LINKING EMOTIONAL INTELLIGENCE TO ACHIEVE TECHNOLOGY ENHANCED LEARNING IN HIGHER EDUCATION

Dr. Janette KRUGER
School for Continuing Teacher Education, North-West University
Potchefstroom, North-West Province, SOUTH AFRICA
Prof. Dr. A. Seugnet BLIIGNAUT
School for Continuing Teacher Education, North-West University
Potchefstroom, North-West Province, SOUTH AFRICA

ABSRTACT

Higher education institutions (HEIs) increasingly use technology-enhanced learning (TEL) environments (e.g. blended learning and e-learning) to improve student throughput and retention rates. As the demand for TEL courses increases, expectations rise for faculty to meet the challenge of using TEL effectively. The promises that TEL holds have not yet materialized, as not enough faculty master the skills and knowledge to integrate TEL into their teaching and learning. The role of emotional intelligence (EI) in attaining TEL in e-learning and blended learning environments is not yet clear. This article reports a case study at a South African university where the former Department of Telematic Education introduced a program to prepare faculty for the implementation of TEL for ODL. This research explores and describes links between emotional intelligence and faculty's ability to cope with new learning technologies. The purposive sampling comprised ten participants who completed a set of e-activities. A mixed methods approach triangulated the findings which provided insight into the coping tactics participants used to accomplish TEL for ODL. Five trends emerged: perception of adequate ability, cognitive decision making; perception of stressful situations; emotional disclosure; and social networking. Although the study identified links between emotional intelligence and coping strategies, the interdependency of coping strategies and emotional intelligence remains elusive.

Keywords: E-Learning; Positive Emotions; Self-Efficacy; Educational Technologies; Emotional Intelligence; Coping Strategies

INTRODUCTION

Faculty's accomplishment of new technologies has become an important aspect of technology enhanced learning (TEL) for open distance education (ODL) at higher education institutions (HEIs). It highlights two interconnected issues: the expectation of faculty's articulate use of new technologies, and the expectation of students' increased retention and success rates through well-designed learning material (Berge & Huang, 2004). Faculty must not only succeed in traditional classrooms, they must also be fluent in TEL (C.J Bonk, Kim, & Zeng, 2006). Bonk and Kim (2004) describe these new competencies as emerging TEL specialisation. Spector (2001) cautions that little consideration goes into the competencies faculty requires for the effective integration of TEL into their teaching practices. Students entering higher education differ from previous generations through the rapid advancement of information technology (Frand, 2001).

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To stay abreast of changing students' learning styles, faculty should develop competencies in co-design and co-instruction. They should guide social constructivist and situated learning pedagogies in order to facilitate and assess beyond chalk-and-talk, tests, and paper writing. It is not easy to develop these neo-millennial learning styles (Dede, 2004). Faculty should professionally develop "approaches to learning, their beliefs, attitudes and meta-cognitive understandings ... [as well as] ... engage in self-directed and lifelong computer learning" (Phelps, Graham, & Kerr, 2004, p. 50).

Faculty should also keep abreast with their students' TEL needs as new media pose new challenges to teaching and learning. Spector (2001, p. 8) warns 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." By empowering faculty with coping skills to master new TEL, the promises and benefits of TEL may be realized rather than more technologies joining the graveyard of earlier failed TEL applications.

New learning technologies develop daily. The corporate workplace and HEIs regularly introduce training courses. Lifelong learning is no longer a dream but the universal reality of professional development. HEIs increasingly use TEL environments (blended learning and e-learning) to meet the academic demands of lifelong learning. If successful, many expect substantial instructional change (Moore, Fowler, & Watson, 2007; Oliver, Herrington, & Reeves, 2006; Rubenstein, 2003). However, little has materialized in spite of extensive TEL claims and promises. Not enough faculty masters the competencies to integrate TEL into their teaching (Moore et al., 2007; Spector, 2001). Although e-learning tools are available at most HEIs and on the Internet, faculty remains technically inept. They criticize TEL for the perceived negative effect on learning outcomes. Faculty's inadequate use of technology in teaching and learning, and the not-so-intuitive technologies lead to emotional stress (Lawless & Allan, 2004).

Quinn (2005, 2006) 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 optimize learning experiences. As emotions play a critical role in teaching and learning, they should be treated as equal partners in the theory and practice of teaching and learning. Emerging new learning technologies call for deeper insights of how emotions inform teaching and learning with TEL (O'Regan, 2003).

Working as an instructional designer in the use of educational technologies, the first author of this paper became interested in the way faculty responds to new technologies. While some appear to cope naturally and easily with new TEL, others encounter obstacles. Interest in EI as a work moderator led to the general aims of the study to determine links between EI and faculty's mastering of new TEL technologies.

EMOTIONAL INTELLIGENCE

In the early nineties Mayer and Salovey (Mayer, DiPaolo, & Salovey, 1990; P. Salovey & Mayer, 1990) described emotional intelligence as the processing of emotional information in social contexts. They propose that humans comprehend and use emotional information cognitively as, "the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (P. Salovey & Mayer, 1990, p. 189).

