Chapter 1: Orientation

The emotions are of quite extraordinary importance in the total economy of living organisms and do not deserve being put into opposition with 'intelligence'. The emotions are, it seems, themselves a high order of intelligence.
(Mowrer, 1960, p. 308)

1.1 Introduction

The purpose of this study is to explore and describe linkages between emotional intelligence and the ability to cope with mastering new educational technologies. Chapter 1 serves as an orientation to the study and I begin the chapter by sketching the background. This is followed by a discussion of the context of the study, with a presentation of the problem statement and rationale, followed by the purpose and significance of the study. Subsequently I give an overview of the research design and methodology, concluding this chapter with an outline of the organisation of the study.

1.2 Background

In a world in which technology is changing on a daily basis, new training courses are continually introduced in the workplace and in higher education institutions. Lifelong learning is no longer a dream, but has become an essential requirement in the striving towards professional development. In order to meet this requirement of lifelong learning, technology-enhanced learning environments, such as blended learning and e-learning, are utilised more and more in higher education. These technology-enhanced learning environments make use of the swiftly growing and expanding potential of technology (Beller & Or, 1998; Bonk, Kim, & Zeng, 2006b; Moore, Fowler, & Watson, 2007; Oliver, Herrington, & Reeves, 2006; Souleles, 2004; Surry, Ensminger, & Jones, 2005). In recent years great advances and improvements in the fields of learning and instruction were envisaged as a consequence of the application of new educational technologies (Ensminger, Surry, Porter, & Wright, 2004; Moore *et al.*, 2007; Oliver *et al.*, 2006; Rubenstein, 2003; Souleles, 2004; Spector, 2001).

Although some of these promises have materialised it would seem that relatively few lecturers have mastered the skills and knowledge needed to integrate technology successfully into the practice of teaching and learning (Moore *et al.*, 2007; Spector, 2001). Despite the fact that tools for e-learning are generally in place, a typical critique against e-learning is a feeling of unease in terms of technology, and this has a negative

effect on the attainment of learning outcomes. The role of emotional intelligence is a significant construct which has not been adequately researched in terms of the mastering of new technologies in the e-learning and blended learning environments (Hill & Rivera, 2001). A great deal of excitement has been generated over the last few years by the proponents of emotional intelligence who have forwarded compelling arguments in favour of the extent to which emotional intelligence may enhance workplace performance and career success (Caruso, 2006; Lam & Kirby, 2002; Lopes, Côté, & Salovey, 2006; Mayer, 2006; Quinn, 2006; Salovey, Brackett, & Mayer, 2004). In his turn, Redden (2003, p. 4) has stressed the importance of emotions in the context of the e-learning classroom:

> Though our classes may physically consist of electrons on a computer screen, there are real people involved. That means emotions are present. Instructors and course developers who endeavour to do well in the cyber setting need to engage students in new ways as well as adapting those ways successful in the traditional classroom. Our best practices in cyber space all relate to connecting the learner positively to learning itself, the content, the technology, to ourselves as instructors, and to peers in the classroom. These connections work best when we consciously address the role of emotions in learning in the cyber classroom.

E-learning guru Clark Quinn argues that the emotional and cognitive components of the learning experience are equally important. He proposes that, in addition to improving learning outcomes, emotional experiences should be enhanced in order to optimise the learning experience (Quinn, 2005; Quinn, 2006). O'Regan (2003) concurs with Quinn when he reasons that, as emotions play a vital role in the teaching and learning process, they should be addressed equally in the theory and practice of teaching and learning. As new educational technologies become an integral part of the teaching and learning process, more research and exploration is needed to clarify the role of emotions in informing best practice (O'Regan, 2003).

It was against this background, while working as an instructional designer facilitating the use of educational technologies, that I became intrigued by the different ways in which lecturers respond to new technologies. Whilst certain individuals appear to cope naturally and easily, others seemed to encounter serious problems. My interest in emotional intelligence as a moderator of work stress grew and the research idea was born.

1.3 Context of the study

The context of the study is presented in this section. Section 1.3.1 pertains to the unit of analysis of the study, the 2004 Partners@Work programme at the Tshwane University of Technology. In order to place this study within the broader context of the different constructs from which I intend to draw during the study, § 1.3.2 endeavours to a brief overview of e-learning and blended learning, educational technologies, the mastering of new educational technologies, emotional intelligence, coping and positive psychology.

1.3.1 Partners@Work programme

The Department of Telematic Education at the Tshwane University of Technology proactively introduced the Partners@Work programme in June 2004. The programme focussed on the development of technology-enhanced courses, addressing challenges for example low pass rates, large groups and geographically dispersed learners (Van Ryneveld & Van der Merwe, 2005).

The programme consisted of a professional development programme in three phases, namely

- the design and development phase (June 2004- December 2004); ;
- implementation phase (January 2005- June 2005), and
- an action research project (June 2004- June 2005) (Van Ryneveld & Van der Merwe, 2005).

During the design and development phase, Partners predominantly spend their time on the programme, actively developing technology-enhanced teaching and learning materials for a specific course. An expert team consisting of programmers, instructional designers, curriculum designers, student development officers, quality experts, graphic designers and video editors assisted the Partners with the course development. For the duration of this time, the Partners were involved in a capacity building strategy, involving:

- a block face-to-face session (2-24 June);
- weekly contact sessions, and

- an online training course (Van Ryneveld & Van der Merwe, 2005).

During the block session in June and the subsequent weekly contact sessions, Partners spent time networking with the other Partners. They shared ideas, discuss progress, asked and answered questions pertaining to their developmental activities and took part in workshops and hands-on work sessions, facilitated by experts (Van Ryneveld & Van der Merwe, 2005). Partners stayed in contact and interacted with one another between the face-to-face sessions, using Yahoo messenger, becoming part of an on-line support community.

The Partners were introduced to Blogger, for use as an online reflective diary. They were asked to reflect after each contact session on what they enjoyed or found useful, what they did not enjoy or found useful, what they would change about the session and how the would change it. At this stage, the instructional designers made use of comments on Blogger, to improve the programme. The instructional designers intended using the reflective diaries in research.

The Partners consisted of 14 lecturers at the Tshwane University of Technology, four male and 10 female lecturers. For all of them English was a second language, with Afrikaans, Tswana and Persian being their first languages. The training levels of the participants ranged from a BTech and an MTech to a Doctorate in Physical Education. The Partners were assigned to one of the four instructional designers, including the myself.

As one of the instructional designers, the researcher was closely involved with the Partners over this period of one year and could relate to the demands of the programme in terms of homework and tasks. Being an ”insider” in the programme enabled the researcher to reach some level of understanding *(verstehen)* of the way participants interacted with the educational technologies. Moreover to have empathy in the sense of understanding their feelings and experiences while mastering the new educational technologies (Patton, 2002). The researcher was thus able to interpret the data relevant to the study in the particular context.

1.3.2 E-learning and blended learning

The terminology used in e-learning is often very confusing, as terms such as blended learning, flexible learning and mixed-mode learning are often used as synonyms, in

exactly the same way that elearning, e-learning, and eLearning are also used synonymously (Nichols, 2007a). See list of terminology, p. xviii.

The definitions of e-learning vary. Netteland quotes Rosenberg (2001) when he refers to e-learning as "the use of internet technologies to deliver a broad array of solutions that enhance knowledge and performance" (2004, p. 2). A definition of e-learning with which I concur is that of Nichols (2007a, p. 2): "E-learning is pedagogy empowered by technology."

