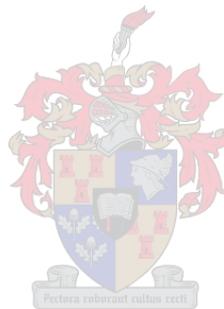


# **Developing Emotional Intelligence for Sustained Student Success**

**By**

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## ABSTRACT

The dire educational situation in South Africa has urged researchers to investigate possible predictors of academic success. There seems to be an increasing emphasis on non-cognitive factors that might play a role in determining the academic performance of students. In this study various unique challenges first-year students face were underlined, followed by possible key psychological resources needed to overcome such challenges. These resources include self-regulatory skills (i.e. self-leadership and emotional regulation), psychological well-being and constructive self-efficacy beliefs that could all ultimately help determine an individual's academic success.

It was hypothesised that Emotional Intelligence (EI) are central to these psychological resources and play a crucial role in the adaption and performance of first-year students in higher educational institutions. In this study an EI development programme was therefore implemented in order to evaluate whether it is possible to provide students with a powerful resource reservoir (i.e. high EI capabilities) in order to empower them to acquire additional personal and psychological resource (i.e. academic self-leadership, academic self-efficacy and well-being) that are needed to attain academic success. The findings of this study revealed that the EI development programme succeeded in elevating students' EI, which also led to moderate improvements in their psychological well-being (i.e. less perceived stress), as well as the enhancement of their academic self-leadership (ASL) and academic self-efficacy (ASE) skills and abilities.

Institutes of higher education should therefore rethink the emphasis they place on cognitive abilities alone and consider the strategy of also providing opportunities to enhance non-cognitive predictors of academic success. For example, by implementing EI development programmes, such as the one tested in this research, students have a greater chance of developing the necessary self-direction and self-regulation skills necessary to reach academic greatness which, most probably, will also facilitate better employability and career success.

## OPSOMMING

Die teleurstellende opvoedkundige situasie in Suid-Afrika het navorsers genoodsaak om moontlike voorspellers aangaande akademiese prestasie te ondersoek. Dit blyk dat daar 'n toenemende klem op nie-kognitiewe faktore geplaas word, wat 'n rol mag speel in die bepaling van die akademiese prestasie van studente. In hierdie studie word verskeie unieke uitdagings wat eerstejaarstudente moontlik in die gesig mag staar geïdentifiseer. Daar word dan ook gekyk na moontlike sleutel sielkundige hulpbronne wat kan help om hierdie uitdagings te oorkom. Hierdie hulpbronne sluit selfregulerende vaardighede (bv. self-leierskap en emosionele regulering), sielkundige welstand en konstruktiewe self-doeltreffendheid in, wat almal uiteindelik 'n bydrae kan lewer tot 'n individu se akademiese sukses.

Dit was veronderstel dat Emosionele Intelligensie (EI) die kern tot hierdie sielkundige hulpbronne is, en dat dit 'n beslissende rol in die aanpassing en prestasie van eerstejaarstudente in Hoër Onderwys Instellings speel. In hierdie studie is 'n EI-ontwikkelingsprogram geïmplementeer ten einde te evalueer of dit moontlik is om studente te voorsien met 'n sterk sielkundige hulpbronn basis (bv. hoër EI vermoëns) wat hulle behoort te bemagtig om bykomende persoonlike en sielkundige hulpbronne te verkry (bv. beter self-leierskap, self-doeltreffendheid en sielkundige welstand), wat nodig is vir akademiese vooruitgang. Die bevindinge van hierdie studie het getoon dat die EI-ontwikkelingsprogram daarin geslaag het om studente se EI te verhoog, wat tot gematigde verbetering in hul sielkundige welstand (minder waargenome stres) gelei het, sowel as die verbetering van hul akademiese self-leierskap (ASL) en akademiese self-doeltreffendheid (ASE).

Instellings van Hoër Onderwys moet dus die klem wat alleenlik op kognitiewe vermoëns geplaas word opnuut deurdink, en strategieë oorweeg om geleenthede te skep wat nie-kognitiewe voorspellers van akademiese sukses sou verhoog. Deur byvoorbeeld die implementering van 'n EI ontwikkelingsprogram, soos wat getoets word in hierdie navorsing, te implementeer, sou studente 'n beter kans hê om die nodige self-gerigtheid en selfregulerende vaardighede te bekom, wat nodig is vir akademiese sukses en vordering. Hierdie vaardighede sal waarskynlik ook lei tot beter indiensneembaarheid sowel as loopbaansukses.

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## CHAPTER 1: INTRODUCTORY ARGUMENT

Institutes for higher education in South Africa have an alarmingly low success rate. Even though the matric pass rate has increased dramatically from an average of 40% in the 1990s to 73.9% in 2012, the academic success in tertiary education seems to lag behind. Higher Education South Africa (HESA, 2012) reports that from the current 4 791 807 individuals between the ages of 20 to 24, only 18% have enrolled for higher education programmes. This meagre participation rate is threatened even further as a shocking 45% of enrolled students do not complete their studies and 25% of individuals drop out after their first year of study (Mabelebele, 2012). These statistics highlight a clear threat to South Africa's skilled labour market.

According to Yorke and Longden (2005) student success in higher education is important as it brings with it, not only the prospect of rewarding employment, but the enhancement of cultural and social capital, increased health and better standards of living. Student success should therefore become an important matter, not only for the students themselves, but for private institutions and even the state. To the individual student, success in higher education translates to better chances of obtaining a graduate level job (Davies & Elias, 2003) and with this, higher financial returns (Blundell, Dearden, Goodman, & Reed, 1997; Johnes & Taylor, 1991). Research also shows that higher-educated individuals are more satisfied with their jobs, live healthier lifestyles and engage in educational activities with their children, enabling them to gain easier access to higher education one day (Baum, Ma, & Payea, 2010).

Furthermore, private institutions are looking for competent and confident individuals who can quickly fulfil the responsibilities placed upon them. Research indicate that individuals with a higher education are more effective in working with others, competent in solving difficult problems, and adept at bringing creative ideas to the table (Yorke & Longden, 2005). Institutions often invest a lot of money into students by offering bursaries and other forms of funding or support. Student failure therefore means no return on investment for the educational institution or even adverse publicity. Therefore, student success rates have become a preliminary performance indicator for organisations. Finally a countries' economy is dependent on the degree to which its labour force is educated (Becker, 1975). Higher student success, therefore, translates to stronger human capital and an economic edge in the global market.

Given the importance of student success to the various stakeholders described above, and the dire educational situation in South Africa, more research should focus on investigating possible ways of predicting and enhancing student success in colleges and universities.

Over the past years the mainstream focus has been on student's cognitive abilities and their predictive validity on academic achievement. Research shows that IQ tests remains a prominent predictor of academic achievement (Applebaum & Tuma, 1982; Grosman & Johnson, 1982; Neisser, et al., 1996) and that high school Grade Point Average (GPA), and Scholastic Aptitude Test (SAT) scores<sup>1</sup> are the two foremost predictors used for college or university admission (Austin, 1993). Yet despite its supremacy IQ only accounts for roughly 25% of the variance in academic success (Neisser, et al., 1996). Even more surprising is that students with high cognitive ability don't always excel after school as expected, while those with more moderate intellectual abilities sometimes achieve greater success (Stein & Book, 2011). This suggests that there might be other factors that play an important role in determining whether students succeed academically. The ambiguity surrounding this concept calls for a broader investigation into possible predictors of student success.

If researchers are to fully comprehend this phenomenon they should first understand the challenges young adults face during their transition from school to tertiary education (e.g. university / college). Predicting student success is complex and difficult because during this time, individuals often face a variety of unique challenges that they haven't encountered before (Tinto, 1993). This can place considerable demands on young adults causing them to leave their graduate programme prematurely (Braxton & Hirschy, 2005). According to Parker, Summerfeldt, Hogan and Majeski (2004) some of these challenges that can cause students to withdraw include: building new relationships, modifying existing relationships with friends and family, learning new study habits, functioning as an independent adult and having to deal with a sudden increase in responsibility. Similarly Rode et al. (2007) highlight the fact that students face much more diverse and complex academic responsibilities than what they were used to, which they furthermore have to balance with various non-academic pursuits. Zimmerman (2001) believes that some of the most difficult cognitive and motivational challenges growing individuals face are the development of their academic competencies and without a firm belief in their academic capabilities students might lose the motivation to persist and perform in their educational obligations. Beyond these challenges

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<sup>1</sup> In the South Africa context, Matric GPA and entrance exams are the prominent predictors used for university admission.

students are often plagued with stressors such as: frequent evaluations, time pressures (Chambel & Curren, 2005), student debt (Ross, Cleland, & Macleod, 2006), the possibly being part of a minority group (Brougham, Zail, Mendoza, & Miller, 2009), having to adapt to new lifestyles (Perry, Hall, & Ruthig, 2007), balancing academic responsibilities (Chow, 2007) and dealing with frequent failures (Perry et al., 2007). Research shows that individuals mostly withdraw from university for reasons unrelated to their cognitive ability (Pancer, Hunsberger, Pratt, & Alisat, 2000; Parker et al., 2004). According to Bryde and Milburn (1990) these unique challenges require higher levels of independence, initiative and self-regulation. Zimmerman (1989) also suggests that students need to develop effective self-regulation strategies towards learning if they are to become academically fruitful. Chemers, Hu and Garcia (2001) believe that students should acquire the necessary self-confidence in their abilities and develop a positive disposition if they are to successfully negotiate life's new trials.

It is argued in this study that an individual's emotional intelligence and their ability to regulate their affective states could play a significant role in overcoming these challenges. Emotional intelligence (EI) refers to the capacity to deal effectively with one's own and others' emotions. When applied to the academic environment, EI involves the capacity to effectively perceive, express, understand and manage emotions in a professional and effective manner at work (i.e. when studying) (Palmer & Stough, 2001). Emotional intelligence is important to students for at least three reasons. Firstly it helps generate more positive emotional states (Mayer & Salovey, 1997), which in turn facilitates a vast amount of personal resources (Lyubomirsky & King, 2005). Secondly it assists in building self-efficacy beliefs (Hen & Goroshit, 2012), which is critical for academic performance and adaption (Bandura, 1997). Finally EI buffers against the negative effects of stress (Görgens-Ekermans & Brand, 2012) and enhances a person's overall sense of well-being, allowing for optimal human performance and flourishing (Fredrickson & Losada, 2005). Included in this study is the concept of self-leadership (Manz, 1986) that allows individuals to effectively regulate their thought processes and behaviour. Although EI and self-leadership are distinct constructs, they are reciprocally related, reinforcing one another (Boss & Sims, 2008). Both facilitate frequent positive affect leading to student success and well-being.

The importance of positive emotions in the academic environment has often been underestimated. Research in general used to be rather inclined towards predictors of dysfunction and sub-optimal human functioning (Schaufeli & Bakker, 2003). Recently the

positive psychology paradigm (Seligman & Csikszentmihalyi, 2000) introduced a new vigour towards optimal human functioning and allowed for research to move away from the medical model approach. A great contributor to the field of positive psychology is Fredrickson (1998) who introduced the *Broaden-and-Build theory of positive emotions*. Fredrickson (1998; 2001; 2004) hypothesised that positive emotions broaden an individual's momentary thought-action repertoire, allowing them to pursue a wider range of thoughts and actions than they typically would. This enables individuals to build a variety of personal resources, especially psychological resources such as optimism and resilience that are sustainable for future use. In addition the *Conservation of Resources theory* (COS) introduced by Hobfoll (1989) brought valuable insight into the acquisition and maintenance of personal resources. Hobfoll (2001) hypothesised that individuals who are in possession of resources (such as optimism), can easily acquire additional resources, while those with few resources are at the danger of becoming deprived of further resources. These two theories hold vital implications for student success. Firstly, it suggests that students who frequently experience positive emotions will have more resources available to them, enabling them to become more successful in the future. Secondly, these students are less likely to overreact to negative events as they are more resilient, and can acquire additional resources when needed. Lastly, individuals who do not experience frequent positive affect, or who experience frequent negative affect, are at the danger of becoming deprived of their resources which will cause them to experience more strain and less personal and academic success.

Empirical evidence seems to support this link between positive affect and success. Various studies have demonstrated that positive affect leads to healthy social interactions and support from others (Pinquart & Sörensen, 2000; Staw, Sutton, & Pelled, 1994); a sense of mastery (Luebbbers, Downey, & Stough, 2007), better self-esteem (Lucas, Diener, & Suh, 1996) and self-efficacy; physical (Achat, Kawachi, Spiro, DeMolles, & Sparrow, 2000) and psychological well-being (Fredrickson & Joiner, 2002), the ability to cope with stress (Carver, et al., 1993) and satisfaction with ones' studies and life in general (Ojeda, Flores, & Navarro, 2011). Other studies have demonstrated that positive affect can facilitate problem solving (Isen, Daubman, & Nowicki, 1987), boost creativity (Furnham, Batey, Anand, & Manfield, 2008) and lead to effective experiential learning (Kashdan, Rose, & Fincham, 2004). Finally Frisch et al. (2005) demonstrated that people with high subjective well-being (also known as "happiness"), are more likely to graduate from college and complete their studies in the necessary time period. Anchor's (2010) argument that positive emotion fuels

success, and not the other way around, therefore seems to hold empirical validity and it is argued here that researchers should further investigate the role of positive emotions in student success.

Beyond the benefits of positive affect, it is argued here that EI could also enhance student's academic self-efficacy. Students' learning and academic achievement is significantly influenced by the beliefs they hold regarding their ability to organise and complete tasks (Zimmerman, 2001). According to Bandura (1997) one of the sources that determines an individual's self-efficacy beliefs are their affective states. EI helps promote positive affect and should therefore contribute to higher levels of self-efficacy beliefs (Hashemi & Ghanizadeh, 2011). Multon, Brown and Lent (1991) report that self-efficacy explains approximately 14% of variance in student's academic achievement. Individuals who believe in their capabilities will insert more effort (Prat-Sala & Redford, 2010) and persist longer with their studies (Lent, Brown, & Larkin, 1984), than those with lower levels of academic self-efficacy. Furthermore an individual's self-efficacy beliefs influence the way in which they interpret events. Individuals with a weak self-efficacy will therefore see challenges as a threat which might cause them to experience psychological distress.

Finally, student's perceived stress levels can negatively affect their ability to cope academically and act as a barrier to academic achievement (Vaez & Laflamme, 2008). Research shows that higher levels of stress, result in less engagement with study material (Entwistle & Tait, 1990), less time spent actually studying (Chow, 2007), lower levels of exam success (Goldsmith & Albretech, 1993) and fewer completed courses (Chambel & Curral, 2005). Students who suffer from test anxiety are even more vulnerable to stress and ultimately academic failure (Moneta, Spada, & Rost, 2007). Individuals with higher EI process information of an emotional nature more easily and effectively integrate their emotions with thoughts and behaviours, enabling them to become resilient to stressful situations (Mayer, Salovey, & Caruso, 2000).

Given the abovementioned arguments it is suggested that EI could play a pivotal role in the prediction and development of student success as it may be instrumental in the enhancement of positive affect, academic self-leadership, academic self-efficacy and the reduction of stress. EI is therefore seen as a key personal resource that could facilitate the acquisition and maintenance of other possible psychological resources that contribute to student success. There has also been a growing amount of research that supports the link between EI and

academic success (Keefer, Parker, & Wood, 2012; Newsome, Day, & Catano, 2000; Parker, Hogan, Eastabrook, Oke, & Wood, 2006).

The question that comes to mind is that if EI plays such a prominent role in student success, should it not be taken into account during university acceptance? Furthermore should it not form part of learning initiatives to help individuals develop their full academic potential? Various studies have shown favourable results for developing EI (Chang, 2007; Fletcher, Leadbetter, Curran, & O'Sullivan, 2009; Wood, Zohar, Bates, & Parker, 2006), and there seems to be a general consensus that EI is a somewhat malleable construct that can be developed through training programmes and interventions. Vandervoort (2006) believes that these EI training programmes should form part of universities' curriculums as it holds various personal, social and societal benefits.

Given the theoretical arguments proposed above, the purpose of this study is to investigate whether it is possible to affect various psychological resources (e.g. academic self-leadership, academic self-efficacy, and psychological well-being) in students by exposing them to a developmental EI training intervention. The results of this study could be used to inform supplementary teaching and learning initiatives complementary to the academic offering at tertiary institutions with the hope of increasing student success rates.

Therefore, the aim of this study is to conduct a controlled experimental design that provides an EI training intervention among first-year students enrolled at a tertiary educational institution. By conducting the intervention it is hypothesised that through developing student's EI they will be better equipped to regulate their emotional states, leading to increased levels of positive affect which should facilitate better academic self-leadership, self-efficacy, and well-being, which should ultimately result in increased academic achievement and performance.

## CHAPTER 2: THEORETICAL FRAMEWORK

### 2.1 INTRODUCTION

In the introductory argument, the important role that EI can play in enhancing student success, have been highlighted. In this section the focus is drawn to the theoretical constructs which, it is argued through the development of EI, may play a role in the process of enhancing students' academic performance and success. More specifically, academic self-leadership, academic self-efficacy and perceived stress will be discussed, as well as their relationship to EI and to student success. Two important theoretical perspectives namely the *Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998), and the *Conservations of Resources Theory* (Hobfoll, 1989) form the cornerstones of this study, and will be incorporated into the discussion to argue how increased EI could influence an individual's affective states, empowering them to acquire the necessary skills and capabilities needed to reach academic greatness.

### 2.2 POSITIVE AFFECT AND THE ACQUISITION OF PERSONAL RESOURCES

Historically the majority of research in the field of psychology focused on sub-optimal human functioning, and how these damaged aspects could be repaired by following the medical model approach. Schaufeli and Bakker (2003) revealed that 95% of all articles at the time, published in the *Journal of Occupational Health Psychology*, dealt with the negative aspects of human functioning, usually following themes related to stress and burnout. Although the disease model of human functioning surely has its place, the exclusive focus on pathology can obscure positive features of human flourishing. In a remarkable attempt to break this paradigm Seligman and Csikszentmihalyi (2000) introduced a new movement towards positive psychology and stressed the need to consider building positive qualities, rather than reducing negative ones. Positive psychology according to Schaufeli and Bakker (2003) refers to the scientific study of human strength and optimal functioning. For the last decade, attention started to move towards identifying characteristics and situations in which individuals thrive and flourish (Baumgardner & Crothers, 2010).

The positive psychology shift also encouraged researchers to investigate what role positive emotions might play in enhancing individual performance and success. In his world-renowned book, *The Happiness Advantage*, Shawn Achor argues (based on empirical data derived from a multitude of scientific studies) that happiness and optimism fuels success. The conventional belief that if we work hard, we will become successful and thus be happy is flawed and that in truth, it is our happiness and positivity that leads to future accomplishments (Anchor, 2010). Empirical research seems to support these claims and a comprehensive meta-analysis by Lyubomirsky and King (2005) revealed that frequent positive affect leads to various beneficial outcomes, such as positive perceptions of self and others, enhanced interactions and social support, better coping and well-being, and improved creativity and problem solving.

One of the key outcomes of EI is being able to maintain a positive affective state and deal effectively with negative emotions. It is argued here that the EI conceptualisation of Palmer and Stough (2001) in terms of the SUEIT dimensions of *Emotional Management* and *Emotional Control* could play the most dominant roles in assisting individuals to maintain a positive affective state. *Emotional Management* refers to the ability to manage positive and negative emotions, both in oneself and others, while *Emotional Control* refers to the ability to effectively control strong emotional states. Individuals who therefore score high on both of these dimensions have the ability to deal with strong emotional experiences (Emotional Control) as well as maintaining a positive disposition over the course of time (Emotional Management). It is therefore expected that individuals high on emotional management and control will experience more positive, less negative emotions, and be able to uphold a optimistic temperament. This positive affect can then play a significant role in student success as it allows for the acquisition and maintenance of various other personal resources. In order to understand the dynamics of how positive emotions lead to higher acquisition and maintenance of personal resources, two theoretical approaches are drawn upon, namely the *Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998; 2001; 2004), and the *Conservations of Resources Theory* (Hobfoll, 1989).

### **2.2.1 The Broaden-and-Build Theory of Positive Emotions**

Probably one of the most valuable contributions to the field of positive psychology was Barbara Fredrickson's (1998; 2001) *broaden-and-build theory of positive emotions*. Just as it has long been theorised that negative emotions narrows an individual's momentary thought-

action repertoire by calling forth specific action tendencies such as fight or flight (Derryberry & Tucker, 1996), Fredrickson (1998) hypothesised that positive emotions broaden an individual's momentary thought-action repertoire, prompting them to peruse a wider range of thoughts and actions than is typical. Furthermore, these broadened thought-action repertoires gain significance as they enable one to build a variety of personal resources. These personal resources you acquire during positive emotional states are sustainable for when you need them later in life. Therefore positive emotions not only signal optimal functioning, but also produce optimal functioning in the present moment as well as in the long run (Fredrickson, 1998; 2001; 2004).

To illustrate this effect Fredrickson (1998; 2001) draws on various distinct positive emotions such as joy, interest, contentment, pride and love. *Joy* creates the impulse to play, push the boundaries and be creative. These urges do not only come in the form of physical or social behaviour, but also in intellectual and even artistic behaviour. *Interest* creates the urge to explore, and accumulate new information and experiences, which will in turn expand the self. *Contentment* creates the urge to loosen up and savour the current life circumstances, integrating them into new views of the self and the world at large. *Pride* follows personal achievement and creates the urge to share these accomplishments with others and envision greater achievements that can be pursued. Finally *love* is a combination of various positive emotions experienced within the contexts of safe and close relationships, creating the urge to play, explore and savour experiences with others we love. All of these positive emotions demonstrate ways of broadening our habitual modes of thinking or acting (Fredrickson, 2004).

Even more importantly Fredrickson (1998; 2001; 2004) argues that these positive emotions build lasting personal resources for when we need them. These personal resources can come in many forms such as physical resources (e.g. physical skills or health), social resources (e.g. friendships and social support networks), intellectual resources (e.g. knowledge, intellectual complexity, executive control, theory of mind) and psychological resources (e.g. resilience, optimism, creativity). Consider play for example, by sharing amusement and smiles, we build social bonds with others that can become essential social support structures later on. Interests drive exploration that enhances intellectual complexity while contentment produces self-insight and alternative world views (Fredrickson & Branigan, 2001). In this study the main focus falls on the psychological resources, and how EI can help facilitate the acquisition and

maintenance of psychological resources. For example, a person with high EI is more likely to have an optimistic outlook (psychological resource) on life, than a person with low EI. Such a person will then most likely be perceived as friendly and sociable, which will cause them to develop strong relationships with others. These friendships can then in turn serve as a valuable social support structure (social resource) for that individual later on in their life.

Fredrickson (2004) summarises various empirical findings that support her theory. Some of these studies predate the broaden-and-build theory and therefore only serve as indirect evidence. Nonetheless several key propositions of her hypothesis seem to be empirically supported. These include: (a) Positive emotions broaden thought-action repertoires (Fredrickson & Branigan, 2001; 2005). (b) Positive emotions undo lingering negative emotions. This is known as the “undo hypothesis” which states that positive emotions serve as efficient antidotes for lingering negative emotions (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). (c) Positive emotions fuel psychological resilience (Tugade & Fredrickson, 2004). (d) Positive emotions build personal resources (Fredrickson et al., 2004). (e) Positive emotions fuels psychological and physical well-being (Keltner & Bonanno, 1997; Stein, Foklman, Trabasso, & Richards, 1997). It has therefore been argued that positive emotions transform individuals for the better, making them healthier, more socially integrated, knowledgeable, effective and resilient (Fredrickson, 2004).

What is even more important is that positive emotions trigger upward spirals towards emotional well-being. In a study conducted by Fredrickson and Joiner (2002) a sample of 138 undergraduates were used to investigate the relationship between affective states and broad-minded coping. Findings revealed that initial positive affect improved broad-minded coping and that broad-minded coping in turn predicted increased positive affect. Positive affect and broad-minded coping therefore enhances one another resulting in an upward spiral towards improved emotional well-being. This study demonstrated how positive emotions accumulate and compound over time and eventually build psychological resources that optimise people’s lives. A study by Fredrickson and Losada (2005) also revealed that positive emotions fuel human flourishing. Flourishing is described as a state of optimal human functioning, implying goodness, generativity, growth and resilience.

## 2.2.2 Conservation of Resources Theory

The conservation of resources (COR) theory was originally developed by Stevan Hobfoll (1989) to help conceptualise stress and explain the coping process involved during the loss of resources. Today his hypotheses have brought valuable insight regarding the acquisition and maintenance of personal resources and should be considered in conjunction with the broaden-and-build theory, for the purposes of this study.

The COR theory stipulates that individuals strive to obtain, retain, protect and foster resources, and that individuals with more resources are less vulnerable to resource loss and more capable of organising resource gain (Hobfoll, 2001). Resources can be defined as any object, personal characteristic, condition or energy that is valued in its own right (e.g. self-esteem, close-attachments, health and inner peace) or that are valued because they can help attain or protect other resources of value (e.g. money, social support and credit) (Diener & Fujita, 1995). Stress will occur when an individual's resources are threatened with loss, actually lost, or where individuals fail to gain sufficient resources following a significant resource investment (Hobfoll, 1988). Resources are therefore seen as favourable because they bring success and shield against stress (Hobfoll, 2002).

Built on these assumptions the COR theory entails two key principles. Firstly, *The Primacy of Resource Loss* principle stipulates that resource loss is disproportionately more significant than resource gain. This means that resource loss cycles are much more impactful and accelerated than potential gain cycles. Secondly, *The Resource Investment* principle stipulates that people must invest in resources in order to protect against resource loss, recover from losses and ultimately gain additional resources. This means that individuals with greater resources are capable of attaining more while those with fewer resources are vulnerable to resource loss (Hobfoll, 2001).

The COR theory therefore suggests that having one major resource is typically linked with having others, just as having few resources are linked with their absence (Hobfoll, 1989). For example if an individual has a strong sense of self-efficacy, it is most likely linked with optimism and the availability of social support as well. In contrast, someone with low self-efficacy is likely to be more pessimistic, have poor social support and less capable of coping in stressful situations. The value of these resources varies depending on the desired goal or outcome of the individual. Cultural implications therefore become important in determining the value of resources in different contexts (Hobfoll, 2002). Despite these differences there

seems to be a few prominent resources, such as self-efficacy, self-esteem, sense of coherence, learned resourcefulness, personality hardiness and social support, which all serve as strong resource reservoirs and have been proven to aid in the process of stress resistance (Hobfoll, 2001).

### **2.2.3 Positive Emotions and Student Success**

The two theoretical perspectives described above hold vital implications for determining student success. Firstly it is suggested that students who frequently experience a positive emotional state, due to heightened EI, will have more resources available to them, enabling them to achieve more academic success. Secondly, such students may be less likely to overreact to negative events as they are more resilient, and can acquire additional resources when needed. Finally, individuals who do not experience frequent positive affect, or who experience frequent negative affect, are at the danger of becoming deprived of their resources which will cause them to experience more strain and less personal and academic success. It is important to note that positive affect in this study implies the maintenance of an optimistic disposition and not merely the experience of positive emotions per se. It is argued here that the focus should be on a healthy affect balance, as individuals who frequently experience both positive and negative emotions might not benefit from the advantages described above, as their frequent negative emotions might overshadow the rewards of their positive emotions. It is therefore ideal to have frequent positive emotions, and relatively few negative emotions, which will facilitate a favourable affect balance and the acquisition and maintenance of various other personal resources.

There has been a large amount of empirical evidence that links positive affectivity with various beneficial outcomes that are essential for student success<sup>2</sup>. One of the first major contributions was made by Isen et al. (1987) who demonstrated that induced positive affect can facilitate creative problem solving. The authors suggested that universities should create conditions that facilitate positive emotions, even if it's only something modest like promoting a culture of respect and self-esteem, to enhance academic achievement. Other studies have demonstrated how hypomanic traits, which can be viewed as an extreme form of positive affect, correlate with better creativity (Furnham et al., 2008; Schuldberg, 1990; Shapiro & Weisberg, 1999). Positive affect is also related to curiosity and exploration, causing

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<sup>2</sup> A large part of student success involves an individual's ability to perform academically. Although academic achievement per se was not assessed in this study, inferences were still drawn based on the outcome variables influence on academic achievement.

individuals to pursue personal growth opportunities that will lead to future accomplishments (Kashdan et al., 2004). In a study by Abe (2011) positive emotions was demonstrated to contribute to successful experiential learning in undergrad students by expanding their thought-action repertoires enabling them to create meaning from their academic involvements. Furthermore Frisch et al. (2005) demonstrated that people with high subjective well-being (i.e. happiness), are more likely to graduate from college and complete their studies in the necessary time period.

Many of the outcomes of frequent positive affectivity simply facilitate human success by creating favourable conditions (Lyubomirsky & King, 2005). It can be argued that in the academic domain important facilitating conditions that promote student success include: (1) healthy social interactions and support from others, (2) positive self-belief, self-esteem and a sense of mastery in ones' studies, (3) physical and psychological well-being and the ability to cope with stress, and (4) overall satisfaction with life and ones' studies. It can further be argued that each of these conditions is facilitated by positive emotions. This will briefly be explained in the next section.

Berscheid (2003) argues that the greatest human strength, is other humans, and without others, we are pretty much ineffective. In the educational setting, the need for interaction and support is just as important. Research shows that peer support is much more impactful than support from teachers (Wang & Eccles, 2012). Peer learning is a major part of university life and individuals often have to explain academic material to each other, work through difficult literature together and complete group assignments. Furthermore students encounter new life challenges for which they need the support and input of their friends and family to make the right decisions. Without this social support structure, students will be unable to face day-to-day challenges and become lonely, isolated, and overwhelmed (Nicpon et al., 2007).

Individuals, who experience frequent positive affect, seem to have better social interactions and enjoy more social support from others (Lyubomirsky & King, 2005). In a study by Diener and Seligman (2002) college students who reported frequent positive affect were shown to have higher-quality social relationships with peers than those who experienced less positive emotions. Other studies have also confirmed the link between positive affect and enhanced social support. (Pinquart & Sörensen, 2000; Staw et al., 1994). It is therefore expected that higher EI, which should facilitate access to more endearing pervasive experiences of positive emotions, will lead to higher levels of social support. Although the

relationship between EI and social support do not form part of the investigation of this study, it furthermore emphasises EI's complex role in facilitating valuable resources that could enhance student success.

Another important element for academic success is one's self-efficacy. It is known that emotional arousal (i.e. positive moods facilitated by higher EI) can increase efficacy expectations (Bandura, 1997). The famous quote from Henry Ford articulates this rather well: "Whether you believe you can, or you can't, you are right." In the academic literature self-efficacy has received a considerable amount of attention (Zimmerman, 2001). The fact that the construct is multidimensional and context-specific, have created some methodological issues, yet various studies have shown positive relationships between student self-efficacy and their academic achievement (Brady-Amoon & Fuertes, 2011; Chemers et al, 2001; Hackett, Betz, Casas, & Rocha-Singh, 1992). Furthermore self-efficacy gains further significance as it also assists in student adjustment (Brady-Amoon & Fuertes, 2011) and helps individuals deal with negative emotional states such as test anxiety and low levels of motivation (Bandura, 1993).

Research shows that frequent positive affect leads to higher self-esteem (Lucas et al, 1996; Lyubomirsky, Tkach, & Dimatteo, 2006; Tarlow & Hagaan, 1996) lower self-criticism (Mongrain & Zuroff, 1995) and a higher sense of mastery (Luebbers et al., 2007). These positive emotions should therefore influence a student's overall self-esteem which in turn should influence their academic self-concepts (Trautwein, Ludtke, Köller, & Baumert, 2006), which could ultimately improve their academic success.

Health and well-being are essential elements of effective learning (Novello, Degraw, & Kleinman, 1992). Research have confirmed the impact of mental and physical health on academic achievement in a variety of contexts (Ansari & Stock, 2010; Murray, Low, Hollis, Cross, & Davis, 2007). Furthermore stress (Vaez & Laflamme, 2008), test anxiety (Goetz, Preckel, Zeidner, & Schlyer, 2008; Birenbaum & Nasser, 1994) and depression (Yousefi, Mariani Bte, Rumaya Bte, Redzuan, & Talib, 2010) are some of the main reasons students fail academically or decide to leave the educational setting. Positive emotions have been shown to enhance physical health (Achat et al., 2000; Benyamini, Idler, Leventhal, & Leventhal, 2000), psychological well-being (Fredrickson & Joiner, 2002) and coping (Carver, et al., 1993). Moreover negative correlations have been found between positive affectivity and depression (Diener & Seligman, 2002). Furthermore two recent meta-analyses

collectively based on 149 effect sizes and 27713 participants provide strong empirical support for the relationship between EI and health (Martins, Ramalho & Morin, 2010; Schutte et al., 2007). According to Martins *et al.* (2010) as cited in Görgens-Ekermans & Brand (2012) “this line of research has already reached sufficiency and stability. Overall, the results are encouraging regarding the value of EI as a plausible health predictor” (Martins *et al.*, 2010, p.554). Furthermore, evidence of EI as a moderator in the stress – burnout relationship also exists (Görgens-Ekermans & Brand, 2012). It is therefore expected that students who experience frequent positive affect (due to higher EI) will be better equipped to deal with stress and anxiety and enjoy better physical and psychological well-being, which could cause them to be more academically successful.

It is argued in this study that one of the key outcomes of higher EI is frequent positive affect. EI is therefore a potential personal psychological resource that can help students create facilitating conditions to accumulate additional resources that will enable them to become academically successful.

## **2.3 EMOTIONAL INTELLIGENCE (EI)**

By tradition societies believed that logic was superior to feelings, because people could often reach rational conclusions in arguments, while not so much on emotional states (Mayer, Roberts, & Barsade, 2008). This idea however, was not followed by all and there were those who endorsed the “follow your heart” ideology, and stressed the need to rely on feelings and intuition to make the right decisions (Reddy, 2001). Today we know that emotions and logic are not mutually exclusive and effective decision making comes from both logical and affective thinking. Emotions are incorporated into everyday life and individuals need to be aware of their emotions in order to manage and control them appropriately. Emotional Intelligence (EI) bridges this gap between rational and affective thinking.

