FACTORS INFLUENCING PERSISTENCE OF ASPIRING CHARTERED ACCOUNTANTS: A FORTIGENIC APPROACH

Petrus Nel

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Promoter: Prof. A.B. Boshoff

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DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature: _____

Date: 1 December 2006

SUMMARY

Persistence is not a well researched phenomenon. In addition, no previous research has suggested a process depicting a combination of variables that are related to persistence. The current study explores the process of persistence from a fortigenic paradigm, which emphasises psychological strengths. The aim of the current study is to determine the relationship between various fortigenic variables and persistence. The fortigenic paradigm also suggests that psychological strengths can be developed. In order to understand the process of persistence, the current study includes both cognitive (locus of control, optimism, hope, self-efficacy) and emotional psychological strengths (self-esteem, performance self-esteem, resilience) that are related to persistence. Based on literature, the current study suggests a model depicting a sequential process of interrelationship amongst the fortigenic variables and their relationship with persistence. To test the validity of the proposed model, the current study uses a sample of individuals that must be persistent in order to achieve their career goals. A group of 295 aspiring Chartered Accountants who wrote Part 1 of the Qualifying Exam during 2005 participated in the study. From this group, 156 (53%) did not pass the Qualifying Exam during 2005. The study employs both survey and statistical modeling methodologies to guide the investigation. Standardised questionnaires are used for the eight different fortigenic variables. To determine the applicability of the factor structures of these instruments on the current sample, exploratory factor analysis is conducted. The suggested factor structures are confirmed through confirmatory factor analysis with acceptable levels of fit. The revalidated instruments provide better levels of fit than the original instruments. The current study first tested the model of persistence on the total group. The theoretical model depicting the process of persistence provides acceptable levels of fit with all the suggested paths in the model being statistically significant. The same model was tested on the group of individuals that failed previous attempts of the Qualifying Exam, but passed it during 2005. Better levels of fit are obtained with all the paths being statistically significant except between self-esteem and resilience. Again the model was tested using the group of individuals that failed previous attempts at the Qualifying Exam, which failed it during 2005, but still persisted in writing. Acceptable levels of fit are obtained with all the paths being statistically significant except between self-efficacy and resilience. However, the group that failed the

Qualifying Exam during 2005 has significantly lower levels of both hope and performance self-esteem. In addition, discriminant analysis shows that hope, optimism, and resilience are factors that can classify individuals into either passing or failing. Of importance is the fact that as individuals write the Qualifying Exam on different attempts, there seems to be a lowering in the number of statistically significant relationships between the fortigenic variables and persistence. The current study ascribes this phenomenon to resource depletion. The latter makes it difficult for individuals to persist in using the same psychological strength if it is not replenished before usage. The study suggests an intervention programme that may enhance the levels of psychological strengths and persistence and counteracting the impact of resource depletion in aspiring chartered accountants.

OPSOMMING

Tot op hede is uithouvermoë, as `n persoonlikheidseienskap, nie baie volledig nagevors nie. Die proses wat gevolg word deur persone wat uithouvermoë toon is ook nog nie bepaal nie. Die huidige studie benader die proses van uithouvermoë vanuit `n fortigeniese paradigma wat fokus op sielkundige krag. Die doel van die studie is om te bepaal watter sielkundige kragte verwant is aan uithouvermoë. Die fortigeniese paradigma gaan ook van die veronderstelling uit dat alle sielkundige kragte ontwikkel en aangeleer kan word. Om die proses te probeer verstaan, gebruik die huidige studie beide kognitiewe (lokus van beheer, optimisme, hoop, selfvertroue) en emosionele sielkundige kragte (selfbeeld, prestasie selfbeeld, veerkragtigheid) wat verwant is aan uithouvermoë. Uit die literatuur stel die huidige studie `n proses voor wat `n logiese volgorde daarstel van hoe die verskillende kognitiewe en emosionele sielkundige kragte verwant is aan mekaar asook aan uithouvermoë. Om die geldigheid van hierdie proses te bepaal, maak die huidige studie gebruik van `n groep proefpersone wat uithouvermoë moet besit ten einde hul loopbaandoelwitte te kan bereik. `n Groep van 295 aspirant Geoktrooieerde Rekenmeesters wat Deel 1 van die Kwalifiserende Eksamen in 2005 geskryf het, het deelgeneem aan die studie. Uit die groep van 295, het 156 (53%) van die proefpersone nie die Kwalifiserende Eksamen gedurende 2005 geslaag nie. Beide opname- en statistiese modelleringsmetodiek is gebruik. Agt gestandaardiseerde vraelyste is aan die totale populasie van aspirant rekenmeesters gestuur. Die studie het verklarende faktor ontleding gedoen om die geldigheid van die vraelyste op die huidige steekproef te bepaal. Die hervalideerde vraelyste het aanvaarbare passings gelewer wat beter is as die oorspronklike vraelyste. Vanweë die aard van die steekproef, het die studie eerstens die geldigheid van die model van die proses van uithouvermoë getoets op die totale groep. Daarna is dieselfde model toegepas op die groep proefpersone wat van te vore die Kwalifiserende Eksamen gedruip het, maar wel uithouvermoë getoon het en wel die Eksamen in 2005 geslaag het. Dieselfde model is ook getoets met die tweede groep proefpersone wat van te vore die Kwalifiserende Eksamen gedruip het, dit weer in 2005 gedruip het, maar wel aangehou het om dit te skryf. Aanvaarbare passings is verkry vir die algemene model van uithouvermoë, met al die voorgestelde paaie wat statisties betekenisvol is. Aanvaarbare passings is ook verkry vir dieselfde model wat toegepas is op die groep wat deurgekom het, met al die paaie statisties betekenisvol behalwe tussen selfbeeld

en veerkragtigheid. Aanvaarbare passings is verkry vir die groep wat gedruip het, met al die paaie statisties betekenisvol behalwe tussen selfvertroue en veerkragtigheid. Die groep wat die Kwalifiserende Eksamen gedruip het, toon egter betekenisvol minder hoop asook prestasie selfbeeld rakende hul prestasie in die Kwalifiserende Eksamen. Daarmee saam, toon diskriminant ontleding dat hoop, optimisme, en veerkragtigheid die belangrikste faktore is wat onderskei tussen individue wat die Kwalifiserende Eksamen geslaag het en die wat gedruip het. Van groot waarde is die verskynsel dat namate die proefpersone meer male die Kwalifiserende Eksamen skryf, hoe minder is die statisties betekenisvolle verwantskappe tussen die verskillende fortigeniese veranderlikes en uithouvermoë. Die studie verklaar hierdie verskynsel as hulpbronuitputting wat dit moeilik maak vir individue om dieselfde sielkundige kragte te gebruik om uit te hou indien hierdie kragte nie aangevul word nie. Die studie stel `n intervensieprogram voor wat gebruik kan word om aspirant rekenmeesters se uithouvermoë te verbeter en hulpbronuitputting teen te werk.