They later construct a four-branch model of emotional intelligence and redefined IE as "the abilities to perceive, appraise, and express emotion; to access and or generate feelings when they facilitate thought; to understand emotion and emotional knowledge; and to regulate emotions to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p. 10). Ciarrochi et al. (2006, p. xv) that "the concept of emotional intelligence suggests that intelligence may understand emotion, and that emotion may facilitate intelligence". Figure 1 illustrates the Salovey and Mayer four-branch ability model of EI: (i) perception, appraisal and expression of emotion; (ii) emotional facilitation and thinking; (iii) understanding and analyzing emotions; and (iv) reflective regulation of emotions.
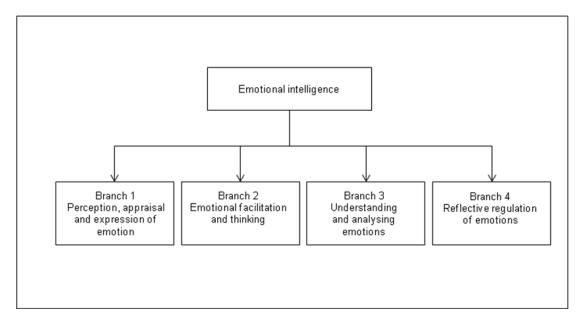

Figure: 1
The Mayer-Salovey Four-branch Ability Model of Emotional Intelligence
(Mayer & Salovey, 1997, p. 11)

The authors selected the ability model to explore links between EI and coping strategies during the mastering of technologies, as it is the only model that is skill-based and does not rely on respondents' self-report (Mayer, Caruso, & Salovey, 2000; J.D Mayer, P. Salovey, & D.R. Caruso, 2000; Mayer, Salovey, Caruso, & Sitarenios, 2001; Mayer, Salovey, Caruso, & Sitarenios, 2003). Caruso et al. maintain that "the model does not focus on personality traits or dispositions per se, except as a product of having these underlying skills" (Caruso, Mayer, & Salovey, 2002). The ability model inherently links to coping strategies because it focuses on the ways in which emotions may facilitate thinking and adapt aptitude (Mayer et al., 2001; Mayer et al., 2003). In terms of how EI intelligence relates to standard intelligence, Mayer et al. argue that "symposia on intelligence over the years repeatedly conclude that the first hallmark of intelligence is high-level mental ability such as abstract reasoning" (J.D. Mayer, P. Salovey, & D.R. Caruso, 2000, p. 399). Mayer and co-workers (2000; 2001) provide evidence that EI meets the criteria of a standard intelligence.Salovey et al. developed a hierarchy of emotional competencies to "facilitate the application of emotional intelligence to the coping process" (P Salovey, Bedell, Detweiler, & Mayer, 1999, p. 146). Included in this hierarchy are the competencies of EI most relevant to the coping process. 101
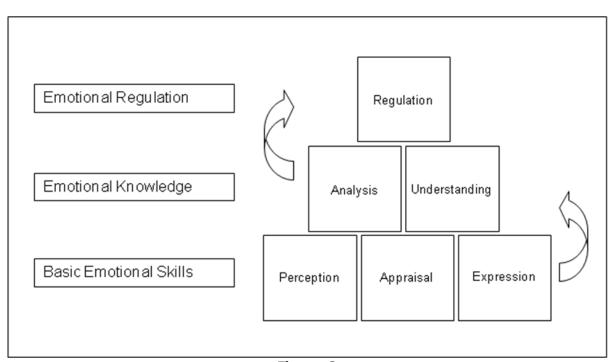
Figure 2 illustrates the relevant competencies of EI in the emotional coping hierarchy used in this study.

Figure: 2
The Emotional Coping Hierarchy (P Salovey et al., 1999, p. 146)

Perception, appraisal, expression and facilitation are on the first level of the emotional coping hierarchy. Understanding and analysis, more sophisticated subcomponents of emotional knowledge, are on the second level. Emotional regulation occupies the third level (P Salovey et al., 1999). In order to cope, "the entire hierarchy of emotional coping skills must be successfully developed and employed" (P Salovey et al., 1999, p. 146).

Insufficient information is available on EI in mastering new technologies in TEL. Authors disagree on the role of EI in order to cope in the workplace. Supporters argue how much EI may enhance workplace performance and career success (Lopes, Salovey, & Straus, 2003; Mayer, 2006; P Salovey, Brackett, & Mayer, 2004). The question of this paper is: How does EI influence faculty's coping with anxiety while learning TEL?

RESEARCH DESIGN AND METHODOLOGY

Background to the Study
The former Department of Telematic Education at the Tshwane University of Technology introduced a professional development program, the Partners@Work (P@W) program to assist faculty in the development of TEL courses with the aim of ODL preparation. The program also addressed local challenges of low pass rates, large student groups and geographically dispersed students in three phases: design and development, implementation, and an ongoing research project (Van Ryneveld & Van der Merwe, 2005).

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This case study cohort comprised fourteen faculty members of a P@W group; four males and ten females. All used English as a second language, with Afrikaans, Tswana and Persian as their home languages. Their qualification levels ranged from BTech, MTech, and a Doctorate in Physical Education. The participants were assigned to one of the four instructional designers (including the main researcher). For a year, she assisted the group to master TEL while observing the expectation and demand intensity of the P@W program.

During the design and development phase of the program, the faculty developed TEL 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, supported their course development. Capacity building strategies included contact sessions, and online learning based on a model of social constructivism, facilitated networking, shared ideas, tutored progress, and support of their challenges and efforts. Workshops and facilitated hands-on work sessions augmented the program (Van Ryneveld & Van der Merwe, 2005).