### **2.3.1 A Brief History on Emotional Intelligence**

Many believe that the notion of EI was only recently discovered, when Mayer and Salovey (1990) first coined the term roughly 23 years ago. In truth, the concept is as old as time itself. The need for humans to cope, adapt and get along with one another is crucial for their survival and hence EI evolved with mankind over the generations (Stein & Book, 2011). This is especially true now that we live in a fast paced, information rich era. Physical skills and

abilities have become less important while effective self-management and relationship building is vital to our success.

In the academic literature EI can be dated back to the 1870's when Charles Darwin published his book about the role of emotional expression in survival and adaptation (Darwin, 1872). In the early 1920s Edward Thorndike started discussing a construct which he referred to as "social intelligence" (Thorndike, 1921), but only many years later was the importance of these social factors recognised by David Wechsler, one of the fathers of general intelligence (IQ), who believed that in addition to cognitive ability, there were non-cognitive elements of intelligence. Wechsler argued that if there is ever to be a complete measure of intelligence it should contain non-cognitive elements as well, which he referred to as "affective abilities" (Wechsler, 1943). A few years later another researcher R.W. Leeper promoted the idea of "emotional thought" and how it contributed to "logical thought" (Leeper, 1948). Soon thereafter emotional intelligence found its way into psychotherapy treatments (Leuner, 1966). Albert Ellis (1955) also started to explore new techniques that enabled people to examine their emotions in a more rational way, the beginning of what is known today as Rational Emotive Behaviour Therapy.

The field of EI only really gained momentum after Howard Gardner (1983) started promoting the possibility of "multiple intelligences" which he referred to as intra-physic capabilities. Gardner's concepts of intrapersonal intelligence (the ability to know one's own emotions) and interpersonal intelligence (the ability to understand other individual's emotions and intentions) set the foundation for conceptualising the EI construct (Gardner, 1983). Ultimately it was the efforts of Peter Salovey and Jack Mayer (1990) that produced the first proper definition of the construct that was rooted in strong theoretical grounds.

In 1995 the EI paradigm was sold to the world through a book written by Daniel Goleman, in which it was claimed to be the most important predictor of work performance (Goleman, 1996). Although the book has received much criticism since, it surely helped drive interest, and subsequently the field has received much attention by academics and practitioners alike (Bar-On, 1997; 2000; Davies & Stankov, 1998; Gohm, 2004; Matthews, Roberts, & Zeidner, 2004; Mayer & Salovey, 1993; 1995; Mayer, Salovey, & Caruso, 2000; 2004b).

Yet, despite the increase in interest and curiosity, the conceptualisation and operationalization of the EI construct seems to lag behind. Today the field is still riddled with debates around how the construct should be conceptualised and hence measured (Furnham, 2009; Petrides,

Furnham, & Frederickson, 2004). Regardless of these scepticisms EI remains a popular construct, and will probably continue to breed interest for many years to come.

### **2.3.2 Conceptualising Emotional Intelligence**

There are many definitions of EI, each adding its own unique dynamics to the construct. Mayer, Salovey and Caruso (2004a) defined EI as:

*“the capacity to reason about emotions, and of emotions to enhance thinking. It includes the ability to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and reflectively regulate emotions so as to promote emotional and intellectual growth”* ( p. 197)

Bar-On (1997) defines EI as an array of non-cognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures. This viewpoint offers the broadest definition of EI and can sometimes be difficult to distinguish from other interpersonal constructs.

In this paper the conceptualisation of Palmer and Stough (2001) is followed and EI is conceptualised as consisting of five factors related to one’s ability to effectively deal with emotions. These dimensions include: *Emotional Recognition and Expression, Emotions Direct Cognition, Understanding of Emotions, Emotional Management* and *Emotional Control*. Each will be discussed in more detail later on.

In layman’s terms EI can be referred to as the intelligent interaction between emotions and thought. Just as verbal intelligence refers to the mental ability to reason with and about verbal information, and special intelligence concerns the mental ability to reason with and about special information, so too can EI be defined as the mental ability to reason with and about emotional information, with the end goal of enhancing thought (Stein & Book , 2011). It is important that this definition stands apart from other interpersonal and social capabilities as though there are certainly some overlap, the core of EI resolve around emotions, and how to use such emotions in an intelligent manner.

#### **2.3.2.1 Difficulties in Conceptualising the EI construct**

As previously mentioned much debate still surrounds the conceptualisation of the EI construct. In an article “Seven Myths about Emotional Intelligence” Matthews et al. (2004)

highlight various key problems with the conceptualisation of the construct. Furthermore discussions regarding whether EI can be adequately considered an intelligence still dwell in the field. For something to be considered an intelligence, it needs to meet three criteria. Firstly it should be able to be operationalized by a set of abilities, rather than a preferred way of performing. Secondly these abilities should form a related unified set that adequately correlate with one another, yet remains distinct from other intelligence domains. Finally these abilities should be developmental, meaning that they should increase with age, as well as through development interventions (Mayer et al., 2000). Mayer, Caruso, Salovey and Sitarenios (2001) proposed that EI does in fact meet all three of these criteria. They argue that test items can be operationalized in such a manner that there are more-or-less correct answers that measure a person's ability. Furthermore EI shows specific patterns of correlation that modestly correlates with other intelligences. Others have raised their concerns regarding the different scoring methods, especially the dispute whether right and wrong answers exist, and how professional consensus regarding these answers are formulated (Roberts, Matthews, & Zeidner, 2001).

Additionally issues revolve around the multitude of elements included in the construct. EI is often defined as a diverse construct that include aspects of affective disposition, motivational factors, personality characteristics as well as ability or skill. This makes it difficult to distinguish exactly what is and what is not part of the EI domain. Like many psychological constructs EI is rather loosely defined, causing confusion amongst researchers (Roberts et al., 2001).

Other academic debates normally centre around two questions, how to conceptualise emotional intelligence and hence how to measure it. Petrides et al. (2004) stated that the core fundamental issue is the operationalization of the construct and the procedures followed. There is a vast difference between measures of maximum performance (such as IQ tests) and measures of typical responses (such as personality questionnaires). These two approaches are briefly reviewed in the following section.

### **2.3.2.2 Ability and Trait Approaches**

There are currently two dissimilar approaches in the field of EI, which fundamentally measure two distinct constructs. These are known as the Ability Approaches (via Performance measures) and the Trait Approaches (via Self-Report Measures). The various methodologies used do not converge (Van Rooy, Viswesvaran, & Pluta, 2005) and their

literature is developing independently from one another, even though they might overlap to some extent. It is now well accepted that the operationalization of the one, does not hold any implications for the other. It is therefore important to draw these distinctions between maximum and typical performance measurements in the field before implications are discussed (Petrides, 2011).

*Ability EI* is conceptualised as a cognitive ability that is measured via maximum performance measures similar to that used in IQ testing. It is therefore expected that Ability EI has a moderate to strong correlation with general cognitive ability. This is needed to demonstrate construct validity (Furnham, 2009). The most popular ability measure of EI is perhaps the MSCEIT, refined by Mayer, Salovey and Caruso (2002).

Concerns regarding the ability approaches include difficulties in administering, weak psychometric evidence and atypical scoring procedures. Academics have stressed the fact that there is no obvious way of applying factual criteria in the objective scoring of these measures (Furnham, 2009). Popular scoring methods include Expert Scoring, Consensus Scoring and Target Scoring, but neither seems to be as straightforward as the authors originally claimed. Consensus regarding the 'right' answers is rarely ever found and cultural norms can have a huge impact on how these answers were derived (Matthews et al., 2004). Other concerns regarding objective scoring is that it is unclear whether they point to societal norms, theoretical knowledge about emotions or actual cognitive abilities (Petrides, 2011). Finally due to the subjective nature of emotions it is heavily disputed whether objective measures can accurately capture these inherent experiences (Furnham, 2009).

On the other hand *Trait EI* is conceptualised as personality traits that are measured using self-report questionnaires similar to that of personality assessments. Its relationship to general cognitive ability is therefore unimportant for establishing construct validity. These measures are concerned with self-perceptions and dispositions about emotions located in the lower levels of personality hierarchies (Petrides, Perez-Gonzalez, & Furnham, 2007). Most Trait EI measures have good psychometric properties, with good concurrent and predictive validity with a wide array of criteria. They also show good discriminant and incremental validity towards personality (Furnham, 2009). Issues normally arise regarding how the results of these measures are interpreted. Researchers often use self-report questionnaires and then interpret their findings as if they had measured a person's ability, skill or competency. This is like assessing a person's IQ by asking them how smart they think they are (Matthews et al.,

2004). Similar to personality measures where a person's profile is matched to a given job description, so too should Trait EI profiles be matched to certain circumstances. Furthermore Petrides (2011) argues that there is no such thing as an ideal emotional intelligence profile of an individual who will excel in all aspects of life. High EI scores are not always adaptive, just as low EI scores are not always maladaptive<sup>3</sup>. There are certain contexts in which high scores have undesirable consequences that need to be taken into consideration. Other common disputes regarding Trait approaches is that their EI instruments are only proxy measures of different composites of personality characteristics such as the Big Five Personality Constructs and that most of them only point to low neuroticism (Matthews et al., 2004).

Furnham (2009) holds the view that the only real Trait EI measure is the Trait Emotional Intelligence Questionnaire (TEIQue), other measures such as the Emotional Quotient Inventory (EQ-i) should rather be considered as mixed models, as they tap into both personality and cognitive dimensions (Furnham, 2009). These mixed models can be seen as a third approach to conceptualising EI. They follow very broad definitions of the EI construct such as non-cognitive competencies, capabilities or skills, social or emotional intelligent behaviour and various other dispositions from the personality domain. These instruments also measure other EI related attributes such as happiness, stress tolerance, adaptability, creative thinking, social competence etc. causing them to be criticised for lacking primary focus on emotions (Mayer et al., 2008).

Although disagreement is not unusual amongst researchers, it normally does not start so early in the development phase of a new concept. Despite these clashes, Gohm (2004) believes that the field might still benefit from a dual pronged approach, and that exploring the construct from two different methodologies, might add valuable insight. He argues that other psychological concepts such as extroversion and self-concept do not have consensus on their definition either, yet remain useful constructs in the field. EI is however still in its infancy and applying too rigid criteria might be premature. In the next section popular theories and models that made valuable contributions to the EI domain are discussed.

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<sup>3</sup> This is a valid point which highlights a limitation of the current research. In this research it is assumed that increasing EI scores will always be adaptive to the individual. This matter will be addressed to the extent that the baseline scores will be investigated to ensure that the level of scores at time one was more towards the low end of the continuum than the high end. However, in future research it would be beneficial to try and establish what an ideal adaptive profile would look like (e.g. moderate levels on all the sub-scale dimensions) and to measure to what extent the training was able to elevate or decrease the person's scores to the adaptive level.

### 2.3.3 Dominant Models and Measurements of EI

#### 2.3.3.1 Mayer and Salovey's Ability model and the MSCEIT

Mayer and Salovey (1990) were the first authors to provide an adequate theoretical framework for EI. In their initial model EI was defined as the ability to understand emotions in yourself and others, and to use these emotions as an information source to help regulate behaviour and guide decision making. This information processing occur through three distinct mental processes namely the appraisal and expression of emotion, the regulation of emotions and the adaptive use of such emotions (Salovey & Mayer, 1990).

One of the main objectives of their research was to provide a strong cognitive foundation for EI in order to distinguish it from existing personality or social traits. However Gardner (2005) argued that this original theoretical framework still included some personality characteristic, as EI was hypothesised to differentiate between warm and genuine individuals. With the help of many empirical studies Mayer and Salovey (1997) revised their original model to place greater emphasis on the cognitive components. Their new model included four distinct dimensions ordered hierarchically from basic psychological processes to more advanced and integrated processes. Starting from the lowest level these four branches include:

1. *Perceiving and Expressing Emotions* – This referred to the accuracy with which individuals could identify emotions and emotional contents.
2. *Assimilating Emotions in Thought* - The ability to describe emotional events that facilitate intellectual processing.
3. *Understanding and Analysing Emotions* – This refers to the ability to recognise, label and interpret emotions.
4. *Reflectively Regulating Emotions* – The reflective regulation of emotions in order to enhance growth (Mayer & Salovey, 1997).

Individuals progress through these stages in a sequence, completing the first before moving on to the next. It was hypothesised that high EI individuals will therefore progress much quicker through these stages, as they are more adept in emotional processing than those with lower levels of EI (Mayer & Salovey, 1997).

From their original definition Mayer and Salovey created the Multi-Factor Emotional Intelligence Scale (MEIS), but research revealed some significant shortcomings and hence

with the help of David Caruso the authors developed a new measurement based on their four-branch model described earlier. This measurement was known as the (MSCEIT) Mayer-Salovey-Caruso Emotional Intelligence Test (Mayer, Salovey, & Caruso, 1999). The MSCEIT showed significant psychometric improvement over the MEIS (Pamler, Gignac, Monacha, & Stough, 2005). It was also later revised and refined even further into the MSCEIT V2.0 (Mayer, Salovey, Caruso, & Sitarenios, 2003).

The MSCEIT is a rare ability based model that evaluates an individual's EI based on their capacity to reason with emotional content and to use this emotional content to enhance thought. The measurement consists of 294 items that are grouped into eight sections (two sections for each branch of the theoretical model). The factor structure can therefore be broken down into four levels: an overall score, an area score (Experiential EI and Strategic EI), a branch score (as described by the theoretical model) and a task score (as assessed by each section of the MSCEIT). Scoring is done in one of two formats, either through General Consensus by comparing the individual's responses to that of a normative sample, or through Expert Consensus by using a panel of 21 emotional experts to determine the response options. The authors claimed high correlations (from  $r = .93$  to  $.99$ ) between scorings for total, area, branch and task scores, indicating high correspondence between the panel of experts and the normative sample (Mayer et al., 2002). Nonetheless these scoring methods remain an area of debate for the ability measure of EI (Matthews et al., 2004; Papadogiannis, Logan, & Sitarenios, 2009; Van Rooy et al., 2005).

Factorial validity revealed that a four-factor model showed the best fit with a norm fit index ranging from  $.98$  to  $.99$  across models (Mayer et al., 2003). Further research has confirmed these findings that the four-factor model seems to be the most appropriate (Brackett & Mayer, 2003; Day & Carroll, 2004; Livingstone & Day, 2005). The MSCEIT has been found to be reliable at the total, area and branch level, with reliabilities ranging from  $r = .91$  to  $.74$ . Task scales are somewhat less reliable ranging from  $r = .64$  to  $.88$ . Discriminant validity between the MSCEIT and other personality measures seem to be satisfactory. Correlations were found to be low to moderate (Brackett & Mayer, 2003; Dantas & Noronha, 2006; Warwick & Nettlebeck, 2004). Correlations with intelligence measures were also low to moderate (Lopes, Salovey, & Straus, 2003; Marquez, Martin, & Brackett, 2006; Zeidner, Shani-Zinovich, Matthews, & Roberts, 2005).

Research has revealed significant correlations between the MSCEIT and various dimensions of the Big Five personality factors (Matthews et al., 2004; 2006; Shulte, Ree, & Caretta, 2004). Mayer et al. (2004a) used a weighted mean over five different studies to investigating the correlations between the MSCEIT and each of the five factors. Individuals with high EI where found to be more Agreeable ( $r = .21$ ), Open ( $r = .17$ ) and Conscientious ( $r = .11$ ). Lower correlations where found for extraversion ( $r = .06$ ) and neuroticism ( $r = -.09$ ), yet still significant. In a similar study Warwick and Nettlebeck (2004) found that only agreeableness had a significant relationships with the MSCEIT ( $r = .30$ ).

In the organisational setting Kerr, Garvin, Heaton and Boyle (2006) demonstrated that the MSCEIT was able to predict leadership effectiveness. Similar results were found by Rosete and Ciarrochi (2005) while other researchers failed to obtain any significant correlation (Avalio & Bass, 1995; Weinberger, 2002). Furthermore the MSCEIT was demonstrated to correlate with success at the workplace (Cherniss, Extein, Goleman, & Weissenberg, 2006), lower levels of stress (Gohm, Corser, & Dalsky, 2005) and correlate only moderately with job performance ( $r = .22$ ) (Janovics & Christiansen, 2001: as cited in Zeidner, Roberts, & Matthews, 2004).

In the educational setting Barchard (2003) demonstrated a relationship between total scores on the MSCEIT and academic success, unfortunately none of the MSCEIT scores were incrementally predictive over and above cognitive ability and personality (O'Connor & Little, 2003). This showed that the MSCEIT was not a good indicator of academic success, even though it correlated highly with indices of cognitive ability and minimally with personality (Furnham, 2009).

### **2.3.3.2 Bar-On's Non-cognitive model and the EQ-i**

Probably one of the most widely known EI measures is the Emotional Quotient Inventory (EQ-i) developed by Bar-On (1997). Bar-On defined EI as “an array of non-cognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures” (Bar-On, 1997, p. 14). Bar-On’s model is multifactorial and draws from a wide array of theoretical perspectives. It not only includes conventional emotion-processing abilities such as those described by Salovey and Mayer (1990), but also several other factors that have historically been identified as determinants of effective functioning (Wood, Parker, & Keefer, 2009).

The model incorporates 15 conceptual components which are grouped into five theoretical clusters namely: Intrapersonal, Interpersonal, Stress Management, Adaptability and General Mood. The *intrapersonal* cluster revolve around self-awareness and the ability to recognise, understand and label one's emotions as well as knowing what caused them. The *interpersonal* cluster includes abilities and dispositions relating to social interaction and the emotions of other. The core elements here are empathy, assertiveness and healthy interpersonal relationships. *Stress Management* and *Adaptability* encompasses abilities and dispositions that are involved in coping with upsetting situations. This is similar to the higher order abilities of Salovey and Mayer's (1990) model (emotional regulation and utilisation). Finally the *General Mood* cluster involves feelings of optimism, happiness and satisfaction and a positive outlook on life (Bar-On, 1997).

The EQ-i was developed over a period of a decade that involved several scale development stages, and various rounds of item and factor analyses. An initial pool of 1000 items was condensed into the 133 items of the final measurement. This means roughly 7-9 items for each of the fifteen conceptual components. Items are rated on a 5-point Likert scale that ranges from "very seldom" to "very often". The EQ-i generates a total EQ score as well as a composite score for each of the 5 clusters, and an individual score for each of the conceptual facets. The measure also has several validity scales already built in, such as an inconsistency scale and a positive and negative impression scale (Furnham, 2009). The measurement has also been translated into various languages (i.e. 29 languages: Ekermans, Saklofske, Austin, & Stough, 2011) and forms, such as the EQ-i: Short version with 51-items (Bar-On, 2002), a youth version for ages 7-18 (Bar-On & Parker, 2000) and even a multi-rater version the EQ-360 (Bar-On & Hadley, 1997; Bar-On & Hadley, 2003).

The psychometric properties of the instrument have been tested in various settings over a multitude of samples. Reliability and validity is satisfactory (Bar-On, 1997; 2002) and test retest analyses revealed that test scores are quite stable over a 32 month period (Parker, Saklofske, Wood, Eastabrook, & Taylor, 2005). A study by Ekermans et al. (2011) revealed that the EQ-i:S measures the same constructs over different cultural groups. The EQ-i seems to be a promising measure for EI, or at least in the way that Bar-On defines the construct (Dawda & Hart, 2000).

Most criticism towards this model is its rather broad definition and the vast amount of facilitating factors included. Many have questioned whether these truly belong in the EI

domain (Neubauer & Freudenthaler, 2005). Another major problem is its large overlap with personality measures, which has become a key dispute area (Matthews et al., 2004; Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2000). In a particular study Grubb and McDaniel (2007) found that the majority of the variance in the EQ-i:S can be attributed to The Big Five Factors, making the measure rather redundant when combined with other personality measurements. Research that utilises the EQ-i therefore needs to demonstrate incremental validity, above and beyond basic personality measures (Palmer, Manocha, Gignac, & Stough, 2006).

There has been a growing amount of literature that supports the link between EI (as conceptualised by Bar-On) and academic success. Parker et al. (2004) used the EQ-i: YV to predict academic success in high school students using their grade point average (GPA) across all educational subjects. Individuals in the top academic group were found to be significantly higher on the dimensions of interpersonal, adaptability and stress management capabilities. EI has also been shown to predict academic achievement in first year students in different universities (Parker, Duffy, Wood, Bond, & Hogan, 2005). In a similar study the EQ-i: S was used to investigate EI and academic retention. The results revealed that those students who persisted in their studies were significantly higher on a broad range of emotional and social competencies than those who did not finish their studies (Parker et al., 2006).

In the business world the EQ-i has also made some valuable contributions, such as predicting job performance (Buchman, Stein, Campbell, & Sitarenios, 2000) and job advancement (Dulewics & Higgs, 2000). In a study conducted by Slaski and Cartwright (2002) individuals who scored higher on the EQ-i was demonstrated to experience lower levels of perceived stress and had a better quality of work life. These scores also negatively correlated with the General Health Questionnaire (GHQ-28). Day, Therrien and Carrrol (2005) demonstrated that physical health outcomes such as colds, flu or dizziness was related to all of the dimensions of the EQ-i with correlations ranging from  $r = .51$  to  $r = .62$ .

### **2.3.3.3 The Swinburne University Emotional Intelligence Test (SUEIT)**

The previous two EI models represent two extreme viewpoints regarding the conceptualisation of the construct. Although both certainly have some degree of truth to them, there are some obvious drawbacks. Palmer and Stough (2001) conducted a large scale factor analysis that focused on previous models, such as the MSCEIT, the EQ-i, the Trait

Meta-Mood Scale, the twenty item Toronto Alexithymia Scale-II (TAS-20), the scale by Schutte et al. (1998) and the scale by Tett et al. (1997). Through their efforts they were able to draw out some of the most salient EI dimensions underlying the construct. This became known as the Swinburne University Emotional Intelligence Test (SUEIT). Unlike Bar-On's model, the SUEIT is more narrowly defined, centring only on those dimensions directly relating to emotions. In contrast to the MSCEIT the SUEIT utilises self-report techniques to improve its validity and reliability. In this study the SUEIT will be utilised due to its specific focus regarding emotions.

The SUEIT study revealed five key dimensions of EI:

1. *Emotional Recognition* and Expression- The ability to identify one's own feelings and emotional states as well as to accurately express those feelings to others.
2. *Understanding Emotions* – The ability to identify and understand the emotions of others and those manifested in external stimuli.
3. *Emotions Direct Control* – The extent to which emotional knowledge is incorporated in problem solving and decision making.
4. *Emotional Management* – The ability to manage positive and negative emotions both within oneself and other.
5. *Emotional Control* – The ability to effectively control strong emotional states (Palmer & Stough, 2001).

Since its development, the SUEIT has been used in various studies that testify of its utility. Gardner and Stough (2002) demonstrated that the SUEIT showed some independence from traditional personality measures and were able to predict leadership effectiveness in a sample of 110 senior level managers. Effective leaders were identified as those that followed transformational rather than transactional behaviours. In their study EI correlated highly with all components of transformational leadership demonstrating that individuals with low EI scores tended to follow laissez-faire leadership styles, while those with high EI scores followed a transformational leadership style. The EI dimensions that proved to be the strongest predictors of leadership effectiveness were the *Understanding of Emotions* and *Emotional Management*. The authors argue that the SUEIT can thus be used as a tool for selecting effective leaders (Gardner & Stough, 2002). In a similar study Downey, Papageorgiou and Stough (2005) used two measures of EI to investigate the relationship between leadership, intuition and EI in a sample of 176 female managers across various

industries. Their study revealed that individuals who display transformational leadership styles had higher levels of EI. Furthermore they found that the SUEIT was a better predictor of EI than the Trait Meta-Mood Scale which is a more general measure of EI. Therefore, when EI measures are used to predict work specific outcomes, the SUEIT would have greater utility (Downey et al., 2005).

In her doctoral dissertation Gardner (2005) used the SUEIT to investigate the relationship between EI and occupational stress processes, including outcomes such as job satisfaction and organisational commitment. Results revealed that the dimensions of *Emotional Recognition and Expression*, *Understanding Emotions*, *Emotional Management* and *Emotional Control* were powerful predictors of the stress process. Individuals with higher EI are therefore less likely to report feelings of stress, ill health and lowered satisfaction and commitment toward their job.

An adolescence version of the SUEIT was also developed by Luebbers et al. (2007) to assess EI in children. In a study conducted by Downey, Mountstephen, Lloyd, Hansen and Stough (2008) this version of the SUEIT was used to examine the relationship between emotional intelligence and scholastic achievement of high school students. Findings revealed that higher academic achievement was related to higher levels of EI. Different dimensions of the scale also predicted academic achievement in different subject areas, such as *Emotional Management and Control* subscales predicted achievement in Maths and Science, while *Understanding of Emotions* predicted achievement in art and geography (Downey et al., 2008). It was, however, concluded that further research is necessary to confirm the extent of these findings.

In the South African context Klem and Schlechter (2008) used the SUEIT to investigate the relationship between leader EI and psychological climate. Findings revealed that there is a significant positive relationship between EI and psychological climate with a correlation of  $r = .366$  at a practical significant level. Giving recognition to one's emotions was found to be the strongest predictor of psychological climate.

Recently a revised version of the SUEIT was developed by Gignac (2008) under the name of the *Genos Emotional Intelligence Inventory*. A theoretically derived seven-factor model was presented and empirically tested. Research seems to indicate that the Genos-EI has promising psychometric properties especially in the South African context (Gignac & Ekermans, 2010).

For this study the SUEIT will be utilised due to its specific focus on emotions and its satisfactory psychometric properties that will be explored later on.

### **2.3.4 Emotional Intelligence and Academic Achievement**

Historically most of the research and literature on academic success/achievement has focused on cognitive factors and aptitudes (Sparkman, Maulding, & Roberts, 2012). Despite these efforts much of the variance in academic success remains unaccounted for, which pointed to other factors that needed to be investigated as possible predictors. There has been a growing amount of research that supports the link between EI and academic success. These studies have normally revolved around two major points of interest. Firstly the relationship between EI and academic achievement, and secondly how EI relates to adjustment (Parker, Saklofske, Wood, & Collin, 2009)

In a study conducted by Eastabrook, Duncan and Eldridge (2005) EI was demonstrated to predict school performance. The authors demonstrated that the Emotional Quotient Inventory's Youth Version (EQ: YV) (Bar-On & Parker, 2000) scales could accurately discriminate between above average and below average students. They emphasised that EI is an important predictor of academic success even in children as young as 7-12 years. Petrides, Sangareau, Furnham and Frederickson (2006) investigated the role of EI in various pro-social and anti-social behaviours. Their findings revealed that children with higher EI were more likely regarded as having leadership abilities and being co-operative. Children lower on EI was described by their teachers as disruptive, aggressive and dependent. The authors suggested that EI was important for developing friendships during childhood and that individuals who experienced difficulties with peers could struggle in other adjustment areas later in life. Qualter, Whiteley, Hutchinson and Pope (2007) explored the role of EI in adjustment from primary to secondary schools. Their findings revealed that children with higher EI were better able to cope with the transition, scored higher academic marks and were not regarded by teachers as a concern. An interesting study by Petrides, Frederickson and Furnham (2004) revealed that EI moderates the effects of IQ. Therefore EI played a significant role in predicting academic performance for individuals with low IQ. However as IQ scores increased the impact of EI weakened. This emphasises the importance of EI development especially in individuals with lower cognitive abilities. More recent studies have also confirmed that EI can predict academic success at a secondary school level (e.g. Nwadinigwe & Azuka-Obieke, 2012).

In the post-secondary (i.e. universities or colleges) educational environment EI seems to become even more important as Parker et al. (2004) explain that the transition from school to university is a particularly stressful time in a person's life. Individuals need to build new relationships, modify existing ones, acquire new study habits, learn to function independently and deal with a vast amount of stressors such as possibly being a member of the ethnical minority or having to deal with a sudden increase in responsibility. Similarly Rode et al., (2007) argued that EI might play an important role in university success, as academic pressures are much more diverse and stress inducing. Students face multiple assignments, which they still have to balance with other non-academic pursuits. Other authors have also argued that as one grows older, life skills and "street smarts" (such as people skills and social experience) start to play a much more important role in life success than mere cognitive abilities (Stein & Book, 2011). Furthermore research has shown that individuals often withdraw from university for reasons unrelated to their cognitive ability (Pancer et al., 2000; Parker et al., 2004).

Some empirical findings suggest that EI might play an important role in attaining success in tertiary education. Parker et al. (2004) conducted a study on 372 first-year students and found that academic success was associated with various dimensions of EI. Furthermore the EQ-i:S (Bar-On, 2002) was a better predictor of university GPA than school GPA, confirming the increasing role of EI in a post-secondary environment. Similar results were found by Parker et al. (2005) who demonstrated that academically successful students had higher overall EI scores than those who were academically unsuccessful. Parker et al. (2006) also investigated student retention and found that students who persisted in their studies scored significantly higher on most of the EI dimensions (measured with the EQ-i:S) compared to those students who withdrew from their studies. Similarly, Sparkman et al. (2012) also demonstrated that EI played a significant role in a student's ability to persist and graduate within the necessary time period. In addition, Keefer et al. (2012) also demonstrated that individuals with lower levels of EI had a particular weakness with interpersonal relationships and stress management that put them at risk for terminating their studies before the degree was completed. Some authors have even gone as far as to claim that EI can uniquely explain individual cognitive-based performance over and above general intelligence (Thi Lam & Kirby, 2002), while others have argued that the effects might be more indirect (Rode et al., 2007).

Despite these positive results there have been several studies that failed to demonstrate any significant relationship between EI and academic performance. O'Connor and Little (2003)

assessed 90 students on both the EQ-i and MSCEIT and compared their EI ratings with the student's GPA. Results revealed that only the EQ-i correlated with GPA and that the MSCEIT failed to demonstrate any significant relationships. These authors concluded that EI is therefore not a good predictor of academic success due to its low patterns of correlation. Newsome et al. (2000) also found no correlation between EI and academic success. In their research 180 students between the ages of 17 and 56, completed the EQ-i as a measure of EI while their GPA was used as a measure of academic success. Other studies have focused on the limited predictive ability of EI, and have argued that IQ remains the dominant predictor of academic performance (Barchard, 2003; Lofti, Lofti, & Vaziri, 2012).

Parker et al. (2004) points out that these contradictory results might be due to some methodological issues. In both the studies of O'Connor and Little (2003), and Newsome et al. (2000) full time students were combined with part time students. These students face different challenges and stressors that might influence their academic achievement in various ways. Furthermore, first-year students were combined with upper-year students, resulting in large age differences amongst the samples. Since EI increases with age (Roberts et al., 2001), predictive validity would severely be reduced if various age groups are clustered together.

It should also be noted that most successful studies have used Bar-On's EQ-i or some variation thereof. Given the argument raised by McCrae (2000) as cited in Gardner (2005) that the EQ-i was constructed using personality variables relating to life success, such correlations with academic achievement can be expected. The question of whether other measures of EI, which are defined much more narrowly, such as the SUEIT (which focuses exclusively on emotions), can replicate these results still needs to be investigated<sup>4</sup>.

The question should also be asked whether mere correlations between EI and academic achievement serve as an adequate representation of the complex interaction between these two constructs. This might be an oversimplification of reality. It was therefore the aim of this study to investigate the relationship between EI and variables that have previously been associated with academic achievement such as academic self-efficacy, academic self-leadership, affective states and stress. Therefore by uncovering the interaction between EI and outcome variables related to academic achievement, one might understand how EI can impact academic achievement.

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<sup>4</sup> Due to the timing of the development programme implemented by this research and the difficulty in comparing different subject's GPA, as a measure of academic achievement, it was not possible to include academic achievement in this study.

A question that comes to mind is that if EI plays such a prominent role in academic success, should it not be taken into account when considering candidates for university acceptance? Furthermore, is it not important that we start investigating the development thereof, to provide individuals the necessary capacity to reach their full academic potential? If the development of EI could form part of the foundation of universities' curriculum, then this should hold some significant advantage for students. For example, universities often provide compulsory courses to help students stay up to date with the latest computer literacy as a basic building block for their futures. EI might be such a crucial building block for individuals who need to face new life challenges, build new relationships and develop a well-established self-identity, while still achieving academic success. In this study it is argued that if the necessary empirical evidence can be provided for the utility of an EI development programme in a university context, it could be the first step towards sensitising academic institutions regarding the need for the development of EI as a basic non-cognitive capacity to help facilitate academic and life success in first-year students.

### **2.3.5 Development of Emotional Intelligence**

In the previous section the importance of EI was emphasised, especially for first-year students who is making the transition from school to university. The next question then becomes whether it is possible to train or develop a person's EI, and if so, what will be the most effective way of doing so? Although interests in the development of EI have increased rapidly over the past few years, the empirical evidence remains rather scant.

According to Zeidner, Roberts, and Matthews (2002) the main criticism regarding the development of EI is that relatively few of the current interventions and EI training programmes can actually be called EI interventions as most tap into a diverse array of abilities which often fall outside of the domain of EI. A review of the literature revealed that most current programmes were not originally developed to enhance EI per se (Zeidner et al, 2002). According to Zeidner et al. (2002) this problem should be addressed by developing interventions based on a clear conceptualisation of EI with specific objectives and tailor made approaches<sup>5</sup>, rather than trying to fit existing school-based curriculum into the EI paradigm, or adapting existing interpersonal training interventions into EI programmes. However, Matthews, Zeidner, and Roberts (2002) furthermore point out that there has been some doubt

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<sup>5</sup> It should be noted that the programme that was utilised in this research met these requirements. The programme is based on the SUEIT conceptualisation and was specifically developed in a PhD study (Gardner, 2005) to affect the SUEIT sub-dimensions included in this EI model.

regarding whether EI truly can be taught. A notable study by Wong, Foo, Wang and Wong (2007), however, addressed the question as to whether EI development is a worthwhile endeavour. Wong et al. (2007) used theories in human development in order to argue that life experiences affect EI development, which would make EI development redundant. However, the results of this study indicated that a large amount of variance in EI were left unexplained for after controlling for parental EI and the Big-Five personality dimensions, which should have reflected largely the nature (i.e. genetic) effects on EI. For the nurture (i.e. environmental) effects, having a full-time parent was found to be positively related to the university students' EI. The authors therefore argued that large nurture (i.e. environmental) effects do enhance one's EI level, thereby concluding that it is therefore a worthwhile effort for researchers to identify other experiences that may lead to the development of EI and use these experiences to design effective EI training programmes. EI development may therefore be a useful endeavour, but more empirical research is needed regarding the generalizability and longevity of such programmes (Furnham, 2009).