As e-learning is a combination of electronic, *e,* and *learning*, the emphasis is placed on the pedagogy that directs the technology (Nichols, 2007a). For best practice in e-learning the ideal seems to be effective and sound pedagogy combined with reliable, user-friendly technology. Therefore, "e-learning is *dependant* on the pedagogy", which, in turn, implies that the technology will be ineffective if the pedagogy is not sound (Nichols, 2007a, p. 2). Similarly, if the technology is neither easy to use nor reliable, "e-learning will be an exercise in frustration" (Nichols, 2007a, p. 3).

E-learning has vast potential and offers challenges and opportunities for developing effective educational applications (Nichols, 2007c; Oliver *et al.*, 2006). Blended learning is a combination of e-learning and face-to-face settings, and makes use of the advantages of both contexts in order to attain learning that "really works" (Netteland, 2004, p. 2).

Bonk and Graham (2006a) place blended learning in a international context when they note the accelerated growth in blended learning, as documented in the edited book *Handbook of blended learning: Global perspectives, local designs*, in places such as Microsoft, IBM, the University of Pretoria, the University of Glamorgan, Beijing Normal University, the National University of California, and the Open University of Malaysia. Blended learning has become an established delivery mode, not only in higher education, but also in the corporate world. In response to the trends and issues introduced in literature about blended learning, Bonk, Kim and Zeng (2006b) conducted two surveys on the future of online teaching and learning. The first survey targeted higher education settings, while the second survey targeted corporate training environments. Certain of the findings of their studies will be discussed and compared with recent arguments in the literature, as they gave a significant resonance with the rationale for conducting this study.

1.3.2.1 Future growth of blended learning

Respondents from surveys in both the higher education and the corporate world indicated the use of blended learning in some form or the other. In both these surveys a significant increase in the use of blended learning in upcoming years was reported (Bonk *et al.*, 2006b). These findings correspond with findings published by other researchers (Albright & Nworie, 2008; Bell, Martin, & Clarke, 2004; Netteland, 2004). Bonk *et al.* (2006b, p. 554) warn that "given this significant adoption of blended learning in both higher education and corporate training settings, it is vital to create strategic plans and directions for it".

1.3.2.2 Pedagogical techniques in e-learning

With pedagogy and technology being mutually important in general e-learning trends, Bonk *et al.* (2006b) call for a focus on these two issues as they will both be employed in blended learning environments. Their higher education survey found that, during the forthcoming decade, the preferred instructional methods would be online collaboration, problem-based learning and case learning. Likewise, the corporate survey respondents envisaged the use of authentic cases and scenario learning, virtual team collaboration, problem-based learning and coaching or mentoring in the decade to come. Simulations and gaming emerged as more popular techniques in the corporate survey than in the higher education survey. In both surveys it seemed that the preferred methods involved active learning, problem solving, authentic learning and collaboration (Bonk *et al.*, 2006b). These findings resonate with arguments proposed in recent articles (Brown & Adler, 2008; Moore *et al.*, 2007). It is envisaged that hands-on learning, which is judged to be the weakest link in online learning courses at present, will constitute one of the most significant aspects in e-learning courses in the coming decade (Bonk *et al.*, 2006b; Brown & Adler, 2008; Moore *et al.*, 2007).

1.3.2.3 Emerging educational technologies

Just as it is not possible to detach e-learning from the pedagogy that supports it, neither can e-learning be separated from the technologies that make it possible (Nichols, 2007a). The numerous technologies currently available for use in blended learning settings are bound to proliferate in the next decade.

In order to assist in understanding the way in which emergent technologies may influence the delivery of e-learning in the coming years, Bonk *et al.* asked participants to choose one technology from the 14 listed that, in their view, would have the most impact on online education (Bonk *et al.*, 2006b). Respondents from the higher education environment envisaged that reusable content objects would have the most important impact, followed by wireless technologies, and then by peer-to-peer collaboration tools, digital libraries, simulations and games, assistive technologies and digital portfolios (Bonk *et al.*, 2006b).

These findings emphasise the significance of sharing content in teaching and learning in online environments as indicated by various authors (Barth, Godeman, Rieckmann, & Stoltenberg, 2007; Bell *et al.*, 2004; Beller & Or, 1998; Brown & Adler, 2008; Moore *et al.*, 2007). A significant finding from this study is that less than five per cent of the respondents predicted that the use of e-books, intelligent agents, tablet PCs, virtual worlds, language support or wearable technologies would have an important impact on the delivery of online learning in the context of higher education (Bonk *et al.*, 2006b). Bonk *et al.* noted, “those involved in online learning within higher education may be in for a surprise in the area of wearable and augmented reality technology” (Bonk *et al.*, 2006b, p. 558). A reason for these finding may either be the novelty of certain of these technologies, or the fact that lecturers already feel overwhelmed by the technologies available (Bonk *et al.*, 2006b).

Corporate respondents predicted the that use of knowledge management tools would be significant in the forthcoming years, followed by online simulations, wireless technologies, reusable content objects, and adaptive technologies (Bonk *et al.*, 2006b). Van ‘t Hooft and Vahey (2007) are in agreement with these arguments when they conclude that future technology tools will be predominantly personal, mobile, networked and connected to the internet, accessible, flexible, social, multimodal and contextual.

What is important for this study is the continuous change in technology, as expressed by Nichols: “As technology continues to evolve, so will the tools that can be used for e-learning. However, uptake of technology and the contextual dynamics within which education is offered seem to be the dominant variables to consider when predicting where e-learning might take us (2007a, p. 13).”

These findings, underscored by the reasoning and arguments of various authors (Albright & Nworie, 2008; Aspden & Moore, 2004; Brown & Adler, 2008; Derntl & Motschnig-Pitrik, 2003; Dwyer, 2002; Moore *et al.*, 2007), emphasise the change in learning environments in terms of student needs, pedagogical preferences and the opportunities opening up with the availability of new educational technologies.

1.3.2.4 Future trends in blended learning

Literature on blended learning shows that, in most cases, current use of blended learning entails either the replacement or the extension of face-to face settings (Bonk *et al.*, 2006b; Moore *et al.*, 2007; Netteland, 2004). Bonk *et al* (2006b) list the fostering of learning communities, extension of training events, resources for a community of practice, accessing guest experts, provision of timely mentoring, presentation of online laboratory or simulations, and the delivery of course materials, as current uses of blended learning. With online environments entering the "second decade of extensive use in higher education" Bonk *et al.* predict "that the forms and formats of blended learning will (be) extended as well" in the next decade or two (2006b, p. 560).

The next section contains a discussion of the ten trends predicted by Bonk *et al* (2006b). These trends will be corroborated by arguments of other authors, as these predictions underscore the rationale for this study.

1.3.2.4.1 Mobile blended learning

In the next two decades handheld devices will be involved more and more in blended learning (Bonk *et al.*, 2006b). Bonk *et al.* state that the use of mobile phones, in particular, will increasingly entail the calling up of learning as needed. This implies that, with the increased use of mobile and wireless technologies, "the time and place for learning, working, and socialising will blur even more" (Bonk *et al.*, 2006b, p. 561). An important implication for this study is that mobile and wireless technologies may create greater opportunities for lifelong learning, as learning will be more accessible to a wider range of individuals (Bonk *et al.*, 2006b). These predictions are in line with the opinions of Van 't Hooft and Vahey (2007), Brown and Adler (2008), Dede (2004) and Kennedy, Krause, Churchward and Gray (2006).