A Yahoo Messenger™ network facilitated a virtual online learning community that also functioned during contact sessions. The Partners@Work used Blogger, an online reflective diary, to share their learning experiences.

The instructional designers called for feedback and reflection after each contact session on what the faculty enjoyed, found useful, would change, and how they would change it. The instructional designers used the Blogger narratives to interactively improve the program.

These Blogger reflections formed the qualitative dataset of the case study.

Research Approach
This case study followed a multi-strand, concurrent, mixed methods case study procedure (Merriam, 1998; Stake, 2000; Tashakkori & Teddlie, 2003b). Creswell defines a case study research as an approach "in which the investigator explores a bounded system [a case] ... over time, through detailed, in-depth data collection involving multiple sources of information" (Creswell, 2007, p. 73).

Johnson and Onwuegbuzie define mixed methods research as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie, 2004, p. 17).

While qualitative and quantitative ontology, epistemology and methodology differ, the research combined the approaches to provide a holistic approach. Johnson and Onwuegbuzie point out that "that the goal of mixed methods research is not to replace either of these approaches but rather to draw from strengths and minimize the weaknesses of both in single research studies and across studies" (Johnson & Onwuegbuzie, 2004, pp. 14-15).

Pragmatism underpinned the study. An interpretive stance explored the participants' experiences, emotions and coping strategies, while a constructivist grounded theory approach guided the analysis of the data.

The main researcher collected data sequentially and simultaneously to address the research question.

A mixed methods approach confirmed the theoretical emotionally intelligent abilities of participants (quantitative strand) with the demonstrated emotionally intelligent abilities (qualitative strand) (Figure: 3).
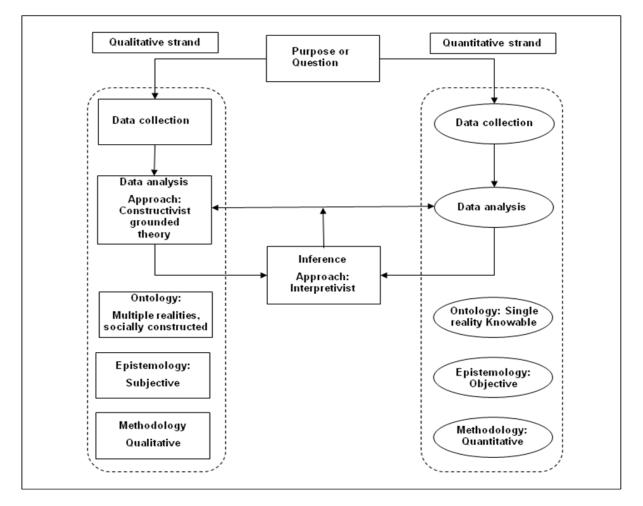

Figure: 3
Visual model of the research strategy (Tashakkori & Teddlie, 2003a, p. 688)

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Participant Selection

A purposeful sample comprised of ten participants from the P@W program at TUT that completed three TEL artefacts during the first six months of the program. In order to crystallize collected data all the participants should have completed the same artefacts. Ten of the fourteen faculty members met this criterion and consequently participated in the study. At the outset the main researcher provided participants with non-technical, clear explanations of the research expectations for them to choose to participate in the research. They were also assured of confidentiality and could withdraw at any point.

Data Collection and Analysis

The variety of data collection methods strengthens research (Johnson & Onwuegbuzie, 2004; Johnson & Turner, 2003; Tashakkori & Teddlie, 2003a). Data collection strategies should enable the researcher to "provide convergent and divergent evidence about the phenomenon being studied" (Johnson & Turner, 2003, p. 299). Combining qualitative and quantitative approaches enhances reliability by providing "stronger evidence for a conclusion through convergence and corroboration of findings" (Johnson & Onwuegbuzie, 2004, p. 21). Data collection instruments consisted of three artefacts compiled during the first six months of the program: online diaries in Blogger, essays, and end-of-program reflections. To amplify the reliability, the main researcher explored "multiple and conflicting voices, differing and interacting interpretations" (Hodder, 2000, p. 705) through multiple data collection strategies.

The research followed the process model of Johnson and Onwuegbuzie (2004). The researchers adapted the model to incorporate Onwuegbuzie and Teddlie's (2007) seven-stage model of analysis process: (i) data reduction, (ii) data display, (iii) data transformation, (iv) data correlation, (v) data consolidation, (vi) data comparison, and (vii) data integration. Due to the complex nature of the mixed methodology data, the researchers did not perform data correlation or consolidation.

The EI ability test, the Mayer-Salovey-Caruso-Emotional-Intelligence-Test™ (MSCEIT™) "provided precise, quantitative, numerical data" (Johnson & Onwuegbuzie, 2004, p. 19). A psychometrist collected and measured the participants' EI scores with the MSCEIT™ according to the four skills groups:

> ➢ perceiving emotion accurately;
> ➢ using emotion to facilitate thought;
> ➢ understanding emotion; and
> ➢ managing emotion (Mayer et al., 2003) (Figure 1).

The psychometrist provided the researchers with a reduced format of the EI score consisting of the final score, the total score, area scores and branch scores for each participant. To identify qualitative interpretation trends, the researchers qualitized the EI scores (quantitative data) according to the MSCEIT™ user guide (Mayer, Salovey, & Caruso, 2002), into qualitative values. Teddlie and Tashakkori describe qualitized data as "collected quantitative data types [that] are converted into narratives that can be analyzed qualitatively" (Teddlie & Tashakkori, 2007, p. 9).