Despite these challenges there have been a number of empirical studies that have brought valuable insight into the development of EI. Eastabrook et al. (2005) investigated a school wide training programme for developing student's EI. Their study demonstrated an increase in EI scores accompanied by better stress management and interpersonal capabilities. Qualter et al., (2007) examined the impact of an EI training programme involving teachers and grade 10 peer mentors who attended an EI workshop in order to help grade 7 students with transition related issues. Findings revealed that the intervention group had significantly higher EI scores later on in the year, as well as an increased perception of their scholastic ability and social competence. The Promoting Alternative Thinking Strategies programmes (PATHS) also hold much relevance for the development of EI (Furnham, 2009). Although these programmes are not developed specifically to be EI interventions per se, they still focus on the development of emotional literacy and a variety of emotional and social skills. Research regarding these intervention programmes has been far and wide, and their success seems to be relevant to the development of EI, as results often consist of an increase in emotional awareness and emotional management abilities. Various studies have shown that these abilities can indeed be developed and hold various advantages to individuals (Curtis & Norgate, 2007; Domitrovich, Cortes, & Greenberg, 2007; Kam, Greenberg, & Kusche, 2004). Moving on towards post-secondary institutions, various empirical findings also underscore the utility of the development of EI. Wood et al. (2006) investigated a first-year business

management course aimed at enhancing various emotional and social competencies. The results revealed that students who participated in the programme had higher EI scores at the end of the course, compared to those students who did not participate. Furthermore, Chang (2007) evaluated an EI program using a sample of 74 control group and 79 treatment group students. The course covered various EI abilities such as empathy, self-regard, assertiveness and emotional management. Various theories and strategies were also drawn from rational emotive therapy. The findings revealed that the treatment group had significant higher EI ratings at the end of the semester, suggesting that their participation in the programme helped develop their EI skills. In a more recent study Fletcher et al. (2009) investigated the effects of an EI training workshop with 3<sup>rd</sup> year medical students using the EQ-i (Bar-On, 1997). The training group's (n=50) EI scores increased over time, while the control group's (n=30) scores actually decreased slightly. Although the reduction in sample size over the course of the study severely limited the studies' validity, the results still hinted in favour of the development of EI.

Nelis, Quoidbach, Mikolajczak and Hansenne (2009) also investigated whether it was possible to enhance an individual's EI. These authors utilised a controlled experimental research design with a sample of 37 psychology students (19 in the experimental group and 18 in the control group). The experimental group received four training sessions (180 minutes each) over a 4-week period. Results confirmed that the experimental group's EI ratings increased due to the intervention. More importantly, these findings remained significant even 6 months after the programme were completed, suggesting that the developmental effects of EI seem to remain over time.

Similar results were found in a series of South African studies, conducted by researchers at Stellenbosch University. All of these studies followed similar controlled experimental designs, where experimental groups received EI training sessions each week, for a period of five weeks, while control groups received no training. Pre- and post-tests were conducted for both experimental and control groups, followed by a delayed second post-test to investigate the longevity of learnt EI skills. The two group's EI levels were then compared and investigated in terms of various performance / well-being outcomes over the course of time. All of the studies used adapted versions of the Gardner (2005) EI development programme that is based on the SUEIT EI model. The first of these studies was conducted by Burger (2009) who investigated the effects of EI on teacher well-being. Positive relationships were found between EI and well-being and the experimental group showed increases in EI levels

due to the training intervention<sup>6</sup>. A follow-up second study was conducted by Görgens – Ekermans (2011) to investigate the effects of EI on stress management. The sample (both control and experimental groups) consisted of 50 post-graduate students and revealed an increase in EI scores for the group who received the training. The results were statistically significant. Furthermore, a six month follow-up showed further significant increases in the experimental group scores (with none for the control group), supporting the longevity of the effects of this EI development programme. The third study was conducted by Herman (2012) who investigated the effects of EI development on work engagement within a corporate company on a sample of management and non-management employees. The results also revealed increases in the experimental group's EI levels, with none such trend in the control group; however, the results were non-significant. The main shortcomings of all of these studies were their limited generalizability due to small sample sizes. The small sample sizes could also confound the true results, as statistically significant results are less prone to be found when the power of the analyses (linked to the small sample size) is low. The present study therefore builds on these previous research efforts with the aim of utilising an adequate sample size in order to demonstrate significant increases in EI SUEIT scores due to the SUEIT EI development intervention.

In the business sector Slaski and Cartwright (2002) evaluated the relationship between EI stress, and well-being using a sample of 224 managers. The results revealed that higher EI scores led to lower levels of stress and better overall well-being which led to further investigation into the development of EI. In a subsequent study these authors demonstrated that EI can effectively be developed. A sample of 60 UK managers was given EI training once a week over a period of 4 weeks. Results revealed a significant increase in EI scores followed by a significant increase in health and well-being (Slaski & Cartwright, 2003). Similar results were found by Gardner (2005) in her doctoral dissertation revealing that training programmes can actually increase levels of EI and reduce stress. Dulewicz and Higgs (2004) reviewed three studies in different contexts to explore the extent to which EI can be developed. Two measuring instruments were used, the Emotional Intelligence Questionnaire (EIQ) and the EQ-i. The participant's EI scores were recorded before and after the given intervention and the overall results suggested that EI can be developed.

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<sup>6</sup> It should be noted that although these trends were clearly evident in the data, the results were not statistically significant due to the small sample size. Furthermore, this study had several limitations of which the absence of a control group was the most significant.

The majority of research therefore seems to suggest that EI is somewhat malleable and can be enhanced by training programmes or interventions. Vandervoort (2006) argues that these programmes should form part of the curriculum of post-secondary institutions as it holds various personal, social and societal benefits. EI can reduce a number of emotional and behavioural problems that could interfere with the learning process and hence enhance academic performance. Another personal benefit is that individuals with high self-knowledge are more likely to make wise career choices that will lead to their success, and ultimately result in higher life satisfaction, and better health and well-being. Furthermore enhanced social competencies should also assist in the attainment of better career success as these individuals are better able to build social support networks. These support networks will then in turn assist in a variety of other beneficial outcomes, such as reduced stress and anxiety.

Socially, EI also enhances individual's lives as the self-knowledge and social competencies allows one to make a wise choice in a marital partner. These competencies will also lead to emotionally intimate and meaningful relationships filled with empathy and understanding. Furthermore these individuals will also be skilled at communicating love towards their children, leaving them feeling valued and appreciated. This in turn will also facilitate high social and emotional development in the child, which will aid them along their life course. (Vandervoort, 2006).

Due to the criticism regarding current EI courses raised earlier, Zeidner et al. (2002) constructed general guidelines for developing EI training programmes. The guidelines include that, (1) such developmental programmes should be based on a clear conceptualisation of EI, with specific objectives that links to the context of the institution, (2) the programmes should be fully integrated into the curriculum to assist the transfer of skills to other contexts of the student's lives, (3) staff should receive professional developmental opportunities related to the programme, and (5) the implementation and effectiveness of the programme should be assessed in the most psychometrically sound way possible (Furnham, 2009).

### **2.3.6 General Outcomes of EI that relate to Student Success**

Despite better academic achievement EI has been shown to result in various other positive outcomes that might be beneficial to students. In the following section a brief summary of

these results will be presented, many of these findings were drawn from a meta-analysis by Mayer et al. (2008).

In the interpersonal domain EI has been shown to increase both the quality and quantity of social interactions. Among children and adolescents, EI positively correlates with social relations and negatively with social deviance (Denham et al., 2003; Eisenberg, Fabes, Guthrie, & Reiser, 2000). Among adults, higher EI leads to greater self-perception of social competencies and less use of destructive interpersonal strategies (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Lopes et al., 2004). Others also perceive high-EI individuals as more pleasant to be around, more empathetic and more socially nimble than those with low EI (Lopes, Salovey, Côtè, & Beers, 2005). Finally moderate correlations have been reported between EI and aspects of family and intimate relationships (Brackett, Warner, & Bosco, 2005).

Another major benefit of EI is higher levels of well-being. Studies have shown that EI correlates with greater life satisfaction (Bastian, Burns, & Nettlebeck, 2005), self-efficacy (Hashemi & Ghanizadeh, 2011; Hen & Goroshit, 2012), lower levels of stress (Görgens-Ekermans & Brand, 2012; Gohm et al., 2005; Landa, Lopez-Zafra, Martos, & Aguilar-Luzon, 2007; Slaski & Cartwright, 2002; 2003), and even better physical health (Dulewics, Higgs, & Slaski, 2003; Mikolajczak, Menil, & Luminet, 2007). A study by Ciarrochi, Deane and Anderson (2002) demonstrated that EI moderates the relationship between stress and measures of psychological health such as depression, hopelessness and suicidal proneness. EI therefore acts as a powerful buffer to reduce the negative consequences of stress. This buffering effect was further confirmed by the study of Görgens-Ekermans and Brand (2012), where EI (measured with the SUEIT) was also shown to be a moderator in the stress-burnout relationship.

One of the key outcomes of EI investigated in this study is frequent positive affect, sometimes referred to as happiness, optimism or subjective well-being. Mayer and Salovey (1997) have argued that individuals with higher EI have the capacity to perceive and reason with emotions which facilitate greater positive affect. Furthermore, it has been shown that those with higher EI have the propensity to experience fewer negative emotions and more positive emotions, contributing to a richer sense of well-being (Gallagher & Vella-Brodrick, 2008; Kafetsios & Zampetakis, 2008; Mikolajczak, Nelis, Hansenne, & Quoidbach, 2008). There seems to be a general consensus that trait EI is positively related to positive affect and

negatively related to negative affect (Mikolajczak, Luminet, Leroy, & Roy, 2007; Shi & Wang, 2007). Individuals with higher EI are therefore at an advantage as positive affect broadens an individual's momentary thought-action repertoire, allowing them to pursue a wider range of actions than is typical (Fredrickson & Branigan, 2001). This could lead to the acquisition and maintenance of various personal resources that could be instrumental in allowing students to succeed better when faced with challenges, as opposed of their lower EI counterparts. The personal resources focussed on in this study are academic self-leadership, academic self-efficacy and student well-being.

## **2.4 ACADEMIC SELF-LEADERSHIP (ASL)**

Another form of self-regulation closely related to EI is self-leadership. EI is primarily concerned with the ability to regulate emotions, while self-leadership focuses on the regulation of thought processes and behaviour (D'Intino, Goldsby, Houghton, & Neck, 2007; Boss & Sims, 2008). However, emotions are so powerful that it can influence our thoughts and behaviours and therefore it is argued here that EI and self-leadership are reciprocally related constructs. Both are critical for student success and seem to reinforce one another. It is therefore argued that developing a student's EI would also enhance their self-leadership skills and in turn positively influence their academic performance.

### **2.4.1 Conceptualising Academic Self-Leadership**

The concept of self-leadership was first introduced by Charles Manz in 1983. It is rooted in several related theories of self-influence such as self-regulation (Carver & Scheier, 1981; Kanfer, 1970), self-control (Cautela, 1969; Mahoney & Arnkoff, 1979), and self-management (e.g. Adrasik & Heimberg, 1982; Luthans & Davids, 1979; Manz & Sims, 1980). Furthermore self-leadership also calls on cognitive-orientated strategies derived from intrinsic motivation theories (e.g. Deci, 1975), social cognitive theory (Bandura, 1977), and positive cognitive psychology (Beck, Rush, Shaw, & Emery, 1979; Burns, 1980; Seligman, 1991). Self-leadership therefore comprises of specific sets of behavioural and cognitive strategies that are designed to shape individual performance outcomes (Houghton & Neck, 2002). It can be defined as the process through which individuals influence themselves to establish the necessary self-direction and self-motivation needed for effective performance (Manz, 1986; 1992; Neck & Houghton, 2006; Neck & Manz, 2010). It can be viewed as an

enabling process whereby individuals learn to understand themselves better, and because of this better self-understanding, they become able to steer their lives more effectively (Neck & Houghton, 2006). According to Yun, Cox and Sims (2006) not all individuals want to exercise self-leadership. The use of self-leadership skills is known to be dependent on an individuals' need for autonomy. Nonetheless most people seem to make use of some or other self-management strategy, even if they are not formally required to do so (Cohen, Chang, & Ledford, 1997).

Self-leadership allows individuals to control their behaviour by influencing and leading themselves through the use of various strategies. These strategies can be divided into three primary categories: behaviour-focused strategies, natural reward strategies and cognitive thought pattern strategies (Manz & Neck, 1999).

*Behavioural-focused strategies* are aimed at enhancing self-awareness and self-regulation through the use of self-observation, self-goal setting, self-reward, self-correcting feedback, and practice (Manz, 1992; Manz & Neck, 1999). In essence these behavioural-focussed strategies are designed to encourage positive, desirable behaviours that lead to successful outcomes, while suppressing negative, undesirable behaviours that lead to unsuccessful outcomes (Houghton & Neck, 2002). Behavioural-focussed strategies are especially useful in managing behaviour related to the accomplishment of essential, but unpleasant tasks.

*Natural reward strategies* involve seeking out tasks or activities that are inherently enjoyable. This set of strategies involves focusing attention on more pleasant and gratifying aspects of the task, rather than the unpleasant or difficult aspects. Natural or intrinsic rewards result when incentives are built into the activity. The individual is therefore motivated or rewarded by the task itself (Manz, 1992). These naturally rewarding activities in turn foster feelings of increased competence, self-control and purpose (Manz, 1986). Individuals can facilitate natural reward strategies by incorporating more pleasant and enjoyable features into a given activity, or by modifying their perceptions and behaviour associated with that task.

*Cognitive thought pattern strategies* (sometimes referred to as *constructive thought focused-strategies*) involve the creation and maintenance of functional patterns of habitual thinking (Manz, 1992; Manz & Neck, 1999). Specific strategies involved include the evaluation and challenge of irrational beliefs and assumptions, mental imagery of successful future performance and positive self-talk. Together they aim to establish and alter thought patterns in more desirable ways.

In the present study self-leadership is applied within the educational setting and defined more narrowly, this is termed academic self-leadership (ASL). ASL refers to one's influence, self-direction and motivation geared towards academic performance and learning. Individuals who possess ASL qualities will therefore hold a vision of achieving academic success and employ various behavioural and cognitive strategies to achieve this vision.

#### **2.4.2 Academic Self-Leadership and Emotional Intelligence**

Due to the fact that ASL is a somewhat novel concept its relationship with EI haven't yet received the amount of attention and clarification needed to permit solid predictions. Nonetheless EI and ASL seem to focus on similar processes of self-influence. EI is primarily concerned with the ability to regulate emotions, while ASL focuses on the regulation of thought processes and behaviour (D'Intino et al., 2007; Boss & Sims, 2008). This distinction has caused some to believe that EI and ASL does not have much in common, however Boss and Sims (2008) pointed out that they might be "two peas in the same self-regulatory pot" (p. 142). Emotions can have a powerful impact on both our cognitive processes and behaviour and therefore ASL and EI should also be interlinked. Individuals with high EI who can control their emotions effectively will therefore probably be better at leading themselves. Similarly the effective use of ASL strategies may help individuals become more emotionally intelligent. EI and ASL is therefore considered distinct, yet reciprocally related constructs (Houghton, Wu, Godwin, Neck, & Manz, 2012).

When considering the sub-dimensions of ASL various strategies encompassed by it calls on factors related to EI. For example, research by Depape, Hakim-Larson, Voelker, Page and Jackson (2006) showed that self-talk (a cognitive thought pattern strategy) and EI is positively related. Boss and Sims (2008) also pointed out the association between ASL and emotional regulation, especially for the behavioural-focussed strategy of self-observation. Furthermore the dimensions of cognitive thought pattern strategies also have a close link with emotion regulation. A more recent study by Furtner, Rauthmann and Sachse (2010) investigated the relationship between socio-emotional intelligence and ASL. Their findings revealed that there is a significant correlation between social sensitivity and emotional expressivity, which are components of EI, and ASL. Individuals need socio-emotional skills in order to pursue their needs and goals in their social environment, similarly emotional expression, at least in an interpersonal context, is important for ASL to be effective. It is, therefore, argued that in the post-secondary educational setting students may need to possess

basic EI skills which may enhance effective academic ASL. For example, Furtner et al. (2010) argued that ASL might also have a motivational component that is linked to the regulation of emotions, such as the delay of gratification, which still needs to be investigated.

In the current study the focus is on ASL and a student's ability to effectively direct themselves to exhibit the necessary discipline and motivation to achieve academic success. It could be argued that emotions, especially dysfunctional emotions, may have a negative impact on this self-discipline. It is, therefore argued that it is important for students to master emotional regulation, which may positively impact on cognitive and behavioural regulation (self-leadership), in order to achieve success.

More specifically it is argued that visualising successful performance, positive self-talk and effective self-evaluation (the cognitive thought pattern strategies) would help encourage students to pursue more challenging goals and insert more effort to achieve these goals, allowing them to achieve greater academic success. In this study it is argued that if EI affects ASL it would most likely have the greatest impact on the cognitive thought pattern strategies (CTPS) higher order factor, seeing as its sub-dimensions (positive self-talk, evaluating irrational beliefs and visualising successful performance) are closely related to EI. Hence only the relationship between EI and the higher order factor of cognitive thought focused-strategies, as well as its three sub-dimensions (visualising successful performance, positive self-talk and effective evaluation of beliefs and assumptions) will be tested. Still more research is needed to clarify the relationship between EI and ASL, but for the moment both constructs seem to be critically important for student success and at least moderately related to one another, and were therefore included in this study.

### **2.4.3 Academic Self-Leadership and Academic Self-Efficacy**

According to Bandura (1986; 1997; 2001a; 2001b) one of the main sources of perceived self-efficacy is our own performance history. If we succeed in challenging situations our perception of our self-efficacy will increase. Similar if we experience failure, it should undermine our perceptions of our self-efficacy. According to Manz and Neck (2000) self-leadership skills allows us to successfully take control of our lives and the situations we find ourselves in and therefore enhance both our current and future performance through more purposeful and motivated use of immediate thoughts and behaviours. These current successes should then increase our self-efficacy beliefs which in turn will translate into enhanced future

performance, enabling an upwards spiral of successes. Thus, effective use of self-leadership strategies can help individuals achieve personal excellence (Neck, Neck, Manz, & Godwin, 1999).

Empirical evidence seems to support the effectiveness of self-leadership strategies to enhance self-efficacy perceptions. For example, Neck and Manz (1996) demonstrated that levels of self-efficacy differ significantly between self-leadership training groups and non-training control groups. Similarly Prussia, Anderson and Manz (1998) reported significant correlations between self-leadership strategies, self-efficacy perceptions, and task performance.

In the educational setting the same logic should apply. Individuals with high ASL capabilities will utilise effective self-influence, self-direction and motivational strategies geared towards academic performance and learning. This should most likely lead to academic success which in turn will enhance the student's academic self-efficacy beliefs. Finally, higher academic self-efficacy could then also lead to enhanced future academic success resulting in an upward spiral of academic achievement.

#### **2.4.4 Academic Self-Leadership and Student Stress**

Research linking self-leadership skills with reduced levels of stress and enhanced well-being is scant. Nonetheless a few attempts have been made to clarify the relationship between these two constructs. Houghton et al. (2012) proposed a model that emphasised the combination of emotional regulation and self-leadership strategies to help students deal with stressors. The authors argue that self-leadership allows one to effectively implement coping strategies to deal with current stressors, as well as better prepare for possible future stressors through effective self-influence and self-management. Lovelace, Manz and Alves (2007) also proposed a model where self-leadership and shared-leadership are suggested as empowerment strategies to help individuals deal with increasing job stressors. Finally a study by Dolbier, Soderstrom and Steinhardt (2001) revealed significant correlations between self-leadership and dimensions of health, such as perceived wellness and work stress. It should however be noted that their conceptualisation of self-leadership differs from the one in the current study.

Theoretically it can be argued that self-leadership skills enable individuals to manage themselves more effectively by utilising cognitive and behavioural strategies that will in the

end allow them to pursue effective coping strategies when faced with adverse or stressful situations. Furthermore, positive affect is one of the key outcomes of self-leadership (Neck & Houghton, 2006; Neck & Manz, 1996) and have been shown to buffer against the effects of stress (Achat et al., 2000; Benyamini et al., 2000; Carver, et al., 1993; Fredrickson & Joiner, 2002). Another key outcome of self-leadership is self-efficacy (Neck & Manz, 1996; Prussia et al., 1998), which has also been shown to reduce stress (Gigliotti & Huff, 1995; Hackett et al., 1992; Solberg, Hale, Villarreal, & Kavanagh, 1993; Solberg & Villarreal, 1997; Torres & Solberg, 2001). Following this line of reasoning it is argued that better self-leadership should then at least indirectly reduce student stress levels.

It is therefore expected that students with higher ASL skills, will implement more effective strategies to remain positive, motivate themselves, and pursue academic goals even when facing multiple stressors.

#### **2.4.5 Academic Self-Leadership and Student Success**

Self-leadership has been linked to various positive outcomes such as commitment, independence, creativity/innovation, trust, potency, positive affect, job satisfaction, psychological empowerment and self-efficacy (Neck & Houghton, 2006). In the educational setting, however, research has been rather scarce. Only one study could be found that investigated self-leadership and academic performance. Garger and Jacques (2007) demonstrated that students who utilise transformational self-leadership styles had higher GPA scores than students who followed passive/avoidant self-leadership styles.

Using the theoretical structure of self-leadership one could argue that several of the self-leadership strategies should have positive effects on academic performance: firstly, self-observation strategies can lead to a heightened sense of self-awareness and might increase an individual's self-focus. Research suggests that self-focus can promote task focus, which ultimately increases task performance (Carver, 1975). Secondly, self-goal setting is vital for student learning. When students consciously and intentionally set academic goals, they generally set more specific and challenging goals, that tend to result in an increase in effort and persistence, and ultimately better performance (Locke & Latham, 1990). Thirdly, self-reward is a way of congratulating oneself, and can be used to reinforce desirable behaviours. When coupled with self-goal setting, self-reward can lead to increased effort and persistence and consequently engagement in pursuit of goal attainment. Fourthly, natural reward

strategies are used to leverage intrinsic motivation in order to enhance performance (Manz & Neck, 2000). These natural reward strategies could positively influence student's learning motivation when their focus is shaped towards the inherent rewarding aspects of their academic tasks. Finally, cognitive thought pattern strategies helps individuals create and maintain functional and constructive patterns of habitual thinking (Manz & Neck, 1999). Many students often face academic setbacks due to dysfunctional thinking. Self-leadership strategies such as positive self-talk and mental imagery might help students overcome these dysfunctional thinking patterns and achieve greater academic success. Similar to EI, one of the key outcomes of self-leadership is positive affect (Neck & Manz, 1996). Cognitive thought strategies allow individuals to maintain high levels of subjective well-being and reduce dysfunctional thinking patterns (Houghton & Jinkerson, 2004).

Therefore, students who are skilled in ASL are expected to hold a vision of achieving academic success and employ various behavioural and cognitive strategies to achieve this vision. They will have higher self-direction and motivation geared towards learning and completing academic tasks which should improve their overall academic performance. Although this research will not set out to test the ASL, academic performance relationship empirically, the reasoning here suggests that it could be a worthwhile endeavour to aim to increase ASL through the use of heightened EI in order to attain the ultimate goal of enhanced student success<sup>7</sup>.

## **2.5 ACADEMIC SELF-EFFICACY (ASE)**

Scholars in the field of educational psychology has long been hypothesising that students' learning and academic achievement are significantly influenced by the beliefs they hold regarding their ability to organise and successfully complete tasks (Bandura, 1997). Similarly, emotional skills have also been shown to play an important role in students' academic success and attitude as described earlier. Bandura (1986; 2001a) explains that self-efficacy is regulated by various processes, one of which is the learner's affective state. Feelings of success might therefore enhance learners' beliefs in their capabilities (Hashemi & Ghanizadeh, 2011). Furthermore, individuals who experience frequent positive affect (one of

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<sup>7</sup> The same line of reasoning is applied to the other outcome variables (self-efficacy, perceived stress) deemed to be affected by the EI intervention in this research.

the key outcomes of EI) are more likely to evaluate themselves as competent and capable and therefore will have a higher level of perceived self-efficacy (Lyubomirsky & King, 2005).

### 2.5.1 Conceptualising Academic Self-Efficacy

Self-efficacy is a construct derived from social cognitive theory which stipulates that behaviour, cognition and environment all influences one another in a triadic, reciprocal fashion (Bandura, 1977). Self-efficacy can be defined as an individual's judgment about their own intrinsic ability to organise and execute courses of action to attain certain performance outcomes, that they are satisfied with (Bandura, 1986). As such self-efficacy is not concerned with one's ability or skill per se, but with the individual's beliefs about what they can accomplish with whatever skill they have. Successful implementation of these plans of action however depends on both the ability to make the choice of action, as well as the ability to motivate and regulate the implementation of the desired outcome. It relates to an enduring pattern in cognition and can therefore be viewed as a personality trait (Bandura, 1991).

Bandura (1986; 1997; 2001) explains that self-efficacy beliefs are formulated from four primary sources of information: enactive mastery of experiences, vicarious experiences, verbal and social persuasion, and physiological and affective states. *Enactive mastery experiences* involve the individual's actual experience of success or failure. This is the most authentic form of information and hence has the greatest influence on perceived self-efficacy. *Vicarious experiences* are information gathered by the transmission of competencies and the comparison with attainments of others. *Verbal or social persuasion* is information received from significant others, who can influence an individual's self-beliefs by expressing their faith or doubt in your abilities. *Physiological and emotional states* are somatic information conveyed by one's physiological or emotional states. Furthermore, Bandura elaborates that self-efficacy beliefs regulate human behaviour through four major processes or mechanisms. These include cognitive, motivational, affective and selective processes which operate together to regulate human functioning.

When investigating the relationships between self-efficacy and outcome variables, it is important to distinguish between levels of specificity. Self-efficacy can be evaluated at three distinct levels of specificity: general, domain and task specific (Woodruff & Cashman, 1993). Bandura (1977) originally defined self-efficacy to be *task specific*, thus referring to one's self-efficacy for a specific task, for example in maths. *Domain efficacy* is a more general and

refers to efficacy within an entire domain of tasks, such as ASE. Finally *general self-efficacy* refers to an individual's overall self-confidence for dealing with various domains in life.

In this study the emphasis is on ASE (domain specific) and its relationship with EI and academic performance. ASE can be defined as “one's confidence in the ability to successfully perform pro-academic self-regulatory behaviours- the degree to which students metacognitively, motivationally, and behaviourally regulate their learning process” (Gore, 2006, p. 92). Similarly, Lackaye, Margalit, Ziv and Ziman (2006) defines ASE as an individual's perceived capacity to manage learning behaviour, master academic subjects and fulfil academic expectations. Schunk (1991) conceptualise ASE as subjective convictions that one can successfully carry out given academic tasks at various levels. It can therefore be viewed as an individual's belief regarding their capacity to learn, as well as their belief to successfully execute actions needed to produce the desired academic outcome.

### **2.5.2 Emotional Intelligence and Academic Self-Efficacy**

One of the information sources that influence self-efficacy beliefs is an individual's physiological and affective states. These somatic indicators are especially important in domains that that involve physical accomplishment, health functioning and coping with stressors. Individuals interpret their physiological activation in stressful or strenuous situations as signs of vulnerability to dysfunction. Just as strength and stamina is seen as signs of healthy functioning in physical activities, so too are positive affective states interpreted as signs of proficiency in various life domains. Affective states such as stress, anxiety and excitement therefore help shape self-efficacy beliefs (Bandura, 1997).

Furthermore, mood states also influence a person's self-efficacy views. Mood states can bias attention and affect how events are interpreted (Bower, 1981). Past successes and failures are stored as memories along with their affect. Positive moods activate thoughts of past accomplishments while negative moods activate thoughts of past failings. Teasdale (1983) argues that these negative moods not only recall unpleasant thoughts but stimulate a global view of inadequateness and worthlessness. Furthermore Schwartz and Clore (1988) argue that individuals make positive evaluations when they are in a good mood and negative evaluations when they are in a bad mood. Positive moods therefore enhance perceived self-efficacy while negative moods diminish it (Kavanagh & Bower, 1985). Finally one of the mediating processes that regulate human behaviour is affective processes. Efficacy beliefs create

intentional biases that determine whether life events are retrieved in ways that are emotionally upsetting, it also helps regulate emotional states and help ameliorate aversive moods once they are aroused (Bandura, 1997).

Within this context it is argued that EI gains significance as it helps regulate affective states and produce positive moods. Higher EI individuals are therefore expected to produce frequent positive effect, which will in turn cause individuals to evaluate events more favourably, making them feel adequate and successful, which in turn would enhance their self-efficacy.

Empirical evidence seems to support the link between EI and self-efficacy. Hashemi and Ghanizadeh (2011) used a sample of 97 English First Language students to investigate the relationship between EI and self-efficacy. The authors used the EQ-i and found that the dimensions of *self-actualisation* and *stress tolerance* were positive predictors of students' self-efficacy. These findings are in line with the theoretical framework described earlier, which stipulated that stress can be interpreted as signs of vulnerability to dysfunction. Individuals with better stress tolerance will therefore view themselves as more capable and therefore increase their perceived self-efficacy. Abdolvahabi, Bagheri and Kioumars (2012) also investigated the link between EI and self-efficacy using the EQ-i on a sample of 200 teachers. Their findings revealed significant positive relationships between *emotional awareness*, *empathy*, and self-efficacy. Although Bar-On's conceptualisation of EI differs from that of the SUIET, the dimensions of *emotional awareness* and *empathy* fall well within the SUIET's theoretical structure (within the *Emotional Recognition* and *Emotional Management* dimensions), making the findings important to the current study. Hen and Goroshit (2012) investigated the effects of EI and ASE on academic procrastination for students with and without learning disabilities. Unlike the previous authors these researchers utilised the Schutte Self Report Emotional Intelligence Test (Schutte, et al., 1998). Findings revealed a significant positive relationship between EI and self-efficacy for both groups of learners. Finally Adeyemo (2007) studied the link between self-efficacy and academic achievement for a sample of 300 undergrad students, and found that EI moderates the relationship between ASE and academic achievement. These studies demonstrate how higher EI can lead to higher self-efficacy, but even more importantly how higher EI enhance academic achievement not only directly, but also indirectly through enhancing one's self-efficacy.

### **2.5.3 Academic Self-Efficacy and Stress**

Self-efficacy and stress are two closely related constructs. In Lazarus's cognitive model of stress, personal beliefs such as self-efficacy are important in evaluating the demands from the environment (Lazarus & Folkman, 1984) and will eventually determine whether a person views these demands as a threat or a challenge (Chemers et al., 2001). Therefore a person's confidence about his or her competence to handle a given situation will affect whether a given task is perceived as stressful or threatening. When tasks are perceived as a challenge individuals will more likely utilise effective coping strategies and persist at managing that given task. Bandura (1997) argues that self-efficacy therefore mediates the relationship between external stressors and psychological stress.

Various empirical studies of college students have demonstrated negative correlations between self-efficacy and stress (Gigliotti & Huff, 1995; Hackett et al., 1992; Solberg et al., 1993; Solberg & Villarreal, 1997; Torres & Solberg, 2001). Furthermore Chemers et al. (2001) demonstrated that the effects of self-efficacy on stress were completely mediated by evaluations of demands as a threat or a challenge. Alternatively, certain researchers have argued that psychological arousal states such as stress and anxiety provide information that can affect one's self-efficacy judgements. Therefore frequent experiences of anxiety and stress might depress student's self-efficacy (Hackett et al., 1992).

Regardless in these different interpretations, self-efficacy and stress seems to be closely related. Student's beliefs in their academic competencies and ability to achieve academic success can determine whether academic tasks are viewed as challenging or overwhelming and threatening. This would either cause students to persist in their studies or experience severe psychological stress, which in turn will negatively impact academic achievement. Finally, frequent experiences of anxiety and stress can cause students to feel incompetent and diminish their self-efficacy.

### **2.5.4 Academic Self-Efficacy and Academic Achievement**

Zimmerman (2001) argues that some of the most difficult cognitive and motivational challenges growing individuals face are the development of their academic competencies. Without a firm belief in one's academic capabilities students might lose the motivation to persist and perform in their educational obligations. Bandura (1997) even goes as far as to say that perceived self-efficacy is a better predictor of intellectual performance than skill alone.

It is argued here that in the academic domain self-efficacy is important to students for at least four reasons: firstly, it helps improve academic motivation. Secondly, it increases academic achievement and performance. Thirdly, it helps individuals deal with academic affect, such as test anxiety, stress management and coping behaviour. Finally, it assists in the adjustment and adaption to new demands of university life.

Bandura (1997) hypothesised that efficacy beliefs influence an individual's level of effort, persistence and choice of activities. In the educational setting students with a high sense of efficacy will participate more readily, work harder and persist longer than those who doubt their capabilities (Zimmerman, 2001). Empirical evidence seems to support these views as self-efficacy has been shown to correlate with mental effort (Solomons, 1984), academic motivation (Bong & Clark, 1999; Prat-Sala & Redford, 2010), self-regulating learning (Pintrich & De Groot, 1990; Schunk & Zimmerman, 1997) and academic persistence (Lent et al., 1984). Students with high ASE are therefore expected to put more effort into their studies and persist longer than those students with low ASE.

