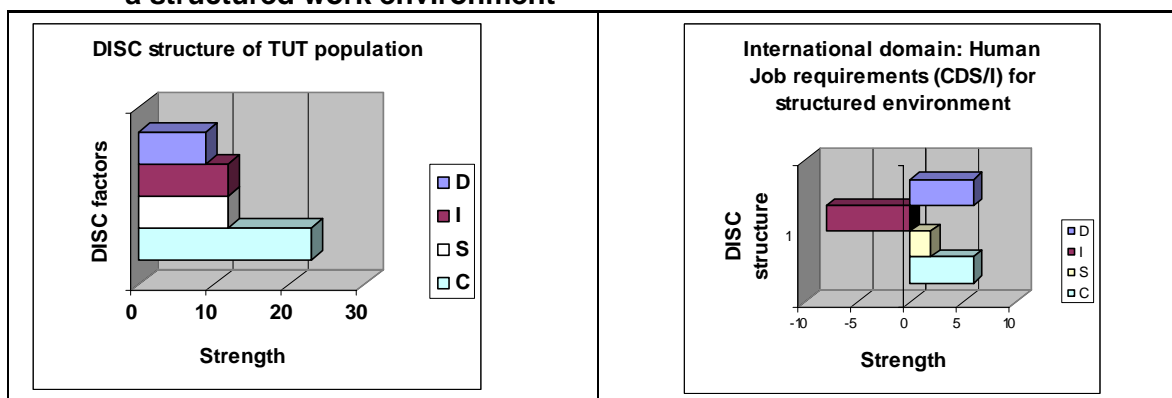
Table 4.48 shows that the Compliance factor is absent from the 0-1 score range and the only factor present in the best fit score range, which implies that profile styles in this factor tend to be more positively related to the job requirements for the CD/SI structure. The Dominance factor is distributed towards the mid range scores slightly higher than the Steadiness factor, with no extreme high or low score. The Influence factor is distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the CD/SI structure. Only a percentage of 4.5% of the profiles of the TUT e-learning practitioner group display a job fit of 6/6. These findings suggest that only 34 percent of the TUT e-learning practitioner group fall into an acceptable range for goodness of fit. Although the Compliance factor is the most prominent factor in the TUT e-learning practitioner group the Dominance factor is the least represented and also weaker than in the total population group, which means that if the job requirements call for a stronger Dominance factor presence, the majority of the TUT e-learning practitioners' behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

Detail for section 4.5.2.2.1

Person-job fit of the e-learning practitioner population and the HJA (CDS/I) report for a structured environment

Behavioural characteristics of the e-learning practitioner as outlined in the literature review were mapped and an HJA for a structured environment was set up and graphed by the analyst from Thomas International (discussed in section 4.4 of this chapter). To adapt the original CD/SI profile to a profile applicable in a structured environment, the Compliance factor was adapted to a slightly lower value and the Steadiness factor to a positive value. This resulted in a CDS/I HJA graph (see section 4.4.1.2.1). Measured against the CDS/I profile the behavioural characteristics of the TUT population as captured in the DISC personal profiles (see figure 4.39) were assessed to determine goodness of fit.. The scores for the TUT population are tabulated in table 4.53.

Figure 4.39: DISC factor distribution for TUT population vs. DISC structure for HJA (CDS/I) for a structured work environment



It is evident from figure 4.39 that the Compliance factor has the greatest strength in both the TUT population group and the human job requirements for an e-learning practitioner in a structured environment. The Steadiness factor in the TUT profile is more prominent than the one for the CDS/I HJA and the TUT population shows the least strength in the Dominance factor, whereas the job under discussion calls for a stronger Dominance factor. Table 4.53 shows a refined fit score between the TUT population and the job.