This helped identify trends between the participants' predicted IE skills (as measured with the MSCEIT™) and their demonstrated EI competencies. In some instances the theoretical EI skills of the participants (as predicted by an interpretation of their EI scores measured with the MSCEIT™) concurred with the demonstrated EI competencies, i.e. the way in which participants coped with TEL.

According to Charmaz's constructivist grounded theory (2000), the main researcher partnered the participants. She was an *insider* in the P@W program and understood (verstehen) their interactions with the learning technologies, as well as their feelings while they learned TEL (Patton, 2002). The first author of the article interpreted the data in context.

Atlas.ti™, a computer-based qualitative data analysis software application enabled the researchers to prepare, reduce, and scrutinize the artefacts with "great depth, thoroughness and precision" (Pomerantz, 2004, p. 182). The qualitative data contained the reflections from the online diaries, the essay, and the end-of-course reflections for each participant. These three artefacts collated as an integrated dataset (heuristic unit) in Atlas.ti ™ for each participant. The main researcher combined inductive and deductive methods (Almarza, 1996; Boyatzis, 2000; Fereday & Muir-Cochrane, 2006) to explore, describe and understand the participants' coping strategies, their reasoning, and ability to learn new technologies. The researchers compared the participants' demonstrated EI abilities to their predicted emotional intelligence skills according to their EI as measured with the MSCEIT™ and interpreted according to the Emotional Coping Hierarchy of Salovey et al. (P Salovey et al., 1999).

FINDINGS AND DISCUSSION

The authors searched for links between coping strategies and EI abilities of the participants determined by analysis of their narratives compared with the predicted abilities of their MSCEIT™ analysis. The comparison between the participants' demonstrated EI skills and abilities and their predicted IE skills (as measured with the MSCEIT™, interpreted according to the Emotional Coping Hierarchy (P Salovey et al., 1999), only a few links emerged between the EI and their coping strategies. In some instances the theoretical EI skills of the participants (as predicted by an interpretation of their EI scores measured with the MSCEIT™) concurred with the demonstrated EI competencies, while in other instances not.

However, positive emotions played an important role in the mastering of new technologies. Many factors influence coping strategies during the mastering of new technologies. Self-efficacy beliefs, social networking, positive emotions, the facilitator, and the EI abilities affect the way faculty integrated technology in the courses they designed. The data analysis revealed three distinct groups:

> ➢ Group 1: Participants that used only positive coping strategies;
> ➢ Group 2: Participants that used both positive and negative coping strategies; and
> ➢ Group 3: Participants that used only negative coping strategies. Figure 4 provides a representation of the three groups of participants associated with the different coping strategies.
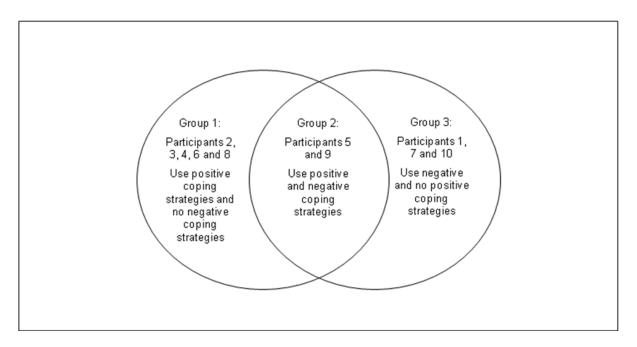
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Figure: 4
Groups of participants Associated with different coping strategies

Trends relating to links between emotional intelligence and the coping strategies
Individuals cope with stress differently (P Salovey et al., 1999). Five main trends emerged from this study on coping strategies: perception of adequate abilities, cognitive decision-making, perception of stressful situations, emotional disclosure, and social networking.

Trend: 1 Perception of Adequate Ability
When the participants from the three groups perceived the technology as user-friendly, they experienced no stress, resulting in a positive overall effect. During *perceived self-efficacy*, the participants used direct problem-solving coping strategies. They confidently applied the technology. This corresponds with benign-positive appraisal (Lazarus & Folkman, 1984). When participants appraised the situation positively, they felt good. They did not need EI as a coping strategy and voluntarily expressed their acceptance of the particular technology:

> *Respond us: Great, this was the answer to my dreams. The program did exactly what I wanted. Easy to operate and upload to WebCT.*

This perceived self-efficacy corresponds with the self-efficacy theory of Bandura (1997) who maintains that when individuals believe in their ability to organize and perform tasks, they also determine their expectations of the consequences of their actions.

The research of Carr research (2004) also supports the self-efficacy theory through cognitive, emotional and motivational processes. On the cognitive level, participants with high perceived self-efficacy, focused on beneficial prospects:

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Respond us is user friendly and most of the Partners reacted positively towards its capabilities. It was enlightening that multiple-choice, which may be regarded by some as a "monkey-puzzle" with little educational value, turned out to be quite the opposite. I believe that this programme has the ability to accurately test the students' knowledge.

The participants' self-efficacy beliefs determined their emotional state through the use of problem-focused coping and the use of social support as a safeguard and reduced stress:

Some [technologies] was easier than others. I have spent more time on practicing those that I found harder and also sought help from my ID and other partners where necessary.

On the motivational level, self-efficacy contributes to a positive attitude:

I've heard the following saying some time ago that meant a lot to me, and hopefully to everyone reading this blog: "Excellence and beauty come from passionately, motivated people." So, that's what I'm going to strive for in the coming days and weeks.