Because perceived self-efficacy fosters engagement as discussed above, it can be expected that individuals with high ASE also have better academic performance and achievement. A meta-analysis by Multon et al. (1991) indicated that self-efficacy accounted for approximately 14% of the variance in students' academic performance across a variety of samples, measures and experimental designs. A stronger correlation was found between efficacy beliefs and achievement for low-achieving students than for those making good academic progress. Findings also revealed that the relationship between self-efficacy and academic achievement was stronger for high school or college student than for elementary school students, suggesting that older students are better able to assess their academic capabilities. Other more recent studies also support the link between academic self-efficacy and academic achievement (Adeyemo, 2007; Brady-Amoon & Fuertes, 2011; Chemers et al., 2001). An interesting study by Elias and MacDonald (2007) revealed that academic self-efficacy explained a significant amount of unique variance in college performance over and above past performance. Furthermore Zajacova, Lynch and Espenshade (2005) found that self-efficacy is a more robust and consistent predictor than stress of academic success.

Another way in which ASE beliefs can contribute to academic achievement is by enabling students to deal with academic affect. Zimmerman (2001) explains that students' beliefs about their academic capabilities can influence a variety of emotional states, such as anxiety,

stress and depression. Left unmanaged these emotional states can intrude on, and impair, intellectual functioning. Self-efficacy beliefs therefore play a crucial role in coping and dealing with academic challenges and stressors.

Finally, self-efficacy beliefs also assist in adjustment to university life. The transition from high school to university places unique demands on students. These demanding and stressful situations require higher levels of independence, initiative and self-regulation (Bryde & Milburn, 1990). Confidence in one's abilities therefore plays an important role in successfully negotiating these challenges. Research shows that ASE improves adjustment to tertiary educational settings (Brady-Amoon & Fuentres, 2011; Chemers et al., 2001), which ultimately enhances academic performance.

ASE is therefore expected to enhance students' academic achievement and performance both directly and indirectly through learning motivation, academic affect and adjustment. It should however be noted that an individual's appraisal of their ability is largely influenced by social comparison (Bandura & Jourden, 1991). This is especially true in the educational setting, where academic performance is subjected to modelling and comparative evaluation. The success and failures of others can therefore greatly affect student ASE (Zimmerman, 2001).

## **2.6 STUDENT STRESS AND WELL-BEING**

Research shows that mental health problems of university students are on the increase (Newbury-Birch, Lowry, & Kamali, 2002; Raj, Simpson, Hopman, & Singer, 2000; Sharkins, 1997). The psychological distress among university students seems to be significantly higher than those of the general population (Steward-Brown et al., 2000) and of working peers of the same age (Cotton, Dolard, & Jonge, 2002; Vaez, Kristenson, & Laflamme, 2004). Furthermore the transition from school to university is a particularly stressful process as it places various new demands on an individual that can negatively impact their academic performance (Vaez & Laflamme, 2008). Despite these challenges EI could act as a powerful buffer towards stress (Görgens-Ekermans & Brand, 2012), both directly and indirectly, that might enable individuals to attain better psychological well-being, which in turn can enhance their academic success.

### **2.6.1 Conceptualising Stress**

Generalised stress is defined as a state of psychological arousal that results when external demands tax or exceed a person's adaptive abilities (Lazarus, 1966; Lazarus & Folkman, 1984). These environmental demands are labelled stressors and can take on various forms from an acute event to an on-going strain (Perlin, 1989). It is however not the event in itself that causes distress, but rather the individual's interpretation of such an event. According to Lazarus (1966) the negative effects of stress only occurs when a situation is appraised as threatening or demanding, and insufficient resources are available to cope effectively with the situation. Individual's interpretation of events therefore plays an important role in determining the effects of stressors on student behaviour. Furthermore a certain amount of perceived stress and psychological arousal is necessary for optimum performance, this is referred to as eustress (Lazarus, 1974), if however the level of stress is perceived as exceeding one's capacity to cope, distress will occur (Yerkes & Dodson, 1908). Distress is therefore the focus of this section, but is used interchangeably with the term 'stress'.

### **2.6.2 The Effects of Stress on Academic Performance**

Individuals in higher education report experiencing stress due to various academic-related experiences, such as frequent evaluations (Steptoe, Wardle, Pollard, Canaan, & Davies, 1996), time pressure (Chambel & Curral, 2005), the need to establish new social networks, competition with peers, more frequent failures (Perry et al., 2007), poor teaching (Entwistle & Tait, 1990), student debt (Ross, Cleland, & Macleod, 2006), homesickness (Willis, Stroebe, & Hewstone, 2003), and balancing academic responsibilities with other life domains (Chow, 2007). Furthermore students report experiencing more strain due to coursework and job prospects than by any other stressor in their lives (Mikolajczyk, Maxwell, Naydenova, Meier, & El Ansari, 2008).

Certain groups of students might also be more vulnerable to stress than others. For example, studies have revealed that female students often experience more stress than male students (Brougham et al., 2009). International students also have to adjust to new cultural environments, overcome language barriers and face financial concerns (Mori, 2000). Students who are part of the minority group might face other stressors such as dealing with discrimination or unfair treatment. Another group that might be at an increased risk of stress is first-year students making the transition to university and having to face unique changes in their life. Willis et al. (2003) argue that during this transition students might become lonely

and homesick as they lose previous established social support from family and friends. Other challenges first-year students face is adapting to a new lifestyle, facing unfamiliar and challenging academic demands (Perry et al., 2007) and dealing with increased personal responsibility (Ross et al., 2006).

Research shows that students' perceived stress levels can negatively affect their ability to cope academically and act as a barrier to academic achievement (Vaez & Laflamme, 2008). Other empirical studies have also found negative relationships between stress and academic achievement. Higher levels of stress are associated with lower levels of exam success (Goldsmith & Albretech, 1993), less engagement with study material (Entwistle & Tait, 1990), less time spent actually studying (Chow, 2007), and fewer successful completed courses (Chambel & Curral, 2005). Students who suffer from test anxiety might be more vulnerable to stress and hence academic failure due to reduced cognitive capacity that leads to the shallow learning of course materials (Moneta et al., 2007; Spada, Nikcevic, Moneta, & Ireson, 2006).

Despite the negative impact on academic achievement, academic stress also causes various somatic complaints such as headaches, abdominal pains, back aches and dizziness (Torsheim & Wold, 2001). Furthermore excessive high stress levels can also lead to negative health behaviours such as increased smoking habits and alcohol consumption (Steptoe et al., 1996). At the end of the day all these factors also influence student success and can ultimately lead to academic derailment.

### **2.6.3 EI and its buffering effect on stress**

The link between EI and stress is founded on the notion that negative emotions and stress are both the result of some dysfunctional relationship between aspects of the self and the environment. The ability to read and manage emotions in others and the self can therefore act as a powerful moderator in this stress process (Slaski & Cartwright, 2003).

The experience of stress is the manifestation of negative emotions triggered by some type of danger, threat or challenge that signal the body to prepare for action (Cannon, 1931). Emotions are therefore seen as primary drive signals that interact with the environment (Oatley & Jenkins, 1998). Central to all behaviour is the urge to minimise aversive emotions and the maintenance of an integrated 'self' (Damasio, 1994). EI therefore helps individual's process information of an emotional nature and assist individuals to effectively integrate their

emotions with thoughts and behaviour (Mayer et al., 2000) and as such can assist in the reduction of aversive emotional experiences, enabling individuals to become resilient in stressful environments.

Research has shown that EI can help reduce stress and improve health and well-being. Slaski and Cartwright (2002) investigated the relationship between health, performance and EI. Their results revealed that individuals with higher levels of EI experienced less stress, and had significantly better levels of health and well-being. This of course led to higher levels of performance as compared to individuals with low EI. Dulewics et al. (2003) reported strong correlations between EI and physical- and psychological health. Mikolajczak et al. (2007) demonstrated that EI is a significant predictor of somatic and psychological symptoms in the stress process. In the South African context Görgens-Ekermans and Brand (2012) reported a strong correlation between EI and levels of stress and health in a sample of nurses. Other studies have also confirmed the buffering effects of EI against stress, and its promotion of health and well-being (Landa et al., 2007). Most research indicates that EI acts as moderating variable between stress and various outcome variables. A recent study by Wu (2011) revealed that EI moderated the relationship between stress and performance. Similarly Ciarrochi et al. (2002) showed how EI moderates the relationship between stress and measures of psychological health such as depression, hopelessness and suicidal proneness.

It is therefore expected that students with higher levels of EI will be able to cope more effectively with environmental pressures and academic demands than individuals with lower levels of EI. Furthermore Condemn and Greenglass (2012) argue that optimism and social-support are the two primary resources that help fight stress. EI is instrumental to both these resources. One of the key outcomes of EI is positive affect, closely related to optimism. EI also enables individuals to have better social relationships with peers which in turn lead to better social support. Therefore higher EI will also reduce student stress by improving student optimism and social-support.

## **2.7 CHAPTER SUMMARY**

The aim of this chapter was to provide an adequate theoretical framework that can assist in clarifying the role EI, ASL, affect balance, ASE and stress plays in the enhancement of student success. It seems that EI is a somewhat malleable construct that could be developed

through the utilisation of various training programmes. It is argued in this study that by developing student's EI one does not simply enhance their emotional and social competencies, but also may improve a vast amount of other personal resources needed for academic achievement. Included in this research, therefore, is some of the most significant of these resources (i.e. ASL capabilities, positive affect, well-being, in terms of less perceived stress, and self-efficacy beliefs), which all seem to play a critical role in the prediction of student's academic performance.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1 INTRODUCTION

In the previous section a systematic theoretical background of all the relevant constructs in this study was provided (i.e. emotional intelligence, ASL, positive affect, ASE, and perceived stress). In the next section the focus will shift towards the methodological considerations of the study and the hypotheses that were tested.

### 3.2 RATIONALE AND AIM OF THIS RESEARCH

#### 3.2.1 Rationale and Research Questions

Academic achievement is influenced by a multitude of complexly related factors, most of which seem to be non-cognitive. It is argued here that one of the most significant of these non-cognitive factors is a student's positive affective states that, according to the *Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998), could allow them to build lasting personal resources such as self-esteem (Lucas et al., 1996), psychological well-being (Fredrickson & Joiner, 2002) and life satisfaction (Ojeda et al., 2011). Furthermore the *Conservations of Resources Theory* (Hobfoll, 1989) explains that individuals with limited personal resources available to them (e.g. low self-efficacy) are at a disadvantage as they can become deprived of future resources that will negatively impact on their success and well-being.

In this study it is argued that higher EI may enable individuals to experience more frequent positive affect (Mayer & Salovey, 1997) while also acting as a powerful resource reservoir that enables individuals to build additional personal resources such as ASL, ASE (Hen & Goroshit, 2012) and well-being (Görgens-Ekermans & Brand, 2012) which are all critical for student success. First year students may therefore benefit much from developing their EI capabilities, with great emphasis on the management and control of their emotional states.

Given the rationale for this research, the following research questions were formulated:

1. Emotional Intelligence

Can EI be developed? Will an individual's EI score increase after participating in the EI training programme? If an individual's EI score does increase after the training programme, will the heightened EI score be sustained over a period of time?

## 2. Academic Self-leadership

Is EI positively associated with ASL? Will ASL improve after an individual participates in the EI training programme? If ASL improves after the intervention, can this improvement be sustained over a period of time?

## 3. Affect Balance

Can the development of EI facilitate an increase in positive affect as reflected in affect balance? Will an individual's level of affect balance increase after participating in the EI training programme? If more frequent positive affect is experienced after the intervention – as evidenced by a better affect balance, can this improvement be sustained over a period of time?

## 4. Academic Self-Efficacy

Is EI positively associated with ASE? Will ASE improve after an individual participates in the EI training programme? If ASE improves after the intervention, can this improvement be sustained over a period of time?

## 5. Perceived stress

Is EI negatively associated with perceived stress? Will perceived stress decrease after an individual participates in the EI training programme? If perceived stress levels improve after the intervention (i.e. lower stress levels), can this improvement be sustained over a period of time?

### **3.2.2 Research Aims**

The primary aim of this study was to conduct a controlled experimental design that presented an EI training intervention to first-year students enrolled at a tertiary educational institution (i.e. university). By conducting the intervention it was hypothesised that by developing student's EI they will be better equipped to regulate their emotional states, leading to increased levels of positive affect which should facilitate higher ASE and well-being resulting in increased academic achievement and performance. Furthermore it was

hypothesised that EI and ASL (or at least the CTPS higher order factor of self-leadership) is reciprocally related<sup>8</sup>, and that by developing an individual's EI, their ASL skills will also increase, ultimately contributing to their academic performance and success. This study is unique as it is the first notable South African study, to the knowledge of the researcher, to investigate the usage of an EI training programme with the aim of enhancing student's personal psychological resources, which could ultimately affect their academic performance. A second aim of this research was to investigate the inter-relationships between EI, positive affect, ASL, ASE and perceived stress within a South African sample, as a replication of previous research.

### **3.2.3 Evaluation of the EI Training Programme**

Bases on the research questions presented above, the following research hypotheses were formulated.

#### *Hypothesis 1: Emotional Intelligence*

EI (total score, as well as scores on each of the four sub-dimensions<sup>9</sup>) will increase significantly following participation in the EI training programme.

#### *Hypothesis 2: Academic Self-leadership*

Total scores on the CTPS sub-scale of self-leadership will increase significantly following participation in the EI training Programme.

#### *Hypothesis 3: Affect Balance*

Affect Balance scores will increase significantly following participation in the EI training programme.

#### *Hypothesis 4: Academic Self-efficacy*

ASE (total score) will increase significantly following participation in the EI training programme.

#### *Hypothesis 5: Stress*

Perceived stress (total score) will decrease significantly following participation in the EI training programme.

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<sup>8</sup> This assumption was not tested empirically, as the calculation of a correlation does not indicate causation, nor the direction of possible causation.

<sup>9</sup> The emotions direct control dimensions of the SUEIT did not form part of this study and was not included in any of the analyses. Total EI scores were therefore calculated by summing subscale scores on the remaining four subscales.

### 3.2.4 General Relationships between Constructs

Further hypotheses were formulated to explore the relationships between EI, positive affect, CTPS, ASE and perceived stress in a South-African sample as a replication of previous research in this regard.

#### *Hypothesis 6:*

Significant positive relationships exist between total EI as measured by the SUEIT (Palmer & Stough, 2001) and the CTPS sub-scale of self-leadership, as measured by the revised self-leadership questionnaire RSLQ (Houghton & Neck, 2002) at T1, T2, and T3.

#### *Hypothesis 7:*

Significant positive relationships exist between total EI as measured by the SUEIT (Palmer & Stough, 2001) and affect balance as measured by the Scale of Positive and Negative Experiences (i.e. SPANE, Diener, et al., 2009; 2010) at T1, T2, and T3.

#### *Hypothesis 8:*

Significant positive relationships exist between total EI as measured by the SUEIT (Palmer & Stough, 2001) and ASE (total score) as measured by the scale of Burger (2011) at T1, T2, and T3.

#### *Hypothesis 9:*

Significant negative relationships exist between total EI as measured by the SUEIT (Palmer & Stough, 2001) and perceived stress (total score) as measured by the perceived stress scale PSS (Cohen et al., 1983) at T1, T2, and T3.

#### *Hypothesis 10:*

Significant positive relationships exist between the CTPS sub-scale of self-leadership, as measured by the RSLQ (Houghton & Neck, 2002) and affect balance (total score) as measured by SPANE (Diener et al., 2009; 2010) at T1, T2, and T3.

#### *Hypothesis 11:*

Significant positive relationships exist between the CTPS sub-scale of self-leadership as measured by the RSLQ (Houghton & Neck, 2002) and ASE (total score) as measured by the scale by Burger (2011) at T1, T2, and T3.

#### *Hypothesis 12:*

Significant negative relationships exist between the CTPS sub-scale of self-leadership as measured by the RSLQ (Houghton & Neck, 2002) and perceived stress (total score) as measured by the PSS (Cohen et al., 1983) at T1, T2, and T3.

*Hypothesis 13:*

Significant negative relationships exist between affect balance as measured by the SPANE (Diener et al., 2009; 2010) and perceived stress as measured by the PSS (Cohen et al., 1983) at T1, T2, and T3.

*Hypothesis 14:*

Significant positive relationships exist between affect balance as measured by the SPANE (Diener et al., 2009; 2010) and ASE (total score) as measured by the scale by Burger (2011) at T1, T2, and T3.

*Hypothesis 15:*

Significant negative relationships exist between ASE (total score) as measured by the scale of Burger (2011) and perceived stress measured by the PSS (Cohen, et al., 1983) at T1, T2, and T3.

### **3.3 RESEARCH DESIGN AND PROCEDURE**

#### **3.3.1 Research Design**

In this study a quantitative research paradigm was followed. Quantitative research emphasises the quantification of constructs by allocating numerical values to the social phenomena measured in order to reveal possible relationships amongst dependant and independent variables (Babbie & Mouton, 2010). The aim is to develop empirical and observable measurements of constructs and apply statistical analysis methods to test the proposed relationships.

More specifically, a controlled experimental research design was used. In experimental designs an experimental group is exposed to a stimulus, while a control group is not exposed to the stimulus and serve only as a benchmark group. This allows the researcher to investigate the effects of the intervention on the dependant variables, by observing differences between the experimental and control groups, seeing that only one has received an intervention (Babbie & Mouton, 2010). If the dependant variable of only the experimental group changes

following the intervention, it can be argued that the change is due to the exposure to the stimulus. If changes in both the experimental and control group of the dependant variable occurs it is most likely a function of the intervention itself, or some external factor, rather than exposure to the stimulus.

In the present study participants in the experimental group were exposed to an EI training intervention, while participants of the control group continued to live their lives normally, without any exposure to the intervention (i.e. the stimulus). All participants were measured on the dependent variables (affect balance, CTPS, ASE, and perceived stress) one week prior to the intervention (T1), immediately after the intervention (T2), and three months after the training was completed (T3). If the results show significant improvements between the observed first, second and last measurements for the experimental group and no significant differences for the control group, the inference can most probably be attributed to the EI training programme.

The chief advantage of the controlled experimental design lies in its isolation of the experimental variable and its impact over time. It furthermore allows for much methodological rigour, which can be difficult to obtain in other modes of observation. Its greatest weakness however lies in its artificiality. The social processes that occur in a laboratory setting might not necessarily occur in more natural social settings (Babbie & Mouton, 2010).

### **3.3.2 Sampling**

Sampling refers to the selection of research participants from an entire population (Terre Blanche et al., 2006). Or alternatively put, taking a portion of a population or universe, as representative of that population or universe (Kerlinger & Lee, 2000). Because populations are often very heterogeneous one would ideally want to select observations that adequately represent all of the characteristics of that given population. Despite the fact that there are statistical methods and procedures to maximise representivity, it is not always practical, or possible to implement. Therefore this study utilised a process of convenience sampling, where individuals who are available to participate in the study were selected. Convenience sampling is a form of non-probability sampling, where the selection of elements is not determined by any statistical principles of randomness (Babbie & Mouton, 2010; Terre Blanche et al., 2006). The key shortcoming of this method is that findings are usually very

hard to generalise and researchers should take caution when interpreting their results (Babbie & Mouton, 2010).

Students from two different faculties at the participating tertiary education institution was invited to participate in either the control and experimental groups, with the aim of securing more or less a similar amount of students from both faculties in each of the groups. Securing relatively similar amounts of students from both faculties in both groups could help to control for any extraneous influences on the results, as students from both faculties, exposed to similar academic environments and requirements, would be included in both the control and experimental groups.

### **3.3.3 Participation**

The study started off with an initial sample of 114 participants (67 in the experimental group and 47 in the control group). Unfortunately there were a total of 38 dropouts (i.e. fallout rate of 33.3%) throughout the research process, resulting in a final sample of only 76 participants (41 in the experimental group and 35 in the control group) for which data at all three assessment times were available. Given the possibility of using the mixed model<sup>10</sup> repeated measures ANOVA data analysis technique, all cases available at each assessment stage were included in the analyses (resulting in sample size differences in the results reported at each phase). All participants were fulltime, first-year students at the participating tertiary educational institution. All students were enrolled in the extended degree programme<sup>11</sup> for their particular course. Students were invited from two faculties in order to improve diversity and generalizability of the results. Sixty eight participants were registered for the extended degree programme (EDP) from the Economic and Management Sciences Faculty, from which 46 participated in the experimental group and 22 in the control group. At the end of the research only 59 participants in the Economic and Management Sciences faculty were left (34 in the experimental group and 25 in the control group). The remaining 46 participants

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<sup>10</sup> The mixed model repeated measures ANOVA differs from a multivariate repeated measures ANOVA in the sense that an incomplete dataset may be used for the analyses. For the latter only the 76 complete cases could have been included. However, with the former, all the available data could be utilised.

<sup>11</sup> Individuals who are enrolled in the extended degree programme (EDP) are allowed to enrol for such a programme, even though they do not meet the general entry requirements for that programme that would normally apply. These students are allowed to enrol with a lower entry requirement, given that the programme is spread over four years, instead of the typical three years. Students in the EDP receive academic literacy periods every week, in which assistance is provided to ensure that they remain on top of academic challenges. This made it logical to use these students for the EI training programme as the academic literacy periods were specifically designed for such assistance programmes. Furthermore, these students are slightly more vulnerable to academic derailment in a certain sense than normal students, making them ideal participants for testing the effectiveness of the EI development programme.

were registered in the EDP of the Natural Sciences faculty, of which 21 formed part of the experimental group and 25 participated in the control group. At the end of the research only 17 students were left from the Natural Sciences faculty (7 in the experimental group and 10 in the control group). The higher dropout rates in the student group sourced from the Natural Sciences faculty were due to administrative issues and lack of direct coordination with the students. All participation was completely voluntary and the student's consent was obtained prior to their participation in the study.

### **3.3.4 Data Collection and ethical issues**

All the students who participated in the study (control group and experimental group) were required to complete three stages of assessment. This process commenced once ethical clearance were granted. Institutional permission was gained to allow access to the students at the participating tertiary education institution. The informed consent formulation<sup>12</sup> explained all the procedures and rights of the participants, appropriately formulated for the experimental and control groups. Anonymity was maintained through the use of the coding procedure. All data remained confidential and was only utilised for the purposes of this study. The three stages of assessment included:

1. Time one (T1): One week prior to the commencement of the EI training programme (pre-programme assessment).
2. Time two (T2): Immediately after the intervention was completed (first post-programme assessment).
3. Time Three (T3): Three months after the intervention was completed (second post-programme assessment).

In all three stages participants were required to complete a battery of questionnaires. This questionnaire package consisted of the Swinburne University Emotional Intelligence Test (Palmer & Stough, 2001), the Perceived Stress Scale (Cohen, et al, 1983), ASE questionnaire (Burger, 2011), Academic self-leadership questionnaire (Houghton & Neck, 2002), and the Scale of Positive and Negative Experience (Diener et al., 2009).

During each assessment the students were required to complete a general consent letter to undergo the testing, a demographic information questionnaire, as well as the battery of tests

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<sup>12</sup> The informed consent formulation for both the experimental and control groups are part of appendix A included in this dissertation.

listed above. All test sessions took place on campus, scheduled in a time slot convenient to all students. The assessments were conducted in the form of a pencil and paper procedure, with clear instructions, supervision and support. Participants from the control group received a small gift voucher after each assessment period for their participation efforts, in order to keep them motivated in completing all three assessment sessions. Experimental group participants did not receive any gift vouchers, but gained the benefits of acquiring and mastering EI knowledge and skills from the training programme.

### **3.3.5 Description of the Intervention**

The objective of the EI training programme was to create awareness about emotions, facilitate better understanding of emotions, and teach students how to effectively manage and control their emotional states. Effective emotional management and control was the key focus area of this intervention and plays an important role in enabling students to experience frequent positive affect which, it is argued here, should ultimately facilitate better academic success.

The structure and content of the training programme has been adapted from the work of Gardner (2005) and is based on the SUEIT's (Palmer & Stough, 2001) conceptual framework and dimensions of EI. The training programme focused on both the theoretical knowledge of emotions, as well as training participants to apply specific emotional skills in their everyday lives. Training sessions were scheduled into 2-hour contact sessions, and took place once a week, over a period of five consecutive weeks. This allowed participants enough time to practice their newly acquired emotional skills between each session. All training sessions were conducted in the form of small group sessions of no more than four participants per group. Students were allowed to divide themselves into groups of four, in order to facilitate a climate that allowed participants to share emotional experiences freely and openly, without the fear of being judged. Training sessions were administered by six trained facilitators, including the study coordinator.

According to Mayer and Salovey (1997) EI develops in stages, from basic psychological processes (such as *Emotional Recognition and Expression*) to more complex psychologically integrated processes (such as *Emotional Management* and *Emotional Control*). This implies that the EI dimensions build on one another, and that students first need to develop lower level dimensions (*Emotional Recognition and Expression*) before being able to progress to a

higher levels (*Emotional Management* and *Emotional Control*). The four dimensions of EI utilised in the proposed EI training programme consist of *Emotional Recognition and Expression*, *Understanding Emotions of others*, *Emotional Management* and *Emotional Control* (i.e. 4 of the five SUEIT sub-dimensions). These skills were developed in a similar fashion as the order suggested by Mayer and Salovey (1997).

The first session of the training presented participants with an overview of the aims and responsibilities of taking part in the intervention. This was followed by an in depth discussion of each participants' EI profile<sup>13</sup>, which were made available to them after the first assessment phase. Following this the focus was shifted by the facilitators to the behaviours underpinning the first dimension of *Emotional Recognition and Expression*. The second session focused on the second dimension of EI: *Understanding the Emotions of others*. The third session concentrated on the fourth dimension of EI: *Emotional Management*, whilst the fourth session covered the fifth dimension: *Emotional Control*. The dimension of *Emotions Direct Cognition*<sup>14</sup> did not form part of this study and was not included in the training programme. In the final session a post-assessment was conducted.

Specific learning goals were formulated for each of the sessions based on the target variables of that session. Each participant received a training workbook. In each group session, participants were encouraged to share their own emotional experiences and to comment on the experiences of others. A variety of techniques were utilised including group interaction, paired skills training, feedback and individual training tasks. After each group session participants were given exercises, contained in the workbook, to complete at home before the next session. At the start of each session participants would then be given the opportunity to reflect on these previous completed assignments. All exercises were optional but strongly encouraged.

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<sup>13</sup> These discussions were kept confidential and no student was forced in any ways to share information related to their profile that they did not feel comfortable to share.

<sup>14</sup> The 'emotions direct cognition' sub-dimension of the SUEIT was not included in the development intervention. This dimension refers to the extent to which emotional information is included in decision making. It has a strong link to preferred decision making styles, and these are not deemed to be as malleable as the other EI sub-dimensions in the SUEIT model.

### 3.4 THREATS TO THE VALIDITY OF THE STUDY

As with all research designs, there are various methodological weak-points that can threaten the studies' validity at various stages of the research process. These issues need to be taken into consideration by researchers and need to be minimised or eliminated where possible. In an experimental research design there are various internal and external validity threats that should be considered as possible limitations when interpreting the findings.

A study possesses internal validity when the results of the research, scientific observations and measurements, are true representations of some reality (LeCompte & Goetz, 1982). When the studies' findings follow in a direct and unproblematic way from its methods, the study will possess internal validity, meaning that all findings can be attributed to the independent variable, in this case the EI intervention (Terre Blanche, et al., 2006). Any inferences drawn from the experimental results, that do not accurately reflect what happened in the experiment itself, therefore threaten the studies' internal validity. Thus internal invalidity occurs when anything else, but the experimental stimulus, affects the dependent variable.

Babbie and Mouton (2010) expanded on the works of Campbell and Stanley (1963) and Cook and Campbell (1979) and identified twelve of these internal validity threats namely: history, maturation, testing, instrumentation, statistical regression, selection bias, experimental mortality, causal time-order, diffusion of treatments, compensation, compensatory rivalry and demoralisation.

*History* refers to any historical event that occurs during the course of the experiment that will most likely influence the results. These events can occur anywhere between the first and the last test session. *Maturation* stresses the fact that people are continuously growing and changing, whether in an experiment or not. Therefore, long term experiments are especially vulnerable to this type of invalidity. Furthermore the process of *Testing* and *retesting* will influence individual's behaviour. Once a pre-test is conducted participants often become sensitive towards the topic, and are therefore more thoughtful in their second test opportunity. Individuals also try to be on their best behaviour during tests, and try to provide answers that they think researchers want, or which makes them look good. In the current study the threat of test, retest invalidity could certainly have played a role as participants received a report after each assessment to reflect on their EI profile. It could be that when participants were

confronted with low scores in their profile they may have attempted to answer the questions in a more favourable manner in the subsequent assessments.

*Instrumentation* refers to the conceptualisation and measurement of variables. It is important not to change the conceptualisation or the way in which variables are measured, or by which instrument it has been measured during the course of the research process. In the current study all measurements remained the same and no changes in the operationalisation of variables were thus present. *Statistical Regression* is mainly considered with extreme scorers where change can only happen in one direction. Once the change does occur it is often mistakably interpreted as a result of the intervention. *Selection Bias* refers to the different ways of selecting subjects that might not be comparable to one another. *Experimental Morality* is when subjects drop out or leave the experiment halfway through the process while only those interested in the matter, or who side with the interventions' viewpoints remain. This results in biased results. Similarly participants who willingly join an experiment often have a certain inclination towards the subject matter. Other individual's opinions are then lost as they do not form part of the study due to their different disposition. Although attempts were made to include students from two faculties in order to better stratify the sample, experimental morality was still evident and a lot of participants withdrew, probably due to lack of interest, resulting in only those who felt strongly about the development of EI, to remain in the study. *Causal Time-order* refers to any ambiguity about the time-order of the stimulus and the dependant variable, and whether the dependent variable caused changes in the stimulus and not the other way around.

*Diffusion of Treatment* occurs when the control group becomes contaminated due to interaction with experimental group individuals. Similarly *Compensation* can contaminate the control group as they are often deprived of something (in this case no EI training) and therefore are often compensated by something else. This compensation then causes the control group to no longer be a genuine control group. *Compensatory Rivalry* occurs when subjects who are deprived of the stimulus to compensate by working harder in an attempt to beat the "special" experimental group subjects. Finally *Demoralisation* is the opposite of *Compensatory Rivalry* where control group subjects feel demoralised due to the absence of the stimulus and therefore give up, or reduce their normal levels of effort.

Internal validity however only accounts for some of the complications faced by researchers. Even if results can be obtained uncontaminated and accurately reflect what happened during

the experiment, it still does not mean they can be generalised to the real world. In addition, there is what Campbell and Stanley (1963) refer to as external validity, that relates to the generalisability of experimental findings to the real world (Babbie & Mouton, 2010). According to LeCompte and Goetz (1982) external validity refers to the extent which the true representations of scientific measurement and observations could be legitimately applied across groups. A study therefore demonstrated external validity when its findings and conclusions can be generalised beyond the boundaries of the design and the study setting (Terre Blanche et al., 2006).

Campbell and Stanley (1963) describe external invalidity as any interaction between the testing situation and the experimental stimulus. The authors identified four possible forms of this problem. The first is the reactive or interaction effect of *testing*. A pre-test might increase or decrease the respondent's sensitivity towards the experimental variable. The second form is the interaction effect of *selection bias* and the experimental variable. The third form is the reactive effects of *experimental arrangements* and the final form is due to *multi-treatment interference*, likely to occur where multiple treatments are applied to the same respondents, as the effects of previous treatments cannot be easily erased. Although some of these forms are hard to evade, both internal and external validity threats should be minimised as far as possible. When the results are presented the possibility of any further internal or external validity threats would be considered and discussed where necessary.

### **3.5 MEASUREMENT INSTRUMENTS**

Various prominent and well-established instruments were utilised to measure the constructs (EI, ASL, affect balance, ASE and perceived stress) in this study. A more in-depth discussion on the reliability and validity of the instruments used are presented in the following section.

#### **3.5.1 Swinburne University Emotional Intelligence Test (SUEIT)**

Emotional Intelligence was assessed by the Swinburne University Emotional Intelligence Test (SUEIT) (Palmer & Stough, 2001). The SUEIT is a self-report measure, designed to assess the way in which individuals typically think, feel and act with emotions at work<sup>15</sup>. The

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<sup>15</sup> Given the fact that this research study was part of a series of similar studies, and the fact that the workplace version of the SUEIT was used in all the previous research, students were instructed at the beginning of the assessment to interpret all references to "work" and "colleagues" in the instrument as referring to "studies" and "fellow students".

instrument provides an overall EI score that indicates an individual's overall EI as well as scores on each of the five sub-scales of the model to indicate more specific EI capabilities. These capabilities include: (1) *Emotional Recognition and Expression* - The ability to identify one's own feelings and emotional states as well as to accurately express those feelings to others, (2) *Understanding Emotions* – The ability to identify and understand the emotions of others and those manifested in external stimuli, (3) *Emotions Direct Cognition*<sup>16</sup> – The extent to which emotional knowledge is incorporated in problem solving and decision making, (4) *Emotional Management* – The ability to manage positive and negative emotions both within oneself and others, and (5) *Emotional Control* – The ability to effectively control strong emotional states.

The SUEIT is scored on a five point Likert-scale, which requires of test-takers to indicate to what extent the item's description is true in their lives, ranging from never (1) to always (5). It consists of 64-items and takes approximately 15 minutes to complete. In the SUEIT technical manual the following Cronbach's Alphas are reported for each of the five factors: *Emotional Recognition and Expression*:  $\alpha = .73$ ; *Understanding Emotions external*:  $\alpha = .83$ ; *Emotions Direct Cognition*:  $\alpha = .63$ ; *Emotional Management*:  $\alpha = .72$ ; and *Emotional Control*:  $\alpha = .72$ . The test-retest stability coefficients for these sub-scales, over a three month period, ranged from .98 to .95 (Palmer & Stough, 2001).

Other studies also testify to the SUEIT's favourable psychometric properties. Gardner and Stough (2002) reported reliability for the five sub-scales as follows: *Emotional Recognition and Expression*:  $\alpha = .91$ ; *Understanding Emotions external*:  $\alpha = .89$ ; *Emotions Direct Cognition*  $\alpha = .70$ ; *Emotional Management*:  $\alpha = .83$ ; and *Emotional Control*:  $\alpha = .77$ . Similarly Downey, Papageorgiou and Stough (2005) reported the following alpha coefficients: *Emotional Recognition and Expression*:  $\alpha = .91$ ; *Understanding Emotions external*:  $\alpha = .89$ ; *Emotions Direct Cognition*:  $\alpha = .70$ ; *Emotional Management*:  $\alpha = .83$ ; and *Emotional Control*:  $\alpha = .77$ . Finally Gorgens-Ekermans (2011) reported a Cronbach Alpha for the SUEIT total score ranging between  $\alpha = .79$  and  $\alpha = .81$ .