1.3.2.4.2 Greater visualisation, individualisation and hands-on learning

With the added mobility, as described in the previous paragraph, Bonk *et al.* predict that learning will become more individualised, hands-on and visual. This prediction is supported by their survey data, which showed that blended learning will support a bigger range of learning styles and individual differences in future (Bonk *et al.*, 2006b). Brown and Adler underscore this prediction when they state that the latest evolution of the internet, Web 2.0, "is creating a new kind of participatory medium that is ideal for supporting multiple modes of learning" (2008, p. 18).

1.3.2.4.3 Self-determined blended learning

Bonk *et al.* (2006b) predict that "as the options for blended learning proliferate, blended learning will increasingly address individual needs while becoming a highly complex decision making process". In this context, Sharples (2000) quotes the UK Government's Green Paper on lifelong learning:

> In future, learners need not be tied to particular locations. They will be able to study at home, at work, or in a local library or shopping center, as well as colleges and universities. People will be able to study at a distance using broadcast media and on-line access. Our aim should be to help people learn wherever they choose and support them in accessing how they are doing and where they want to go next.

1.3.2.4.4 Increased connectedness, community, and collaboration

A strength of blended learning is the opportunity it affords to connect people, activities and events (Bonk *et al.*, 2006b). With increased individualisation, Bonk *et al.* predict that blended learning will promote collaboration, and contribute to greater connectedness and global awareness (2006b). Van 't Hooft and Vahey (2007) agree when they state that future tools will be predominantly social, allowing collaboration, sharing, creating, aggregating and connecting knowledge. In confirmation of this, Laird and Kuh (2005, p. 232) report that the findings of their study suggest that the investments in making information technology available to students are paying off as is indicated by the active and collaborative engagement of the students in educational practices.

Moore *et al.* (2007) discuss the possibilities of using tablet PCs for sharing information among students, as well as for problem-solving and problem-posing exercises in large

or small group settings. Blogs and Wikis could assist with the development of collaboration and communication skills. Downes (2006) outlines his thinking around "the new and newly empowered learner" when he describes how the web changed from "being a medium, in which information transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed, and passed along". With the advent of Web 2.0 comes E-learning 2.0 which, according to Downes, is "not a single application, but a collection of interoperating applications – an environment rather than a system" (2006). Downes (2006) argues that E-learning 2.0 has the potential to empower students in a completely new way. Brown and Adler (2008, p. 18) concur and argue that "the most profound impact of the Internet, an impact that has yet to be fully realized, is the ability to support and expand the various aspects of social learning".

1.3.2.4.5 Increased authenticity and on-demand learning

With the fast-changing job requirements and expectations, Bonk *et al.* predict that on-demand learning will become a requirement of a global workforce (2006b). The web will be used to provide timely, authentic information for the solving of case problems. The present trend towards problem-based learning, scenario learning and online case-learning will continue, with the pedagogy employed and the learning results as the most important aspects rather than the actual technology used (Bonk *et al.*, 2006b).

Brown and Adler (2008, p. 18) argue that "the most visible impact of the Internet on education to date has been the Open Educational Resources (OER) movement which ensured the free access to an extensive range of learning materials. Use of the internet has enabled students to access powerful instruments and simulation models (Brown & Adler, 2008, p. 18).

1.3.2.4.6 Linking work and learning

With the employment of new educational technologies the differentiation between formalised learning environments and workplace training will continue to narrow (Bonk *et al.*, 2006b). Bonk *et al.* (2006b, p. 563) argue that the "greying of lines between training and formalised learning will be caused by blended learning as much as it will cause new avenues for it". It will become commonplace for a student in a work setting who is reporting on a weekly or daily basis to use web cams, asynchronous discussions, instant messaging, desktop videoconferencing, and wearable computing

devices (Bonk *et al.*, 2006b). In support of this prediction, Brown and Adler (2008, p. 32) note that the opportunities provided by the OER movement and E-learning 2.0 have created an environment for learning "that is suited for continuous, lifelong learning that extends beyond formal schooling".

1.3.2.4.7 Changed calendaring

The increasing learning avenues will have an effect on the notions of when learning actually occurs, and this will result in learners being less bound to the traditional calendars for learning (Bonk *et al.*, 2006b). With the movement away from normal calendar and semester constraints, and with new learning blends becoming available, learners will take advantage of this new situation, and will complete learning experiences, courses, and degrees when time is available in their schedules (Bonk *et al.*, 2006b). Bonk *et al.* warn that, with learning time becoming less defined, administrators, lecturers and instructional designers should take cognisance of the "increased ambiguity when designing distance learning courses and programs" (Bonk *et al.*, 2006b, p. 563). "Learning will occur when the learner feels the need and has the time, not when the institution or organization has prearranged it" (Bonk *et al.*, 2006b, p. 563).

1.3.2.4.8 Blended learning course designations

An interesting prediction is that of an increase in courses with reduced classroom meetings or "seat time", as universities come to the realisation that blended learning not only reduces "brick and mortar needs but simultaneously can increase learning outcomes" (Bonk *et al.*, 2006b, p. 563). The University of Central Florida already designates courses with reduced seat time as "M" courses (Bonk *et al.*, 2006b, p. 564). Brown and Adler caution that it is highly unlikely that sufficient resources will be available for the building of new institutions in the traditional way in order to meet the growing demand globally in higher education (Brown & Adler, 2008).

1.3.2.4.9 Changed instructor roles

The role of the lecturer or facilitator will continue to change with the increasing richness of the online environment. The evolution of blended learning highlights the instructional skills needed in these multiple teaching and learning environments (Bonk *et al.*,

2006b). Access to the facilitator will become vital as learners will seek support in terms of coaching, mentoring and counselling (Bonk *et al.*, 2006b). Derntl and Motschnig-Pitrik (2004, p. 916) conclude in the report on their research that "blended learning has added value only if designed thoughtfully and accompanied by high interpersonal skills of instructors". Thus, the argument put forward by Dede that those institutions investing in the professional development of lecturers "will gain a considerable competitive advantage in both recruiting top students and teaching them effectively", underscores the importance of the role of facilitators in blended learning environments (2004, p. 30).

1.3.2.4.10 Emergence of blended learning specialists

Blended learning demands more from facilitators than either fully online or face-to-face learning, as blended learning is multifaceted and typically more complicated (Bonk *et al.*, 2006b). Bonk *et al.* (2006b) predict that in the next few years blended learning facilitators will be extremely sought after, as they will possess skills pertaining to the traditional classrooms as well as virtual environments. Nichols (2007b, p. 12) contends that, if e-learning is "pedagogy empowered by technology", facilitators in turn will need both pedagogical and technical skills.

These predictions and arguments highlight the necessity of educators possessing both the motivation and the skills to keep pace with changes in technology, "preparing their students for the lives they will lead in the twenty-first century" (Brown & Adler, 2008, p. 18).

1.3.3 Mastering new educational technologies

In terms of mastering and implementing new educational technologies, Moore *et al.* (2007, p. 44) comment on the resistance to the change aimed at integrating educational technologies into teaching and learning activities. According to them "one way to overcome such resistance is to lower anxiety through development programs designed to create new capabilities that people might find useful for personal, professional, or institutional reasons" (Moore *et al.*, 2007, p. 44).