As "resilient self-efficacy develop from mastery experiences in which goals are achieved through perseverance and overcoming obstacles" (Carr, 2004, p. 211), the role of instructors turns out as vital in the process of learning TEL. Assisting individuals to overcome challenges, instructors should guide the learning TEL in a way that develops self-efficacy(Carr, 2004).

Trend: 2 Cognitive Decision-Making

Cognitive decision-making is a problem-focused coping strategy to avert challenges. Participants in all three groups used cognitive decision-making to link the use of a specific technology to how it may enhance their personal teaching and learning. As in Trend 1, when a technology was perceived as user friendly, the participants experience little stress while using this strategy, resulting in a positive learning effect. This supports the appraisal theory of Lazarus and Folkman (1984). Differences in the behaviour of participants in the three groups became apparent when they appraised the situation stressful. Stressors were perceived either positively as a challenge, or negatively as threat. This correlates with findings that individuals differ in the way they appraise and integrate stressors (Ashkanasy, Ashton-James, & Jordan, 2004; Folkman & Moskowitz, 2004; Lazarus, 1999; Lazarus & Folkman, 1984). The following section describes the appraisals of the three groups associated with different coping strategies (Figure 4).

Group 1 (Figure 4) participants reacted positively to the technology stressors (problems), as well as with the delivery of the P@W program. They reacted with alternative, creative ways to solving their technology problems. They used meta-cognitive thinking skills to make positive suggestions on how the instructional designers could enhance the P@W program.   They also reasoned progressively about the effective use of specific technologies in their specific fields of teaching and learning. The participants displayed the ability to cope adaptively with conquering stress (P Salovey et al., 1999).Group 2 (Figure 4) participants used cognitive decision-making coping strategies to overcome hindering aspects of learning new technologies. They often complained about too much homework and its influence on their personal lives; the instruction they received in the P@W program; and about not enough time before moving on to a new technology.

Salovey et al. consider that the "successful processing of intrusive thoughts may depend on skills related to the activation, experience, and modification of feelings"—an example of display of higher-order emotional intelligence abilities (P Salovey et al., 1999, p. 148).

Group 2 (Figure 4) participants displayed insufficient self-efficacy beliefs to regulate their emotional states, and help them "to interpret potentially threatening demands as manageable challenges and reduce worrying and negative thinking about potential threats" (Carr, 2004, p. 212). However, some participants linked the technologies to their own teaching and learning:

> *The way in which the activity re e-testing was introduced was very creative (the lolly-pop thing). From the discussions in the debate it was very clear that everybody is willing to use it, but also realise the limitations in certain circumstances. I am personally of the opinion that e-testing will be used— extensively—in 'normal' tests during the semester. However, I don't see that e-testing will feature in exams in the near future—due to all the 'negative' aspects mentioned during the debate.*

Group 3 (Figure 4) participants also complained about the P@W instruction. Their insufficient self-efficacy beliefs prevented them to meet challenges (Carr, 2004). In the case of Group 3, instructional designers became obligatory to master TEL.

The instructional designers strengthened their insufficient self-efficacy beliefs and assisted them to attain success. Learning material should be divided into manageable chunks and instructional designers should carefully guide faculty to master new technologies.

Trend 3: Perception Of Stressful Situations

The third trend response emerging from the findings relates to *participants' reaction to stressful situations*. Some used negative, while others used positive coping strategies while discovering TEL. Group 2 and 3 (Figure 4) participants exploited the negative coping strategies of avoidance, repression and distraction actions. One participant reverted to repression and blamed the instructional designer for his/her predicament to achieve new technologies:

> *Camtasia: Blotted it out as I found it above me, together with the other information overload.*
> *Blogger: Felt heard. It was good to let go of frustrations and emotions.*
> *1 made use of distraction in a functional way by giving vent to frustration and emotions in Blogger.*

Group 3 participants blamed others for not achieve the course outcomes. At the end of the P@W program, they could not use Camtasia™, Perception™ and CorelDraw™ in their TEL. Their blogs reflected their inabilities through negative emotions of loss, frustration and depression:

> *Difficult, because I was used to using the computer as a typewriter. Many times I felt that a person who had some experience in the Technologies would have been a better option for the course. I felt intimidated and actually started feeling a lot of low esteem about myself, because the other partners seem to know a hell of a lot more than I.*

Group 2 and 3 participants disapproved of video conferencing, as well as the instructor of this particular learning technology. This research could not adequately address the issue if EI only played a role in coping with the mastering of technologies, or if the EI of the instructor also influenced the mastering of technologies.

Avoidance as coping strategies corroborates Salovey's theory of rumination (P Salovey et al., 1999). Some individuals excessively pondered on a stressor and then focused only on the negative aspects of their distress. Rumination leads to more coping difficulties. Salovey et al. maintain that "successful processing of intrusive thoughts may depend on skills related to the activation, experience, and modification of feelings" (P Salovey et al., 1999, p. 148). The ability to manage emotions by concentrating on positive emotions and restraining negative emotions is a sophisticated coping skill. Participants who engaged in ineffective coping strategies did not cope effectively (J.D. Mayer, 2001; Mayer & Salovey, 1997; P Salovey et al., 1999; P. Salovey & Mayer, 1990). Avoidance coping strategies corroborates the studies of Carver and Scheier who concluded that pessimists "disengage from the goals with which the stressor is interfering" (Charles S. Carver & Scheier, 1999, p. 569).