Table 4.53: Person-job fit for the TUT e-learning practitioner population and the HJA (CDS/I) for a structured environment

Styles	Frequency (%) of fit scores per style combination						
	6	5	4	3	2	1	0
CSD	5.3						
CD		3.6	3.6				
CS		3.6	7.1				
SCD		5.3					
C			1.8	3.6			
DC			3.6				
DS			1.8				
CDI				1.8			
CIS				3.6			
CSI				5.3			
D				1.8	1.8		
SC				10.7			
SD				3.6			
CI					1.8		
DIC					1.8		
ISC					1.8		
IC					1.8	1.8	
ICD					5.3		
S					1.8		
DI						3.6	
DIS						1.8	
ID						7.1	
IS						3.6	
Total	5.3	12.5	17.9	30.4	16.1	17.9	0
			35.7				64.4

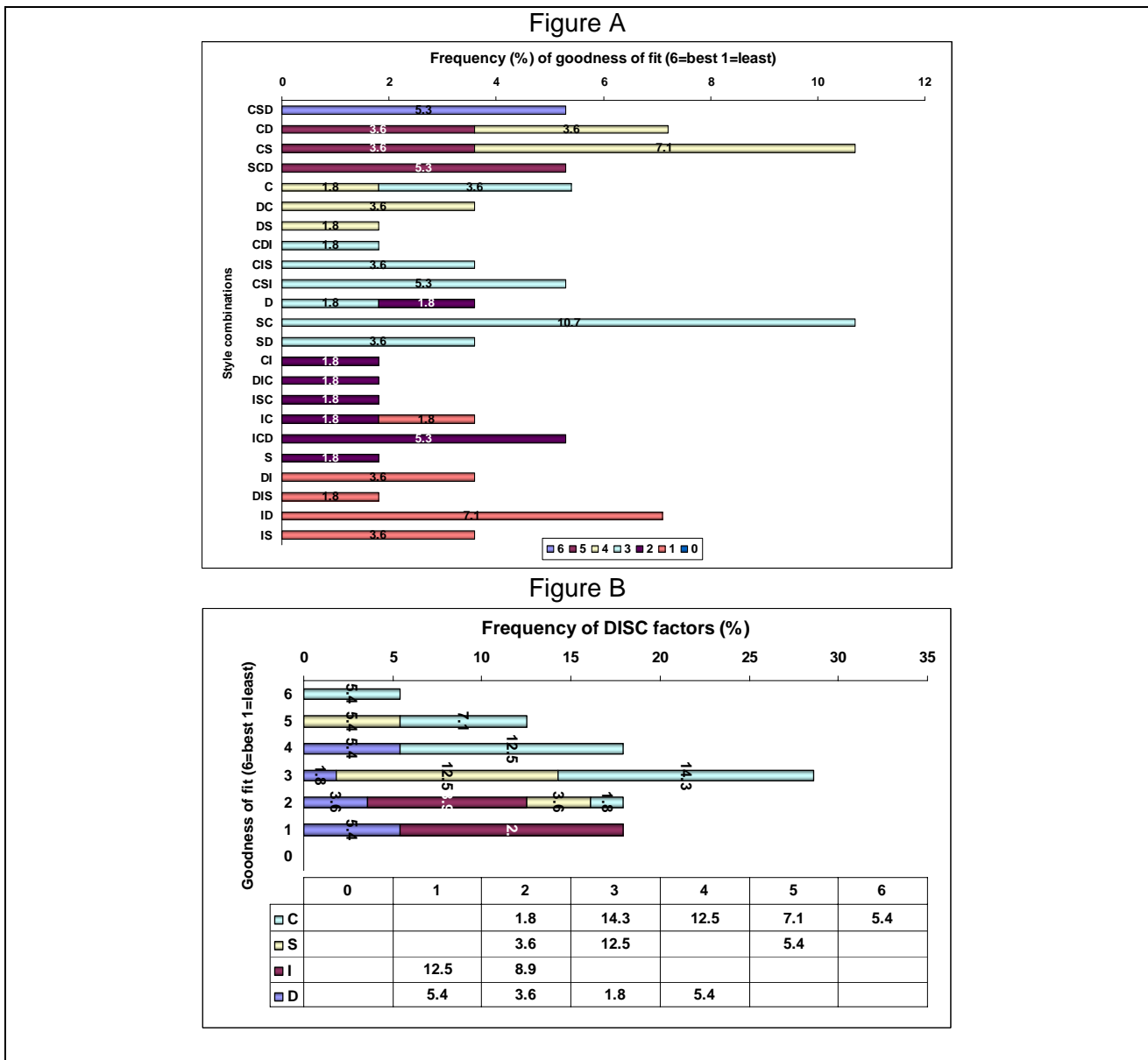


Table 4.53 shows that the best fit for the job is the high Compliance factor (style combination percentage of 5.4%), whilst other patterns of style combinations between the Compliance and Dominance and to a lesser extent the Steadiness factors show scores between five (style combination percentage of 12.5 percent) and four (style combination percentage of 17.9%) for goodness of fit. The other combinations (64.4%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in Table 4.53.

Approximately four percent from the group in the high CD and high CS and 5.3% from the group in the high SCD style combinations scored five. Percentages of 1.8% of the group in each of the high C and high DS profile groups scored in the 2-3 range, 3.6% of the group in the high CD combination and 7

percent of the group from the CS profile groups scored four. None scored in the zero range and in the 1-2 score range a variety of high D and high I style combinations represent 32 percent of the group.