As transformational learning is difficult to ensure it becomes imperative that safe environments be provided in which individuals are able to experiment with new educational technologies. Moore *et al.* report that, for at least the last ten years, universities and colleges across the United States have attempted to integrate

technology into teaching and learning activities (2007, p. 44). Some of the lectures in these institutions have become change agents within their own institutions, and have advocated the need to change.

According to Moore *et al.* (2007, p. 46) a review of the literature on development programmes reveals six best practices that could ensure the prolonged existence of the programmes and increase the probability of lecturers participating, learning and changing in due course. These practices are:

- proper management of institutional issues;
- the implementation of adult learning practices;
- incentives to participate;
- presentation of workshops;
- making use of colleagues and peers;
- provision of ongoing support (Moore *et al.*, 2007, p. 46).

Nichols contends that “major failures of e-learning in education tend to be due to failure in implementation rather than a fundamental flaw in e-learning itself, and … it seems that e-learning’s further development relies on institutional investment and effective change strategies that engage the early and late majority of potential users – in this case, educators” (2007a, p. 18). The next section deals with the challenges lecturers in higher education face in implementing educational technologies for teaching and learning.

1.3.3.1 Challenges implementing educational technologies for teaching and learning

A widely cited researcher pertaining to the implementation of new educational technologies is Donald P. Ely (Ensminger *et al.*, 2004). Ely developed a strategy for implementing new educational technologies, comprising of eight conditions that seem to facilitate the successful implementation of new educational abilities (Ely, 1990). The conditions are dissatisfaction with the status quo, existence of knowledge and skills, availability of resources, availability of time, rewards for incentives, participation, commitment and leadership (Ely, 1999). Attempting to illustrate the challenges lecturers face implementing new educational technologies for teaching and learning, these conditions are used as a reference, with implementation indicating “ the process

of introducing an innovation into an organization and fostering its use" (Ensminger *et al.*, 2004, p. 62).

1.3.3.1.1 Dissatisfaction with the status quo

Being dissatisfied with the status quo relates to an affective state of discomfort because of the use of existing processes perceived as inefficient (Ely, 1999; Ensminger *et al.*, 2004). This feeling of discomfort may be self-induced or as a result of organisational awareness for the need of change (Ely, 1999; Ensminger *et al.*, 2004).

1.3.3.1.2 Existence of knowledge and skills

Ensminger *et al.* state that the existence of knowledge and skills refers to "possessing and or acquiring the needed skills and knowledge to employ the innovation" (2004, p. 64). Current feelings of self-efficacy as well as beliefs in the development of the necessary skills in terms of using the technology is also reflected by this condition (Ensminger *et al.*, 2004). Different researchers mention the importance of training as part of the implementation of new technologies, as different skills are required from facilitators in terms of social, pedagogical and technical skills (Dede, 2004; Ely, 1990; Ely, 1999; Ensminger *et al.*, 2004; Pajo & Wallace, 2001).

Spector (2001) asserts that too little consideration is given to the demands placed on the ability of lecturers to master the necessary knowledge and skills to effectively integrate new technologies into everyday learning and instruction. Stressing, "technology is not what learning is about … learning is fundamentally about change" (Spector, 2001).

Salmon identified key competencies needed to be a successful e-moderator:

- An understanding of the online process, including personal experience as an online learner;
- Technical skills using the software;
- Online communication skills, engaging learners;
- Content expertise;
- Personal characteristics such motivation, adaptability, sensitivity, positivity and enthusiasm (2003, pp. 54-55).

Interestingly, Salmon also mentions emotional intelligence together with resilience and interpersonal sensitivity as qualities needed, concurring with Goodyear, Salmon, Spector, Steeples and Tickner (2001) that there are few people available with these competencies and abilities.

Reporting on "an analysis of the changed environment for teachers and learners in a post-graduate coursework programme based on constructivist principles that has moved from predominantly on-campus delivery to online mode", Bennett and Lockyer assert that online teaching involves an added layer of complexity, raising issues of training and support that must be addressed (2004, p. 242).

Dede (2004) commented on the characteristics of students entering higher education, changed by the rapid advancement of information technology, putting pressure on lecturers to develop capabilities in co-design, co-instruction, guided social constructivist and situated learning pedagogies and assessment beyond tests and papers, in order to stay abreast of the changing learning styles of their students (Dede, 2004). Many lecturers may find this difficult, as they themselves need to develop "neomillenial" learning styles to persist in effective teaching as the nature of their students changes (Dede, 2004). Phelps, Graham and Kerr concur with this view, emphasizing the need for professional development focussing on lectures' "approaches to learning, their beliefs, attitudes and metacognitive understandings" (2004, p. 50). These authors point out the necessity of facilitating lectures "to engage in self directed and lifelong computer learning" (Phelps *et al.*, 2004, p. 50).

1.3.3.1.3 Availability of resources

Resources such as finances, hardware, software, materials, personnel and technical support are needed to implement any new technology (Ely, 1999; Ensminger *et al.*, 2004). Concerns related to organisational support were raised in the survey of Pajo and Wallace (2001). Issues such as lack of technical support, insufficient training and resources, and meagre teaching support were identified as barriers to the uptake of technology by academic staff (Pajo & Wallace, 2001).

1.3.3.1.4 Availability of time

Adequate time refers to organisations' compliance providing paid time for learning to use the new technology, as well as the willingness of the user to devote time and

energy to develop new skills (Ely, 1999; Ensminger *et al.*, 2004). In their findings from a survey of staff about the barriers to the uptake of technology, Pajo and Wallace (2001) report that of the four most prohibitive barriers identified were related to issues of time. The time required to learn how to use a technology was identified as the most significant barrier, while the time developing and implementing online courses, was identified as an impediment to the use of technology in teaching. Likewise, the need to monitor online courses on a regular basis, was perceived as barrier to the effective use of online technology (Pajo & Wallace, 2001). In order to deploy e-learning platforms effectively, extra effort and commitment of lecturers are needed (Derntl & Motschnig-Pitrik, 2004).

1.3.3.1.5 Rewards or incentives exist

Rewards can either be extrinsic or intrinsic (Ely, 1999; Ensminger *et al.*, 2004). Hanson asserts that lecturers "need to see that putting effort into changing their teaching practice is valued and that effort is rewarded" (2003, p. 140). This author reports on several incentives used to encourage lecturers to adopt e-learning, with a focus on the need to value teaching activity on a equal footing with research" (Hanson, 2003, p. 146).

1.3.3.1.6 Participation

Participation pertains to which level stakeholders are involved in the decision making process that precedes the adoption and implementation of a new technology (Ely, 1999; Ensminger *et al.*, 2004). Intended users need to have a have a sense of ownership (Ensminger *et al.*, 2004).

1.3.3.1.7 Commitment

Commitment refers to the visible support of management as perceived by lecturers in terms of the implementation of a new technology (Ely, 1999; Ensminger *et al.*, 2004). Ensminger *et al.* proclaim that visible support on the side of management include the dedication of resources, personal communication, developing strategic implementation plans and dynamic involvement in implementing the new technology (2004, p. 64). A lack of commitment on the side of management denotes a serious barrier to implementation (Ensminger *et al.*, 2004).

1.3.3.1.8 Leadership.

Leadership relates to how important the managers of lecturers implementing a new technology view ownership of the implementation(Ely, 1999; Ensminger *et al.*, 2004). The motivation of lecturers is directly affected by the enthusiasm of line managers. Ensminger *et al.* (2004) stress the importance of the role of immediate supervisors during implementation of new technologies. The support, advice, encouragement and role modelling are of crucial importance assisting lecturers in the implementation of new technologies (Ensminger *et al.*, 2004).