The participants who coped well used creative thinking, optimism, and humour. They took responsibility for finding solutions and were resilient to setbacks. Two participants from Group 1 solved their problems through creative cognitive thinking. This reflects the second branch of emotional intelligence: the ability to move from negative to positive feelings, and to use creative thoughts in solving problems (Mayer & Salovey, 1997; J.D Mayer, P. Salovey, et al., 2000).

Three participants used understanding as a coping strategy and demonstrated evidence of higher-order cognitive thinking skills to finding meaning. This reflects the top level, the fourth branch of the EI hierarchy that relates to emotional regulation (J.D Mayer, 2001; P Salovey, 2006; P Salovey et al., 1999). These participants had the ability to apply logic and emotion to their decision making processes: "Optimists are people who expect to have positive outcomes, even when things are hard" (Charles S. Carver & Scheier, 1989, p. 233). They understood how to analyse their own emotions (Mayer & Salovey, 1997; P Salovey et al., 1999; P Salovey, Mayer, & Caruso, 2005) and used these emotional knowledge to focus on staying positive and optimistic about TEL:

> *At first I was a little scared and even a little overwhelmed with the new technologies, since it was the first time that I have experienced it. I was, however, also excited at the prospect of exploring these technologies and becoming empowered. I realized that I will benefit in obtaining these skills and once I have started mastering these skills / technologies it felt like a huge accomplishment and value-added.*

Contrary to the participants who felt overwhelmed by much homework, Group 1 participant remained positive and self-motivated:
> *At the end of Friday I felt a bit overwhelmed and stressed-out by all the assignments that we have to complete within the next few days. I will just have to keep my nerve, to not give up, and to work like hell!!*

At a later stage, this same participant reflected on Blogger:
> *I want to keep going forward with the following motto: "Never give up."*

Two Group 1 participants used humour and the lighter side of situations to relieve stress:

Our previous lecture made me feel sorry for the way I sometimes run over new students. We started the lecture on e-portfolios with the term hyperlink. I was hoping that I would, during the lecture, come to understand the term. Alas, at the end of the lecture I had not progressed beyond the term hyperlink. I today still think that it has something to do with a very large pharmacy.

The use of positive coping strategies concurs with the research of Carver and Scheier (1999; 2005) on the differences between optimists and pessimists. Optimists use problem-focused coping strategies to devise creative plans for stressful situations. They also use adaptive emotion-focused coping strategies of positive reframing, humour and acceptance (Charles S. Carver & Scheier, 1999; C. S Carver & Scheier, 2005). "Optimists may have a coping advantage over pessimists, even in situations that cannot be changed" (C. S Carver & Scheier, 2005, p. 235). The extensive writing of Fredrickson (B.L Fredrickson, 2005; Barbara L. Fredrickson & Joiner, 2002; Barbara L. Fredrickson & Levenson, 1998; Barbara L. Fredrickson, Mancuso, Branigan, & Tugade, 2000; Barbara L. Fredrickson & Tugade, 2003) underscores the importance of positive emotions for optimal functioning. Therefore, the instructors of educational technology programs should cultivate positive emotions to invigorate participants.

4.1.4

Trend 4: Emotional disclosure

The fourth trend, *emotional disclosure*, emerged as two distinctive EI traits: participants who articulated their emotions and feelings, and those unable/unwilling to express their emotions and feelings in writing. Group 1 participants demonstrated the ability to understand and interpret emotional experiences. The participants who were in touch with their feelings demonstrated no ruminative coping (P Salovey et al., 1999). Salovey et al. (1999) maintain that individuals' ability to understand, analyze and regulate emotions will be reflected in their ability to recognize emotions that require disclosure:

I am excited about the time that lies ahead. Excited, and scared, to develop a telematic programme that will meet expectations. Excited about professional growth. Excited about personal growth. Excited to take what I learn back to my dept and faculty to help, support and motivate them to also take up the telematic challenge. But, I'm also a bit scared. Scared that others might have such high expectations of me that I will not be able to meet. Scared that I will not meet my own high standards. Scared that I might get alienated from my Dept. I want to keep going forward with the following motto: "Never give up."

Salovey et al. (2005) maintain that emotional disclosure provides means to reflect on and to manage emotions. This is central to emotional self-regulation. Individuals with EI insight and causal thinking skills have the ability to understand and analyze emotions caused through stressful experiences:

I was overwhelmed when first experiencing the features of [CorelDraw]. I did not feel we had enough training and was very unsure when I had to use this on my one. Once again I searched for a manual to explain the different features and had many trials before mastering some of the features. I feel there is a lot I still need to learn which can make life much easier and my courses more interesting.