Table 4.53 shows the Compliance factor is absent from the 0-1 score range and is the only factor present in the best fit score range, which implies that profile styles in this factor tend to be more positively related to the job requirements for the CDS/I structure. The Dominance factor is distributed towards the mid to low range scores, slightly lower than the Steadiness factor, with no extreme high score but present in the one low score range. The Steadiness factor is distributed towards the mid range scores, showing no extreme scores. The Influence factor is distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the CD/SI structure. Only 5 percent of the profiles of the TUT population display a job fit of 6/6. These findings suggest that only 37 percent of the TUT population fall into an acceptable range for goodness of fit. Although the Compliance factors are the most prominent and the Steadiness factors are moderately present in the TUT population, the Dominance factor is the least represented which means that if the job requirements call for a stronger Dominance factor presence the majority of the TUT population's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

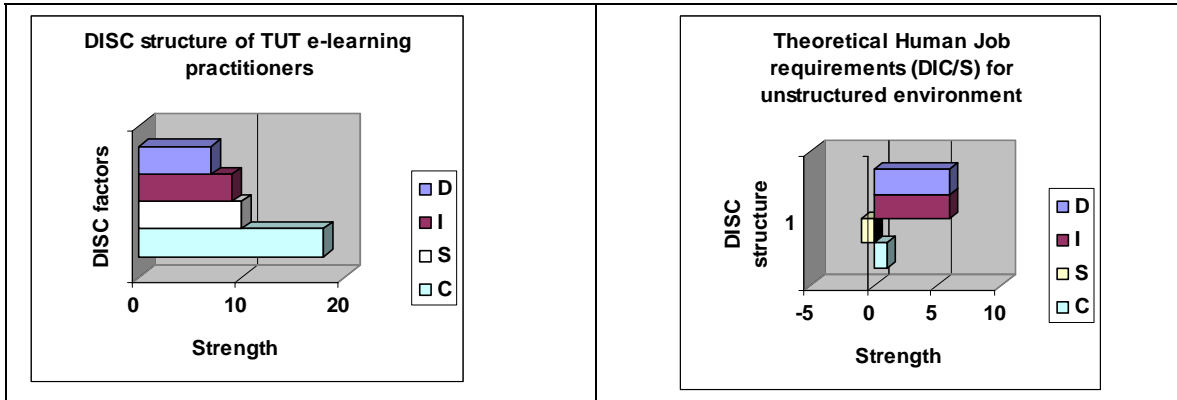
The highest frequency of best fit style combinations in the structure of the P-J fit between the TUT population and the CDS/I human job requirements is displayed in the high Compliance Dominance Steadiness style combinations. The highest frequency of least fit style combinations in the structure of the P-J fit between the TUT population and the CDS/I Human Job requirements is displayed in the high Influence style combinations.