In the current study the following Cronach Alphas were reported for the pre-test assessment: total EI<sup>17</sup>:  $\alpha = .88$ , *Emotional Recognition and Expression*:  $\alpha = .69$ , *Understanding Emotions*:  $\alpha = .84$ , *Emotional Management*:  $\alpha = .72$  and *Emotional Control*:  $\alpha = .74$ . For the first post-

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<sup>16</sup> Measured, but not included in any analyses of the data in this study.

<sup>17</sup> The emotions direct control sub-scale is not included in the calculation of total EI

test assessment results were: total EI:  $\alpha = .93$ , *Emotional Recognition and Expression*:  $\alpha = .80$ , *Understanding Emotions*:  $\alpha = .88$ , *Emotional Management*:  $\alpha = .81$  and *Emotional Control*:  $\alpha = .81$ . The internal consistency results for the second post-test assessment were: total EI:  $\alpha = .94$ , *Emotional Recognition and Expression*:  $\alpha = .83$ , *Understanding Emotions*:  $\alpha = .90$ , *Emotional Management*:  $\alpha = .78$  and *Emotional Control*:  $\alpha = .84$ . The above coefficient alphas suggest that the instrument displayed good internal consistency and test-retest reliability. The set of descriptive statistics for the SUEIT, as obtained in this study (for the experimental and control groups combined), is presented in table 3.1.

**Table 3.1**  
*Descriptive statistics for the SUEIT*

	N	Minimum	Maximum	Mean	Std. Deviation
Total EI (T1)	114	129.00	228.00	170.342	19.138
Emotional Recognition/Expression	114	20.00	49.00	32.807	5.727
Understanding Emotions	114	49.00	97.00	70.991	9.122
Emotional Management	114	25.00	51.00	37.614	6.014
Emotional Control	114	17.00	44.00	28.930	5.536
Total EI (T2)	98	126.00	235.00	183.286	23.190
Emotional Recognition/Expression	98	18.00	52.00	36.469	6.396
Understanding Emotions	98	53.00	98.00	74.133	9.758
Emotional Management	98	26.00	55.00	40.908	6.644
Emotional Control	98	18.00	44.00	31.776	5.743
Total EI (T3)	76	130.00	245.00	183.763	23.540
Emotional Recognition/Expression	76	18.00	52.00	36.724	6.480
Understanding Emotions	76	51.00	99.00	74.803	9.929
Emotional Management	76	24.00	60.00	40.987	5.943
Emotional Control	76	14.00	45.00	31.250	5.899

**Note:** T1 = Time one (Pre-test), T2 = Time two (First post-test), T3 = Time three (Second post-test)

### 3.5.2 Scale of Positive and Negative Experiences (SPANE)

Student's affective states were measured by The Scale of Positive and Negative Experiences (SPANE) (Diener, et al., 2009; 2010). The SPANE is a brief 12-item scale with six items devoted to positive experiences and another six to negative experiences. Each item is scored on a 5-point scale ranging from very rarely (1) to very often or always (5). The positive scale (SPANE-P) and negative scale (SPANE-N) is scored separately, but can be combined into a summary scale (SPANE-B) by subtracting the negative score from the positive score.

SPANE-B scores therefore range from -24 to 24. Affect balance then represents an individual's overall affective state. A negative balance implies that a participant experiences more negative emotional states as compared to positive ones. A higher score is therefore desired.

The SPANE addresses various shortcomings of previous scales of well-being which measured items such as surprise, joviality and vigour that do not adequately sample the positive feelings composing well-being (Diener, et al., 2009). In contrast the SPANE includes rather broad descriptions for positive and negative feelings, as well as a number of positive and negative emotions that are fundamental to the experience of well-being. Because of these general items, the SPANE can also be useful in reflecting other states such as interest, flow, positive engagement and physical pleasure (Diener, et al., 2010).

Favourable psychometric properties of the instrument were reported by the authors. Cronbach's Alphas for each scale was reported as follows: SPANE-P  $\alpha = .84$ ; SPANE-N  $\alpha = .80$ ; SPANE-B  $\alpha = .88$  (Diener, et al., 2009). In a similar study with a larger sample the authors reported slightly higher results: SPANE-P  $\alpha = .87$ ; SPANE-N  $\alpha = .81$ ; SPANE-B  $\alpha = .89$  (Diener, et al., 2010). Other independent research also testifies to the SPANE's satisfactory internal consistency. A study by Li, Bai and Yong (2013) with a massive sample of  $n = 21\ 322$  reported Chronbach's Alphas as follows: SPANE-P  $\alpha = .92$ ; SPANE-N  $\alpha = .91$ ; SPANE-B  $\alpha = .92$ . Another study by Silva (2013) investigated the psychometric properties of the SPANE in two separate samples and reported Chronbach's Alphas ranging from .78 to .90. The favourable psychometric properties and short length makes it a useful instrument to assess student's affective states.

In the current study the following Chronbach Alphas were obtained: for the Pre-test assessment the results were: SPANE-B  $\alpha = .85$ , SPANE-P  $\alpha = .78$  and SPANE-N  $\alpha = .83$ . The following results for the first post-test were obtained: SPANE-B  $\alpha = .91$ , SPANE-P  $\alpha = .87$  and SPANE-N  $\alpha = .87$ . For the second post-test, the following results were obtained: SPANE-B  $\alpha = .88$ , SPANE-P  $\alpha = .78$  and SPANE-N  $\alpha = .86$ . Hence it is concluded that the SPANE showed good internal consistency and satisfactory test-retest reliability in this study. The set of descriptive statistics for the SPANE, as obtained in this study, is presented in table 3.2

**Table 3.2***Descriptive statistics of the SPANE*

	N	Minimum	Maximum	Mean	Std. Deviation
Positive Affect (T1)	114	14.00	30.00	23.175	3.400
Negative Affect (T1)	114	7.00	26.00	15.816	4.671
Affect Balance (T1)	114	-12.00	21.00	7.360	7.002
Positive Affect (T2)	98	8.00	30.00	24.041	3.780
Negative Affect (T2)	98	6.00	28.00	14.439	4.897
Affect Balance (T2)	98	-20.00	24.00	9.602	7.879
Positive Affect (T3)	76	13.00	30.00	23.868	3.134
Negative Affect (T3)	76	6.00	28.00	14.855	4.885
Affect Balance (T3)	76	-11.00	24.00	9.013	7.186

**Note:** T1 = Time one (Pre-test), T2 = Time two (First post-test), T3 = Time three (Second post-test)

### 3.5.3 Academic Self-Efficacy Scale

ASE refers to an individual's belief regarding their capacity to learn and perform academic tasks effectively. The operationalisation of this construct is therefore aimed at gaining information regarding a learner's efficacy beliefs that relate to academic/learning success. To assess this construct the scale adapted by Burger (2011) in her master's thesis was used. The Academic Self-efficacy scale consists of 12 items scored on a 7-point Likert scale ranging from Never (0) to Always (6). Item analysis revealed that the Cronbach's Alpha of .906 would increase to .933 if item three was deleted (Burger, 2011). However, despite that the fact that item three was identified as being a possible poor item in the Burger (2011) study, the full 12-item scale was used in the present study.

Burger (2011) borrowed and adapted various self-efficacy items from the Morgan-Jinks Student Efficacy Scale (MJSES) (Jinks & Morgan, 1999), the Self-Efficacy for Learning Form (SELF) (Zimmerman & Kitsantas, 2007), and the scale developed by Vick and Packard (2008) to construct the ASE scale. These instruments all have satisfactory psychometric properties. The MJSES was developed in order to assess student's efficacy beliefs that relate to school success. Factor analysis reveals that the MJSES measures three primary factors namely: talent items, context items and effort items (Jinks & Morgan, 1999). Burger (2011) only included the talent scale which had a Cronbach's Alpha of .78 (Jinks & Morgan, 1999)

in previous studies. The SELF was developed to assess self-efficacy for self-regulated learning. The scale consists of 57 items with a unitary factor structure and a Cronbach's Alpha of .96 (Zimmerman & Kitsantas, 2007). Finally the self-efficacy scale by Vick and Packard (2008) consisted of 9 items measured on a 7-point Likert scale with a Cronbach's Alpha of .90.

In the current study, item analysis revealed that item 3 of Burger's (2011) ASE scale correlated negatively with the other items. This item was therefore reversed after which the item and scale displayed more favourable psychometric properties. The item was therefore retained in the scale for all subsequent analyses. The following Cronbach Alphas were reported: For the pre-test  $\alpha = .91$ , for the first post-test  $\alpha = .91$  and the second post-test  $\alpha = .93$ . These results reflect good internal consistency and test-retest reliability. The set of descriptive statistics for the ASE Scale, obtained in this study is presented in table 3.3

**Table 3.3**

*Descriptive statistics for the Academic self-efficacy scale*

	N	Minimum	Maximum	Mean	Std. Deviation
ASE (T1)	114	23.00	69.00	51.035	9.318
ASE (T2)	98	32.00	72.00	53.439	8.465
ASE (T3)	76	23.00	72.00	52.671	9.456

**Note:** T1 = Time one (Pre-test), T2 = Time two (First post-test), T3 = Time three (Second post-test)

ASE = Academic self-efficacy total score

### 3.5.4 The Revised Self-Leadership Questionnaire (RSLQ)

ASL was measured with the Revised Self-Leadership Questionnaire (RSLQ) developed by Houghton and Neck (2002). Individuals are asked to indicate their level of agreement or disagreement with each item on a five-point scale ranging from not at all accurate (1), to completely accurate (5). The RSLQ has 35 items that load onto nine first-order factors namely: self-goal setting; self-reward; self-punishment; self-observation; self-cueing; natural rewards; visualising successful performance; self-talk; and evaluating beliefs and assumptions. The reliability of these subscales range from .74 to .93.

According to Norris (2008) the RSLQ items further load onto three second-order factors of self-leadership behaviours manifested in the three core strategies namely: behavioural focus strategies, natural reward-focussed strategies, and cognitive thought pattern strategies. The following Cronbach Alphas coefficients have been reported: .88 for the behavioural focused

subscale, .78 for the natural reward subscale, and .88 for the cognitive thought strategies subscale. A Cronbach Alphas coefficient of .93 was obtained for the general self-leadership scale.

In the current study the emphasis was only on the cognitive thought pattern strategies and the following Cronbach Alphas were obtained for this subscale: for the pre-test assessment the results were as follow: cognitive thought pattern strategies total score  $\alpha = .82$ , visualising success  $\alpha = .81$ , self-talk  $\alpha = .92$  and evaluating beliefs and assumptions  $\alpha = .70$ . For the first post-test the following alphas emerged: cognitive thought pattern strategies total score  $\alpha = .85$ , visualising success  $\alpha = .87$ , self-talk  $\alpha = .87$  and evaluating beliefs and assumptions  $\alpha = .80$ . Finally the second post-test reliability coefficients were: cognitive thought pattern strategies total score  $\alpha = .89$ , visualising success  $\alpha = .90$ , self-talk  $\alpha = .81$  and evaluating beliefs and assumptions  $\alpha = .81$ . These findings testify to good internal consistency and test-retest reliability of the cognitive thought pattern strategies higher order factor and its subscales. The set of descriptive statistics for these scales is presented in table 3.4.

**Table 3.4**

*Descriptive statistics for the Cognitive thought pattern strategies subscale of the RSLQ*

	N	Minimum	Maximum	Mean	Std. Deviation
CogThgt (T1)	114	26.00	60.00	45.201	7.602
VS	114	7.00	25.00	18.947	4.110
ST	114	3.00	15.00	11.675	3.273
EB	114	6.00	20.00	14.578	2.926
CogThgt (T3)	98	27.00	60.00	46.173	7.791
VS	98	7.00	25.00	18.979	4.421
ST	98	4.00	15.00	12.336	2.689
EB	98	6.00	20.00	14.857	3.302
CogThgt (T2)	76	27.00	60.00	46.526	8.015
VS	76	5.00	25.00	19.171	4.373
ST	76	6.00	15.00	12.236	2.576
EB	76	10.00	20.00	15.118	2.988

**Note:** T1 = Time one (Pre-test), T2 = Time two (First post-test), T3 = Time three (Second post-test)

CogThgt = Cognitive thought pattern strategies (total score)

VS = Visualising successful performance (sub-scale)

ST = Self-talk (sub-scale)

EB = Evaluating beliefs and assumptions (sub-scale)

### 3.5.5 Perceived Stress Scale (PSS)

Student's perceived stress was measured by the Perceived Stress Scale (PSS) developed by Cohen et al. (1983). There are three versions of the PSS, a 14-item, 10-item and 4-item scale. In this study the 14-item scale was used, scored on a 5-point scale ranging from Never (1) to Very Often (5). Seven of these items represent negative experiences, while the other seven represents positive experiences, where the individual need to indicate how effectively they cope with the described challenges.

The authors reported favourable psychometric properties for their instrument, in three different samples, with a coefficient alpha reliability of .84, .85, .86 respectively. The test retest coefficient has been reported as .85. The PSS shows favourable correlations with similar measures of health, yet remains adequately distinct (Cohen et al., 1983). Other studies have also shown favourable results with coefficient alpha values of .86 and .77 for the positive and negative scales, and an overall Cronbach Alpha of .85 (Leung, Lam, & Chan, 2010).

In the current study the following Cronbach Alphas were calculated. The pre-test revealed a Cronbach Alpha of .82, whilst the first post-test yielded a Cronbach Alpha of .87 and finally the second post-test a Cronbach Alpha of .84. These findings suggest good internal consistency and test-retest reliability. The set of descriptive statistics for the PSS, obtained in this study, is presented in table 3.5.

**Table 3.5**

*Descriptive statistics for the PSS*

	N	Minimum	Maximum	Mean	Std. Deviation
PSST1	114	21.00	57.00	40.394	7.428
PSST2	98	19.00	66.00	36.214	7.618
PSST3	76	20.00	53.00	37.105	7.480

**Note:** T1 = Time one (Pre-test), T2 = Time two (First post-test), T3 = Time three (Second post-test)

PSS = Perceived stress scale total score

### **3.6 STATISTICAL ANALYSIS**

The *Statistical Package for the Social Sciences* (SPSS) and *Statistica* was used to perform a range of statistical analysis on the questionnaire data. For example, SPSS was utilised to conduct the reliability procedure. A mixed model repeated measures ANOVA with *Statistica* was conducted for each construct with treatment and time as fixed effects and subjects as random effects. Finally post-hoc comparisons were calculated.

### **3.7 CHAPTER SUMMARY**

The aim of this chapter was to review the methodology utilised in the study. The research questions and resulting hypotheses were presented. The research design, sample selection, participants, data collection, as well as the intervention conducted, threats to the study's validity, and measurement instruments utilised in this study were discussed. All the descriptive statistics of the measurement instruments were reported. The results of the study will be presented in the next chapter.

## CHAPTER 4: RESULTS

### 4.1 INTRODUCTION

The aim of this study was, primarily, to investigate whether an EI intervention programme could successfully be applied to develop and increase student's levels of EI, which was hypothesised to facilitate improved levels of ASL, affect balance, ASE and well-being (as measured by reduced stress), which should result in the improvement of the student's academic performance and success. Secondly the study aimed to explore and replicate previous research on the inter-relationship between EI, CTPS, affect balance, ASE and perceived stress within a South African sample. This chapter will focus on an integrated and holistic examination of the empirical evidence obtained from this research. Reference to, and comparison with, the relevant literature and previous research findings will also be presented.

### 4.2 SAMPLE

Assessment questionnaires were accompanied by demographic information forms that were administered to all 114 participants. All participants were fulltime, first-year students at the participating tertiary educational institution from the Economic and Management Sciences (n=68) and the Natural Sciences faculties (n=46). Various challenges were faced regarding sample retention. Out of the initial 114 participants only 76 completed all three assessments resulting in a relatively high dropout rate (33.3%). The Natural Sciences faculty had the highest dropout rate (63.04%) compared to that of the Economic and Management Sciences department (13.24%). The most prominent reason for this was the lack of direct contact with the students from the Natural Sciences faculty which hampered the logistics regarding testing arrangements. Some students also had personal or educational obligations which made it impossible for them to participate in the entire research project (i.e. all testing and/or training sessions). However, there were various students who simply withdrew from the study without any reason given. Despite these challenges, by using the statistical analysis technique of mixed model repeated measures of ANOVA, the inclusion of all the cases from each test period were allowed, minimising the impact of the high fallout rate as far as possible. All random missing values<sup>18</sup> in the data were statistically imputed with imputation via matching

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<sup>18</sup> Only those values that were randomly or accidentally left out by participants were imputed. If entire cases were missing, the data of that case (i.e. participant) were not included in the analysis for that time period.

(with matching variables, conducted with LISREL 8.8), except those in the demographic section which was left blank.

Demographics for the sample are presented in tables 4.1 to 4.5 below. Table 4.1 shows that the gender representation were fairly equally distributed, with slightly more males than females in the sample.

**Table 4.1**  
*Gender distribution*

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	51	44.7	44.7	44.7
Female	63	55.3	55.3	100.0
Total	114	100.0	100.0	

Age distribution can be seen in table 4.2 with the average age being between 18 and 19 year, with a mean of 18.63 and a standard deviation of 1.447. The youngest student was 17 years of age, while the oldest participant in the sample was 31 years old. One of the participants did not indicate their age.

**Table 4.2**  
*Age distribution*

	Frequency	Percent	Valid Percent	Cumulative Percent
17	1	.9	.9	.9
18	70	61.4	61.9	62.8
19	28	24.6	24.8	87.6
20	8	7.0	7.1	94.7
21	4	3.5	3.5	98.2
22	1	.9	.9	99.1
31	1	.9	.9	100.0
Missing	1	.9		
Total	114	100		

Table 4.3 shows the language distribution of the sample. Most participants' first language was either Afrikaans or English, with the remaining 17.3 % represented by other South African languages. One participant did not complete this question.

**Table 4.3**  
*Language distribution*

	Frequency	Percent	Valid Percent	Cumulative Percent
Afrikaans	70	61.4	61.9	61.9
English	23	20.2	20.4	82.3
Xhosa	9	7.9	8.0	90.3
Venda	1	.9	.9	91.2
Zulu	3	2.6	2.7	93.8
South Sotho	4	3.5	3.5	97.3
North Sotho	1	.9	.9	98.2
Swazi	2	1.8	1.8	100.0
Total	113	99.1	100.0	
Missing	1	.9		
Total	114	100.0		

The ethnicity distribution of the sample more or less resembled the demographic profile of the Western Cape and is presented in table 4.4

**Table 4.4**  
*Ethnicity distribution*

	Frequency	Percent	Valid Percent	Cumulative Percent
Black (African)	24	21.1	21.4	21.4
Coloured	49	43.0	43.8	65.2
White	38	33.3	33.9	99.1
Other	1	.9	.9	100.0
Total	112	98.2	100.0	
Missing	2	1.8		
Total	114	100.0		

The sample was spread across two different faculties as can be seen in table 4.5, with relative good representation from each faculty at the beginning of the study. It should however be noted that the sample retention in the Natural Sciences group diminished dramatically from T1 to T3, and could hold various implications for the generalizability of the final results.

**Table 4.5*****Faculty Group Cross-tabulation at the start of the study***

		Group		
		Experimental	Control	Total
Faculty	EMS	46	22	68
	NS	21	25	46
Total		67	47	

EMS = Economic and Management Sciences

NS = Natural Sciences

### **4.3 RESULTS: EVALUATION OF THE TRAINING PROGRAMME**

The aim of this research was to investigate whether an EI intervention programme could be used to successfully develop and increase students' level of EI. It was further theorised that higher levels of EI may facilitate the acquisition and maintenance of various other personal psychological resources such as frequent positive affect, ASL skills, ASE skills and better overall well-being (as indicated by less perceived stress). All of these changes were hypothesised to ultimately improved students' academic achievement, although this was not formally tested in the study. Based on the research questions presented in chapter 3, the following hypotheses were formulated in order to evaluate the EI training programme.

#### Hypothesis 1: Emotional Intelligence

EI (total score as well as scores on each of the four sub-dimensions<sup>19</sup>) will increase significantly following participation in the EI training programme.

#### Hypothesis 2: Affect Balance

Affect Balance will significantly increase following participation in the EI training programme.

#### Hypothesis 3: Academic Self-leadership

The CTPS sub-scale of ASL will significantly increase following participation in the EI training Programme.

#### Hypothesis 4: Academic Self-efficacy

<sup>19</sup> The emotions direct control dimensions of the SUEIT did not form part of this study and was not included in any of the analyses. Total EI scores were therefore calculated by summing scores on the remaining four subscales.

ASE (total score) will significantly increase following participation in the EI training programme.

#### Hypothesis 5: Stress

Perceived stress (total score) will significantly decrease following participation in the EI training programme.

Three assessments were administered at different time periods (described in section 3.3.4). It was expected that levels of EI (total scores and sub-dimensions), ASL (only the CTPS total score), affect balance and ASE would increase significantly for the experimental group from T1 to T2, while students' perceived stress levels would decrease significantly from T1 to T2 for the experimental group. In contrast only slight non-significant increases (due to maturation effects), or no changes at all in the control group was expected. It was also expected that further changes would occur from T2 to T3 for the experimental group as students continue to internalise the skills and capabilities they have been taught. No changes were expected in the control group over this time period, other than random fluctuations due to external events, or the slight impact of maturation over time. In the following sections 'Treatment 1' refers to the experimental group and is displayed as a red line in the figures, while 'Treatment 0' refers to the control group and is depicted by a blue line in the graphs.

A series of between group comparisons, by means of a mixed model repeated measures of ANOVA with post hoc tests comparisons were performed to investigate the differences between levels of EI, CTPS, affect balance, ASE, and stress at measurement times T1, T2, and T3. More specifically repeated measures of analysis of variance was utilised to assess the same variables under different conditions. When inspecting the ANOVA summary table an F – value and p – value is provided. The F statistic is known to be a calculated ratio of the within-group variance. In conjunction with the F-value, a p-value is provided, which is compared to a critical alpha value of (.05). If the p-value is less than the alpha value ( $p < .05$ ) then F is considered statistically significant, which indicates that the null hypothesis (which holds that the means across the different time periods are the same) is rejected. Therefore a statistical significant F indicates that the calculated means in the current conditions are significantly different (i.e. the calculated means for EI at T1, T2 and T3 are not the same). According to Stangor (2004) should the p-value equal zero ( $p < .001$ ), it would indicate that the differences in means scores at T1, T2 and T3 cannot be attributed to the result of a sampling error.

It is important to note that a statistical significant F-value only reports whether the levels of the particular variable does in fact differ across the three testing periods, the exact means that are statistically significant will not be identified. These findings are reported in the tables listing the fixed effect test over the three testing times. In addition post hoc comparisons were calculated (i.e. the Least Significance Difference test; LSD test,) to test the difference between, and among, particular group means. Thus the post hoc comparisons reveal the statistical significance of differences between the levels of EI, CTPS, affect balance, ASE, and stress at all three time periods and over both groups. If the p-value of any two periods compared are less than alpha ( $p < .05$ ), it would indicate that the specific variables being tested across those time periods are significantly different.

#### **4.3.1 Results: Total EI**

Table 4.6 contains the ANOVA results in determining whether there was a significant group by time effect for total EI over the three testing periods. Table 4.7 furthermore presents the post hoc tests to identify any significant score differences among group means. Finally, figure 4.1 shows a graphical representation of the changes that occurred in the participant's level of EI at the three measurement points across the two groups.

The results are in line with the hypothesised outcome, and show that the total effect for group by time was significant (see table 4.6). To explain these findings further attention is drawn to table 4.7 which shows the group means at the different time intervals. As expected the experimental group showed significant increases for EI levels from T1 to T2. There was, however, no significant increase from T2 to T3 in the experimental group, suggesting that the internalisation and further development of EI skills as demonstrated by Gardner (2005), Görgens - Ekermans (2011) and Nelis et al. (2009) was not replicated in the current study. It could be that this internalisation effect might take slightly longer to surface, such as in the six month follow up assessment in the Nelis et al. (2009) and Görgens - Ekermans (2011) studies. It could be that this expanded timeframe provided participants with the necessary time to practice and develop their EI capabilities, which seemed to not be the case in this study.

**Table 4.6***Fixed effect test for total EI over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	4.112	<b>0.044</b>
Time	2	170	27.104	<b>0.000</b>
Time*Treatment	2	170	4.358	<b>0.014</b>

**Note:**  $p < .05$  is significant

Contrary to what was expected the control group also showed significant increases from T1 to T2. This could be due to maturation effects as Parker et al. (2005) revealed that students' EI levels increase significantly over a three year period at university without participating in any specific EI intervention. This might be due to the fact that students suddenly face significant changes in their lives accompanied by an increase in responsibility and independence. However, this argument would also apply to the experimental group, accounting for some of the change in the experimental group. Moreover, the effect of the process of testing and retesting may also have caused a change in the self-reported EI levels over both groups.

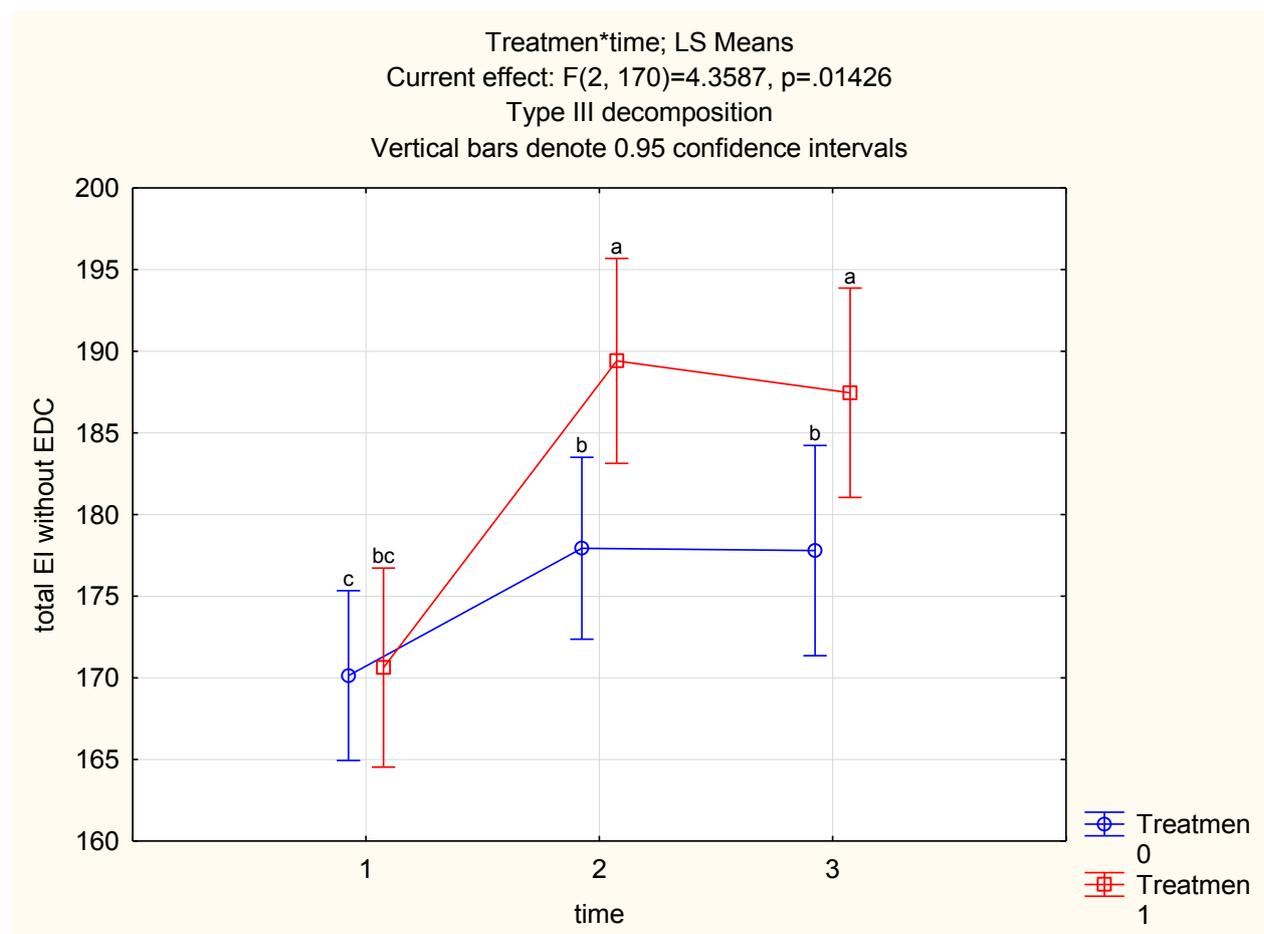
**Table 4.7***Post hoc results for total EI*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>170.14</b>	<b>177.93</b>	<b>177.80</b>	<b>170.63</b>	<b>189.41</b>	<b>187.46</b>
1	0	T1		<b>0.003</b>	<b>0.014</b>	0.904	<b>0.000</b>	<b>0.000</b>
2	0	T2	<b>0.003</b>		0.965	0.082	<b>0.007</b>	<b>0.028</b>
3	0	T3	<b>0.014</b>	0.965		0.112	<b>0.011</b>	<b>0.037</b>
4	1	T1	0.904	0.082	0.112		<b>0.000</b>	<b>0.000</b>
5	1	T2	<b>0.000</b>	<b>0.007</b>	<b>0.011</b>	<b>0.000</b>		0.522
6	1	T3	<b>0.000</b>	<b>0.028</b>	<b>0.037</b>	<b>0.000</b>	0.522	

**Note:**  $p < .05$  is significant

However, despite the fact that both groups' level of EI increased significantly over the first timeframe of the research, the increases for the experimental group was much greater in magnitude than that of the control group. It could therefore be argued that the EI training programme implemented in the current study may have been responsible for these differences in magnitude of change between the control and experimental groups if equal maturation effects / or effects of testing and retesting are assumed over both groups.

Based on these results, it may be argued that some evidence does exist to suggest that the training intervention may have contributed towards the increase in student's EI levels at the participatory tertiary institution. Partial empirical support for *Hypothesis 1* was therefore obtained. These findings also provide further support for the notion that emotional responses and behaviours can be learnt and developed in individuals (Chang, 2007; Fletcher et al., 2009; Görgens - Ekermans, 2011; Nelis et al., 2009; Wood et al., 2006).



**Figure 4.1:** Total EI as measured at T1, T2 and T3

### 4.3.2 Results: Emotional Recognition and Expression (EREXP)

Apart from investigating the changes in total EI, it is also useful to inspect the separate changes in the various EI sub-dimensions to get a better understanding of which EI capabilities were most affected by the intervention. The *Emotional Recognition and Expression* sub-scale of the SUEIT refers to the ability of individuals to identify emotional states, and express them to others. The results revealed that the total effect for the group by time interaction for EREXP over the three testing periods was significant (see table 4.8).

**Table 4.8**  
*Fixed effect test for EREXP over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	2.242	<b>0.137</b>
Time	2	170	23.468	<b>0.000</b>
Time*Treatment	2	170	4.324	<b>0.014</b>

**Note:**  $p < .05$  is significant

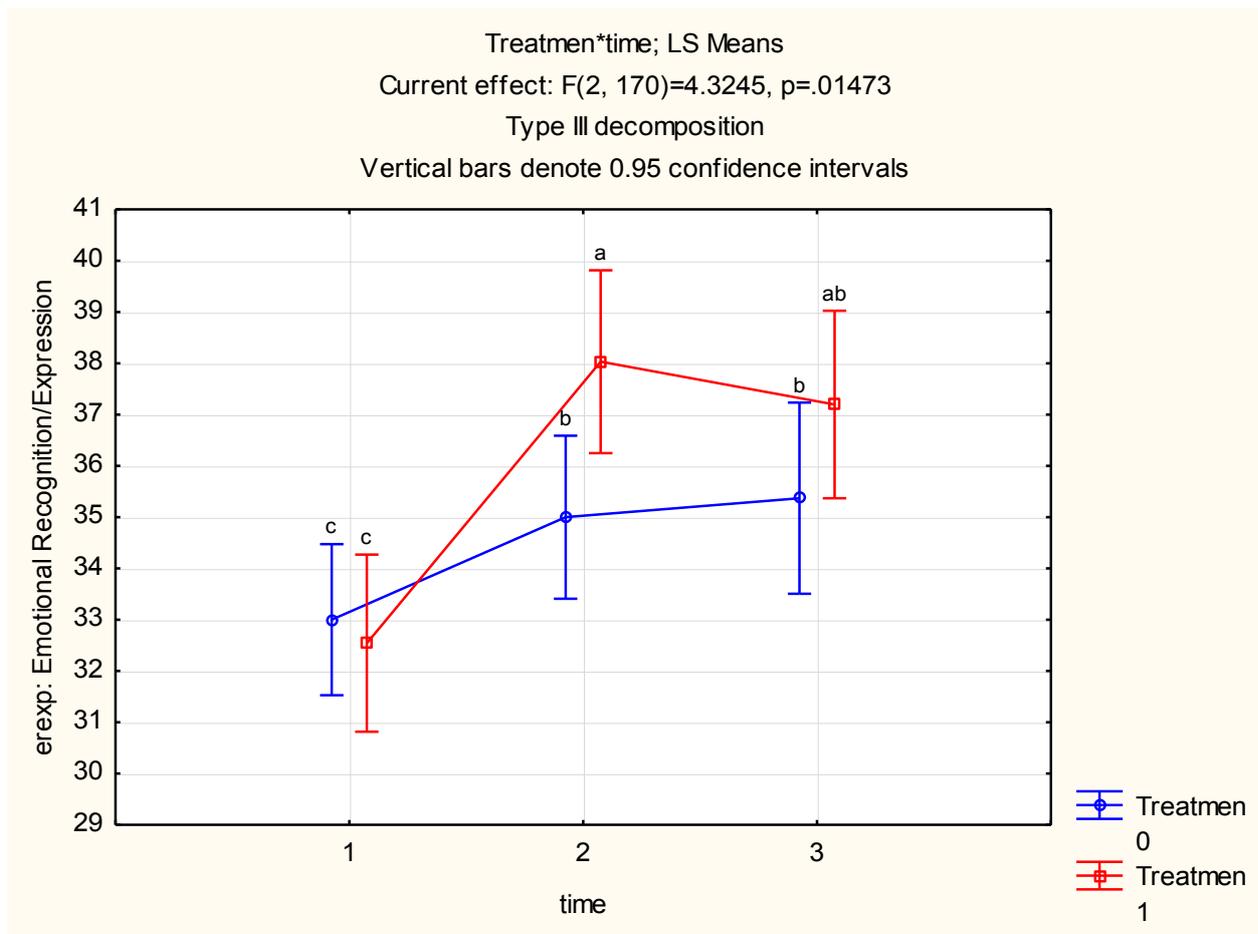
Post hoc results show a significant increase in mean scores for both the experimental and control groups from T1 to T2 (see table 4.9). Similar effects that could account for some changes (i.e. maturation, testing-retesting) mentioned earlier, would also apply in this case. Nonetheless figure 4.2 clearly shows that the increase for the experimental group was greater in magnitude than that of the control group, and that the means at T2 differed significantly across groups. It could, therefore, be argued that the steep increase of the experimental group was most likely due to the student's participation in the EI training programme.