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Phelps, Ellis and Hase (2001) believe that the use of metacognitive and reflective learning approaches assist in the development of capable computer users. Cognitive stimulating activities such as questioning, self-awareness discovering, problem stating, problem solving, emoting and ideation contribute towards personalised learning (Boud, 2009). Phelps et al., (2001) consider reflective journal writing as beneficial for adult learning. In this case, only written narratives from the Blogs could be included as verbally shared feelings and experiences could not be captured. Conclusions thus merely related to participants' self recorded emotions and feelings. In a previous study, Kruger (2005) determined that only few participants reflected on a deep level. Phelps and Ellis (2002) state that depth of reflective engagement is vital to the meta-cognitive processes of learning new technologies. They also maintain:

> *There is continued pressure for the application and integration of computer technologies into learning and teaching. For such innovations to be successfully implemented, students themselves must have the confidence, ability and willingness to engage with computer technology. In some disciplinary and professional contexts such as arts, humanities, social studies and education many adult learners are insecure and anxious regarding their ability to use, or to learn about computer technology (Phelps et al., 2001, p. 481).*

In summary, it is important that faculty are empowered to engage through meaningfully reflection. It may stimulate cognitive activities for them "to become more independent in their approach to learning with, and about, computers in the future" (Phelps et al., 2001, p. 481).

Trend 5: Social networking

Although the instructional designers were always present during P@W program contact sessions, participants and instructional designers constantly communicated via a Yahoo Messenger™ virtual learning network. A strong social network formed where everybody shared discoveries and skills:

> *I am looking forward to each Tuesday—not only to see and hear about the work that has been done and new work to come, but also to feel 'at home' with people who are good to be with, who share—in many ways—and who are also fun to be with while learning from them. I feel like being part of a huge, friendly family! Thank you all!*

Participants also supported each other:

> *Something on the side: Some of my fellow partners seem to be just, or even more, overwhelmed by all the new stuff that we want to take in. However, I also see some real caring and supportive human interactions between us. That is really great to see that we don't allow ourselves to get so "technology" focused, that we forget to bring some "humanness" into all the hardware, software and cyberspace. I'm a person-person and am fortunate to learn a lot about being "human" from all the Partners.*

Salovey et al. (1999) agree that social networks turn into resources and buffers against stress. The more EI individuals are, the easier they form and utilize social networks as a resource. This concurs with the characteristics of Group1 participants, but not with Group 3 participants who were negative about almost all the support they received:

Yahoo Messenger™: Very useful to communicate but I don't like it, for the same reason I do not like e-mail. It wastes a lot of my time, which I don't have a lot of. Workload problems.

Individuals with less EI do not have the skills to build and use supportive social networks as a resource. In a program for the mastering of new educational technologies, instructional designers should advocate the significance support possible through virtual social learning networks (P Salovey et al., 1999).

Possible links between Emotional Intelligence and Coping Strategies

This section highlights the links between employed coping strategies and emotional intelligence through comparing participants' narrative analyses with MSCEIT™ predicted abilities.

Group 1 participants (Figure 4) coped well with mastering new TEL. Their arsenal of coping strategies included: generating of new ideas, finding of alternatives to solve problems, demonstration of creative cognitive thinking, remaining optimistic and positive, using humour to make sense of stressful emotional experiences, and engaging in social networks. Analysis of the Emotional Coping Hierarchy (P Salovey et al., 1999) profiles of Group 1 indicated that three of the five participants achieved a profile of emotional intelligence skills to cope with TEL. The EI profile according to the MSCEIT™ of the two remaining participants presented underdeveloped levels, predicting their inability to cope. However, these two participants also coped with the new TEL.

The Emotional Intelligence Hierarchies (P Salovey et al., 1999) profiles of the two Group 2 participants (Figure 4) predicted their ability to cope as the profiles indicated that they achieved the related EI skills. Their narratives confirmed their coping with new TEL in certain instances. One participant used optimism, and to a limited extent, engagement in social networks. Another participant remained positive whilst making sense of emotional experiences during engagement in social networks. However, both participants ruminated about hindrances to cope with specific technologies and, to some extent, showed negative attitude. According to the MSCEIT™, the comparison of demonstrated abilities with the predicted abilities concurs in some instances, but not in others (P Salovey et al., 1999). The Emotional Coping Hierarchies (P Salovey et al., 1999) profiles of the three Group 3 participants (Figure 4) revealed underdeveloped levels for all three the participants, predicting coping difficulties. The participants often engaged in negative coping strategies: one participant used of repression and distraction actions, while the other made use of avoidant coping strategies, both demonstrating insufficient EI skills for coping with the stresses of learning new TEL.

CONCLUSIONS AND RECOMMENDATIONS

This case study followed a multi-strand concurrent mixed methodology that combined qualitative and quantitative approaches to provide a holistic panorama of the intricate research question: *How does EI influence faculty's coping with anxiety while learning TEL with the aim of ODL?* This methodology enabled researchers to draw from the strengths of both approaches. While the researchers established a number of links between EI and coping strategies, the interdependency of coping strategies and EI remains elusive. Links of self-efficacy beliefs, social networking resources, positive emotions, the role of course instructors, and EI abilities emerged with the prevalence of coping competencies.

The analyses distinguished three distinct participant groups: (Figure 4): (i) Group 1 participants used positive, and no negative coping strategies; (ii) Group 2 participants used both positive and negative coping strategies; and (iii) Group 3 participants used negative, and no positive coping strategies. Five main trends emerged from the findings.

The first trend, *perception of adequate ability*, related to the self-efficacy beliefs of the participants. They reacted positively towards user-friendly technologies, and experienced little stress while using them. EI consequently played no role as stress did not influence their coping strategies.