Detail for section 4.5.2.5.2

Person-job fit of the e-learning practitioner group and the HJA (DIC/S) report for an unstructured environment

Behavioural characteristics of the TUT e-learning practitioner group captured in the PPAs were graphed and measured against the DIC/S profile to determine goodness of fit. Goodness of fit is measured on a 1-6 point scale, where six is best fit and one indicates that the person's characteristics do not seem to be in line with the requirements of the HJA. The scores for the TUT e-learning practitioner group are presented in table 4.66.

Figure 4.55: DISC factor distribution for groups at TUT vs. DISC structure for HJA (DIC/S) for an unstructured work environment



It is evident from figure 4.55 that the Dominance and Influence factors have the greatest strength in the human job requirements for an e-learning practitioner in an unstructured environment and a moderate strength in the TUT e-learning practitioner group. The Steadiness factor in the human job requirements shows the least strength but displays moderate strength in the TUT profile. The Compliance factor shows low strength in the human job requirements but the greatest strength in the TUT e-learning practitioner group. Table 4.66 shows a refined fit score between the TUT population and the job.

Table 4.66: P-J fit for the e-learning practitioner group: HJA (DIC/S)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group including star performers						
	6	5	4	3	2	1	0
DIC	2.3						
CDI		2.3					
DC		2.3					
DI		2.3					
IC		2.3	2.3				
ICD		6.8					
CD			4.5	4.5			
CI			2.3				
ID			4.5				
C				2.3	2.3		
D				4.5			
DIS				2.3			
CIS					4.5		
CSD					4.5		
CSI					6.8		
DS					2.3		
ISC					2.3		
SCD					6.8		
CS						6.8	
IS						2.3	
SC						13.6	
SD						2.3	
Total	2.3	16	13.6	13.6	29.5	25	0
			31.9				68.1

Table 4.66: P-J fit for the e-learning practitioner group: HJA (DIC/S) (continued)

Styles	Frequency (%) of fit scores per style combination from e-learning practitioner group excluding star performers						
	6	5	4	3	2	1	0
DIC	3.2						
CDI		3.2					
DI		3.2					
IC		3.2					
ICD		9.7					
CD			3.2	6.5			
CI			3.2				
C				3.2	3.2		
DIS				3.2			
CIS					6.5		
CSD					6.5		
CSI					3.2		
ISC					3.2		
SCD					6.5		
CS						9.7	
IS						3.2	
SC						12.9	
SD						3.2	
Total	3.2	19.3	6.4	12.9	29.1	29	0
			28.9				71