The Partners@Work programme implemented at the Tshwane University of Technology aimed at equipping lecturers with the skills needed to develop technology-enhanced courses. The programme aimed not only at the development of technology-focused skills, but also at fostering a mindset that embraced new educational technologies as part of life-long learning, thus empowering lecturers to keep abreast of the changing landscape in education. Although all the conditions named by Ely (1999) were met in the programme, some of the Partners still had difficulties mastering new educational technologies. This observation supported the researcher considering emotional intelligence as a factor in the process of mastering new educational technologies.

1.3.4 Emotional intelligence

Interest in emotional intelligence was aroused after Salovey and Mayer (1990) first presented the construct. The ability model of emotional intelligence centres on the skill of a person in being able to recognise emotional information and to use this information in abstract reasoning (Caruso, Mayer, & Salovey, 2002). Ciarrochi, Forgas and Mayer (2006, p. xv) note that “the concept of emotional intelligence suggests that intelligence may understand emotion, and that emotion may facilitate intelligence”.

The definition of the Mayer and Salovey (1997, p. 10) model of emotional intelligence involves the “ability to perceive, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth”. Contrary to the emotional intelligence models of Bar-On and

Goleman,[1] in terms of which measurement is based on self-report, the model of Salovey and Mayer is an ability model. As the Mayer and Salovey EI model is the only model that tests the ability of an individual in terms of emotional intelligence skills, and not on self-report, this model was chosen for the purposes of this study.

Empirical support for the ability model of emotional intelligence is increasing and a body of knowledge on emotional intelligence is rapidly emerging (Mayer, 2006; Mayer, Salovey, & Caruso, 2004b). Various writers have commented on the possibilities of emotional intelligence: Zeidner, Matthews and Roberts (2006, p. 101) comment that emotional intelligence may indeed "contribute to handling challenging events successfully in a wide array of domains". Mayer, Salovey, and Caruso (2000c) postulate that the concept of emotional intelligence may be useful in the study of human effectiveness and success in life and that there is scope for further studies. Interest in emotional intelligence has increased in the last few years (Ciarrochi *et al.*, 2006, p. xvi). Despite the importance of, and increasing interest in, little research has been done that links emotional intelligence with coping with new technologies in a blended learning environment.

1.3.5 Positive emotion and resilience

> The role of positive psychology can be seen across a range of life domains, for example, in areas of performance, motivation, and achievement, in the workplace and relationships, and in its impact on health and well-being (Moore, 2002, p. 105).

Traditional research on emotion theory focused on the management of negative emotions, and did not take into the account the effect of positive emotions (Folkman & Moskowitz, 2000b; Fredrickson, 2005; Tugade & Fredrickson, 2001). Fredrickson developed the broaden-and-build theory in an attempt to clarify the adaptive benefits of positive emotions (Fredrickson, 2005; Fredrickson & Joiner, 2002; Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). According to Fredrickson, broadened mindsets created by positive emotions carry adaptive benefits in the sense that new and adaptive lines of thought and action are encouraged (Fredrickson, 2005; Fredrickson & Levenson, 1998; Fredrickson *et al.*, 2000). The experience of positive emotions has the effect that individuals become more creative, knowledgeable and resilient (Tugade & Fredrickson, 2001). As a consequence, an incidental effect of the experience of positive emotions is the increase of personal

[1] See chapter 2 for a detailed discussion of the Bar-On and Goleman models of EI.

resources, and these resources may be tapped into when needed in stressful situations (Fredrickson, 2005; Fredrickson *et al*., 2000; Fredrickson & Tugade, 2003; Tugade & Fredrickson, 2001).

Resilient individuals are described as having the ability to "bounce back" from adverse conditions to overcome negative experiences and to thrive on challenges (Glicken, 2006; Grotberg, 2003). These descriptions correspond with the abilities pertaining to emotional intelligence in the sense that, according to the ability model of emotional intelligence, emotionally intelligent people are capable of understanding their emotions, –both positive and negative – are proficient in processing emotional information and have the ability to use these emotions when solving problems (Mayer & Salovey, 1993; Mayer & Salovey, 1995; Mayer & Salovey, 1997).

1.3.6 Coping, stress and emotions

> The person's effort to dissolve the adversity, to dampen its subjective impact, or to accommodate to the new life situation that the adversity brings with it, are the essence of coping – and of self-regulation (Carver & Scheier, 1999, p. 571).

The quest to understand the way in which individuals cope with stress is documented in a vast array of articles and books. Richard Lazarus's seminal book, *Psychological stress and the coping process*, heightened interest in coping and stress (Frydenberg, 2002b). Since that time the majority of the research on stress and coping has focused on negative emotions (Folkman & Moskowitz, 2000b; Folkman & Moskowitz, 2004; Frydenberg, 2002b).

The effect of positive emotions on the outcome of the coping process in stressful contexts is an exciting new direction in research on the coping process (Folkman & Moskowitz, 2000b; Folkman & Moskowitz, 2004). Several writers have reported on the importance of a positive coping approach in dealing with stressful situations (Carver & Scheier, 1999; Folkman & Moskowitz, 2000a; Frydenberg, 2002a; Greenglass, 2002; Moore, 2002). In their review of relevant studies, Folkman and Moskowitz report on evidence indicating that positive emotions serve as a buffer against stress (Folkman & Moskowitz, 2000a; , 2000b). Fredrickson and colleagues (Fredrickson & Joiner, 2002; Fredrickson & Levenson, 1998; Fredrickson *et al*., 2000; Fredrickson & Tugade, 2003) emphasised the interest in positive emotions when they reported on the adaptive affect

of positive emotions in stressful situations. What is important for this study is that these findings suggest the significance of positive emotions in terms of coping strategies.

Zeidner, Matthews and Roberts (Zeidner *et al.*, 2006, p. 100) comment on the paucity of research on emotional intelligence and state "Research on EI has often neglected the extensive and well-established literature on stress, emotion and coping". These authors reiterate this, while at the same time they examine the opposite pole when they state "viewed from another perspective, however, existing stress research may actually have missed something important about individual differences, which is captured by emerging models and measures of EI" (2006, p. 100).

1.3.7 Emotion in the workplace

Understanding emotions in the workplace settings and the role of emotions in organisational settings are issues that are gaining attention (Ashkanasy, 1997; Ashkanasy, 2002; Ashkanasy & Dasborough, 2003). Jordan and colleagues address the role of emotional intelligence as a moderator in the way individuals cope with stressors at work (Jordan, 2004; Jordan, Ashkanasy, & Hartel, 2002; Jordan, Ashkanasy, & Hartel, 2003). As a further development, Ashkanasy, Ashton-James and Jordan propose a model that provides a deeper understanding of the mechanisms underlying coping and emotional intelligence (2004). Their model has implications for further research in the sense that it provides a framework for studying coping strategies and the role of emotional intelligence.

This study will draw from the constructs "emotional intelligence", "positive emotions", "resilience", and "stress" and "coping".

1.4 Problem statement and rationale

Typical statements in the literature pinpoint the changing landscape in higher education. As the demand for technology-enhanced online courses increases, the pressure on lecturing staff to rise to the challenge will also increase.