The mean scores from T2 to T3 show no significant differences. This was observed for both groups, (see table 4.9) suggesting that no further changes occurred once the training was completed. This is not entirely unexpected as previous research have also demonstrated that the basic skills needed to identify and recognise emotions (embodied within the EREXP dimension) are more easily acquired and saturated as compared to the regulation components (i.e. emotional control and management) of EI (Görgens - Ekermans, 2011). Based on these results it is argued that further support for *Hypothesis 1* was obtained.

**Table 4.9**  
*Post hoc results for EREXP*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			33.00	34.99	35.369	32.452	38.031	37.196
1	0	T1		<b>0,013</b>	<b>0.012</b>	0.690	<b>0.000</b>	<b>0.000</b>
2	0	T2	<b>0.013</b>		0.699	<b>0.040</b>	<b>0.013</b>	0.075
3	0	T3	<b>0.012</b>	0.699		<b>0.029</b>	<b>0.043</b>	0.168
4	1	T1	0.690	<b>0.040</b>	<b>0.029</b>		<b>0.000</b>	<b>0.000</b>
5	1	T2	<b>0.000</b>	<b>0.013</b>	<b>0.043</b>	<b>0.000</b>		0.370
6	1	T3	<b>0.000</b>	0.075	0.168	<b>0.000</b>	0.370	

**Note:** p<.05 is significant



**Figure 4.2:** EREXP as measured at T1, T2 and T3

### 4.3.3 Results: Understanding Emotions of Others (UEX)

Within the conceptual framework of the SUEIT the UEX sub-scale refers to the ability to identify and understand the emotions of others and those that manifest in external stimuli. Table 4.10 reveals that the total effect for the group by time interaction for UEX, over the three testing periods, was non-significant ( $p > .05$ ).

**Table 4.10**

*Fixed effect test for UEX over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	4.350	<b>0.039</b>
Time	2	170	10.709	<b>0.000</b>
Time*Treatment	2	170	2.522	0.083

**Note:**  $p < .05$  is significant

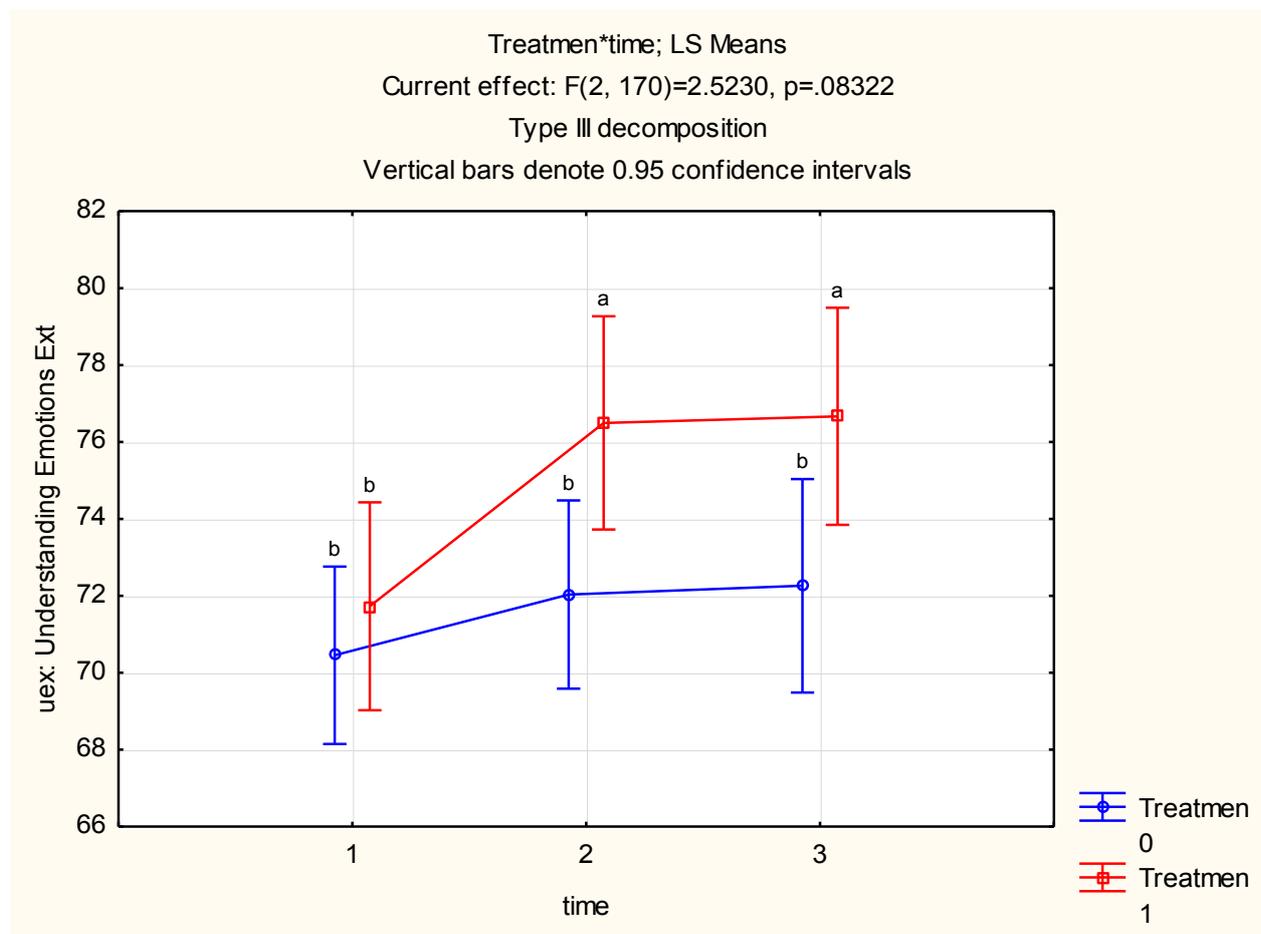
Post hoc results revealed that a significant increase in mean scores occurred from T1 to T2 for the experimental group, but not for the control group (see table 4.11). These findings suggest that the EI training programme was successful in teaching students, in the experimental group, to become more aware of the emotions of others. Similar to the EREXP sub-dimension it could be argued that these skills are perhaps slightly more easily developed up until a certain point (as opposed to the emotional regulation components), before it becomes saturated and reaches a plateau. Therefore the chances of observing increased changes from T2 to T3 (which was not the case here for the experimental group results) are perhaps less than it would be for the emotional regulation components.

**Table 4.11**  
*Post hoc results for UEX*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>70.455</b>	<b>72.034</b>	<b>72.260</b>	<b>71.729</b>	<b>76.495</b>	<b>76.668</b>
1	0	T1		0.137	0.150	0.479	<b>0.001</b>	<b>0.000</b>
2	0	T2	0.137		0.857	0.869	<b>0.018</b>	<b>0.015</b>
3	0	T3	0.150	0.857		0.786	<b>0.034</b>	<b>0.029</b>
4	1	T1	0.479	0.869	0.786		<b>0.000</b>	<b>0.000</b>
5	1	T2	<b>0.001</b>	<b>0.018</b>	<b>0.034</b>	<b>0.000</b>		0.888
6	1	T3	<b>0.000</b>	<b>0.015</b>	<b>0.029</b>	<b>0.000</b>	0.888	

**Note:** p<.05 is significant

Figure 4.3 clearly shows how the mean scores increased for the students who participated in the EI training programme, demonstrating further support for *Hypothesis 1*.



**Figure 4.3:** UEX as measured at T1, T2 and T3

#### 4.3.4 Results: Emotional Management (EM)

The EM dimension of the SUEIT is defined as the ability to manage positive and negative emotions in oneself and others. EM assesses the extent to which an individual is able to repair negative moods and emotions, and to maintain beneficial positive moods and emotions in oneself, as well as others (Palmer & Stough, 2001). For the purpose of this study the emotional regulation components of EI, i.e. emotional management and control, was argued to be the more vital EI dimensions as proper emotional regulation should assist individuals to maintain positive psychological states, which is critical for the acquisition and maintenance of other personal resources (according to the *Broaden and Build* theory, Fredrickson, 1998; 2001; 2004). However, it should also be noted that the importance of the other two previous dimensions (EREXP, UEX) are not to be underestimated, as emotional regulation to a large degree rests on an individual's ability to identify and understand emotions

Contrary to the expectation, the results revealed that the total effect for the group by time interaction was non-significant (see table 4.12). Although the experimental group showed significant increases from T1 to T2, as can be observed in table 4.13, these changes did not differ significantly from the control group, who similarly showed significant increases from T1 to T2. The result of these findings might be due to an external event that influenced the entire sample group to increase in their self-reported scores of emotional management. Some validity threats might also explain this phenomenon. Firstly *test-retest* effects suggest that individuals become sensitised towards a certain topic, which can have an impact on their standings during follow-up assessments. It is also possible, secondly, that the *diffusion of treatment* effect could account for some of these findings. This effect suggests that because the students from the control group had a lot of friends and classmates participating in the experimental group, their interaction could have led to the exchange of knowledge and skills, resulting in contamination of the control group data. Finally, the *compensatory rivalry* effect could have urged the control group individuals to inflate their standings in order to compete with individuals from the experimental group.

**Table 4.12***Fixed effect test for EM over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	0.731	0.394
Time	2	170	20.273	<b>0,000</b>
Time*Treatment	2	170	1.420	0.244

**Note:** p<.05 is significant

No significant increases in mean scores were present between T2 and T3 for either group. One would ideally want the experimental group to continue refining their emotional management abilities, even after the training has been completed, such as were reported in other studies of EI development (Gardner, 2005; Görgens – Ekermans, 2011; Nelis et al., 2009).

**Table 4.13***Post hoc results for EM*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>37.727</b>	<b>40.385</b>	<b>39.854</b>	<b>37.458</b>	<b>41.581</b>	<b>41.580</b>
1	0	T1		<b>0.000</b>	<b>0.021</b>	0.820	<b>0.001</b>	<b>0.001</b>
2	0	T2	<b>0.000</b>		0.567	<b>0.017</b>	0.336	0.343
3	0	T3	<b>0.021</b>	0.567		0.069	0.196	0.201
4	1	T1	0.820	<b>0.017</b>	0.069		<b>0.000</b>	<b>0.000</b>
5	1	T2	<b>0.001</b>	0.336	0.196	<b>0.000</b>		0.998
6	1	T3	<b>0.001</b>	0.343	0.201	<b>0.000</b>	0.998	

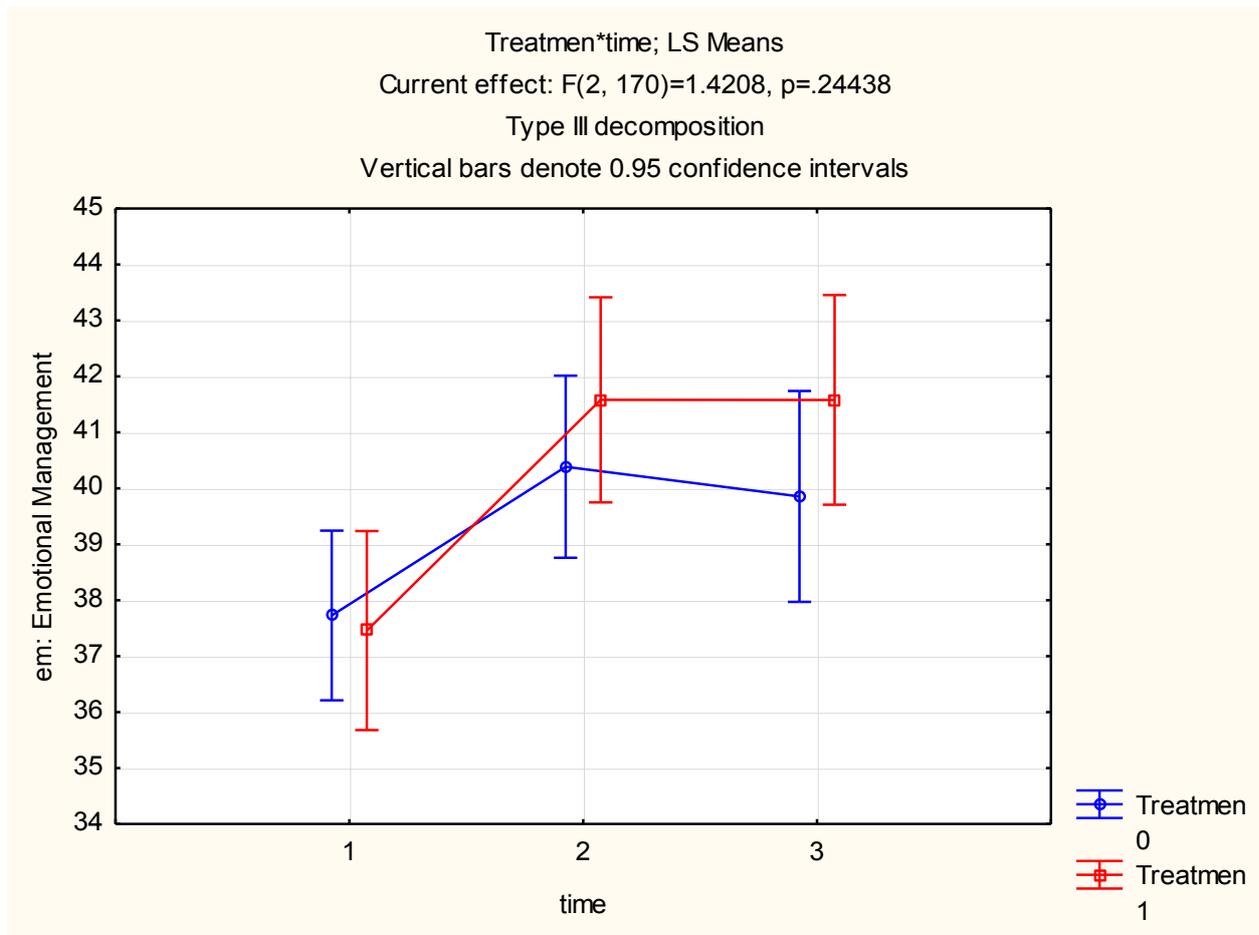
**Note:** p<.05 is significant

Despite the lack of statistically significant evidence, figure 4.4 shows trends of EI improvement for the experimental group which is slightly greater than that of the control group. It could be argued that these differences might be due to the experimental group's exposure to the stimulus, although the empirical evidence to support this claim is quite weak. Moreover, it should be noted that the data showed a further trend in that scores for the control group actually decreased from T2 to T3, whilst it stayed almost exactly the same for the experimental group (both these changes were non-significant).

The timing of the intervention should be taken into consideration when interpreting these results. The third assessment was relatively close to the mid-year exams for these students, who for the first time in their lives faced serious tertiary educational evaluations. This might have placed a considerable amount of stress on the participants which could explain the lack of increases between T2 and T3 for almost all of the sub-scales measured. According to Palmer and Stough (2001) stress has the greatest impact on the emotional management dimension of the SUEIT, suggesting that the stressors experienced from the mid-year exam might have inhibited student's ability to effectively manage their affective states.

Another factor that may account for these results (the EM results) is the way in which the training programme was delivered. Given the large amount of students, and need for small group interaction, the utilisation of multiple facilitators were necessary. Even though the facilitators were trained on the programme content, it is possible that the relatively inexperienced facilitators (masters' Industrial Psychology students) were more adept at conveying the more simplistic dimensions of EI to the participants (EREXP, UNE), while struggling with the emotional regulation components (which embody more advanced skills).

It can therefore be concluded that only partial weak evidence for *Hypothesis 1* emerged from these results, mainly due to the fact that both the experimental and control groups' scores increased significantly from T1 to T2.



*Figure 4.4: EM as measured at T1, T2 and T3*

#### 4.3.5 Results: Emotional Control (EC)

EC is defined as the ability to control strong emotional experiences, especially negative ones such as anger, stress, anxiety and frustration (Palmer & Stough, 2001). In line with the theorised expectations, the total effect for the group by time interaction for EC was significant (see table 4.14).

**Table 4.14**

*Fixed effect test for EC over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	2.639	0.107
Time	2	170	20.017	<b>0.000</b>
Time*Treatment	2	170	4.683	<b>0.010</b>

**Note:**  $p < .05$  is significant

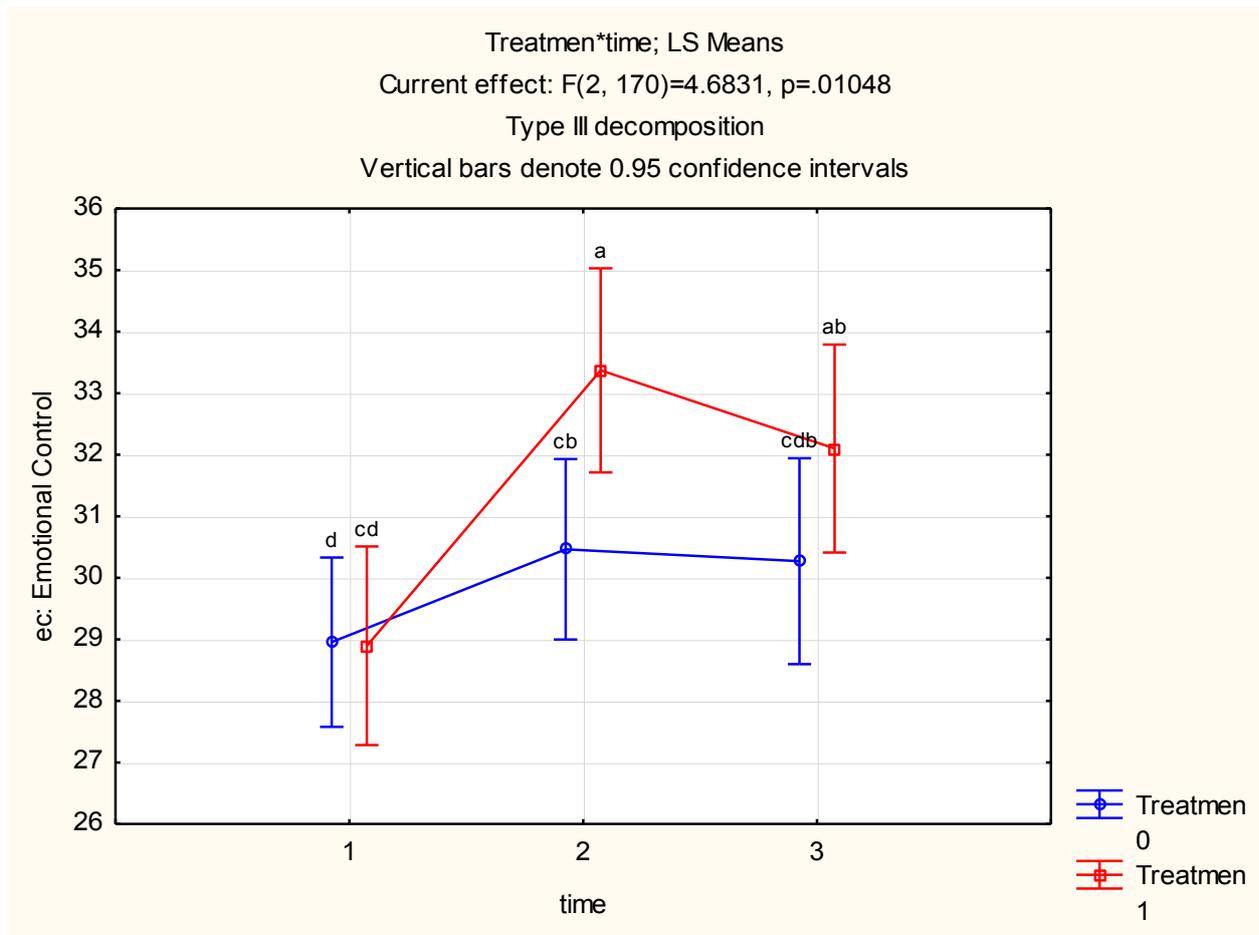
The post hoc results in Table 4.14 show that both groups increased significantly in total mean scores from T1 to T2, but the experimental groups' increase was notably larger than that of the control group. This is most likely due to the experimental group's participation in the EI training programme that has equipped them with better emotional control capabilities. The validity threats explained in the previous section could also explain the changes from T1 to T2 for the control group. No significant changes occurred for either group from T2 to T3. Although this is as expected for the control group, one would ideally want the participants of the experimental group to internalise these skills, and observe further increases even after the training has been concluded.

**Table 4.15***Post hoc results for EC*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			28.955	30.464	30.270	28.896	33.371	32.101
1	0	T1		<b>0.022</b>	0.089	0.956	<b>0.000</b>	<b>0.004</b>
2	0	T2	<b>0.022</b>		0.804	0.157	<b>0.010</b>	0.150
3	0	T3	0.089	0.804		0.244	<b>0.010</b>	0.130
4	1	T1	0.956	0.157	0.244		<b>0.000</b>	<b>0.000</b>
5	1	T2	<b>0.000</b>	<b>0.010</b>	<b>0.010</b>	<b>0.000</b>		0.094
6	1	T3	<b>0.004</b>	0.150	0.130	<b>0.000</b>	0.094	

**Note:**  $p < .05$  is significant

Figure 4.5 also shows a decrease in the experimental group mean score from T2 to T3. Although these changes were not statistically significant, it raises a question regarding the longevity of the developmental effects for EC. However, it is worth noting that there was still a significant difference between the T1 and T3 scores for the experimental group, whilst this was not the case for the control group.. Nonetheless, the trend in the results show further partial support for *Hypothesis 1*, and the notion that EI can successfully be developed (Chang, 2007; Fletcher et al., 2009; Görgens - Ekermans, 2011; Nelis et al., 2009; Wood et al., 2006).



*Figure 4.5: EC as Measured at T1, T2 and T3*

#### 4.3.6 Results: Cognitive Thought pattern strategies of Academic Self-leadership

Academic self-leadership refers to an individuals' ability to effectively regulate their thought processes and behaviour regarding learning activities and their overall academic performance. Because intense emotions, especially negative ones, impact individual's thoughts and behaviour, it was believed that EI may impact on ASL (Boss & Sims, 2008). It was hypothesised in this study that if such a relationship does exist between EI and ASL it would be most prominent in the sub-dimension of cognitive thought pattern strategies which involves the creation and maintenance of functional patterns of habitual thinking (Manz, 1992). Table 4.16 reveals that the total effect for the group by time interaction, for the combined scores of the cognitive thought focused-strategies higher order factor, was non-significant ( $p < .05$ ).

**Table 4.16***Fixed effect test for CTPS over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	0.481	0.489
Time	2	170	1.763	0.174
Time*Treatment	2	170	1.282	0.280

**Note:**  $p < .05$  is significant

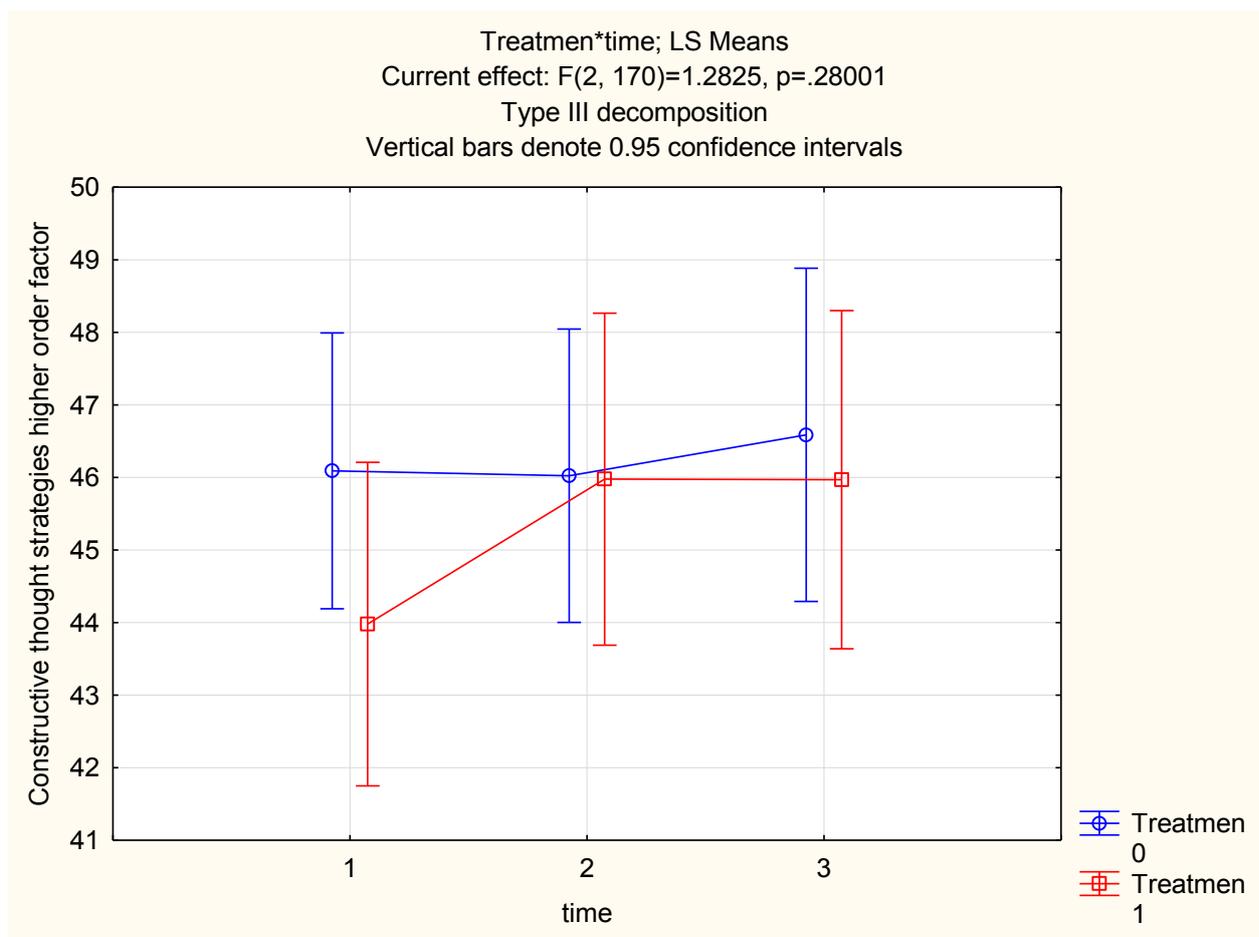
Post hoc results presented in table 4.17 demonstrate that only the mean scores for the experimental group changed significantly from T1 to T2. It should, however, be noted that the initial starting level for the control group was higher than that of the experimental group – although this difference was non-significant. This can possibly be due to the self-selection / selection bias effect where individuals that did not have adequate self-regulatory skills allocated themselves to the experimental group, in order to benefit from the EI training intervention. Those individuals who participated in the control group, most likely felt adequate in their ability to manage themselves. As expected no significant changes occurred in the control group across the test periods. Figure 4.6, however, shows a clear trend where the mean scores for the experimental group increased from T1 to T2. This is most likely due to the experimental groups' participation in the EI training programme. Furthermore, these changes were maintained three months after the training had been completed, possibly suggesting the longevity of the training efforts. Nonetheless the trends in the data only suggest partial, weak support for *Hypothesis 2*.

**Table 4.17**

*Post hoc results for CTPS*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>46.091</b>	<b>46.024</b>	<b>46.587</b>	<b>43.979</b>	<b>45.977</b>	<b>45.970</b>
1	0	T1		0.939	0.634	0.156	0.939	0.936
2	0	T2	0.939		0.593	0.181	0.975	0.972
3	0	T3	0.634	0.593		0.109	0.710	0.710
4	1	T1	0.156	0.181	0.109		<b>0.044</b>	0.051
5	1	T2	0.939	0.975	0.710	<b>0.044</b>		0.994
6	1	T3	0.936	0.972	0.710	0.051	0.994	

**Note:** p<.05 is significant



**Figure 4.6:** CTPS (higher order factor of ASL) as measured at T1, T2 and T3

#### 4.3.7 Results: Affect Balance

It was argued that the higher an individual's EI level, the more adept such an individual should be at managing their emotional states, ultimately leading to such a person experiencing a more frequent and pervasive positive disposition. Throughout the study, this positive disposition was referred to as positive affect. Positive affect can be defined as a favourable state of affect balance, where an individual experiences more frequent positive emotions (positive affect) and less negative emotions (negative affect). Both positive affective and negative affective states were combined in the assessment of affect balance and will be discussed in the following sections.

Contrary to expectations, table 4.18 reveals that the total effect for the group by time interaction for affect balance was non-significant. Despite this, the post hoc results presented in table 4.19 showed that there was a significant increase in the mean scores for the experimental group from T1 to T2, whilst the control group means revealed no significant changes across the three assessment periods. These results may hint to the fact that the students, who participated in the EI intervention, acquired some emotional regulation skills to improve their affective states, at least up to the T2 assessment.

**Table 4.18**

*Fixed effect test for Affect Balance over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	0.645	0.423
Time	2	170	5.865	<b>0.003</b>
Time*Treatment	2	170	2.056	0.131

**Note:**  $p < .05$  is significant

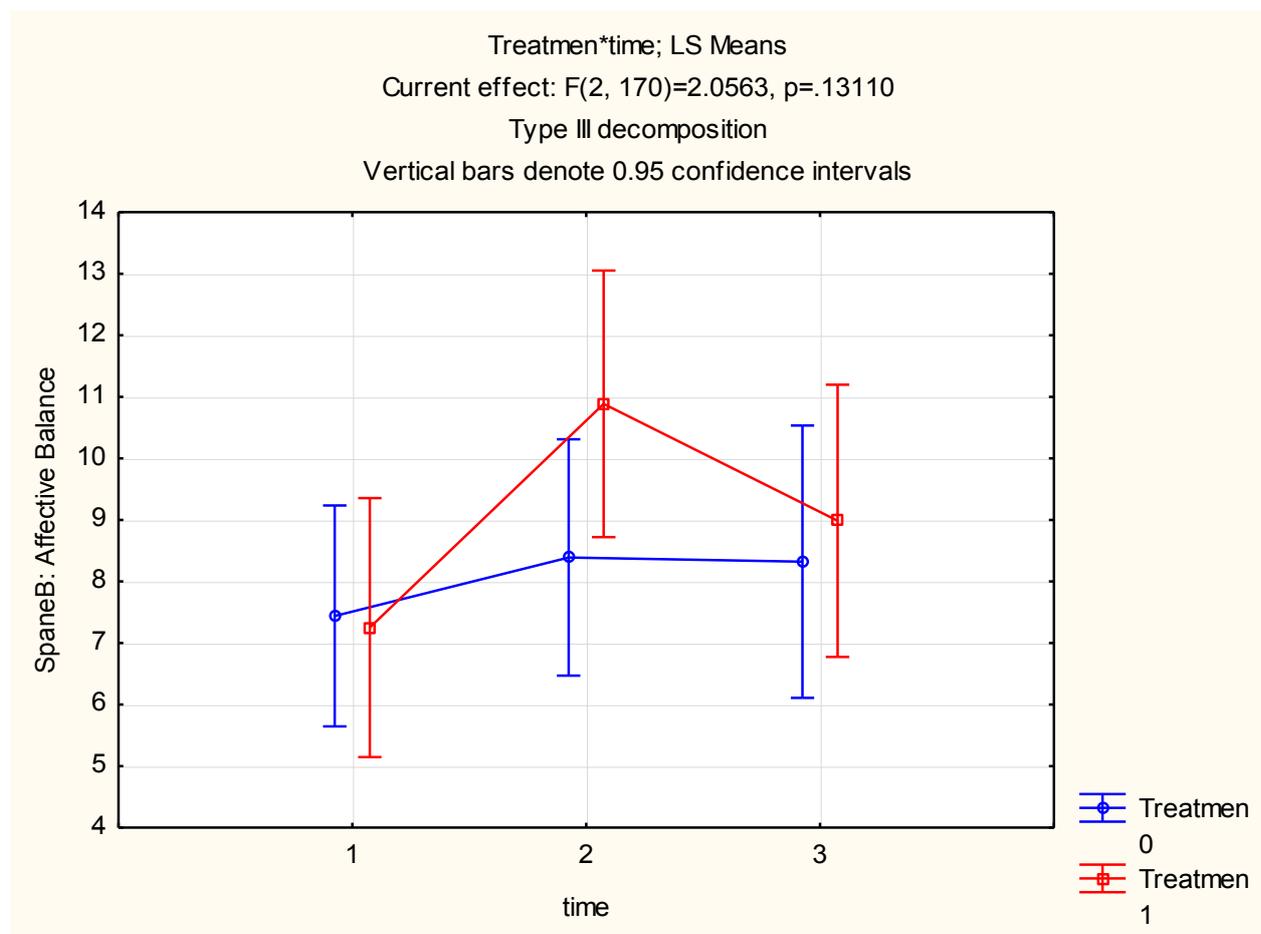
Figure 4.7 shows a clear trend, where participants from the experimental group obtained higher mean scores following the intervention (at T2) as compared to those of the control group, which showed almost no change across the three assessment periods. Unfortunately these results diminished three months later at T3 for the experimental group, bringing into question the longevity of the results. Hence it is concluded that the results for affect balance only provide partial weak support for *Hypothesis 3*. The main limiting factor here is the longevity of the changes that seemed to have occurred in the experimental group's affective states, suggesting that without constant exposure to the intervention, participants will most

likely not reap the benefits of a healthier affect balance, i.e. more positive affect, on the long term.