Figure A

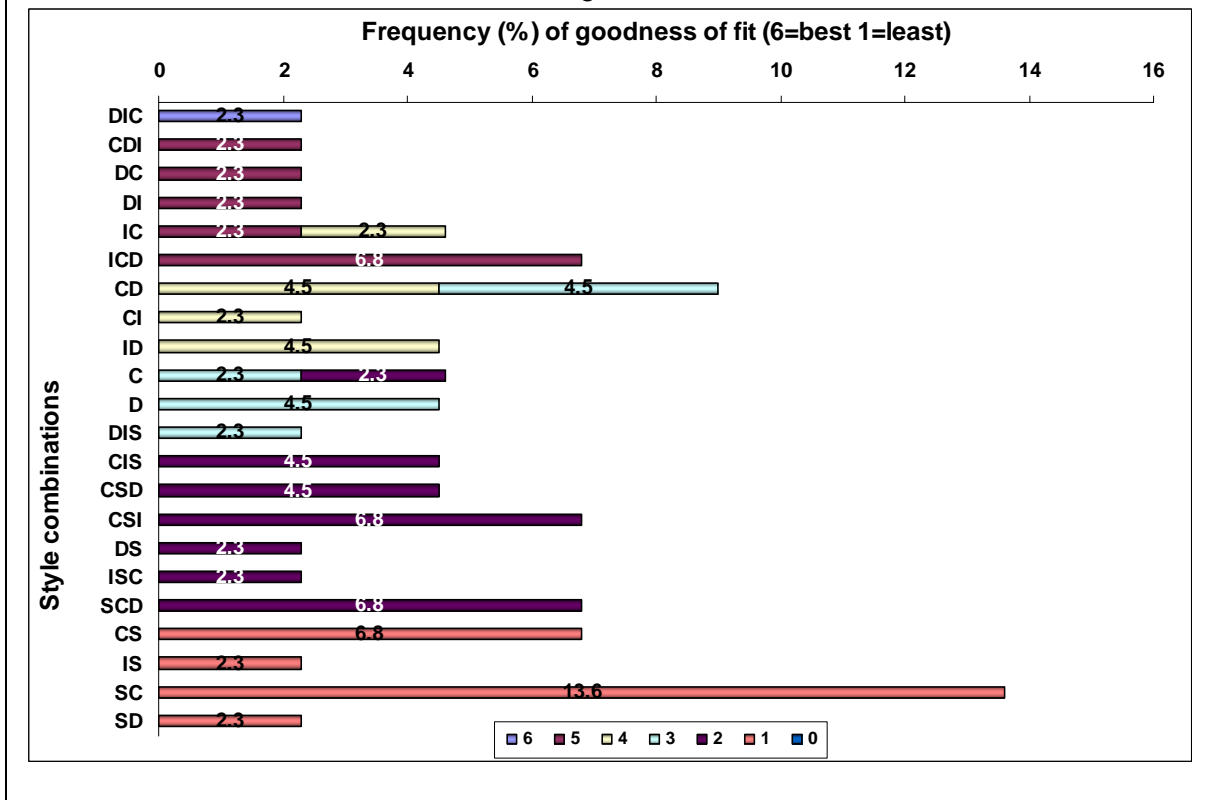


Table 4.66: P-J fit for the e-learning practitioner group: HJA (DIC/S) (continued)