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CHAPTER 1

INTRODUCTION AND PROBLEM STATEMENT

1.1. Introduction

This chapter provides a general introduction to the context of this study's exploration of antecedents of persistent behaviour in aspiring chartered accountants. The chapter begins by providing a brief overview of the career requirements set by the South African Institute for Chartered Accountants (SAICA) and their Qualifying Exam. Following this brief overview, the chapter highlights some of the previous research that dealt with aspiring chartered accountants. From this it becomes clear that persistence is a valuable characteristic of aspiring chartered accountants wanting to qualify. Emphasis is thus on why individuals persist and not why do they fail or quit. This requires a new paradigm focusing on strengths instead of weaknesses of aspiring chartered accountants who wrote the Qualifying Exam. Positive Psychology, fortigenesis, and Positive Organisational Behaviour are all part of this new strengths paradigm. After briefly discussing this new strengths paradigm, the chapter provides an overview of both the positive consequences and the predictors of these positive consequences – as advocated by the Positive Organisational Behaviour paradigm. In the current study, persistence is viewed as a positive outcome, and the fortigenic variables (cognitive and emotional) as the predictors of persistence. The choice of both cognitive and emotional psychological strengths to be studied in this project are justified, and tentatively defined. The identified cognitive and emotional fortigenic variables are then evaluated against three traditional models dealing with career management and counselling. All these models suggest that when an individual is faced with non-attainment of a career goal (such as failing the Qualifying Exam of SAICA), the individual must make a decision. The latter usually manifests it through either quitting or persisting. Three career management and counselling models are applied to aspiring chartered accountants who have failed their qualifying exams emphasising the limitations of the understanding of persistence. The chapter ends by identifying the aims and benefits of the current study as well as an outline of the remainder of the thesis.

1.2. Career requirements to write Part 1 of the Qualifying Exam of SAICA on the path to becoming a Chartered Accountant (SA)

After completing the Certificate in the Theory of Accountancy (CTA) at University, aspiring chartered accountants have to write Part 1 of the Qualifying Exam (QE1). The first qualifying exam is the first step in the proposed career plan of individuals who want to be Chartered Accountants (SA). The aim of this first examination is to determine whether or not aspiring chartered accountants can apply the theory of accountancy to integrated accounting problems related to auditing, taxation, information systems, financial accounting, managerial accounting, and financial management. After successful completion of Part 1 of the Qualifying Exam, together with 18 months completed on their training contracts (previously known as articles), these aspiring chartered accountants can then write Part 2 of the Qualifying Exam (QE2), known as the public practice examination set by the Public Accountants and Auditors Board (PAAB). After completing another 18 months of their training contracts and the successful completion of both Qualifying Exams, individuals are able to register as Chartered Accountants (SA). It is important to note that both SAICA and the PAAB allow individuals five consecutive attempts at passing QE1 and QE2. However, QE1 has a lower pass rate than the QE2. During 2006, the overall pass rate was 42%, which was negatively influenced by the number of individuals who repeated the QE1. In comparison in 2006, 60% of individuals who wrote QE1 for the fist time passed it, slightly higher than the 58.9% in 2005. During 2006, a total of 48% of individuals who wrote QE1 were repeaters. Of these individuals that repeated the QE1, only 21% passed.

The above provides a clear indication that a large number of aspiring chartered accountants fail the QE1, but persist in order to pass Part 1 of the Qualifying Exam. It must also be stressed that individuals who do not persist in writing both QE1 and QE2 will not be eligible for registration as Chartered Accountants (SA). This may have serious career implications, both in terms of earning potential and type of accounting work to be done. With SAICA's aim to assist aspiring chartered accountants who fail the QE1 as well as increasing the number of designated group chartered accountants, it becomes important to identify those factors that influence persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam.

With such career limiting impact, persistence may indeed be a key psychological characteristic of aspiring chartered accountants to deal with setbacks associated with the non-attainment of career goals. One would have thought that such an important aspect of dealing with failure and persisting in writing the Qualifying Exam may have sparked some solutions proposed by research. However, as evident in the following section, the limited number of studies exploring the experience of the QE1 specifically, and accounting in general have paid little attention to persistence and its antecedents.

1.3. Previous research dealing with persistence in accountants

Research conducted on the experiences of aspiring chartered accountants who have persisted in qualifying as Chartered Accounts (SA) and Certified Public Accountants (USA) is very limited. For example, four studies looked at personality types of Certified Public Accountants (USA) and auditors in relation to organisational and professional commitment (Aranya & Wheeler, 1986), personality types and choosing an accounting profession (Schloemer & Schloemer, 1997), career drivers of junior auditors (Chia, 2003), and personality as a predictor of conscientiousness and learning (Perlow & Kopp, 2004). Unfortunately none of these studies focused on failure or persistence. However, one noted exception is a study conducted by Henry (1995). The latter study focused on the development of a persistence questionnaire to be used in the selection of Certified Public Accountants. A sample of 190 students as well as 113 CPAs completed the 64 item questionnaire. The author concluded that CPAs are more persistent than accounting students due to experience and dealing with the professional requirements of the work. It was suggested by this author that persistence may be influenced by a high need for achievement, control beliefs related to dealing with situations, high self-esteem, optimism, and confidence in ability to accomplish a task, as well as good self-management skills (Henry, 1995). However, the author did not explain the process of persistence using a complex combination of these identified variables. No direct and standardised measures for each of these constructs were used. Neither were any reasons given why certain variables influence others and the sequence of variables influencing persistence.

In South Africa, two studies are highlighted by the fact that they explored the relationship between personality factors and accounting performance. Wessels (1997) used the 16 Personality Factor questionnaire to predict whether aspiring chartered

accountants, who wrote the public practice exam (QE2), would be successful. Several personality factors, such as extroversion, rule consciousness, self-reliance, and tension seem to be predictors of success and failure in QE2. The latter study did not explain why a combination of these variables may lead to persistence, thus influencing successful and unsuccessful performance in the QE2. Wessels (1997) also did not determine why these individuals persisted, even after they have failed. In addition, Štrbac and Roodt (2005) conducted a similar study focusing on the psychological attributes of successful trainee accountants. They limited their study to identifying which factors contributed to the success of passing both QE 1 and QE2 using 77 trainee accountants. The latter study only found support for verbal evaluation (i.e. the ability to understand and evaluate the logic of various arguments) as the only significant predictor of success. As was the case with Wessels (1997), Štrbac and Roodt (2005) also did not focus on those factors that influence persistent behaviour in aspiring chartered accountants.

It therefore becomes clear that research studies related to persistence as well as those factors that influence persistence of aspiring chartered accountants who have failed Part 1 of the Qualifying Exam is limited. Research on why aspiring chartered accountants persist, rather than why do they fail or quit, focuses on the strengths used by these individuals, and not their weaknesses. Emphasis is thus placed on what is good and can be used, instead of what is wrong and must be corrected. To fully understand the impact of a strength-based approach to Psychology, fortigenesis is explained in the following section.