> The latest evolution of the Internet, the so-called Web 2.0, has blurred the line between producers and consumers of content and has shifted attention from access to information toward access to other people. New kinds of online resources – such as social networking sites, blogs, wikis, and virtual communities – have allowed people with common interests to meet, share ideas, and collaborate in innovative ways. Indeed, the Web 2.0 is creating a new kind of participatory medium that is ideal for supporting multiple modes of learning (Brown & Adler, 2008).

Students nowadays live in a different world in which different media facilitate the access of information in different ways (Van 't Hooft & Vahey, 2007). Van 't Hooft and Vahey propose that the students of today prefer:

- "quick and open access to information that is networked/hyperlinked;
- actively networking and communicating with many others;
- current digital tools over print;
- multimedia before text;
- just-in-time learning that is relevant and useful;
- expressing their creativity" (2007, p. 4).

It is my contention that these preferences of students have important implications for this study because, if lecturers keep pace with the upcoming generation, they may perhaps be able to stay connected to their students. Therefore, a possible way in which to address approaches to teaching and learning could be the use of educational technologies to ensure a better fit with the students of today and their needs (Van 't Hooft & Vahey, 2007). Aspden and Moore (2004, p. 6) found that students are apparently "capable of coping and adapting to the challenges and opportunities of e-learning". They state that the challenge to lecturers is that they should ensure that they are doing the same.

A lack of the necessary skills, and new technologies that are not intuitive to use may cause anxiety and stress (Lawless & Allan, 2004). Dwyer (2002, p. 265) points out the necessity for training in order to be able to utilise those strategies that will assist in achieving learning outcomes. He urges the re-examining of our training methods to ensure that we adopt brain-based learning (Sylvester, 1995), multiple intelligence (Gardner, 1993) and emotional intelligence (Mayer & Salovey, 1997) in order to provide the most advantageous learning environments.

As the drive towards e-learning in higher institutions increases, with expectations of an increase in input rates and retention, the successful mastering of new technologies is becoming more and more crucial (Berge & Huang, 2004).

> Science and technology are the crucial structural driving forces in all societal spheres. Sustainable development is the ethically founded response to a worldwide process in which not only research is increasingly carried out on the basis of private and economic interests but where these interests are also shaping the profile of academically educated young people (Barth et al., 2007, p. 416).

In their article on the development of key competencies for sustainable development in higher education, Barth *et al.* (2007, p. 416) state that, seen against the backdrop of globalisation, "acquiring relevant competencies within and by academic work cannot be a private concern of faculty, staff or administration. Absolutely essential is a new learning culture which does not confirm academic tradition, but examines its potential for a sustainable future, in an open-minded and participative process".

Bonk *et al.* (2006b) spell out the role that lecturers will play as the emerging blended learning specialists in the next decade. Not only will it be expected that these lecturers possess skills in the traditional classroom settings, but, as is important for this study, also those skills which are necessary for virtual environments (Bonk *et al.*, 2006b). Spector (2001) cautions that, over the past years, little consideration has been given to those abilities needed by lectures to integrate new educational technologies into teaching practices effectively. The fact that new technologies introduce new challenges is not a novel idea, but what is important is the pace of development of new educational technologies, and the need for lecturers to keep abreast of this pace in order to ensure that teaching and learning are relevant to the needs of students. Spector (2001, p. 8) notes that the "big lesson about technology and learning from the 20th century is that less is known about how people learn than many educational researchers are inclined to admit".

Against this background, the research problem for this study is whether emotional intelligence has a role to play in coping with the mastering of new educational technologies. The rationale, therefore, is that, by empowering lecturers with optimal skills with which to cope and master new educational technologies, the fulfilment of promises and benefits of blended learning may be realised.

1.5 Purpose and significance of the study

This study will focus on the role played by emotional intelligence in coping with the mastering of new educational technologies as encountered in the Partners@Work programme.

The conceptual model of emotional intelligence that was developed by Salovey and Mayer (1990); the process model of emotional intelligence and coping (Ashkanasy, 1997; Ashkanasy, 2002; Ashkanasy, Ashton-James, & Jordan, 2004; Ashkanasy & Dasborough, 2003); stress, appraisal and coping (Folkman & Moskowitz, 2004; Lazarus, 1991; Lazarus, 1999; Lazarus & Folkman, 1984); positive emotions and coping (Folkman, 1997; Folkman, 1999; Folkman & Greer, 2000; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman & Moskowitz, 2000a; Folkman & Moskowitz, 2000b); and the broaden-and-build theory (Fredrickson, 2005; Fredrickson & Joiner, 2002; Fredrickson & Levenson, 1998; Fredrickson *et al.*, 2000; Fredrickson & Tugade, 2003), will serve as a conceptual framework for this study.

The purpose of the study is to explore and describe the links between emotional intelligence and the ability to cope with mastering new educational technologies. The main research question for the study is:

- What are the linkages between emotional intelligence and coping strategies when mastering new educational technologies?

The following three sub-questions were formulated:

- What strategies do participants with diverse emotional intelligence profiles implement in order to master new educational technologies?
- What were the cognitive thought processes and emotions experienced by the participants while using diverse coping strategies?
- What are the trends regarding linkages between emotional intelligence and the coping strategies used by participants?

It is presumed that this study may contribute towards a deeper understanding of emotional intelligence as a moderator of work stress (Ashkanasy *et al.*, 2004) and of the stress encountered in mastering new educational technologies with subsequent

coping strategies. With its contribution to this emergent body of knowledge, the significance of the study lay in the clarification of the role of emotional intelligence in mastering and coping with new educational technologies. The results of this study might make possible the provision of guidelines to facilitators to optimise training in blended learning courses.

1.6 Research design and methodology

This study comprises a mixed methods approach within a case study design. The unit of analysis in the case study consists of the 2004 participants in the Partners@Work programme at the Department of Telematic Education at the Tshwane University of Technology, as I wanted to explore the linkages between coping strategies and emotional intelligence in a blended learning environment. The unit of analysis provided rich and detailed data for this study.

A mixed method approach, that is, the use of both qualitative and quantitative data, assisted in crystallising the data in order to provide a deeper understanding of how participants coped with the mastering of new educational technologies (Richardson, 2000, p. 934).

I adopted an interpretivist approach for studying the experiences, emotions and coping strategies of the participants, and a constructivist grounded theory approach for analysing and interpreting the data.

Owing to the volume and richness of the collected data, Atlas.ti™[2], a qualitative data analysis software package, was used in the preparation of the data for analysis. Using the analytical tools in the package, I endeavoured to enhance the validity of the study with detailed descriptions and examples of the procedures and outcomes during coding and data analysis

1.7 Limitations of the study

The study focused on a small group of participants in a single case, therefore the findings can not be generalised. I made an effort to describe the experiences, cognitive thought processes, emotions and coping strategies of the participants in a rich,

[2] I trained in the use of Atlas.ti™ with Woolf Consulting, Carpinteria, California, U.S.A.

descriptive and detailed way, giving readers sufficient information to judge the applicability of findings to their own settings.

Analysis of the data started after the conclusion of the 2004 Partners@Work programme and I was advised not to use interviews with participants, as too much time had elapsed. I therefore focused on the documents created during the programme, forming a rich set of data. During the programme, a focus group was held, but as the participants requested anonymity, I could not use this data for my study.

Another limitation of the research is that it is biased towards the verbal and narrative accounts, as less verbal participants did not blog as much as the more verbal participants. Absence of observation notes also limits the study.

1.8 Self-efficacy: A construct emanating from research findings

During analysis of the data, the importance of the role of self-efficacy as a construct, emerged. The following section proposes to give an overview of this construct in relation to the research findings.