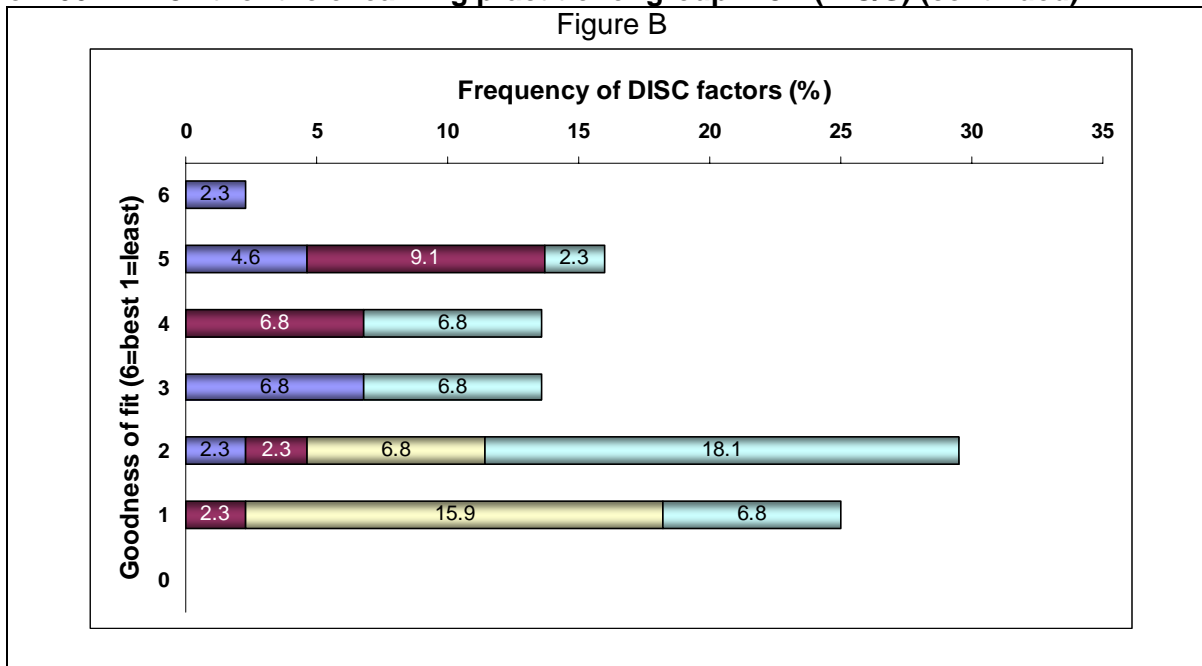


Table 4.66 shows that the best fit for the job is the high Dominance factor (style combination percentage of 2.3%), whilst other patterns of style combinations between mainly the Dominance, Influence and Compliance factors show scores between five (style combination percentage of 16%) and four (style combination percentage of 13.6%) for goodness of fit. The other combinations (68.1%) do not seem to be in line with the requirements of the HJA. DISC factor **structure** and frequency of style combination **patterns** in terms of goodness of fit are graphically presented in figures A and B in table 4.66.

The best fit for the job is from the high DIC style combination, which represents only 2 percent of the group. A number (14% of the group) of Dominance Influence and Compliance style combinations displayed a fit score of five and 68 percent of the group scored between 3-1.

The Dominance factor is absent from the 0-1 score range and is the only factor present in the best fit score range, which implies that profile styles for this factor tend to be more positively related to the job requirements for the DIC/S structure. The Influence and Compliance factors are distributed towards the mid range scores. The Steadiness factor is very significantly distributed towards the lower score ranges, which implies that profile styles for this factor tend to be more negatively related to the job requirements for the DIC/S structure. The Steadiness factor is the only factor in the zero score range of fit. Table 4.66 shows that only 2 percent of the profiles of the TUT e-learning practitioner group displays a job fit of 6/6. These findings suggest that only 32 percent of the TUT e-learning practitioner group falls within an acceptable range for goodness of fit. The high Compliance requirements from the

HJA is complemented by the high Compliance factor present in the TUT e-learning practitioner group. Although the Dominance and Influence factors are the most significant for goodness of job fit, the Dominance factors are the least present and the Influence factors only moderately present in the TUT e-learning practitioner group. This means that if the job requirements call for a stronger Dominance and Influence factor presence and a lower Compliance factor presence, the majority of the TUT e-learning practitioner group's behavioural characteristics do not seem to match the requirements of the HJA and will not be a natural fit for the job.

The highest frequency of **best** fit style combinations in the structure of the P-J fit between the TUT e-learning practitioner group and the DIC/S Human Job requirements are displayed in the high Dominance, Influence Compliance style combinations. The highest frequency of **least** fit style combinations in the structure of the P-J fit between the TUT population and the DIC/S Human Job requirements are displayed in the high Steadiness style combinations.

Appendix E

Appendix E: List of Excerpts

Excerpt E1: Thank you letter to participants

Excerpt E1: Thank you letter to participants

From: Hermien Johannes
To: --- -- -- -- -- --
Date: 13 June 2005 09:42:31 AM
Subject: Thank you

Dear Colleagues,
Sincere thanks for your participation in my e-learning practitioner project. We will send you the PPA results as soon as available.
Regards
Hermien

Excerpt E1: Participation in e-Moderating course

Excerpt E2 Participation in e-Moderating course

Compiled Messages:

Message no. 40
Posted by E- Convenor (Emod) on Tuesday, October 5, 2004 09:47
Subject: Check in here regularly please!
Hi everyone,

I just wanted to suggest that this is a good discussion area to check regularly as I will be posting any general news or items here.

cheers
Econvenor

Excerpt 4.1: Correspondence to Thomas International

Excerpt 4.1: Correspondence between researcher and analyst from Thomas International: Questions

From: Hermien Johannes
To: -@thomas.co.za
Date: 17 June 2005 10:32:24 AM
Subject: TUT PPA

Hallo --

-- and myself had a discussion on PPA profiles from "e-learning practitioners" at TUT and she suggested that I contact you to arrange, if possible, for a meeting between me and you. Would it be possible for us to meet before 24 June 2005 as I will be out of town from that date.