1.4. Fortigenesis – origins of psychological strengths

Fortigenesis focuses on the origins of psychological strengths rather than the origins of health (as denoted by the term salutogenesis proposed by Antonovsky, 1987). Work and careers occupy a crucial place in the lives of adults and this lends itself to the study of fortigenesis in the world of work and the scientific investigation of fortigenesis in occupations, such as that of aspiring chartered accountants (Strümpfer, 1995). Occupations make stressful demands (such as passing appropriate exams in order to practice as a professional), which individuals must deal with by applying what is described as Generalised Resistance Resources (GRR) (Antonovsky, 1987). The latter describes those characteristics of an individual that facilitates dealing with

stress and setbacks. Examples of these resources include cognitive (knowledge and intelligence), interpersonal relationships, and social support. Antonovsky (1979, 1987) proposed that the availability of these resources helps the individual to develop a sense of coherence, which in turn mobilises the resources to avoid or deal with stress and setbacks. Identifying and using the available GRRs strengthens and develops a sense of coherence (Strümpfer, 1995, p. 83). The field of fortigenesis is contextualised within organisational behaviour and Psychology in the following section.

1.4.1. Positive Psychology and Positive Organisational Behaviour

Negative perspectives have, however, been for many years the focus of Psychology and Organisational Behaviour. Since the beginning of Psychology as a science, three objectives were stated: repair psychological damage, prevent psychological problems, and build psychological strengths in people (Linley, Joseph, Harrington, & Wood, 2006; Luthans, 2002a, 2002b; Park & Peterson, 2004). Emphasis was placed on the negative impact of dysfunctional behaviour on organisations and employees – the emphasis of the first two objectives. This pathogenic perspective (Coetzee & Cilliers, 2001; Vaillant, 2003) is gradually being replaced by a positive approach to both Psychology and Organisational Behaviour (Luthans, 2002a, 2002b). The focus of the positive approach is on individual well-being and coping skills to effectively deal with changes and problems in organisations and careers.

Emphasising psychological strengths and enhancing these in individuals, it is possible to define Positive Psychology as the facilitation of optimal functioning emphasising strengths and virtues and what is good about individuals (Linley & Joseph, 2004, p. 4). However, it also includes the full spectrum of experiences of individuals, from the negative to the positive, in order to understand optimal human functioning (Linley, Joseph, et al., 2006, p. 6). Applying the strengths-based approach to organisational behaviour, Positive Organisational Behaviour can be defined as the study and application of human resource strengths and psychological capabilities. These strengths and capabilities must be measured, developed, and managed to improve organisational performance (Luthans, 2002a, p. 59). Emphasis must therefore be placed on the development of these psychological strengths to the benefit of organisations and individuals. Without such a developmental approach, improvements

in both individual and organisational performance cannot be achieved – focusing on positive outcomes.

1.4.2. Positive outcomes and positive predictors of positive outcomes

In Positive Psychology (as well as Positive Organisational Behaviour) it is not appropriate to only study the impact of positive predictors without linking the latter to positive outcomes (Peterson & Steen, 2005, p. 252). In the current study, the positive outcome to be studied is persistence and its associated predictors (i.e. antecedents). It is important to note that both cognitive and emotional mechanisms are believed to be involved in persistence effects. It is argued that more direct measures of both cognitive and emotional constructs be included when trying to understand persistent behaviour (Svartdal, 2003). For an individual to function as an integrated whole, both cognitions and emotions should be investigated. The latter is supported by Svartdal (2003, p. 55) that suggested that *cognitive and emotional measures might focus either on the assumed processes or states, or on the outcomes of such states*. It is clear from this statement that Svartdal (2003) may be suggesting that cognitive and emotional states may in fact influence certain outcomes, such as persistence. This seems to corroborate what Petersen and his colleague stated earlier about positive predictors and positive outcomes (2005). Adhering to these two principles, viz: a) to study both positive outcomes and their predictors, and b) when possible study both cognitive and emotional variables to fully understand persistence, the following sections provide a brief overview of persistence and its antecedents (cognitive and emotional).

1.4.2.1. Defining persistence (positive outcome)

Persistence as a construct has not received much attention in the work motivation theories (Seo, Barret, & Bartunek, 2004; Kanfer, 1991). Due to the link between persistence and work motivation, which is the conceptual basis of persistence, definitions of motivation, are provided. Motivation is an important part of goal achievement and also when persistence is needed when goals are not achieved. According to Campbell and Prichard (1976), motivation focuses on the direction, arousal, amplitude, and persistence of an individual's behaviour. A similar definition regarding work motivation is provided by Pinder (1998, p. 11) *Work motivation is a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behavior, and to determine its direction, intensity, and*

duration. From these two definitions, three components can be identified. Firstly, direction emphasises the choice of activities an individual makes in expending effort. Secondly, intensity suggests that the individual may choose to exert various levels of effort, depending on how much he needs to expend. Finally, duration focuses on the persistence of motivation over time (Muchinsky, 2003, p. 373).

None these definitions of motivation do provide a clear indication of what is meant by "duration of behaviour" and "persistence of an individual's behaviour". In order to understand the duration of behaviour, persistence must therefore be identified.

Persistence, according to Henry (1995), is the continued pursuit of a goal despite some form of opposition or impediment. From the above it seems clear that persistence has it roots in motivation. Supporting Henry's view of persistent individuals' ability to deal with setbacks (1995), Scarnati (1998, p. 24) stated that persistent individuals *work hard, overcome failure, look to the future, and follow rational processes to solve problems*. In addition, Peterson and Seligman (2004, p. 229) defined persistence as a *voluntary continuation of a goal-directed action in spite of obstacles, difficulties, or discouragement*. Failing to achieve a goal can be seen as a result of obstacles, difficulties, and discouragement. Effectively dealing with these obstacles, difficulties, and discouragements require the individual to make a choice of either persisting or quitting.

However, persistent behaviour can also be interpreted as a psychological strength on a continuum of behaviour, as discussed in the following section.

1.4.2.2. Persistence as a strength on the continuum of behaviour

Peterson (2006, p. 38) is of the opinion that individual behaviour can be placed along the following continuum: opposite; absence; strength; exaggeration. Applying this behavioural continuum to persistent behaviour, the following can be stated: laziness is the absence of persistence. The opposite of persistence is helplessness, and the exaggeration of persistence is obsessiveness (Peterson, 2006, p. 39). There seems to be support that helplessness is the opposite of persistence as evident by the following research. Previous research conducted (Dweck, 2000; Dweck & Leggett, 1998) on the impact of affective reactions after failing at a task provided possible insight into the affective reactions and coping strategies to failure. Individuals, who were helpless (i.e. low or no levels of persistence), exhibited the following after failure: (a) strong

negative affect, (b) self-depreciating statements, (c) task-irrelevant behaviours, and (d) decrease in performance levels. In contrast, persistent individuals who experienced failure exhibited the following after failure: (a) maintaining a positive affect, (b) predicted that success would be forthcoming with greater effort, and (c) used a variety of problem-solving strategies.