In the introduction his edited book, *Self-efficacy: Thought control of action*, Schwarzer (1992, p. ix) proclaims: “Human functioning is facilitated by a personal sense of control. If people believe that they can take action to solve a problem instrumentally, they become more inclined to do so and feel more committed to this decision.”

Bandura’s (1992; Bandura, 1997) Social Cognitive Theory (SCT) offers an extensive framework for understanding human functioning and motivation in different contexts. Within SCT, self-efficacy is a key construct, as Bandura posits that “self-beliefs of efficacy influence how people feel, think and act” (Bandura, 1992, p. 3). What is important for self-efficacy as a construct is that it is considered to be highly specific (Schwarzer, 1992, p. ix). An individual “can have more or less firm beliefs in different domains of functioning” (Schwarzer, 1992, p. ix). In the environment of mastering new educational technologies, an individual may feel highly efficacious in mastering a specific technology, yet have low self-efficacy in mastering another.
Bandura reports on studies involving variables in motivation (Bandura, 1992; , 1997), where self-efficacy correlated highly with past experiences and was found to be the best predictor of achievement. Bandura (1992) identifies four constructs within SCT as sources of self-efficacy beliefs:

- past mastery experiences;
- vicarious experiences;
- social persuasion;
- physiological and affective states.

Schwarzer (1992, p. ix), however, warns that self-efficacy "is not the same as positive illusions or unrealistic optimism". As self-efficacy is based on experience, it does not lead to unreasonable risk taking, but to venturesome behaviour within the capabilities of an individual. According to Schwarzer (1992, p. x), "self-efficacy does not simply reflect the perception of accomplishments; instead, it is based on subjective inferences from different sources of information".
Bandura (1992, p. 10) asserts that four key processes regulate human functioning:

- cognitive;
- motivational;
- affective;
- selection processes.

Cognitive processes
According to Bandura (1992), self-efficacy beliefs have an effect on thought patterns that can either improve or undermine performance. The cognitive processes can materialise in different forms, such as forethought. Bandura (1992, p. 10) explains that, as much of human behaviour is purposive, behaviour is regulated by forethought embodying "cognized goals". The self-appraisal of an individual influences the individuals' personal goal setting. Bandura (1992, p. 10) contends that the "stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment to them. Challenging goals raise the level of motivation and performance attainments". Bandura reports that performance can be enhanced if individuals visualise themselves performing activities with skill. According to Bandura (1992, p. 10), "perceived self-efficacy and cognitive simulation affect each other bi-directionally". Cognitive thought processes that perceive the self as effective strengthen self-efficacy beliefs, while negative thinking anticipating failure undermines performance (Bandura, 1992).

Motivational processes

"Self-beliefs of efficacy play a central role in the self-regulation of motivation" (Bandura, 1992, p. 24). Bandura reasons that most of an individual's motivation is cognitively generated, where individuals motivate themselves and guide their actions by forethought. Forming beliefs in what they can do and achieve, individuals set goals for themselves, anticipating the positive outcomes of their actions and planning courses of action to realise goals (Bandura, 1992).

Affective processes

"The self-efficacy mechanism also plays a pivotal role in the self-regulation of affective states" (Bandura, 1992, p. 24). Bandura believes that in order to understand individuals' appraisal of external threats and their affective reactions to these threats, it is important to analyse their judgments of their coping capabilities, which largely determine the subjective appraisal of the safety of situational events (1992, p. 24). Individuals who believe in their ability to be in control of a situation will not conjure up negative thoughts, and therefore not be perturbed by them. On the other hand, individuals who feel they are not in control of a potentially threatening situation will experience high levels of anxiety. Bandura (1992, p. 25) contends that these individuals tend to dwell on their coping deficiencies, viewing aspects of the context of the situation as fraught with danger, magnifying the severity of possible threats and worrying about things that hardly ever happen. By harbouring these ineffective negative thoughts these individuals cause distress for themselves, constraining optimal functioning (Bandura, 1992).

Bandura (1992, p. 26) reports that "the role of perceived self-efficacy and anxiety arousal in the causal structure of avoidant behaviour has been examined in a number of studies". Results from these studies indicate "that people base their actions on self-beliefs of efficacy in situations they regard as risky" (Bandura, 1992, p. 26). According to Bandura, individuals will avoid potentially threatening and risky situations and activities not because of anxiety experienced, but because they believe they are unable to cope successfully. Avoidance is a self-protecting action taken in situations perceived to be risky (Bandura, 1992).

Selection processes

"People can exert some influence over their life paths by the environments they select and the environments they create" (Bandura, 1997, p. 11). on the decision to be either

being positive or negative, influences the environment an individual creates for themselves to function in.

1.9 Potential contribution of the study

Addressing the issue of the dismal impact of qualitative and quantitative research on teaching and learning in higher education, Reeves, Herrington and Oliver (2005, p. 108) recommend that instructional technology researchers employ design research in an effort to advance teaching and learning in higher education. Reeves *et al.* (2005, pp. 107-108) cite Van den Akker giving a concise description of design research:

> More than most other research approaches, development [design] research aims at making both practical and scientific contributions. In the search for innovative 'solutions' for educational problems, interaction with practitioners is essential. The ultimate aim is not to test whether theory, when applied to practice, is a good predictor of events. The interrelation between theory and practice is more complex and dynamic: is it possible to create a practical and effective intervention for an existing problem or intended change in the real world? The innovative challenge is usually quite substantial, otherwise the research would not be initiated at all. Interaction with practitioners is needed to gradually clarify both the problem at stake and the characteristics of its potential solution. An iterative process of 'successive approximation' or 'evolutionary prototyping' of the 'ideal' intervention is desirable. Direct application of theory is not sufficient to solve those complicated problems.

Collating the work of several authors (Bannan-Ritland, 2003; Design-Based Research Collective, 2003; Kelly, 2003) Reeves *et al.* proclaim several characteristics as distinctive of design research, of which the following characteristic relates to this study: "A commitment to theory construction and explanation while solving real-world problems" (2005, p. 103).

Reeves *et al.* (2005, p. 107) assert that "theory informing practice" is at the heart of design research. According to these authors, design research originated from the desire of educators to improve learning "from an informed theoretical perspective" (Reeves *et al.*, 2005, p. 107). Therefore, "design research is grounded in the practical reality of the instructor, from the identification of significant educational problems to the iterative nature of the proposed solutions" (Reeves *et al.*, 2005, p. 107).

Edelson (2002, p. 107) argues that design research provides opportunities to learn unique lessons, and therefore has an important role to play in influencing educational

practice. In the course of the design process, designers need to make decisions about design procedures, problem analyses and design solutions. Instructional designers "learn about teaching, learning and the educational context" in making these decisions (Edelson, 2002, p. 112). Design offers the opportunity to develop useful theories. Edelson (2002, p. 113) names three types of theory:

- domain theories;
- design frameworks;
- design methodologies.

A domain theory constitutes the generalisation of some part of the problem analysis (Edelson, 2002). For example, a domain theory could theorise about the learning process in relation to the learners and how they learn. It is therefore a theory about the world and not about design, and it is descriptive by nature (Edelson, 2002, p. 113). Edelson (2002, p. 114) defines a design framework as a "generalised design solution". Design frameworks are prescriptive, describing the characteristics that the designed object needs to have in order to attain specific goals in a specific context. A design framework is thus a set of design guidelines pertaining to a design challenge in a specific context. Edelson (2002, p. 114) cites Van den Akker in describing design frameworks as *substantive design principles* and being distinctive characteristics of design research.