I have played around with the scores of a specific group of "e-learning practitioners" (attached) and have a few questions to you.

1. Is it possible/advisable to get a group profile on the PPA and the HJA.
2. Is it worth anything to draw up a group profile?
3. Can one make valid conclusions from a frequency list of the descriptive words assigned to each individual profile, by adding all the descriptive words from the group into one spreadsheet? By sorting the frequency of each descriptive word can one deduct that a certain factor is more dominant than the others.

I attached the spreadsheet.

If possible I would like to discuss personally different conclusions that one can draw from the PPA and HJA.

Friendly regards
Hermien

Excerpt 4.2: Feedback from HJA from Thomas International

Excerpt 4.2: Feedback on HJA from Thomas International

From: --
To: Hermien Johannes
Date: 12 April 2005 12:26:12 PM
Subject: Fwd: Validation documents & job profiles

>>> @thomas.co.za> 04/12/05 12:14 PM >>>

Hi -,

attached are the documents as discussed telephonically.

Please do not hesitate to contact me with regards to any queries that you may have and/or additional information that you may require.

<<PPA in SA context.pdf>> <<Summary.pdf>> <<E-Learning Practitioner (TUT) (1).pdf>> <<E-Learning Practitioner (TUT) (2).pdf>>

Regards,

Excerpt 4.3: Feedback from ECG on HJA

Excerpt 4.3: Feedback to expert consensus group on HJA

From: Hermien Johannes
To: A, B, C, D, and E
Date: 29 June 2005 12:37:40 AM
Subject: Terugvoer oor HJA

Beste Kollegas,

Weereens baie dankie vir julle insette met die "Human Job Analysis" Vrydag. Ek stuur vir julle 'n afskrif van die HJA soos ons dit bespreek het.

Hierdie grafiek is slegs n teoretiese "benchmark" en om geldigheid hiervan te verhoog word dit vergelyk met "star performers" in die beroep – "actual benchmarks".

Die proses gaan egter nog verder, indien julle belangstel kan julle verder deelneem:

LEES DIE ONDERSTAANDE LYS VAN EIENSKAPPE en dui aan of julle saamstem dat dit n aanvaarbare weergawe is van hoe julle die persoon wat hierdie beroep beklee sien.

Excerpt 4.3b: Response from ECG member on HJA benchmark

Excerpt 4.3b: Response from expert consensus group member on HJA benchmark

Die volgende kleurcodes word gebruik om my mening aan te dui: **Groen** – stem saam; **Blou** – neutrale mening; **Rooi** – stem nie saam nie

Beskrywende woorde: **Self-Starter (selfbeginner)**; **Daring (Onverskrokke)**; **Assertive (selfgeldend)**; **Decisive (Beslis)**; **Inquisitive (nuuskierig)**; **Influential (invloedryk)**; **Persuasive (oorredend)**; **Positive (positief)**; **Participating (deelnemend)** **Communicative (kommunikerend)**, and **Independent (Onafhanklik)**; **Persistent (Volhardend)**; **Strong-willed (Wilskragtig)**; **Firm (Ferm)**. **Directing and Leading**; **Individuality** – (Antagonistic situations require taking direct and positive action where there may be little or no precedent to go on. The job carries freedom to act and the authority to make decisions even when they may be unpopular), and **Self-confidence** – (Contact situations require motivating and influencing people where there is little protocol or precedent available to serve as guide. He/she may be required to commit himself/herself by taking a position or "stand" which is controversial).

Excerpt 4.4: Request to Thomas International

Excerpt 4.4: Request sent to the analyst from Thomas International

From: Hermien Johannes
To: @thomas.co.za
Date: 22 July 2005 11:28:09 AM
Subject: HJA

Dear ---

Mrs - , from the Centre for Continuing Professional Development at TUT, asked me to send you information regarding the HJA and to request for a HJA to be done, please.

Would you be so kind to process this information in your system to compile a HJA profile for the position of e-learning practitioner at TUT.

As no job description for this position is available an expert consensus group tried to set down some guidelines.