The current study therefore proposes the following definition of persistence:

> Persistence is defined as a conscious process followed by the individual when he/she interprets the feedback received from a performed task. Based on this cognitive interpretation of the feedback, the individual is then likely to use different emotional states to positively evaluate the feedback and its impact on the individual in order to develop an appropriate response to the feedback. Persistence is therefore based on both cognitive and emotional components that the individual may use in consciously deciding to continue with a course of action. Without these cognitive and emotional resources, the individual is less likely to be persistent and complete the task.

By comparing helpless individuals with persistent individuals, it becomes clear that persistence is a psychological strength that may be developed in order to deal successfully with goal non-attainment. In addition, persistence does have several benefits for those that are persistent, as elaborated on in the following section.

1.4.2.3. Benefits of persistence

The differences between persistent and helpless individuals highlighted the importance of determining those factors that influence persistent behaviour. The importance of persistent behaviour can be identified by focusing on the benefits associated with this behaviour (Peterson et al, 2004, pp. 238-240). Firstly, persistence increases the possibility of achieving set goals. The achievement of goals is not without failure and negative feedback. The latter can be discouraging. Without persistence, it is unlikely for goals to be achieved. Secondly, persistence may enhance an individual's future experiences of success. Thirdly, persistence may improve an individual's levels of skill and resourcefulness. In order to overcome obstacles in achieving goals, individuals must develop alternative approaches and techniques to achieve their goals. Acquiring these new skills may be beneficial in future tasks.

Fourthly, persistence can enhance an individual's sense of self-efficacy, provided that the individual attains the set goals. Mastery experiences that come with persistence give individuals a general sense of being able to accomplish their goals. Fifthly, persistence may produce future persistence. Individuals who have invested time and energy into certain actions may persist with those actions. If individuals are close to attaining their set goals, they persist longer and resist quitting. Sixthly, individuals who have made a public commitment to persist to reach a given goal may feel personally responsible for making this decision. Individuals will also persist longer if they think other people will view them negatively for quitting (Peterson et al, 2004, pp. 238-240). On the basis of these six benefits, it seems clear that persistent behaviour is a psychological strength that may be developed to the benefit of the individual and the organisation.

When viewing persistence as a positive characteristic of individual behaviour, both cognitive and emotional variables associated with persistence are suggested to be explored in future research (Svartdal, 2003). Due to the fact that a fortigenic perspective is used in the current study, only fortigenic cognitive and emotional variables (as positive predictors of positive outcomes) are explored in the following section.

1.4.3. Positive predictors of the positive outcome persistence

Svartdal (2003) is of the opinion that both cognitive and emotional mechanisms are involved in persistence. The author argues that, when feasible, research must focus directly on emotional and cognitive variables that influence persistence. In Positive Psychology (as well as Positive Organisational Behaviour) it is not appropriate to only study the impact of positive predictors (the cognitive and emotional processes and states mentioned by Svartdal, 2003) without linking the latter to positive outcomes (i.e. persistence) (Peterson & Steen, 2005, p. 252). The reason for including both cognitive and emotional variables is related to their influence on one another. There are however conflicting interpretations. According to Seo, Barrett, and Bartunek (2004, p. 424) emotions are likely to influence the process underlying motivation, and emotions influence an individual's thoughts and behaviour. In contrast Snyder, Rand, and Sigmon (2005, p. 258) suggest that goal-pursuit cognitions cause emotions. The current study is in support of Snyder and his colleagues' statement (2005) and is

therefore of the opinion that cognitions influence emotions due to the latter's importance in first interpreting the consequences of an experience and on the basis of this interpretation, emotions are likely to be experienced and influenced. This is also supported by similar reasoning being used in Rational Emotive Behavioural Therapy (Ellis, 2001) that states that the interpretation of an event (cognitive) cause both emotional and behavioural consequences. Faulty interpretation and thought processes are likely to lead to irrational emotions. Therefore, cognitions precede emotions.

The current study therefore focuses on well-defined cognitive and emotional psychological constructs that are suggested to be antecedents of persistence. In addition, these variables are also identified as being psychological strengths (i.e. fortigenic) and are thus included in the current study. To be classified as a psychological strength, adhering to Positive Organisational Behaviour, variables to be studied from this positive paradigm must meet two criteria, viz: (a) the chosen variables should emphasise psychological strengths instead of psychological deficiencies and (b) the chosen variables must be open to development and state-like (i.e. can be learned) (Luthans 2002a, 2002b, in press).

Evidence of variables' relation to Positive Psychology are provided by Antonovsky (1979) and Strümpfer (1990, 1995, 2005). These authors identified constructs that are associated with Positive Psychology – more specifically salutogenesis and fortigenesis. Strümpfer (1990, 2005) identified several constructs that describe psychological strengths, viz: (a) sense of coherence, (b) locus of control, and (c) self-efficacy. It is also important to include resilience as a construct that describes psychological strengths (Bowman, 1999; Strümpfer, 2001a, 200b). Some of these constructs are to be included in the studying of Positive Organisational Behaviour (Luthans, 2002a, 2002b). These constructs, as identified by Luthans (2002a, 2002b) include (a) self-efficacy, (b) hope, and (c) optimism. Persistence is often associated with self-esteem, self-efficacy, and positive feedback (Cervone & Peake, 1986; and Feather cited in Wallace & Baumeister, 2002, p. 36).

Using the classification of positive psychological constructs (Lopez & Snyder, 2003; Snyder & Lopez, 2005) the abovementioned variables can be categorised as being cognitive (locus of control, self-efficacy, optimism, and hope) and emotional (self-esteem and resilience) in nature.

Before providing evidence of the abovementioned fortigenic variables' state-like properties (i.e. can be developed and learned), the following section provides tentative definitions of the cognitive fortigenic variables to be used in the current study.

1.4.3.1. Cognitive fortigenic variables

The cognitive/individual differences approach to studying persistence (Pittinger, 2002) focuses on how individuals' cognitive perceptions of self and the circumstances of the situation influence persistence. Using the cognitive/individual differences perspective, persistence reflects cognitive processes, personality traits, or both. From a fortigenic perspective, those cognitive factors that influence persistence are (a) locus of control, (b) self-efficacy, (c) optimism, and (d) hope (Snyder et al., 2002; Lopez et al., 2003).

The following two sections focus on the personal control construct, which consists of both locus of control and self-efficacy.

1.4.3.1.1. Defining personal control and the locus of control component

Personal control focuses on an individual's ability to adapt to situations that may seem to be providing little opportunities for such control. The individual must therefore evaluate the extent to which he/she has the ability to exert control over the given situation. This evaluation is known as perceived control (Thompson, 2005, p. 203). One approach at understanding perceived control is to view it within an evolutionary perspective that suggests that perceived control serves as a basic motivation that guides all other motives, emotions, cognitions, and social behaviours (Geary, 1998). According to the evolutionary perspective, individuals experience positive emotions and a sense of well-being when they experience control over their environment. Individuals with high levels of perceived control experience stressful situations as less stressful because they believe they have personal control to enable them to identify possible solutions to these situations (Miller, 1979, Ross & Mirowsky, 1989).