Cognitive decision making accounted for the second trend. All the participants used cognitive decision making as a coping strategy. Again, when the participants perceived the technologies user-friendly, they reacted positively and experienced little stress while using them and EI played no role as stress did not influence their coping strategies. However, the researchers noted individual differences with the choice of coping strategies when the participants perceived a situation as stressful. Group 1 participants employed positive coping strategies; reverted to meta-cognitive thinking skills to create alternative ways to solve problems; suggested improvements of the P@W program; debated the instructional value of TEL; and coped adaptively during stressful situations (P Salovey et al., 1999). Group 2 participants succumbed to positive and negative coping strategies; commented cognitively on hindrances; displayed insufficient self-efficacy beliefs to carry them through threatening situations; reverted to negative regulative thinking and emotions. Group 3 participants utilized negative coping strategies; demonstrated insufficient self-efficacy beliefs; and were unable to interpret potentially threatening expectations or demands.

The third trend explained participants' *perception of stressful situations*. Group 1 participants exercised only positive coping strategies; focused on problem solving; created plans when in trouble; opted for optimism; applied adaptive emotion-focused strategies such as positive reframing, humour and acceptance. They underscored the importance of positive emotions (B.L Fredrickson, 2005; Barbara L. Fredrickson et al., 2000; Barbara L. Fredrickson & Tugade, 2003). Group 2 participants used both positive and negative coping strategies. Group 3 participants used only negative coping strategies: avoidance actions, blaming other issues for their low performance; not making effort to use TEL; not mastering the new technologies; and expressing feelings of lost, frustration and depression.

The fourth trend explicated the *emotional disclosure* of the participants' reflective online diaries. Some articulated their emotions and feelings easily, while others were unable or unwilling to share their innermost sentiments.

The fifth trend concerned the *social networking* skills of the participants.   The participants established a strong virtual social leaning network. Five participants valued the online network as a resource. Four deemed the resource of little value, and one participant looked upon it as worthless.

Various authors advocate reflective journal writing as beneficial for adult learning (Phelps et al., 2001). Salovey et al. (2005) maintain that emotional disclosure provides the means to reflect upon and manage emotions for emotional self-regulation. Insightful individuals with and causal thinking skills understand and analyze emotions caused through stressful experiences (P Salovey et al., 2005).

Fredrickson and co-workers (B.L Fredrickson, 2005; Barbara L. Fredrickson & Joiner, 2002; Barbara L. Fredrickson & Levenson, 1998; Barbara L. Fredrickson et al., 2000; Barbara L. Fredrickson & Tugade, 2003) emphasize the importance of sharing positive emotions to enhance learning experiences. Online reflective diaries (blogs) are virtual learning spaces for the sharing of learning experiences and opportunities for enhancing self-efficacy. This study indicated that participants frequently referred to their support needs and expectations of extensive feedback.

This study could not offer clear-cut links between predicted EI and demonstrated coping strategies, or the interdependency between coping strategies and the learning of new technologies. EI links therefore remains elusive. However, this article contributes towards a deeper understanding of EI as a mediator of stress encountered in learning of TEL. The emergent body of knowledge contributes towards the role of EI in the becoming skilled in TEL. The vital role of course facilitators highlights the development of faculty self-efficacy. Further research is needed to determine if self-efficacy beliefs affect individuals' performance during the mastering of new technologies. Faculty developmental interventions should be appropriate; taking into consideration how learning experiences could undermine or promote faculty's ability to cope with new technologies. More pieces of the puzzle to complete the picture of factors that influence coping with TEL is locked in faculty's beliefs about their ability to cope, emotive feelings and motivation.

As TEL becomes an established mode of course delivery in HE, professional development programs should seek trained instructors to coach EI and reflective skills in addition to teaching new technologies Institutions "… will gain a considerable competitive advantage in both recruiting top students and teaching them effectively" (Dede, 2004). HEIs should warrant a supportive organisational climate for TEL and trained instructors should concentrate on the accomplishment of self-directed learning, assisting faculty in the attainment of goals, modelling positive emotive skills, and encouraging the practice of new skills to realize the extensive promises of TEL. However, further research is necessary on the value of EI, the role of positive emotions, and the use of coping strategies to compile first-rate faculty development for the mastering of TEL.

BIODATA and CONTACT ADDRESSES of the AUTHORS

Janette KRUGER is an instructional designer and lecturer at the School of Education, the Faculty of Education Sciences of the North-West University, Potchefstroom Campus. Her expertise relate to research methodology, online assessment, the use of Technology Enhanced Learning in on-campus, off-campus implementations, mobile learning, and the professional development of e-learning practitioners. She is supervisor of Masters and PhD students.

Dr. Janette KRUGER
School for Continuing Teacher Education, North-West University
Potchefstroom, North-West Province, SOUTH AFRICA
Tel: +27 (0)18 299 4589
Fax: +27 (018) 299 4558
Email: Janette.Kruger@nwu.ac.za

A. Seugnet BLIGNAUT (PhD) is a Research Professor in the School of Natural Sciences and Technology Teacher Education, the Faculty of Education Sciences of the North-West University, Potchefstroom Campus. Her research relates to Technology Enhanced Learning with the focus on the interaction in virtual learning communities, ICT for Development, ICT for Open Distance Education, and ICT frameworks for Open Distance Learning. She is also involved in various international research projects that include the supervision of Maters

Prof Dr A. Seugnet BLIIGNAUT
School for Continuing Teacher Education, North-West University
Potchefstroom, North-West Province, SOUTH AFRICA
Tel: +27 (0)18 299 4566
Fax: +27 (018) 299 4558
Email: **Seugnet.Blignaut@nwu.ac.za**

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