We have completed a HJA and then we followed the instructions in the manual to enrich the process. (See attached documents for details).

Excerpt 4.5: Information request to colleagues

Excerpt 4.5: Information request to colleagues

From: Hermien Johannes

To: A,B,C,D,E,F,G,H

Date: 07 July 2005 12:23:56 PM

Subject: support

Dear Colleagues,

If possible, could you please help me with answers to the following questions? I need this information for the completion of the e-learning practitioner job analysis.

The following questions pertain to: "Star performer" as perceived by practitioners from the Department of Telematic Education.

1. How would you describe a "star performer" in the field of e-learning practice at TUT?
2. Can you name any "star performers" in your faculty? I am very dependent on your support and want to thank you sincerely for everything that you have done to help so far.

Excerpt 4.6: Response from Thomas International

Excerpt 4.6: E-mail response from the analyst from Thomas International on environment structuredness

From: @thomas.co.za
To: Hermien Johannes
Date: 26 July 2005 09:56:52 AM
Subject: RE: HJA

Hi Hermien,

please find my answers in blue.

Regards,

1. Does TI have specific definitions or descriptions for these two concepts? **TI doesn't really have specific definitions for these two concepts. An unstructured environment is usually more "chaotic" and experiences more change and thus is more demanding in the sense that it doesn't offer stability. People with a "low S" usually perform better in this kind of an environment, as they are more flexible and don't get stressed so easily (they can juggle more than one ball at once). A person with a "low S" also doesn't like routine and thus prefers change. A person with a "high D" is more likely to take on a challenge than someone with a "low D".**

People with a "high S" usually prefer a structured environment, one that is set and established and doesn't experience too much change. They prefer the routine etc.

2. If the job of the e-learning practitioner moves towards a more structured environment, with more prescriptions on how to structure an online course, or how to design for effective online communication etc. how will that affect the job description and the HJA in terms of the graph? Most of our lecturers are CS or SC combinations and do you think it might be possible to impose different interventions in terms of training or different specialisation roles to accommodate these lecturers in the e-learning field? **If the environment becomes more structured, e.g. more prescriptions etc., then the HJA would probably change from a "low S" to a "high S" and perhaps also a "high C". The "CS" or "SC" lecturers would probably feel more comfortable to operate in a more structured environment. **The "SC" or "CS" lecturers would be the specialists in terms of content and evaluation of the course, whereas the "D" lecturers with a "low S" would probably be responsible for initiating new interventions and ideas.****

Excerpt 4.7: Response from Thomas International

Excerpt 4.7: E-mail response from analyst from Thomas International: HJA for Partners

From: @thomas.co.za
To: Hermien Johannes
Date: 29 July 2005 02:32:11 PM
Subject: HJA



Hi Hermien,

attached is the HJA for the e-learning trainees. I took the one that you gave me and I stretched it a bit.

Regards,

Excerpt 4.8: Response from Thomas International

Excerpt 4.8: E-mail response from analyst from Thomas International: P-J fit calculations

From:	__@actechnologies.co.za>  View Contact Details  Add Mobile Alert
To:	"hermeinjohannes@yahoo.com" <hermeinjohannes@yahoo.com>
Subject:	Studie mbv PPA
Date:	Thu, 15 Sep 2005 16:58:19 +0200

Hi Hermien

With regard to our telephone conversation:

It would be better to mark the PPA/HJA by hand because the computer does not mark in the same way and the results would therefore differ. It is also important to use one mark count and I recommend the 6-point count as there will be fewer arguments and thus will give fewer mistakes.

Let me know if I can help you further.

Regards

[Dit sal beter wees om die PPA/HJA met die hand te merk aangesien die rekenaar dit nie op dieselfde wyse merk nie en die resultate dus sal verskil. Verder is dit ook belangrik om een merktelling te gebruik en ek beveel aan om die 6-punt telling te gebruik aangesien dit minder beredenerings sal wees en dus minder foute sal gee.

Laat weet asb as ek jou met nog kan help.

Groete]