**Table 4.19**  
*Post hoc results for Affect Balance*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>7.4394</b>	<b>8.3894</b>	<b>8.3211</b>	<b>7.2500</b>	<b>10.886</b>	<b>8.9862</b>
1	0	T1		0.290	0.404	0.892	<b>0.016</b>	0.285
2	0	T2	0.290		0.949	0.431	0.090	0.688
3	0	T3	0.404	0.949		0.489	0.103	0.675
4	1	T1	0.892	0.431	0.489		<b>0.001</b>	0.092
5	1	T2	<b>0.016</b>	0.090	0.103	<b>0.001</b>		0.068
6	1	T3	0.285	0.688	0.675	0.092	0.068	

**Note:**  $p < .05$  is significant



**Figure 4.7:** Affect Balance as measured at T1, T2 and T3

#### 4.3.8 Results: Stress

It was hypothesised that the better individual's become at regulating their emotional states (through being able to understand and recognise their own and other's emotions, as well as emotional management and emotional control), the better they will be able to deal effectively with possible stressors in their lives. More specifically, it was argued that higher EI individuals will experience more positive emotions, allowing them to build personal resources. This resource reservoir will withhold them from overreacting to negative experiences, and allow them to perceive events as less threatening and stressful than their lower EI level counterparts.

Contrary to the expectations, however, the main effect for the treatment by time interaction for perceived stress was non-significant (see table 4.20). Post hoc results presented in table 4.21, however, show that both the experimental and control group's levels of perceived stress reduced significantly from T1 to T2. This might be due to the fact that the first assessment was conducted early in the year when the students were still adjusting to the new challenges of university life. As they became more familiar with their surroundings the perceived threats subsided and thus their stress levels dropped. However, it is worth noting that the magnitude of change in perceived stress levels for the experimental group from T1 to T2 was significantly greater than that of the control group, possibly suggesting that the EI training intervention may have had some positive effect on reducing students' perceived stress levels – which was not the case for the control group. Both the experimental and control groups' mean scores increased slightly from T2 to T3. This suggests that some external event may have influenced the students' perceived stress levels. It can be argued that this external event might have been the examination stress which the students had to face shortly after their third assessment. For the experimental group the changes in perceived stress levels from T1 to T3 were statistically significant, suggesting that despite the observed fluctuation due to the external events (i.e. most possibly upcoming the exams), the EI training intervention still had a positive impact on these students' overall perceived stress levels.

**Table 4.20***Fixed effect test for PSS over three testing times*

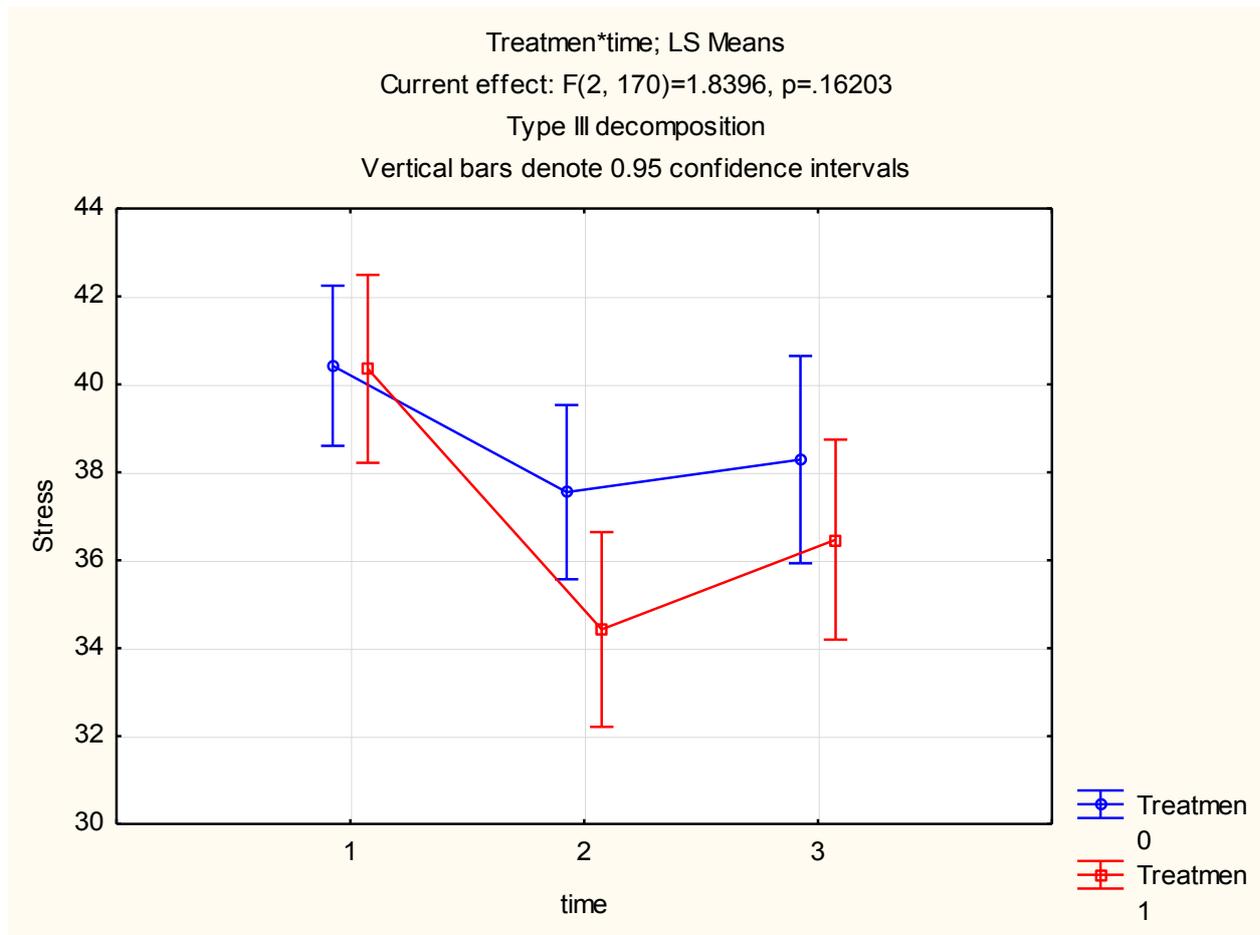
Effect	Num. DF	Den. DF	F	p
Treatment	1	112	2.030	0.156
Time	2	170	15.798	<b>0.000</b>
Time*Treatment	2	170	1.839	0.162

**Note:** p<.05 is significant**Table 4.21***Post hoc results for PSS*

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>40.424</b>	<b>37.549</b>	<b>38.289</b>	<b>40.354</b>	<b>34.425</b>	<b>36.468</b>
1	0	T1		<b>0.007</b>	0.088	0.960	<b>0.000</b>	<b>0.008</b>
2	0	T2	<b>0.007</b>		0.561	0.059	<b>0.039</b>	0.480
3	0	T3	0.088	0.561		0.201	<b>0.019</b>	0.274
4	1	T1	0.960	0.059	0.201		<b>0.000</b>	<b>0.001</b>
5	1	T2	<b>0.000</b>	<b>0.039</b>	<b>0.019</b>	<b>0.000</b>		0.100
6	1	T3	<b>0.008</b>	0.480	0.274	<b>0.001</b>	0.100	

**Note:** p<.05 is significant

The trends reflected in figure 4.8 are consistent with the above interpretations. These findings are also consistent with previous research demonstrating the buffering effects of EI on stress (Ciarrochi et al., 2002; Görgens-Ekermans & Brand, 2012; Landa et al., 2007; Slaski & Cartwright, 2002). In conclusion these results demonstrate partial support for *Hypothesis 5*, suggesting that the EI training intervention did seem to assist students in the experimental group to cope better with perceived stressors.



*Figure 4.8: PSS as measured at T1, T2 and T3*

#### 4.3.9 Results: Academic Self-efficacy (ASE)

It was hypothesised that individuals with higher levels of EI would experience more frequent positive affect, whilst being more able to effectively deal with negative experiences and stressors. This would allow them to evaluate events in a more favourable manner, instilling feelings of possible success, which in turn could enhance their ASE beliefs. In line with the theorised outcomes, table 4.22 reveals that the main effect for the time by treatment interaction for ASE was statistically significant.

**Table 4.22**

*Fixed effect test for ASE over three testing times*

Effect	Num. DF	Den. DF	F	p
Treatment	1	112	0.004	0.945
Time	2	170	6.192	<b>0.002</b>
Time*Treatment	2	170	3.975	<b>0.020</b>

**Note:**  $p < .05$  is significant

The post hoc results (see table 4.23) showed that the mean scores for the control group stayed the same throughout the research period. Only minor fluctuations were observed which was not significant. In contrast the mean scores for the experimental group increased significantly following the EI training intervention. These changes remained relatively unchanged from T2 to T3 providing support for the longevity of these changes.

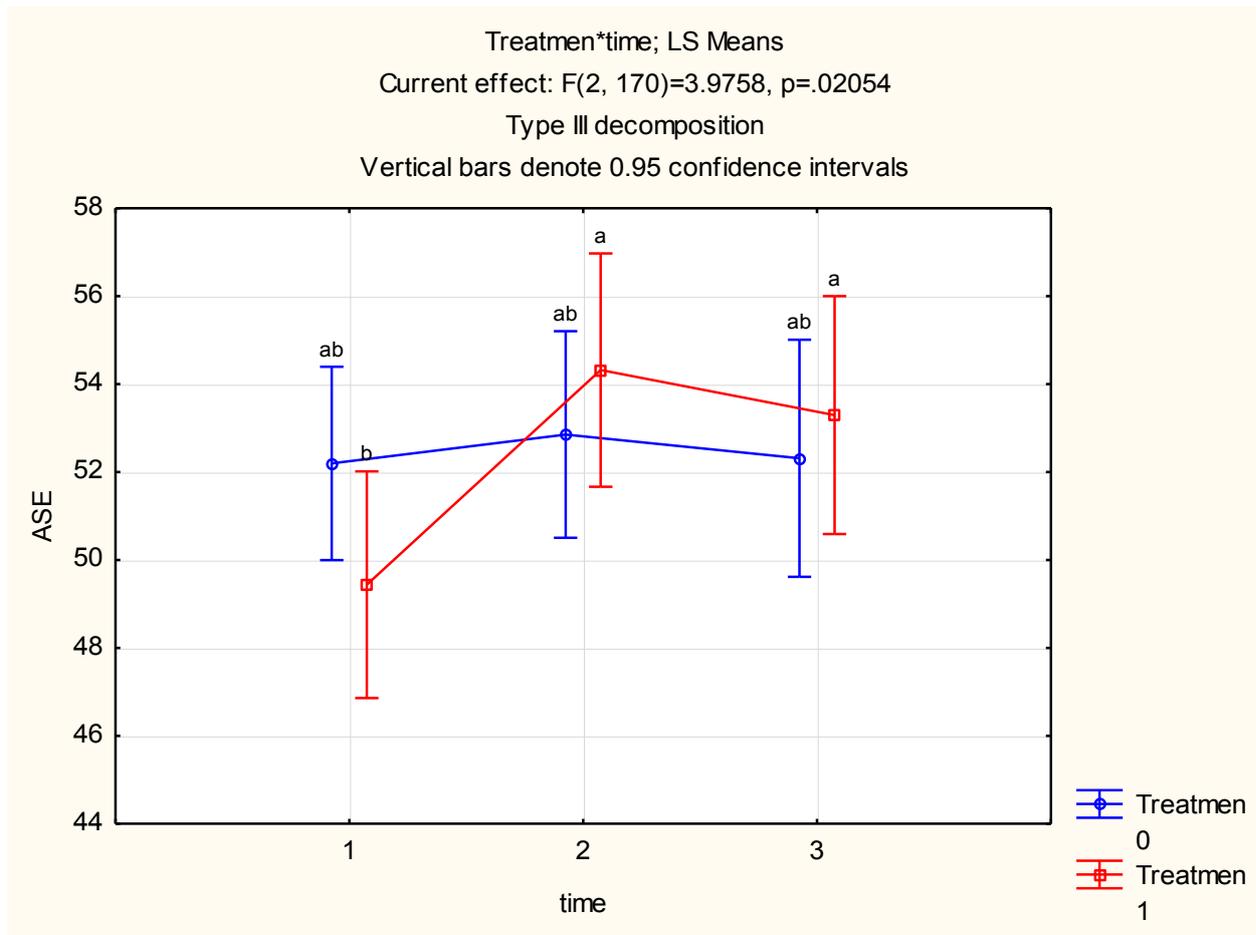
**Table 4.23*****Post hoc results for ASE***

Post hoc Tests for Total EI								
Effect: Group*time								
Cell No.	Treatment	Time	{1}	{2}	{3}	{4}	{5}	{6}
			<b>52.197</b>	<b>52.854</b>	<b>52.315</b>	<b>49.438</b>	<b>54.319</b>	<b>53.295</b>
1	0	T1		0.542	0.926	0.109	0.225	0.535
2	0	T2	0.542		0.675	0.054	0.415	0.808
3	0	T3	0.926	0.675		0.129	0.297	0.613
4	1	T1	0.109	0.054	0.129		<b>0.000</b>	<b>0.002</b>
5	1	T2	0.225	0.415	0.297	<b>0.000</b>		0.412
6	1	T3	0.535	0.808	0.613	<b>0.002</b>	0.412	

**Note:**  $p < .05$  is significant

Figure 4.9 reveals that the experimental group started out with slightly lower levels of ASE, as compared to the control group students. This may be due to the self-selection / selection bias effect, where individuals who allocated themselves to the treatment, doubted their academic abilities and hence sought out assistance. In contrast, the control group participants most likely felt confident in their academic pursuits and opted not to participate in the EI programme. Again the slight decrease from T2 to T3 might be due to the mid-term exam, which challenged these vulnerable students' ASE beliefs.

Nonetheless favourable results were found which demonstrate strong support for *Hypothesis 4*. These findings are also in line with other research attempts that support the link between EI and self-efficacy (Hashemi & Ghanizadeh, 2011; Hen & Goroshit, 2012; Schutte, et al., 1998).



*Figure 4.9: ASE as measured at T1, T2 and T3*

#### 4.4 RESULTS: CORRELATIONS

A second objective of the research was to investigate the inter-relationships between EI, the CTPS subscale of ASL, affect balance, ASE, and perceived stress, and compare it with previous research findings. A correlation is a measure of the linear relationship between two variables. For the purpose of this study, Spearman's correlation coefficient,  $r$ , was utilised. Spearman's correlation coefficient is a non-parametric statistic which is often used in smaller sample sizes – as was the case in this research. It should however be noted that correlations only prove a relationship between two variables, and not the direction of that influence. Therefore, conclusions based on the results are drawn in the light of the current theoretical framework discussed earlier. This, however, does not imply that other interpretations are not feasible. The correlations for T1, T2 and T3 can be found in tables 4.25 through 4.27 and will be discussed in more detail in the following sections. The convention proposed by Guilford

(as cited in Tredoux & Durrheim, 2002, p.184) was used to interpret the magnitude of all sample correlations and can be found in table 4.24

**Table 4.24**

*Guilford's informal interpretations of the magnitude of r*

Absolute value of r	Interpretation
< 0.19	Slight, almost no relationship
0.20-0.39	Low correlation, definite but small / weak relationship
0.40-0.69	Moderate correlation; substantial relationship
0.70-0.89	High correlation; strong relationship
0.90-1.00	Very high correlation; very dependable relationship

#### **4.4.1 Correlations for the Independent Variable (EI)**

##### 4.4.1.1 EI and CTPS subscale of ASL

It was hypothesised that EI and the CTPS subscale of ASL would correlate positively. Results revealed low to moderate significant correlations between total EI and the CTPS sub-dimension of ASL, ranging from  $r = .358$  to  $r = .450$ , over the three testing periods. This suggested at least a weak, but stable, relationship between EI and the CTPS sub-scale of ASL. Although little empirical research have been done on these constructs, the current findings seem to be in line with the theorising of Boss and Sims (2008) and Furtner et al. (2010), and also with the results obtained by Depape et al., (2006).

It was surprising that the emotional control subscale showed the weakest association with CTPS (correlations for the EI subscales and CTPS ranged between  $r = .035$  and  $r = .246$ ) strategies as Boss and Sims (2008) theorised that the emotional regulation components of EI is closely linked to the CTPS used by self-leaders. Emotional understanding and emotional management had the strongest relationships with CTPS, with correlations ranging between  $r = .239$  and  $r = .464$ ). This phenomenon might be explained by Furtner et al's (2010) argument, that emotional sensitivity and emotional expression are core components of effective self-leaders.

*Hypothesis 6* is therefore supported as the results revealed that there was a significant positive relationship between total EI and the CTPS subscale of ASL. This suggests that students who possess better EI capabilities may therefore also be more adept at using self-leadership abilities, especially when utilising CTPS, such as positive self-talk, visualising success and evaluating irrational beliefs.

#### 4.4.1.2 EI and Affect Balance

In *hypothesis 7* it was proposed that EI and affect balance is positively related. The results revealed stable positive moderate correlations ranging between  $r = .424$  and  $r = .653$  over the three testing periods. The emotional regulation sub-dimensions (emotional management and emotional control) of EI obtained the highest correlations with positive affect ranging from  $r = .375$  to  $r = .675$ . This makes theoretical sense as individuals who are able to effectively regulate (i.e. manage and control) their emotional states, will enjoy more positive emotions and less destructive or negative feelings, resulting in better overall well-being. These findings are in line with those of previous research on EI and positive affect (Gallagher & Vella-Brodick, 2008; Kafetsios & Zampetakis, 2008; Mayer & Salovey, 1997; Mikolajczak et al., 2008; Shi & Wang, 2007).

The strong relationship between EI and positive affect therefore suggested that students who have higher EI will be better equipped at regulating their emotional states and therefore experience more frequent positive affect. *Hypothesis 7* was therefore confirmed.

#### 4.4.1.3 EI and Academic self-efficacy

An individual's self-efficacy beliefs are influenced by their affective states (Bandura, 1997) and therefore it was hypothesised that EI, and especially the emotional regulation components, would show positive relationships with an individual's ASE. The results revealed significant low positive correlations ranging from  $r = .331$  to  $r = .369$  between total EI and ASE. This suggests a stable weak, but definite relationship between EI and ASE, that support previous research (Abdolvahabi, Bagheri, & Kioumars, 2012; Adeyemo, 2007; Hashemi & Ghanizadeh, 2011; Hen & Goroshit, 2012).

Regarding the EI sub-scales the strongest correlations emerged between the emotional management (correlations between  $r = .332$  and  $r = .417$ ) and emotional control (correlations between  $r = .353$  and  $r = .435$ ) sub-scales and ASE. This was in line with the theoretical

expectations, as it was argued that students who possess better emotional regulation capabilities will enjoy more frequent positive affect, resulting in increased feelings of efficacy. *Hypothesis 8* was therefore confirmed, as the results confirmed that significant positive relationships exist between EI and ASE.

#### 4.4.1.4 EI and Stress

It was hypothesised that individuals with higher levels of EI should be better equipped to deal with stressors in their lives. The results revealed moderate stable correlations ranging from  $r = -.561$  to  $r = -.673$  between total EI and perceived stress, over the three testing times. The emotional regulation components (emotional management and emotional control) obtained the strongest relationship with perceived stress, confirming previous research findings in this regard (Görgens-Ekermans & Brand, 2012; Gohm et al., 2005; Landa et al., 2007; Slaski & Cartwright, 2003).

*Hypothesis 9* was therefore supported as the results revealed that a significant negative relationship exists between EI and perceived stress. Students with higher levels of EI should therefore be better equipped to regulate their emotional states and deal with stressors in an effective manner.

### 4.4.2 Correlations between Dependant Variables (CTPS, PA, ASE, Stress and Academic Achievement)

#### 4.4.2.1 Cognitive Thought Pattern Strategies (CTPS)

It was hypothesised that ASL and EI is similar to the extent that both constructs rely on a processes of self-regulation to enhance positive affect, buffer against stress, build ASE and ultimately enhance a student's academic performance. The correlation results revealed a small but definite relationship between the CTPS sub-scale of ASL and affect balance. Support for *hypothesis 10* was therefore obtained as the results suggested that students who utilise cognitive thought pattern strategies (visualising successful performance, positive self-talk, challenging irrational beliefs) will experience more positive affect than those students who do not rely on these ASL strategies. The association of ASL with affect balance was not as great as that of EI and affect balance, suggesting that an EI intervention may be of better utility when the aim is to enhance the affective states of individuals. The research results, however, suggest that both EI and ASL (or at least CTPS) seem to influence a student's

positive affect, supporting previous research findings (Neck & Houghton, 2006; Neck & Manz, 1996).

The results revealed only slight correlations between the cognitive thought action strategies sub-scale and ASE at testing times one and three. No significant correlation emerged between the cognitive thought action strategies sub-scale and self-efficacy at T2, suggesting an somewhat less stable relationship. Although only weak support was found for *hypothesis 11* it does not mean that ASL as a whole will not correlate better with ASE. The behavioural focused and natural rewards strategies sub-dimensions might still have strong correlations with self-efficacy, as proposed by other authors (Neck & Manz, 1996; Prussia et al., 1998).

The results further revealed significant small negative correlations between the CTPS sub-scale of ASL and perceived stress, over all three testing times, suggesting a weak but definite relationship. *Hypothesis 12* was therefore supported and suggests that students who engage in CTPS may be better equipped to deal with academic stressors.

#### 4.4.2.2 Affect Balance

Positive affect (embodied in die construct of affect balance) were theorised to have favourable effects on an individual's self-efficacy beliefs (Bandura, 1997), perceived stress levels and eventually academic performance. It was therefore argued that students who experience more frequent positive affect (i.e. a higher affect balance rating), will also enjoy a stronger sense of self-efficacy, while perceiving fewer situations as threatening or stressful. This would allow them to focus more on their studies, put in more effort and stay motivated for longer.

Results revealed stable significant positive relationships between affect balance and ASE, suggesting that positive affect can possibly play a role in a student's efficacy beliefs regarding their academic challenges. *Hypothesis 14* was therefore supported and the results are in line with previous research (Lucas et al., 1996; Mongrain & Zuroff, 1995; Tarlow & Hagaan, 1996).

Furthermore, consistent significant strong negative relationships between affect balance and perceived stress were found, over the three testing times. *Hypothesis 13* was therefore supported. These results suggest that individuals who experience frequent positive affect should be better capable of dealing with stressful events in their lives. This supports previous

research on the buffering effects of positive affect on stress (Fredrickson & Joiner, 2002; Carver, et al., 1993).

#### 4.4.2.3 Academic self-efficacy (ASE)

It was hypothesised that ASE beliefs will enhance a student's confidence in their academic capabilities, by allowing them to set challenging academic goals and put in more effort to achieve those goals. Furthermore, this confidence in one's academic abilities should also reduce the probability that situations and events are viewed as threatening, resulting in lower levels of perceived stress. The results revealed consistent significant moderate negative relationships between ASE and perceived stress over the three testing times. *Hypothesis 15* was therefore supported, suggesting that students, who have higher self-reported ASE, seem to also report experiencing less perceived stress. This supports previous research efforts regarding the relationship between self-efficacy and stress (Gigliotti & Huff, 1995; Hackett et al., 1992; Solberg et al., 1993; Solberg & Villarreal, 1997; Torres & Solberg, 2001).

## 4.5 SUMMARY

The objective of this chapter was to report the research findings obtained from the measurements utilised in this research. Statistical analyses of the data were presented, interpreted and discussed in terms of the theoretical framework provided, and the research hypotheses formulated in the previous chapter. Findings were also equated to previous research and literature. In the following chapter a general discussion and conclusion will be drawn from the results obtained in this study.

**Table 4.25***Descriptive Statistics: Means, Standard Deviations, Reliabilities, and Correlations for Study Variables TIME 1*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Emotional Recognition/Expression	32.8070	5.72663	(.69)								
2. Understanding Emotions	70.9912	9.12208	.424**	(.84)							
3. Emotional Management	37.6140	6.01401	.270**	.414**	(.72)						
4. Emotional Control	28.9298	5.53624	.040	.243**	.723**	(.74)					
5. Total EI	170.3421	19.13752	.598**	.804**	.801**	.644**	(.88)				
6. Perceived Stress	40.3947	7.42826	-.367**	-.241**	-.620**	-.488**	-.561**	(.82)			
7. Affect Balance	7.3596	7.00206	.245**	.161*	.527**	.375**	.424**	-.775**	(.85)		
8. CTPS	45.2018	7.60203	.239**	.396**	.279**	.035	.358**	-.161*	.161*	(.82)	
9. Academic self-efficacy	51.0351	9.31829	.161*	.144	.357**	.353**	.331**	-.350**	.424**	.174*	(.91)

**Note:** Coefficient alphas are along the diagonal

\*\*p &lt; 0.01; \*p &lt; 0.05

**Table 4.26*****Descriptive Statistics: Means, Standard Deviations, Reliabilities, and Correlations for Study Variables TIME 2***

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Emotional Recognition/Expression	36.4694	6.39620	(.80)								
2. Understanding Emotions	74.1327	9.75751	.571**	(.88)							
3. Emotional Management	40.9082	6.64425	.504**	.629**	(.81)						
4. Emotional Control	31.7755	5.74282	.341**	.430**	.728**	(.81)					
5. Total EI	183.2857	23.18994	.745**	.865**	.871**	.731**	(.93)				
6. Stress	36.2143	7.61882	-.362**	-.453**	-.712**	-.632**	-.651**	(.87)			
7. Affect Balance	9.6020	7.87890	.319**	.422**	.631**	.498**	.569**	-.727**	(.91)		
8. CTPS	46.1735	7.79112	.265**	.380**	.374**	.192*	.388**	-.224*	.280**	(.85)	
9. Academic self-efficacy	53.4388	8.46468	.182*	.267**	.332**	.405**	.358**	-.386**	.350**	-.020	(.91)

**Note:** Coefficient alphas are along the diagonal

\*\*p < 0.01; \*p < 0.05

**Table 4.27***Descriptive Statistics: Means, Standard Deviations, Reliabilities, and Correlations for Study Variables TIME 3*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Emotional Recognition/Expression	36.7237	6.47991	(.83)								
2. Understanding Emotions	74.8026	9.92911	.666**	(.90)							
3. Emotional Management	40.9868	5.94305	.605**	.632**	(.78)						
4. Emotional Control	31.2500	5.89944	.420**	.426**	.779**	(.84)					
5. Total EI	183.7632	23.53996	.814**	.871**	.881**	.742**	(.94)				
6. Stress	37.1053	7.48078	-.442**	-.481**	-.707**	-.678**	-.673**	(.84)			
7. Affect Balance	9.0132	7.18609	.432**	.483**	.675**	.638**	.653**	-.704**	(.88)		
8. CTPS	15.1184	2.98872	.307**	.464**	.411**	.264*	.450**	-.233*	.382**	(.89)	
9. Academic self-efficacy	46.5263	8.01577	.223*	.221*	.417**	.435**	.369**	-.423**	.454**	.204*	(.93)

**Note:** Coefficient alphas are along the diagonal

\*\*p &lt; 0.01; \*p &lt; 0.05

## CHAPTER 5: CONCLUSION

### 5.1 INTRODUCTION

The idea that EI could be beneficial for students is gaining momentum in the academic community. Various studies have demonstrated the positive influences of EI, which can lead to student success. Some of these benefits include better quality and quantity of social interactions (Brackett, Warner, & Bosco, 2005; Brackett et al., 2006; Lopes et al., 2004; Lopes et al., 2005), lower levels of stress (Görgens-Ekermans & Brand, 2012; Gohm et al., 2005; Landa et al., 2007; Slaski & Cartwright, 2002; 2003), an enhanced sense of self-efficacy (Hashemi & Ghanizadeh, 2011; Hen & Goroshit, 2012), frequent positive affect (Gallagher & Vella-Brodrick, 2008; Kafetsios & Zampetakis, 2008; Mayer & Salovey, 1997; Mikolajczak et al., 2008; Shi & Wang, 2007) and greater life satisfaction (Bastian et al., 2005).

The dire educational situation in South Africa highlights the needs to build on factors relating to student success, in order to not only elevate the number of new entries in tertiary educational institutes, but also for the maintenance and successful completion of such entries. Traditional methods used to focus on student's cognitive ability as a predictor of their academic success. In contrast to these viewpoints which emphasise cognitive abilities, this study argued that the majority of challenges students face seems to be more emotional or social in nature. Some of these challenges include things like building new relationships, dealing with increased responsibility and functioning as an independent adult (Parker et al., 2004). Furthermore students are often plagued by a vast amount of stressors both academic (Chambel & Curral, 2005; Chow, 2007; Ross et al., 2006) and personal (Brougham et al., 2009; Perry et al., 2007), that might cause them to lose focus in their studies, resulting in derailment or withdrawal.

These challenges, however, are not absolute and can be remedied by implementing adequate development programmes. One such programme might incorporate the enhancement of emotional and social experiences of first year students by developing their EI capabilities. The positive psychology paradigm has brought valuable insights into the enhancement of individual performance and success, by empowering individuals with the necessary skills and capabilities for flourishing and growth. Central to this theme of optimal human functioning is a student's affective state, which have been shown to have a significant impact on their

success (Abe, 2011; Furnham, et al., 2008; Frisch, et al., 2005; Isen et al., 1987; Lyubomirsky & King, 2005)

These benefits are best explained by *The Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998; 2001; 2004) which stipulates that positive emotions broaden an individual's momentary thought-action repertoire, allowing them to pursue a wider range of thoughts and actions than they typically would. Furthermore the *Conservation of Resources Theory* (Hobfoll, 1989) explains that individuals who are in possession of personal resources (such as positive affect - which is an enormous resource reservoir) can easily acquire additional resources, as these resources seem to cluster together. Therefore, it was argued that by developing a student's EI (of which it is assumed that the main outcome is more frequent experienced positive affect, as resembled in higher affect balance scores), an adequate resource base is created, allowing them to acquire and maintain various other personal resources such as ASL, self-efficacy, and well-being which could be critical for academic success.

The current study therefore implemented and evaluated an EI development programme for first-year students at a South African university. The primary aim was to establish whether the EI intervention could successfully improve student's EI capabilities, in order to enhance their affective states, ASL capabilities, self-efficacy beliefs and well-being, which should positively impact their academic performance. Another aim was to investigate the interrelationships between these constructs as a replication of previous research findings.

## **5.2 EVALUATION OF THE EI DEVELOPMENTAL PROGRAMME**

### **5.2.1 Emotional Intelligence**

The current study hypothesised that EI levels would increase significantly, following participation in the EI training programme. Results revealed moderate-to-strong evidence in support for this hypothesis and demonstrated a significant increase in total EI scores for those individuals who received the treatment. Although a similar trend was found in the control group, the magnitude in change was less than that of the experimental group. Both groups started out with relatively equal standings on their total EI, but at T3, the experimental groups' EI levels were significantly higher than that of the control group, suggesting that the development intervention succeeded in its objective of increasing student's EI capabilities

over a period of roughly four months. These findings are in line with previous research (Burger, 2009; Dulewics & Higgs, 2000; Görgens - Ekermans, 2011; Nelis et al., 2009; Slaski & Cartwright, 2003) efforts and suggest that EI is a rather malleable construct that can be improved upon.

In contrast to previous findings (Gardner, 2005; Görgens - Ekermans, 2011; Nelis et al., 2009) participant's EI levels did not continue to increase after the training was completed - or at least not in three months' time. This suggested that the internalisation of these skills was not as successful as was desired. It might be that further improvements only occur over a longer timeframe when students have had enough time to internalise and practice these new skills. Improvements would then perhaps have become more evident if an extended follow up assessment could have been conducted at a much later stage. Another possible explanation might be that the participants never fully grasped or internalised the EI skills, especially the higher order emotional regulation skills, such as emotional management and emotional control. To this end it could be argued that the intervention might have simply been too short to cover all the necessary skill sets for improving individual's EI levels. Basic skills, such as building an emotional knowledge base (e.g. identifying emotions) and developing student's emotional expression, recognition and understanding can perhaps be covered in less detail, and would more easily be covered in one two hour session per sub-dimension (EREXP, UEX). However, it is entirely possible that the same benefits would not be achieved with the same amount of training time devoted to the emotional regulation components (which were the case in the current programme), given the more complex nature of these regulation skills.

However, the improvements that did occur from T1 to T2 for the treatment group were still noticeable at T3 (although the T3 levels were slightly lower), suggesting that the acquired EI skills, to some extent, were sustainable over time. Some of the sub-dimensions showed slight decreases from T2 to T3. It was argued that this could probably be due to mid-year examination stress which fell in the same timeframe as the T3 assessment. Some validity threats were also discussed in chapter 4, which could possibly explain why the control group scores also showed increases in some dimensions.