When measuring perceived personal control, it is possible to distinguish between two components of personal control judgments, viz: a) locus of control and b) self-efficacy. Locus of control is the individual's perception that his/her outcomes are influenced by personal action or by external forces. In contrast, self-efficacy is the belief that the individual has about his/her abilities to take effective action in order to

achieve the desired outcomes. Thus, perceived personal control is a combination of internal locus of control (i.e. what I achieve is dependent upon my own action) and self-efficacy (i.e. I have the skills to take effective action) (Thompson, 2005, p.205). From this conceptualisation of perceived personal control, locus of control is not similar to perceived personal control, but is a component of the latter. Self-efficacy is discussed later in this chapter.

This perception of control is therefore based on the belief that the individual perceives a link between his/her actions and an intentional desired outcome (Thompson, 2005, p. 204). This provides the theoretical link with locus of control. Several definitions of locus of control are provided in the following section.
Rotter (1966, p. 1) defined locus of control as follows: *When a reinforcement is perceived by the subject as following some action of his own but not entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When an individual interprets the event in this way we have labelled this a belief in external control. If the person perceives that the event is contingent upon own behaviour or his own relatively permanent characteristics, we have termed this a belief in internal control.*

Locus of control also refers to *individuals' beliefs about the causes of events in their lives* (Judge & Bono, 2001, p. 97). If an individual believes that the outcome of an event is the result of his/her efforts, then that individual has an internal locus of control. However, if the individual believes that the outcome of an event is based on luck or other factors outside of his/her control, then the individual has an external locus of control. Individuals who are low on self-efficacy are likely to have an external locus of control (Judge et al., 2001).

Locus of control literature also emphasises that an individual tries to explain the outcomes of his/her behaviour as being controlled internally or externally. Individuals learn *generalized expectancies to view events as being directly determined by their own behavior or as being beyond their control* (Stajkovic & Luthans., 2003., p. 133). Locus of control is therefore based on causal beliefs regarding behaviour-outcome expectations of the individual. Locus of control focuses on an individual's

perceptions about control over situations. More specifically, locus of control suggests that individuals must identify those areas in their lives over which they have control and develop their strengths and well-being. Locus of control also emphasises that there are certain situations over which the individual may not have control, and thus the individual is not to focus on these areas and use too much psychological energy (Fournier & Jeanrie, 2003, p. 139).

Unfortunately, the locus of control construct has been associated with misconceptions. Firstly, some users of the locus of control construct view it as a stable personality construct that is regarded as a trait. Secondly, the locus of control construct has unfortunately labelled individuals as being positive or negative. Thus, individuals who have an internal locus of control are associated with more positive outcomes, whereas individuals who have an external locus of control are associated with negative outcomes (Fournier et al., 2003, p. 140). Rotter (1975) suggested that individuals with a belief in external control can be grouped into two different categories, viz: defensive externals and passive externals. The defensive externals may become very active when they are faced with a challenging situation. One possible reason for this high activity may be due to fear of failure. In contrast, the passive externals will have more passive attitudes towards such a challenging situation.
Thirdly, there are some researchers who are of the opinion that locus of control is a bidimensional construct (Wong & Sproule, 1984). Studying locus of control from a bidimensional perspective it is suggested that individuals can, at any given time, be aware that there are both internal and external forces that influence their lives simultaneously. Thus, these types of individuals are able to identify those factors over which they do have control and build on those strengths, but also identify those areas over which they have little control and just accept the latter.

In addition to the misconceptions and differences of opinion about locus of control mentioned above, it may not be that surprising that unequivocal research result regarding the relationship between locus of control and persistence may have been due to operationalisation of locus of control (Furnham & Steele, 1993). Instead of just focusing on internal and external locus of control, it is suggested that locus of control must be operationalised in terms of chance factors, the influence/importance of powerful others, and internality (Levenson, 1981).

The current study therefore defines the cognitive fortigenic variable locus of control as follows:

> Locus of control is based on an individual's perception of the relationship between his/her behaviours and their outcomes. It is therefore possible for an individual to have an internal locus of control perception when behaviours lead to desired outcomes. In contrast, when the individual perceives no relationship between behaviours and outcomes, an external locus of control perception is suggested.

The following section provides suggested definitions of the second component of personal control, which is self-efficacy.

1.4.3.1.2. Defining self-efficacy – the second component of personal control

Bandura (1997, p. 3) defined self-efficacy as *beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments*. Self-efficacy can be viewed as a concept of perceived competence (Bandura, 1977). However, Bosscher and Smit (1998) argued that numerous experiences of failure and success in various domains of an individual's life may also be important to understand how and individual may generate general beliefs about self-efficacy. Generalised self-efficacy is defined as *a judgement of how well one can perform across a variety of situations* (Judge et al., 2002, p. 96). General self-efficacy is therefore a motivational state because it involves the individual's beliefs regarding his/her abilities to perform and succeed at task across different situations (Kanfer & Heggestad, 1997). It is therefore possible to distinguish between specific self-efficacy (SSE) (which is task specific) and general self-efficacy (GSE) (which is global in nature). However, both have self-confidence as the basis of self-evaluation. *The importance of the GSE construct to organizational research lies in its ability to (a) predict SSE across situations and tasks, (b) predict general and comprehensive performance criteria, and (c) buffer against the debilitating effects of adverse experiences on subsequent SSE* (Chen, Gully, & Eden, 2001, p. 67). Based on Chen and colleagues' opinion (2001), it is thus possible to state that general self-efficacy is able to predict performance on specific situations. In addition, general self-efficacy's ability to protect an individual after experiencing the negative consequences (such as failing Part 1 of the Qualifying Exam) makes the inclusion of general self-efficacy important to the current study. In

addition, an individual who scores high on general self-efficacy is also likely to score high on specific self-efficacy tasks. Therefore, an individual's general perception of confidence spills over to specific situations and the associated levels of confidence (Chen, Gully, et al., 2001, pp. 63-64). The latter provides support for the inclusion of general self-efficacy in the current study and its ability to predict specific performance related confidence (Chen, Gully, et al., 2001, p. 64).

Self-efficacy leads to choosing appropriate behaviours to reach identified goals, putting in effort, persist with the course of action despite obstacles, and eventual success. Bandura was also of the opinion that self-efficacy beliefs influenced resilience to adversity as well as the presence of helpful or hindering cognitions (O'Brien, 2003, pp. 109-110).