Design methodologies are described as general design procedures. Being prescriptive, design methodologies provide "guidelines for the process rather than the product" (Edelson, 2002, p. 115). Described as *procedural design principles* by Van den Akker, design methodologies describe "a process for achieving a class of designs, the forms of expertise required, and the roles to be played by the individuals representing those forms of expertise" (Edelson, 2002, p. 115).

From the results of this study, I identified factors which, if addressed in practice, could possibly empower lecturers in training programmes with optimal skills to cope with and master new educational technologies. Combining the literature review and the results of this study, the proposed interventions can thus be described in terms of a design framework as defined by Edelson (2002, p. 114), providing a "generalised design solution". Figure 1.1 presents a graphical view of where the proposed interventions fit into the stress, appraisal and coping process pertaining to the mastering of new educational technologies.

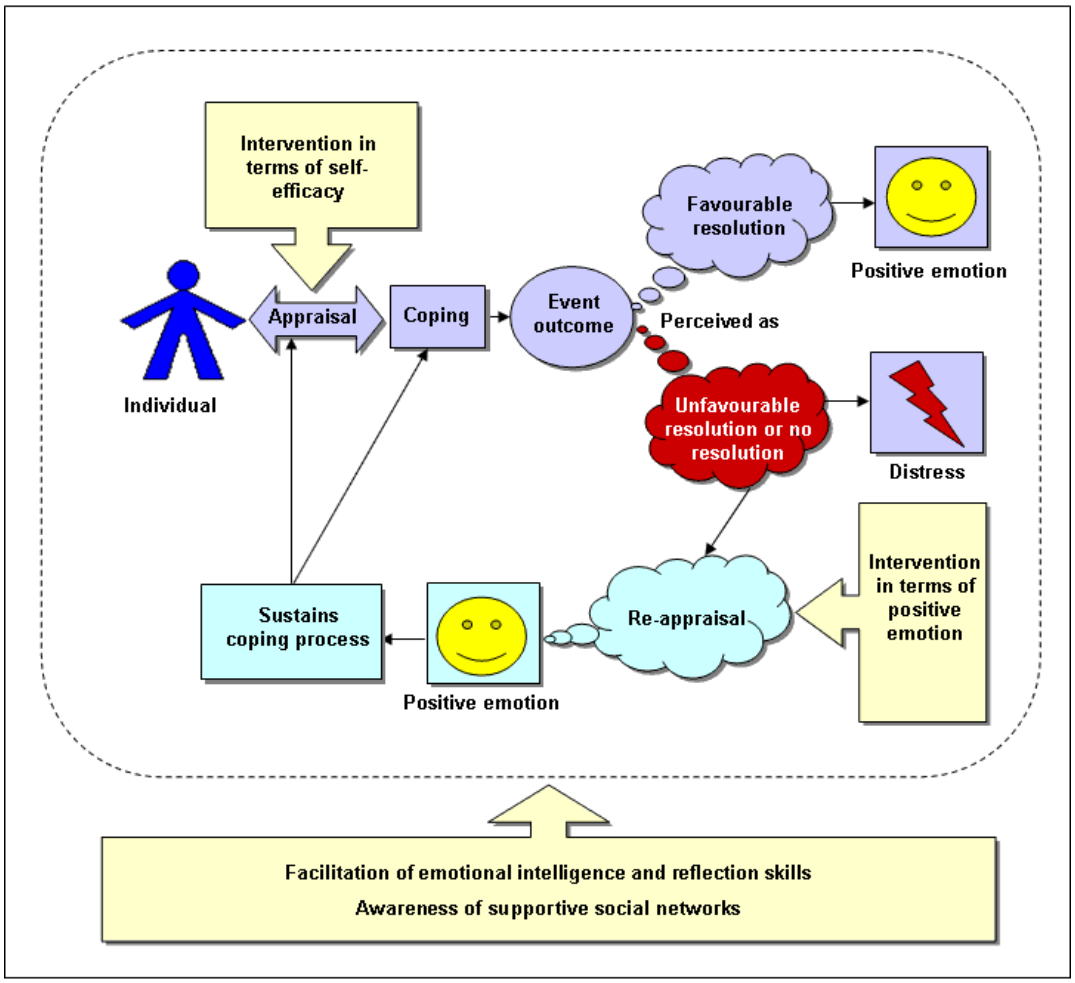

Figure 1.1 Interventions with introduction of new educational technologies

In terms of the research findings, I propose that the following interventions be included in the design of programmes introducing new educational technologies to lecturers:

- Introducing new educational technologies in such a way that resilient self-efficacy may develop by guiding and assisting in the mastering of the technologies. Persuading participants in training programmes that they can succeed, with interventions by the programme facilitator, giving manageable chunks of work and guiding them step-by-step in the mastering process.

- In accordance with Fredrickson (2005, p. 120), the cultivation of positive emotions could bring into being optimal functioning in coping with the mastering of new educational technologies. The importance of positive emotions should not be underestimated, as this is emphasised in the work of various researchers (Bandura, 1992; Carr, 2004; Carver, 1998; Carver &

Scheier, 2005; Folkman & Moskowitz, 2000a; Fredrickson, 2005; Fredrickson *et al.*, 2000).

- Empowering participants in training programmes with the facilitation of reflecting skills. This may stimulate cognitive activities such as questioning, self-awareness, problem stating, problem solving, emoting and ideation, enabling them "to become more independent in their approach to learning with, and about, computers in the future" (Phelps, Ellis, & Hase, 2001, p. 481)

- Awareness of supportive social networks. In a programme facilitating the mastering of new educational technologies, participants must be made aware of the significance of social support networks as a resource during the coping process.

- The introduction of a programme to develop emotional intelligence. Several authors have commented on the importance of emotional intelligence, not only in the transformation of effectiveness in work situations, but also in personal development (Caruso, 2006; Caruso & Salovey, 2004; Sparrow & Knight, 2006; Zeidner *et al.*, 2006). In their book, *The emotionally intelligent manager: How to develop and use the four key emotional skills of leadership*, Caruso and Salovey (2004) give guidance on assessing, learning and applying emotional intelligence skills. This may serve as a starting point in the development of emotional intelligence skills in training programmes.

This chapter concludes with an outline of the study and a description of the way in which the study was organised.

1.10 Outline and organisation of study

Table 1.1 presents an outline and organisation of the study.

Table 1.1 Outline and organisation of study

Chapter	Content	Outcome
1	**Orientation** • Problem statement and rationale • Purpose and significance • Context of study • Research design and methodology • Terms and definitions	Provide background and rationale as an introduction to the study.
2	**Literature analysis** • Emotional intelligence • Stress, appraisal and coping • Positive emotions, resilience and coping • Broaden-and-build theory • Process model of affective response • Assumptions	Conceptual framework to guide the study
3	**Methodology** • Role of the researcher • Research process • Ethics	Providing a roadmap for conducting the study
4	**Interpretation of results** • Coping strategies • Cognitive thought processes and emotive feelings of participants	Answer to sub-questions 1 and 2
5	**Links between EI and coping** • Main trends • Comparison of demonstrated and predicted EI skills of participants • Findings of the study	Answer to sub-question 3 and main research question
6	**Conclusion and recommendations** • Revisiting assumptions and research questions • Theorising the research findings • Recommendations • Reflection	Concluding study findings