Yet, despite these shortcomings in the empirical results, it is concluded that the training intervention seems to have succeeded in improving student's EI levels at the participatory tertiary institution. Students with better EI capabilities have better chances of succeeding academically (Parker et al., 2005; 2006; 2009). They are also at an advantage due to several

other beneficial outcomes of EI. Higher EI individuals will experience better quality and quantity of social interactions (Brackett et al., 2005; 2006; Lopes et al., 2004; 2005), which should help them build strong social support groups. Social support groups not only assist each other in academic material, but also with non-academic challenges and day-to-day pressures. Furthermore, EI has been shown to reduce emotional and behavioural problems which might interfere with the learning process of individuals (Caplan et al., 1992; Cohen, 1999). Finally higher EI leads to greater life-satisfaction (Bastian et al., 2005) which should translate into higher satisfaction with studies and career choices. Other personal benefits include better psychological well-being (Bastian et al., 2005; Hashemi & Ghanizadeh, 2011; Görgens-Ekermans & Brand, 2012; Gohm et al., 2005; Slaski & Cartwright, 2003), better self-regulation and self-leadership capabilities (Boss & Sims, 2008), healthier self-efficacy beliefs (Lucas et al., 1996; Luebbers et al., 2007), and higher levels of subjective well-being (Gallagher & Vella-Brodrick, 2008; Lyubomirsky & King, 2005) which will all be discussed later on. According to Vandervoort (2006) EI is not only beneficial to students themselves, but to society as a whole. For example, it could be argued that individuals with higher EI levels will make better decisions regarding career choices and marital partners resulting in healthy supportive families who bring valuable contributions to society.

### **5.2.2 Academic Self-leadership**

Similar to EI which helps assists in emotional regulation, self-leadership assists in the regulation of thought processes and behaviour. According to Boss and Sims (2008) these two construct could be reciprocally related due to the fact that emotions can have a powerful impact on our thoughts and behaviours. The focus of this study was on CTPS and the necessary self-direction and self-motivation individuals require when pursuing their academic goals. It was hypothesised that because emotions influence our behaviour, the development of EI would be beneficial to ASL strategies, especially the CTPS, which relates to positive thinking patterns and self-evaluation. Findings revealed that the overall group by time effect for the CTPS sub-dimensions remained non-significant. This suggested that the relationship between EI and self-leadership might be more complex, than originally presumed, and require supplementary empirical investigation.

It should however be noted that only the cognitive thought pattern strategies higher order factor constituting of the three sub-dimensions (Self-talk, evaluating irrational beliefs and visualising success) was tested in this study. It could be that the behavioural focussed and the

natural reward strategies play a more important role, in the relationship with EI than was originally suggested, and should be investigated in future research.

Despite the lack of overall significance the trends in the data revealed a significant increase in the experimental group's mean scores from T1 to T3. This suggests that the EI intervention had some beneficial impact on student's CTPS. Research has shown that individuals with higher self-leadership skills are more committed, independent, creative/innovative and satisfied with their jobs (Neck & Houghton, 2006). These benefits should also translate to the educational setting allowing individuals to effectively apply themselves to their academic obligations.

### **5.2.3 Affect Balance**

Individuals with higher EI capabilities is likely to be more adept in regulating/managing their emotional states resulting in more frequent positive emotional experiences and less frequent negative emotional experiences (Gallagher & Vella-Brodrick, 2008; Kafetsios & Zampetakis, 2008; Mayer & Salovey, 1997; Mikolajczak et al., 2007; 2008). It was therefore hypothesised that by developing a student's EI, one would also increase the frequency of experiences positive affect, while reducing experiences of negative affect, resulting in a healthier overall affect balance (often referred to as subjective well-being).

Findings revealed that students who participated in the EI intervention had increased positive affect, and reduced negative affect from T1 to T2, resulting in a more favourable affect balance. These changes were not evident in the control group, suggesting that the EI intervention had a positive influence on student's subjective well-being. However once the EI intervention ended, the experimental student's affect balance returned to a normal level that closely resembled the baseline measure, suggesting that the observed changes were only temporary. There could be various explanations for this phenomenon. Firstly, the measurement instrument (SPANE) which was used to assess the students affective states rely on states-like experiences as opposed to trait-like dispositions. State-like constructs tend to fluctuate more, based on significant experiences at the time, whereas trait-like constructs are linked to the individual's preferred disposition and tend to remain rather stable. The state-like nature of the questionnaire could therefore be responsible for the temporary nature of the results. Secondly, Diener, Suh, Lucas and Smith (1999) argue that our emotion systems react most strongly to new events and that these reactions diminish over time. Therefore, when

subjective well-being (i.e. affect balance) is considered recent events usually have a greater impact on assessment measures. Furthermore, according to Diener et al., (1999) stress has a disproportionately large impact on an individual's subjective well-being / affect balance. Therefore, it could be argued that the approaching stressful mid-year exam (close to the T3 measurement) might have influenced the participants perception regarding their affective states, causing them to recall only recent events (which were mostly negative due to the exam) when completing the assessment, resulting in a lower affect balance score. However, despite these fluctuations in the results it is concluded that the overall trends in the data suggested that the EI development programme had some positive influence on the student's positive affect (measured as affect balance), even if it was only temporary.

Subjective well-being (or a healthy affect balance) is important for students for various reasons. Firstly, according to the *Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998; 2001; 2004) individuals who experience frequent positive emotions can build lasting personal resources that will assist them in their academic endeavours. Empirical evidence seem to support this assumption demonstrating that positive affect facilitate other beneficial personal resources such as healthy social interactions and support from others (Pinquart & Sörensen, 2000; Staw et al., 1994); a sense of mastery (Luebbers et al., 2007) and self-esteem (Lucas et al., 1996); physical (Achat et al., 2000) and psychological well-being (Fredrickson & Joiner, 2002), and the ability to cope with stress (Carver, et al., 1993); and satisfaction with ones' studies and life in general (Ojeda et al., 2011). Other studies have demonstrated that positive affect can facilitate problem solving (Isen et al., 1987), boost creativity (Furnham et al., 2008) and lead to effective experiential learning (Kashdan et al., 2004).

Secondly, the *Conservation of Resources Theory* (Hobfoll, 1989) suggests that individuals with personal resources available to them are more capable of obtaining additional resources seeing that personal resources seem to cluster together. These two theories suggest that students who experience more positive affect (as a personal resource) is at an advantage as they will have more resources available to them, and will be less likely to overreact to negative events, due to the fact that they can easily acquire additional resources when needed. On the other hand students who do not enjoy high levels of subjective well-being are at a danger of becoming deprived of resources and ultimately withdrawing from their studies. These effects were confirmed in a study of Frisch et al. (2005) which demonstrated that

people with high subjective well-being, are more likely to graduate from college and complete their studies in the necessary time period.

From the research results it can therefore be argued that EI serves as a possible starting point to enhance students subjective well-being which may enable them to acquire other personal resources (such as ASL, self-efficacy and psychological well-being) which may ultimately improve their academic success.

#### **5.2.4 Academic Self-efficacy**

It was hypothesised that ASE beliefs should increase significantly following participation in the EI training programme. According to Bandura (1997) one of the information sources that influence an individual's self-efficacy beliefs is their affective states. These somatic indicators help interpret signs of vulnerability and dysfunction. Individuals who therefore experience frequent positive affective states and well-being interpret it as a sign of proficiency and healthy functioning, which ultimately help enhance their self-efficacy beliefs. It was argued there that EI therefore gains significance in this process as it assists in emotional regulation enabling individuals to reach higher levels of positive affect (Gallagher & Vella-Brodrick, 2008; Kafetsios & Zampetakis, 2008; Mikolajczak et al., 2007; 2008).

The results obtained in this study supported the above mentioned assumptions, and revealed that students who were exposed to the EI programme experienced significant increases in their ASE beliefs. These changes were not observed in the control group data, where ASE scores remained fairly constant. Furthermore the changes that occurred in the treatment group persisted three months after the training were been completed, suggesting that the improvements in ASE was fairly sustainable over time. Finally the correlation results confirmed that the emotional regulation components of EI (emotional management and emotional control), as argued, had the strongest associations with ASE beliefs.

According to Zimmerman (2001) one of the most difficult challenges growing individuals face is the development of their academic competencies. Without a firm belief in one's academic capabilities, students might lose the motivation to persist in their academic obligations. Bandura (1997) even goes as far as to state that perceived self-efficacy is a better predictor of intellectual performance, than skill alone. In the academic environment self-efficacy should be beneficial for at least four reasons: firstly it helps to improve academic motivation and engagement (Bong & Clark, 1999; Prat-Sala & Redford, 2010; Zimmerman,

2001). Secondly, it assists in dealing with academic affect, such as test-anxiety and coping with academic pressures (Zimmerman, 2001). Thirdly, self-efficacy assists in adjustment to university life (Brady-Amoon & Fuertes, 2011; Bryde & Milburn, 1990; Chemers et al., 2001). Finally, it leads to better academic performance and achievement (Adeyemo, 2007; Elias & MacDonald, 2007; Multon et al., 1991). It would therefore seem that self-efficacy is another powerful psychological resource reservoir. According to the *Conservation of Resources Theory* (Hobfoll, 1989) resources tend to cluster together and individuals who have strong resources in their possession are more capable of gaining additional resources as well as guarding against resource loss. These individuals are also less likely to overreact to stressful events than individuals who have relatively few resources in their possession.

Therefore, students who participated in the EI development programme is expected to attain higher levels of academic success, as EI enhances ASE beliefs, which both directly and indirectly could improve academic performance.

### **5.2.5 Stress**

Research has shown that perceived stress can negatively affect student's abilities to cope academically and ultimately act as a barrier to their academic performance and success (Vaez & Laflamme, 2008). EI has long been demonstrated to act as a buffer against stress (Görgens – Ekermans & Brand, 2012) by assisting individuals to process emotional information (Mayer et al., 2000). It was therefore hypothesised that individuals who participated in the EI training programme should experience reduced levels of perceived stress. Not only due to the buffering effect of EI, but also because EI helps build lasting personal resources such as positive affect, ASL and ASE which all have been shown to reduce stress (Dolbier et al., 2001; Lyubomirsky & King, 2005; Torres & Solberg, 2001).

The findings revealed that the overall affect for the group by time interaction was non-significant. Both the control and experimental group's perceived stress levels decreased significantly from T1 to T2. This might be due to the fact that first year students face various stressors which they only become accustomed to over time. The magnitude of change for the experimental group however, was much greater, suggesting that the EI intervention could perhaps have assisted students in reducing their perceived stress levels. Furthermore, both groups' perceived levels of stress increased slightly from T2 to T3. This was most likely due to the mid-year examination that took place shortly after the third assessment. Nonetheless

the experimental group had significantly lower levels of perceived stress from T1 to T3 while the control group's levels did not differ significantly from T1 to T3. This suggests that despite the observed fluctuations possibly due to external events (i.e. the exam) the EI intervention may have succeeded to some extent in reducing perceived stress levels.

According to Mikolajczak et al. (2008) students experience more strain due to their coursework and job prospects, than any other stressors in their lives. Furthermore various studies have demonstrated how increased levels of stress can lead to lower levels of exam success (Goldsmith & Albretech, 1993), less engagement with study material (Entwistle & Tait, 1990), less time actually studying (Chow, 2007), fewer successful completed courses (Chambel & Curral, 2005) and ultimately reduced academic achievement (Vaez & Laflamme, 2008). Despite this direct negative impact stress could also act in indirect ways that inhibit academic success. Certain minority groups such as females or international students might be more vulnerable to the effects of stress, due to the fact that they have less support structures in place, causing them to feel isolated and ultimately lose focus on their academic work. Furthermore students have various other personal concerns such as financial pressures (Mori, 2000) and unique life challenges (Ross et al., 2006) that can also cause them to lose focus on their studies. More importantly the *Conservation of Resources Theory* (Hobfoll, 1989) explains that the resource loss cycle is disproportionately more significant than resource gain. Stress inhibits the acquisition of other resources (i.e. psychological well-being) and can therefore initiate downward spirals that result in the academic derailment of students. Finally stress causes various somatic complaints (Torsheim & Wold, 2001) that negatively impact students' performance.

Therefore, by providing individuals with the necessary EI skills (such as being able to recognise and understand their emotional experiences and effectively regulating such experiences) one can minimise the negative effects of stress, enhancing the possibility academic success.

### **5.3 PRACTICAL IMPLICATIONS**

Within the framework of the *Broaden and Build Theory of Positive Emotions* (Fredrickson, 1998; 2001; 2004) and the *Conservation of Resources Theory* (Hobfoll, 1989) it was argued that EI could act as powerful personal resource that may help individuals acquire additional personal resources enabling them to reach their full potential, both in their academic and

personal life domains. The focus of this study was specifically on the beneficial influence EI has on student's academic success. The overall findings seems to suggests, to a certain extent, that students with higher EI levels, is possibly at an advantage of obtaining other personal resources such as ASL, positive affect, ASE and less perceived stress, which could all be critical to their academic success.

Whilst taking into account that this research stills needs to be replicated, the implied practical implications is that institutes of higher education perhaps should consider offering EI development programmes as a tool to enhance student success rates. This may further enhance the overall profile of the attributes of graduates and provide society / organisations with competent and confident individuals who could more easily fulfil the roles and obligations placed upon them. Furthermore, Parker et al (2004) argues that student's EI ratings are a better predictor of tertiary academic performance, than school marks. This challenges the emphasis tertiary educational institutes place on potential student's cognitive abilities as a primary predictor of student success. This study confirms the critical role EI can play in academic performance through the potential role it plays in other psychological resources, and highlights the need for tertiary educational institutes to possibly rethink their selection criteria when evaluating student applications.

#### **5.4 LIMITATIONS OF THE STUDY**

Like in any research effort several limitations have been identified, which might have influenced the results. It is therefore important that readers take cognisance of these limitations and understand the possible impact on the research findings, before any inferences can be concluded.

The first limitation in the current study was the high drop-out rate amongst control, but also experimental group (although to a lesser degree) participants. First and foremost, the dropout rate directly influences the sample size, which has a critical impact on the statistical power of the experiment. According to Howell (2004) sample size is a common variable that affects the power of a test. The main reason being that means, and differences between means (standard deviations) are used to investigate the relationship between constructs, and hence, the sampling distribution becomes an important aspect in the final judgement. The variance of the sampling distribution of the mean decreases when either  $n$  increases or  $\sigma^2$  decreases (Howell, 2004). Therefore, the small sample size utilised at T3 could have had a negative

impact on the statistical power of the results, when evaluating the effects of the EI training programme. Secondly, dropout rates provide information regarding participant's interests in the training programme. Due to the fact that participation in the programme was voluntary and students were free to withdraw at any moment, there were many students who left the programme without prior notice or reason. It can be presumed that these students lost interest, or simply did not have any interest in the programme to start off with. This lack of interest can cause students to rush through assessment sessions and randomly or inconsistently provide answers to measurement questions, ultimately contaminating inferences drawn from the data.

According to Babbie and Mouton (2010) another possible limitation when collecting data for the social sciences is the utilisation of self-report instruments. This method has been criticised for two main reasons (Conway, 2002). Firstly, the inferences made by the researcher regarding the correlations and causal relationships between the variables in question may be artificially inflated as a result of common method variance. Secondly, the data may be prone to response biases. A common response bias is social desirable responding that occurs when respondents try to create a favourable impression of themselves by over-promoting admirable attitudes and behaviours, while under-reporting attitudes and behaviours which they feel are not socially acceptable or respected (Zammuner & Galli, 2005). This study utilised a battery of self-report questionnaires, and the relevant findings should be interpreted in terms of this drawback.

A third limitation was that of confounding variables. A confounding variable is an uncontrolled extraneous variable that co-varies with the experimental manipulation, which undermines the internal validity of the experiment (Terre Blanche, et al., 2006). This could relate to any experience outside of the actual intervention. Specific confounding variables in the current study are situational and time specific variables to which the respondents could have been exposed to at the time of the assessments or training. More specifically the mid-year June exam commenced just after the third assessment period. Students therefore experienced extreme workload pressures and stressors during this timeframe. This could perhaps also explain the high dropout rate from T2 to T3 – especially in the control group where the commitment to the research was probably not as prominent as it was for experimental group participants.

Another limitation perhaps lies within elements related to the facilitation of the training programme. Due to the fact that a relatively large amount of students had to receive training, and the fact that groups had to remain small enough to encourage open discussions (i.e. no more than four individuals per group), trained individuals were needed to help facilitate the EI programme. These facilitators therefore needed to become familiar with the content of the programme prior to the implementation of the programme. Although great efforts were made to empower facilitators with the necessary knowledge and skills to effectively communicate the programme contents to participants, it could be that some facilitators still struggled to effectively transfer the learnt contents of the programme to students. This could be especially so for the more complex EI skills, such as the emotional regulatory components. Beyond the knowledge base of the facilitators their enthusiasm, social skills and EI, and attitude at the time, could also have determined how much buy-in they would have received from participants in their groups. Therefore, the effects of the training programme were heavily dependent on these factors related to of the facilitators, which were unknown elements in the current research.

Some of these above mentioned limitations are familiar to the controlled experimental design and will always be present to some extent, unless the experimental design is altered. However, given the limitations listed above it needs to be pointed out that certain learning points from previous empirical studies were incorporated into this research effort, such as using a control group (and stratifying the control and experimental groups better), as well as adding a secondary post-test (Burger, 2009) to gauge the sustainability if the intervention over time. Furthermore, a clear attempt was made to utilise a larger sample size as was suggested by Herman (2012). In this respect the current research was successful to a certain extent.

## **5.5 RECOMMENDATIONS FOR FUTURE RESEARCH**

It is recommended that a replication of this study should be conducted with an even larger commencement sample in order to accommodate high dropout rates always observed in this kind of research, so that there will be a higher likelihood to remain with a larger sample than was retained in this research. Better stratification of the sample should be considered by including multiple faculties or even multiple tertiary educational institutions. Furthermore, almost equal amounts of students should be present in both the control and experimental

group. These changes in sample size and method could greatly enhance the statistical power of the experiment and allow for greater generalizability of the results. Attempts should also be made to investigate to what extent mean differences in EI exist across various educational departments (i.e. engineering versus humanities) to shed more light on anomalies in the data.

Several changes to the structure and content of the intervention utilised in this research, may also enhance the utility thereof. First and foremost a greater emphasis should be placed on the completion of homework exercises and student reflection regarding learning points. The acquisitions of EI skills can only take place if participants actively engage with the learning material. Students who seem uninterested or reluctant to complete homework exercises should not be included in the experimental group as they might contaminate the research findings. Secondly, the EI programme should perhaps be expanded to more training sessions of shorter duration, this will allow participants ample time to practice their skills and reflect back on learning points at each new session. Thirdly, the emotional regulation components (emotional management and emotional control) should be covered in more depth. For this purpose more time should be committed to these sessions. Fourthly, clear distinctions should be drawn between higher EI levels and optimum EI levels at the onset of the research, as higher scores on the SUEIT does not necessarily always imply that better EI skills are adaptive to an individual's functioning in all situations. For example, too high emotional management scores could imply that emotions are internalised that could have negative psychology health implications on the long term. Finally, facilitators should be more carefully selected and efficiently empowered and motivated before employed in such research. The effectiveness of the transfer of learning heavily depends on their attitude and enthusiasm towards the programme. Participants, who find themselves with an inadequate facilitator, will not benefit much from the learning experience. This will inhibit the positive outcomes of the EI programme and contaminate research findings.

It is also recommended that the revised version of the SUEIT, the *Genos Emotional Intelligence Inventory* developed by Gignac (2008) be utilised in future research. This measurement relies on an expanded seven factor model which draws a clear distinction between emotional recognition and expression, something which is not present in the current version of the SUEIT utilised in this research. South African studies also show more favourable psychometric properties for this revised version (Gignac & Ekermans, 2010). The combination of EI and self-leadership development should be considered in order to empower

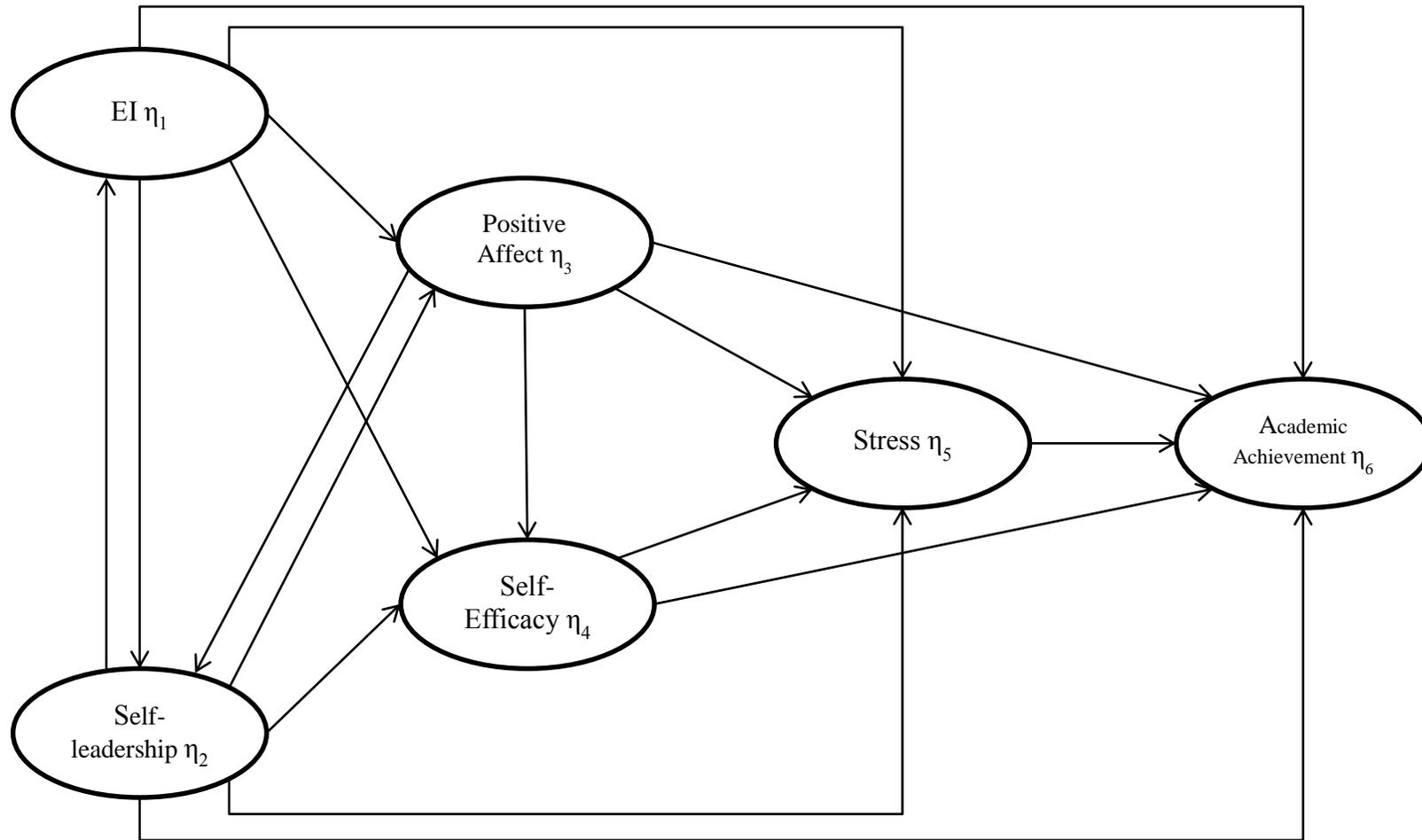
students to reach academic greatness, as both these constructs hold the promise to enhance academic performance and could possibly reinforce one another.

Future studies should also attempt to investigate the bidirectional effects between self-leadership and positive affect, and self-leadership and EI in more detail. Furthermore the role of positive affect as a mediating variable should be tested, especially between EI and other outcome variables such as self-efficacy and stress. Subsequent studies should also incorporate measures of academic achievement and success, to provide direct empirical support for the relationship between EI and academic performance.

The final recommendation relates to the research design and data analysis methods that could be used in future studies. Future research, that aim to expand on the current concepts should consider using multivariate longitudinal models of the factors represented in this study, to allow for more sophisticated statistical techniques, such as testing latent growth models via structural equation modelling (SEM). To this end Figure 5.1 represent a proposed model<sup>20</sup> of academic achievement built from the factors discussed in this study that might serve as a valuable starting point for future research directions.

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<sup>20</sup> SEM requires large sample sizes, which made it impossible to test this model on the current longitudinal data.



**Figure 5.1:** Proposed structural model of Emotional Intelligence and Academic Achievement

## 5.6 CONCLUSION

The main aim of this study was to implement and evaluate an EI development programme for first-year students at the participatory tertiary institute with the goal of developing specific core personal / psychological resources (ASL, positive affect, ASE and less perceived stress) that could enhance the student's chances of academic success. A second objective was to replicate previous research on the interrelationships between the variables discussed in this study (EI, CTPS, affect balance, ASE and stress). The findings revealed fairly strong evidence to suggest that EI can be developed, and that it acts as a valuable resource reservoir that can facilitate the acquisition of other psychological resources such as ASL, positive affect, self-efficacy beliefs and better well-being (i.e. less stress).

Previous research have provided ample evidence to demonstrate the critical role these personal resources play in enhancing students' academic achievement, as presented in the literature review section. It is therefore expected that similar trends will follow in the current study and that the enhanced levels of ASL, affect balance, ASE and well-being will result in better academic performance for the students who participated in the EI development programme.

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## **APPENDIX A**



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY  
jou kennisvenoot • your knowledge partner

February 2013  
Dear Participant,

**EMOTIONAL INTELLIGENCE AND SUSTAINED STUDENT SUCCESS**  
**Request to complete the attached questionnaire (Pre-test – Control group)**

You are asked to participate in a research study on *Emotional Intelligence (EI) and sustained student success*. The purpose of this research is to better understand how increased EI skills influence academic success and student well-being.

If you volunteer to participate in this study, we would ask you to do the following things:

1. Fill out a battery of questionnaires at three separate assessment times (1 pre-test and 2 post-test assessments).
2. Provide consent for access to your academic marks for the duration of the study.

By volunteering to participate in this study, you may experience the following benefits:

1. You will receive an EI psychometric report which will give you valuable insight into your strengths and developmental opportunities regarding your own EI.
2. You will receive a small honorarium (a gift voucher to be used at a shop in the Neelsie) as a token of our appreciation for your participation.
3. Should you wish to participate in a future EI training session you will be allowed to do so. Please inform the facilitator of this.

Your participation is completely voluntary. You can decide for yourself whether you will participate by choosing to respond to this request by completing the attached questionnaire. All responses will be treated with anonymity and will only be used for the research purposes of this project. Confidentially and anonymity is priority and will be honored in this manner.

The attached questionnaire consists of 2 *sections*. Please respond to all the questions in all the sections. Choose the relevant option to each item and indicate your answer in the applicable manner. There are no right and wrong answers to any of the questions; we are only interested in your personal opinions.

**Please follow the instructions as carefully as possible. The questionnaire should take approximately 90 minutes to complete.**

**IMPORTANT: INFORMED CONSENT**

Before you continue please read the following statement of voluntary consent.

**Confidentiality**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of access to the data that will be restricted to the researcher (Dr. G Görgens) only. When publishing the data, the name of the institution where the data was collected will not be mentioned.

**Participation and Withdrawal**

You can choose whether to participate in this study or not. If you agree to participate in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in this study. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

**Potential risks and discomforts**

Potential risks and/or discomforts that could result from partaking in this study include the time that is required to fill out the questionnaires and the potential discomfort of having to evaluate yourself. Please be advised of your right to discontinue participation at any stage. Not participating in this research will not disadvantage you in way (e.g. academic marks).

**Potential benefits to subjects and/or to society**

Potential benefits for participation include that you will receive an Emotional Intelligence Psychometric report, and you will have the option to receive training on Emotional Intelligence skills at a later stage. Benefits to society include that the research will indicate how and whether Emotional Intelligence can be developed, as well as the positive outcomes that such developmental initiatives can hold for the individual, as well as the organisation, and wider society.

**Payment for participation**

You will not be paid for your participation in this study, You will receive a small honorarium (a gift voucher to be used at a shop in the *Nee/sie*) as a token of our appreciation for your participation as a control group participant.

**Identification of Investigators**

If you have any questions or concerns about the research, please contact the researcher (Dr. G Görgens at [ekermans@sun.ac.za](mailto:ekermans@sun.ac.za) / 021 8083596) or Prof R du Preez ([rdp@sun.ac.za](mailto:rdp@sun.ac.za) / 0218083011).

**Rights of research respondent**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

**Independent contact person**

Should you have any questions regarding your rights as a research subject, please feel free to contact Ms Maléne Fouché (021 8084622 or [mfouche@sun.ac.za](mailto:mfouche@sun.ac.za)) at the Division for Research Development, Stellenbosch University.

**CONSENT FORM (please tick the appropriate box):**

I hereby consent to voluntarily participate in this study.

I don't want to participate in this study.

**PLEASE TURN OVER AND COMPLETE SECTION A**

**SECTION A**

Please answer the following general questions. This information is for statistical purposes and use of the researchers ONLY.

1. Gender

Male (01)	Female (02)
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2. Age

Please specify: 19
-----------------------

3. Language:

First language / mother tongue

Afrikaans (01)	English (02)	Xhosa (03)
Venda (04)	Zulu (05)	Ndebele (06)
South Sotho (07)	North Sotho (08)	Tsonga (09)
Tswana (10)	Swazi (11)	Other (12)

4. Language:

Second language

Afrikaans (01)	English (02)	Xhosa (03)
Venda (04)	Zulu (05)	Ndebele (06)
South Sotho (07)	North Sotho (08)	Tsonga (09)
Tswana (10)	Swazi (11)	Other (12)

6. Ethnic Group

(for statistical purposes only)

Black (African) (01)	Coloured (02)	White (03)
Indian (04)	Other Asian (05)	Other (06)

8. Course you currently study

Please specify:
-----------------

14. Please indicate your average performance for matric.

<50%	50% - 60%	60% - 70%
70% - 74 x	>75%	

**PLEASE TURN OVER AND COMPLETE SECTION B**

Please respond to all the questions in all the sections. Choose the relevant option to each item and indicate your answer in the applicable manner. There are no right and wrong answers to any of the questions; we are only interested in your personal opinions. Keep in mind that frank and truthful answers are the most important contributions you can make to the success of the program for yourself.

Please follow the instructions as carefully as possible. The questionnaire should take approximately 90 minutes to complete.



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY  
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February 2013  
Dear Participant,

**EMOTIONAL INTELLIGENCE AND SUSTAINED STUDENT SUCCESS**  
**Request to complete the attached questionnaire (Pre-test – Experimental group)**

You are asked to participate in a research study on *Emotional Intelligence (EI) and sustained student success*. The purpose of this research is to better understand how increased EI skills influence academic success and well-being.

If you volunteer to participate in this study, we would ask you to do the following things:

1. Fill out a battery of questionnaires at three separate assessment times (1 pre-test and 2 post-test assessments). The composite questionnaire has 2 sections and should take approximately 90 minutes to complete.
2. Provide consent for access to your academic marks for the duration of the study.
3. Participate in the EI training course. This will entail:
  - a. Six small group sessions of 3 hours each which will take place at a convenient time and place. The small group sessions will be facilitated by an experienced facilitator.
  - b. You should be willing to share about your emotions and emotional experiences during these sessions.

By volunteering to participate in this study, you may experience the following benefits:

1. You will receive two EI psychometric reports – one at the beginning of the program, and one after the program have been completed. This will give you valuable insight into your strengths and developmental opportunities regarding your own EI. By completing the pre-test assessment you will have baseline measures to track your development throughout the intervention.
2. You may benefit from the training program as it is aimed at teaching you EI skills (e.g. emotional control / regulation) which could enhance your general psychological and physical health, as well as life satisfaction.

Your participation in the study is completely voluntary. You can decide for yourself whether you will participate by choosing to respond to this request by completing the attached questionnaire. All responses will be treated with anonymity and will only be used for the research purposes of this project. Confidentially and anonymity is priority and will be honored in this manner.

**IMPORTANT: INFORMED CONSENT**

**Before you continue please read the following statement of voluntary consent.**

**Confidentiality**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of access to the data that will be restricted to the researcher (Dr. G Görgens) only. When publishing the data, the name of the institution where the data was collected will not be mentioned.

**Participation and Withdrawal**

You can choose whether to participate in this study or not. If you agree to participate in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in this study. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

**Identification of Investigators**

If you have any questions or concerns about the research, please contact the researcher (Dr. G Görgens at [ekermans@sun.ac.za](mailto:ekermans@sun.ac.za) / 021 8083596).

**Rights of research respondent**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

**Independent contact person**

Should you have any questions regarding your rights as a research subject, please feel free to contact Ms Maléne Fouché (021 8084622 or [mfouche@sun.ac.za](mailto:mfouche@sun.ac.za)) at the Division for Research Development, Stellenbosch University.

**CONSENT FORM (please tick the appropriate box):**

I hereby consent to voluntarily participate in this study and attend all 6 intervention contact sessions and complete all the testing sessions. I agree that my data could be integrated into a summary of the results of all the questionnaires without identifying me personally.

I don't want to participate in this study.

**PLEASE TURN OVER AND COMPLETE SECTION A**

**SECTION A**

Please answer the following general questions. This information is for statistical purposes and use of the researchers ONLY.

**1. Gender**

Male (01)	Female (02)
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**2. Age**

Please specify:
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**3. Language:**

First language / mother tongue

Afrikaans (01)	English (02)	Xhosa (03)
Venda (04)	Zulu (05)	Ndebele (06)
South Sotho (07)	North Sotho (08)	Tsonga (09)
Tswana (10)	Swazi (11)	Other (12)

**4. Language:**

Second language

Afrikaans (01)	English (02)	Xhosa (03)
Venda (04)	Zulu (05)	Ndebele (06)
South Sotho (07)	North Sotho (08)	Tsonga (09)
Tswana (10)	Swazi (11)	Other (12)

**6. Ethnic Group**

(for statistical purposes only)

Black (African) (01)	Coloured (02)	White (03)
Indian (04)	Other Asian (05)	Other (06)

**7. Marital status**

Single (01)	Married (02)	Divorced (03)
Other (04)		

**8. Course you current study**

Please specify:
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**14. Please indicate your average performance for matric.**

<50%	50% - 60%	60% - 70%
70% - 74	>75%	

**PLEASE TURN OVER AND COMPLETE SECTION B**

Please respond to all the questions in all the sections. Choose the relevant option to each item and indicate your answer in the applicable manner. There are no right and wrong answers to any of the questions; we are only interested in your personal opinions. Keep in mind that frank and truthful answers are the most important contributions you can make to the success of the program for yourself.

**Please follow the instructions as carefully as possible. The questionnaire should take approximately 90 minutes to complete.**