Therefore, self-efficacy suggests that two types of expectancies determine behavioural change, viz: (a) outcome expectancies and (b) efficacy expectancies (Bandura, 1977, 1982). Outcome expectancies relate to the probability that the specified behaviour will lead to the specific desired outcome. In addition to outcome expectancies, efficacy expectations relate to an individual's belief that he has the capacity to exhibit the desired behaviour. Therefore, self-efficacy refers to a person's belief that he/she is competent at producing the behaviour in question (Bandura, 1977). Self-efficacy emphasises the individual's perception as to whether the individual can perform the behaviour necessary in a specific situation – the capacity to act (Snyder, 2002, p. 258). Self-efficacy therefore focuses on the individual's belief regarding competence in a specific task and context. An individual is likely to have high levels of self-efficacy regarding certain tasks while having low levels of self-efficacy in other tasks. Self-efficacy beliefs are not likely to impact overall self-esteem (Stajkovic et al, 2003, p. 132).

The current study suggests the following definition for the cognitive fortigenic variable self-efficacy:

> Self-efficacy can be defined as an individual's perception regarding his/her abilities to perform specific tasks that are required by a specific situation. However, self-efficacy is not only based on task-specific perceptions of confidence. It also incorporates an individual's general beliefs about

> confidence and competence in broader situations. These general self-efficacy beliefs are also related, and spill over to, specific self-efficacy beliefs. Self-efficacy and general self-efficacy are therefore both based on an individual's perception of confidence.

With an overview of the definitions of self-efficacy, the following section provides examples of the characteristics associated with individuals with high-levels of self-efficacy.

The following are characteristics that can also be used to define self-efficacy (Maddux, 2005, p. 278). Firstly, self-efficacy focuses on the individual's beliefs that he/she can do specific tasks with his/her skills under certain circumstances. These self-efficacy beliefs focus on the individual's ability to manage and organise skills and abilities when faced with changing and challenging situations. Thus, self-efficacy emphasises what the individual can do, and not what the individual will do. Secondly, self-efficacy beliefs do not focus on causal attributions (i.e. locus of control). Self-efficacy focuses on what the individual believes he/she is capable of doing. Thirdly, self-efficacy is not self-esteem – an emotional fortigenic variable discussed later in this chapter. To understand this distinction, the importance of general self-efficacy, defined previously, as more general beliefs that an individual may have regarding self-confidence in numerous settings, are noteworthy. Self-esteem is what an individual believes about himself/herself and how he/she feels about what he/she believes about him/her (Maddux, 2005, p. 278). Self-efficacy does not have the self-worth evaluation that self-esteem has. Thus, self-esteem focuses on an affective evaluation of the self, whereas general self-efficacy focuses on the motivational belief about task capabilities (Chen, Gully, & Eden, 2004). In short, general self-efficacy is strongly related to an individual's motivational processes, while self-esteem is more strongly related to an individual's affective (emotional) processes. During task performance, the motivational states (e.g. general self-efficacy) improve the allocation and persistence of on-task performance, while affective states (e.g. self-esteem) relate to off-task, emotionally based thoughts and feelings (Kanfer & Heggestad, 1997). The latter view is actually disputed by Nussbaum and Steele (2006, in press) who reported that individuals can temporarily disengage from the negative feedback, protecting

their self-esteem by focusing on those tasks that are required to receive positive feedback.

Whereas self-efficacy emphasises an individual's perceptions related to confidence and ability to execute certain tasks, optimism emphasises the individual's perceptions regarding the attributions that can be made regarding good and negative outcomes. Optimism, as a cognitive fortigenic variable is discussed in the following section.

1.4.3.1.3. Defining optimism

When defining optimism, three broad categories can be identified, viz: a) definitions that focus on optimism and its relationship to an individual's expectations about the future, b) definitions emphasising the role of personal control and expectations about the future, and c) definitions that focus on the cognitive and explanatory nature of optimism. Finally, based on these definitions, several general characteristics associated with optimism are also provided.

a) Definitions focusing on an individual's expectations about the future

Definitions of optimism provided by Carver and Scheier (2005, p. 231) and Carver and Scheier (2003, p. 75) focus on an individual's expectations for the future. Individuals set goals for themselves that they want to achieve. These goals must be valued by the individual. Thus, there must be a desire to achieve the set goal. The individual that has set a desirable goal must also be confident that the goal can be attained. Taking a generalised approach to optimism, emphasis is on an individual's general sense of confidence (Carver et al., 2005, p. 231; Carver et al., 2003, p. 76). This is in line with Schulman (1991) that suggested that there seems to be three factors that are likely to influence an individual's perception regarding the achievement of personally important goals. These three factors are ability, motivation, and optimism. The later focuses on an individual's expectation to succeed. Thus, *ability to succeed and the desire to succeed are not always enough without the belief that one will succeed* (Schulman, 1999, p. 31). This is important when the task at hand is challenging and requires persistence from the individual to overcome setbacks (Schulman, 1999). Optimists are individuals who expect good things to happen to them. Pessimists are individuals who expect bad things to happen to them. Pessimists and optimists differ in the manner with which they approach challenges and problems.

They also differ in the manner, and eventual success, of coping with adversity. Emphasis in terms of this approach to defining optimism is on the expectations of individuals that determine their actions and experiences (Carver et al, 2005, pp. 231, 233).

b) Definitions focusing on the role of personal control and expectations about future outcomes

Optimists will have more confidence and persistence when dealing with a challenging situation than pessimists. Included in the optimistic approach to dealing with the future, the question of control is important. However, optimism focuses on a different assumption as to how this outcome of the future can be expected to be positive. The individual is the causal agent when looking at control from the self-efficacy perspective. Individuals with high levels of self-efficacy believe that their personal efforts are what will determine the outcome of the future. Viewing themselves as being in control, individuals with high levels of self-efficacy assume that the positive outcome that they desire will be possible through their own personal efforts (Carver et al., 2003, p. 76). However, optimism is broader than personal control. The optimist believes that any number of factors, which can include personal control, can lead to positive future outcomes. Thus, the optimist expects the best but also understand that he/she must play a part to influence the outcome. They are optimistic because they believe they have all the necessary skills, etc. to ensure a positive future. Optimism therefore focuses positively on the expected quality of future outcomes in general (Bryant & Cvengros, 2004, p. 298).

c) Definitions that focus on the cognitive and explanatory nature of optimism.

In general, optimism as a cognitive psychological construct has been referred to as *hopeful expectations in a given situation* (Scheier & Carver, 1988 as cited by Reivich & Gillham, 2003, p. 57). Optimism was later defined to include more general expectancies that are positive – not just related to a given situation (Snyder et al., 2003).

However, optimism can also be conceptualised as a thinking style, focusing on the attributions individuals make about the causes of events that they experience (Seligman, 1991). Applying the explanatory style paradigm related to optimism, this construct can be defined as *how people habitually explain the causes of events that*

occur to them (Peterson & Steen, 2005, p. 244). Optimism has been related to positive mood, to persistence and effective problem solving, and to achievement in a variety of settings. In a study conducted by Peterson and De Avila (1995), it was found that a positive explanatory style was associated with the belief that good health can be controlled (i.e. linked with locus of control and perceived personal control).

Thus, when individuals experience both positive and negative outcomes in their lives, they have to provide an explanation for these outcomes. Optimists explain events (specifically negative/bad events) as temporary, specific, and external. Optimists therefore attribute the causes of the events in their lives to temporary, external, and specific causes. In contrast, pessimists attribute the causes of events in their lives to permanent, internal, and global causes.

Given the fact that the present study focuses on fortigenic variables that emphasise psychological strengths, and more importantly, are open to development (Luthans 2002a; 2002b; in press), the explanatory style conceptualisation of optimism is used in the study. The explanatory style approach to optimism states that it is possible to use cognitive therapy in order to minimise the use of the pessimistic explanatory style of individuals (Abramson, Seligman, and Teasdale, 1978 as cited by Reivich et al., 2003, p. 58). Explanatory style becomes important when it is realised that the manner in which explanations are given for negative events, drain or enhance an individual's levels of motivation, reduce or increase an individual's levels of persistence, and increase or decrease the individual's chances of becoming depressed (Abramson et al., 1978). It is also possible for an individual to be hopeful but not optimistic, often seen in individuals with high external locus of control (Carifio & Rhodes, 2002, p. 127).

d) General characteristics of optimists and pessimists

Optimism and pessimism are therefore aspects of an individual's personality. These personality aspects influence how an individual will experience problematic situations as well as how the individual will behave when trying to successfully deal with these problematic situations (Scheier & Carver, 1985, 1992; Scheier, Carver, & Bridges, 1994; Carver & Scheier, 2005). Therefore, optimists and pessimists differ on two areas. Firstly, they react and experience different emotions when they have to deal with adversity. Most individuals will experience anxiety, eagerness, and anger when faced by challenging situations (e.g. adversity). Optimists are those individuals who expect good things to happen, even in the face of adversity. Thus, they are more likely

to experience a range of positive emotions. In contrast, due to the fact that pessimists expect bad things to happen, they are more likely to experience negative emotions, such as anxiety, despair, and sadness, when they are faced by challenging situations (Scheier, Weintraub, & Carver, 1986; Carver & Scheier, 1998; Scheier & Carver, 1992; Carver et al., 2005).

Secondly, optimists use more problem-focused coping strategies when the situation is controllable. In addition, optimists also use positive reframing and (when the situation is uncontrollable) with the tendency to accept the reality of the situation. Optimists also use several emotion-focused coping strategies, including accepting the reality of the challenging situation and trying to put the latter in a positive, manageable perspective. Pessimists are not likely to use denial or distancing themselves from the challenging situation as coping strategies (Scheier, Weintraub, & Carver, 1986; Carver & Scheier, 1998; Scheier & Carver, 1992; Carver et al., 2005).

The current study therefore defines the cognitive fortigenic variable optimism as follows:

> As a cognitive process, optimism is related to an individual's overall perception and interpretation of the reasons associated with outcomes in his/her life. When an individual attributes the reasons for negative experiences to his/her own shortcomings that may be permanent, that individual is deemed to be using a pessimistic explanatory style. In contrast, an optimist is more likely to ascribe reasons for failure to sources outside of him/her that are just temporary, and is manageable to overcome in the future.

It was previously mentioned that optimism as a cognitive psychological construct has been defined as *hopeful expectations in a given situation* (Scheier & Carver, 1988 as cited by Scheier et al., 2003, p. 57). However, optimism and hope are not the same psychological constructs. The cognitive fortigenic variable hope is discussed in the following section.

1.4.3.1.4. Defining hope

When defining hope two broad categories can be identified, viz: a) definitions emphasising the emotional nature of hope, and b) definitions emphasising the cognitive nature of hope.

Therefore, the definitions of hope focus on the construct being either emotion-based or cognitive-based (Lopez, Snyder, & Pedrotti, 2003). However, both these approaches are being merged. Although some emotion-based theories of hope (e.g. Averill, Catlin, & Chon, 1990), emphasise emotions, they do include cognitive aspects as well. For conceptual purposes, both the emotion-based and cognitive-based approaches are briefly discussed below.

a) Definitions of hope emphasising its emotional nature

The emotion-based theory of hope of Averill et al., (1990) states that hope is an emotion; however, the latter is governed by cognition. This emotion-based theory suggests that hope is only possible if the goals set by the individual are reasonably attainable, under the control of the individual, has valence for the individual, as well as when the goals set by the individual are acceptable to the norms of society.

In contrast to this theory of hope, Marcel (as cited by Godfrey, 1987, p. 103) stated that hope is not an individualistic concept, but rather a societal concept. This emotion-based theory states that hope is an affective form of coping when faced by seemingly hopeless experiences and situations.

Although hope may be defined from an emotion-based perspective as being only applicable within the norms of a given society, linking stimulus and response, and challenging situations, hope cannot just be experienced in these situations. To explore how hope can be experienced cognitively in other situations, the following section provides such a brief overview.

b) Definitions of hope emphasising its cognitive nature

Erikson (1964, p. 118) provided on of the earliest definitions of hope suggesting hope to be an *enduring belief in the attainability of fervent wishes, in spite of dark urges and rages which mark the beginning of existence*. His definition implies that hope is a thought or a belief that enhances an individual's movement towards a goal. Stotland (1969, p.2) later defined hope as *an expectation greater than zero of achieving a goal*. In essence, these two theorists viewed hope as the mediator between an individual's expectations of achieving a goal and the affective desire. Hope therefore focuses on the expectations about personal attainment of specific goals (Bryant et al., 2004, p. 298). Another conceptualisation of hope is that of Dufault and Martocchio (1985).

According to these researchers hope is conceptualised as *a multidimensional dynamic life force characterized by a confident yet uncertain expectation of achieving a future good which is realistically possible and personally significant* (Dufault et al., 1985, p. 380).

A more structured definition of hope was suggested by Snyder (2002, p. 249), stating that hope is primarily a way of thinking. Snyder focuses on the cognitive. Individuals are likely to think in terms of goals and how to develop routes to attain those goals. Therefore, hope emphasises an individual's goal that was set and how that goal will be attained through different possible strategies. Hope can therefore be defined as *a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals)* (Snyder, Irving, & Anderson, 1991, p. 287). Hopeful thinking therefore requires both pathways and agency thinking in relation to goal attainment. Thus, hope is only possible if the individual has confidence in his/her ability to produce multiple routes to achieve a specific goal, as well as the necessary motivation to use these different routes to achieve the stated goal. Snyder's hope theory incorporates both emotions and cognitions (Snyder, 1994, Snyder, Irving et al., 1991). When individuals experience barriers to goals that they have set, they experience these barriers as stressful. Positive emotions are experienced on the basis of the individual's past experiences of successful goal pursuit (Snyder, 1994, Snyder, Irving et al., 1991). Negative emotions are more likely to be experienced by individuals who have experienced unsuccessful goal pursuits in the past and when a "current" goal (e.g. passing an examination) is not reached.

Hope is therefore based on the goal-directed thought processes of individuals. Individuals think about their goals in terms of how they are going to achieve those goals as well as their motivation to use those particular strategies to achieve their goals. Thus, hope is anchored in the thought processes (i.e. cognitive component) of individuals regarding their goals (Snyder, Rand, & Sigmon, 2005).

Hope, as a cognitive fortigenic variable, is defined as follows in the current study:

> Hope involves a cognitive thought process whereby the individual set himself/herself a goal and determines the best ways of achieving that goal. In addition to having multiple strategies of achieving the set goal, the individual

must also have the belief that each of the chosen strategies will lead to the successful achievement of the goal. Without numerous strategies and the belief in their efficacy an individual may not have high levels of hope.

With an understanding of the cognitive fortigenic variables to be used in the current study (locus of control, self-efficacy, optimism, and hope), the various emotional fortigenic variables included in research on persistence are discussed in the following section.

1.4.3.2. Emotional fortigenic variables

Emotion-focused fortigenic variables emphasise the emotions that individual experience when they receive feedback from their environment, significant others, and themselves about failure and success. Emotion-focused fortigenic variables that influence persistence are (a) self-esteem, (b) hope, and (c) resilience (Snyder & Lopez 2005; Lopez et al., 2003). Emotions are named experiences that take place as an individual's responses to experiences. Named emotions suggest that for an individual to experience an emotion requires that the individual also interprets his/her response. Thus, the individual may experience low levels of self-esteem in the form of shame or embarrassment. These emotions, as experienced by individuals, occur in a predictable manner during predictable times and places under the influence of success or failure in the attainment of goals. If these emotions are dependent on the situation and its demands (e.g. not passing the qualifying exam), it is possible for individuals to manage their self-esteem and resilience as they manage their emotions (Hewitt, 2005, pp. 139-141). However, individuals will differ with regard to their ability to do so.

The first fortigenic variable self-esteem and the emotional nature of self-evaluation are discussed is the following section.

1.4.3.2.1. Defining self-esteem

Definitions of self-esteem can be categorised into two broad areas, viz: a) definitions focusing on the self-concept and self-worth and b) definitions emphasising self-evaluations and its associated emotions related to both self-liking and self-competence.

a) Definitions emphasising the self-concept and self-worth

Harter (as cited by Judge et al., 2001, p. 94) defined self-esteem as *the overall value that one places on oneself as a person*. Self-esteem can generally be defined as *the evaluative dimension of the self-concept. It is viewed as a psychological state of self-evaluation that ranges from positive (or self-affirming) to negative (or self-denigrating)* (Hewitt, 2005, p. 135). Therefore, individuals will take on certain tasks that they think they have a chance at succeeding in order to secure and enhance their feelings of efficacy (Rosenberg, 1979, 1981).

Self-esteem therefore focuses on an individual's view of himself/herself. Individuals with high levels of self-esteem are more able to cope with the challenges that they face, they feel good about themselves, as well as being able to deal with negative feedback. Individuals with high levels of self-esteem also believe that others value and respect them. In contrast, individuals with a low self-esteem tend to view their world negatively and they generally dislike themselves. Low self-esteem individuals may also feel disliked by other people – negatively impacting their willingness to receive support from others (Branden, 1994; Taylor & Brown, 1988; Heatherton & Wyland, 2003).

Coopersmith (1967, pp. 4-5) provided another definition of self-esteem: *The evaluation which the individual makes and customarily maintains with regard to himself: it expresses an attitude of approval and indicates the extent to which an individual believes himself to be capable, significant, successful and worthy. In short, self-esteem is a personal judgment of the worthiness that is expressed in the attitudes the individual holds toward himself.* Thus, this definition of self-esteem emphasises that self-esteem provides an evaluation of an individual's self-concept regarding the individual's overall view of himself/herself as being worthy or unworthy (Baumeister, 1998). The self-concept refers to the individual's totality of cognitive beliefs about themselves. In contrast, self-esteem is the emotional response that individuals experience as they think about and evaluate different aspects of themselves. Self-esteem is an attitude about oneself, and is related to personal beliefs about skills, abilities, social relationships, and future outcomes (Heatherton et al., 2003, p. 220). Thus, self-esteem is high to the extent that an individual feels good about those things that are important and that matter to him/her (Steele, 1997).

Self-esteem is also state-like, focusing on the changing nature of the evaluations about the self when new information is obtained; new task experiences are obtained, and re-

evaluated. Self-esteem is based on an introspective, self-evaluation of the individual's own self that is based on perceptions of personal characteristics. Self-esteem may also focus on an individual's beliefs about his/her abilities to successfully complete a task (Stajkovic et al., 2003, p. 132).

In addition to definitions emphasising the evaluation of the self-concept, there are other definitions emphasising both self-liking and self-competence as components of self-esteem. The latter are discussed in the following section.

b) Definitions emphasising self-evaluations related to both self-liking and self-competence

Another conceptualisation of self-esteem suggests that it consists of two components, viz: (a) self-liking and (b) self-competence (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). Self-competence refers to an individual's sense of his/her efficacy and power. It emphasises an individual's self evaluation of being effective. Self-liking refers to an individual's overall sense of self-worth. Self-liking emphasises an individual's self evaluation of being worthy, being good or bad (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). Low self-liking is associated with decreased persistence after failure. Low self-esteem individuals engage in punitive self-reflection and overgeneralise their failure. Low self-liking individuals show less persistence. In terms of self-esteem, feelings of being unworthy seem to be more important than feelings of competence (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). In addition, Heathorton and Polivy (1991) defined self-esteem as a hierarchy of three constructs, viz: performance self-esteem, social-self-esteem, and physical self-esteem. Performance self-esteem emphasises the individual's general sense of competence including intellectual abilities, self-regulatory capabilities, self-confidence, efficacy, and agency. Individuals who have high performance self-esteem believe they are capable and smart. Social self-esteem emphasises an individual's belief how others perceive him/her. This is however a perception, and not reality. Finally, when an individual view his/her body and the associated stereotypes associated with a specific body type and race, the emphasis is on physical self-esteem. The conceptualisation of performance self-esteem (Heathorton & Polivy, 1991) seems to be theoretically linked

to the self-competence component of self-esteem (Tafarodi & Swann, 1995; Tafarofi & Swann, 2001; Tafarodi & Vu, 1997).

The emotional fortigenic variable self-esteem is therefore defined as follows in the current study:

> Based on emotions, self-esteem is related to an individual's feelings about him/herself when compared to performance standards, expectations of significant others, as well as the self. Self-esteem is therefore based on the self evaluation and the resultant emotion associated with self worth when dealing with life experiences.

c) General characteristics associated with self-esteem

Irrespective of their beliefs about their abilities, skills and other characteristics, individuals with a high level of self-esteem generally feel good about themselves. In contrast, individuals with low self-esteem tend to feel bad about themselves even if they consider themselves to be highly efficacious (Brown, 1998). Self-esteem thus focuses on an affective evaluation of the self, whereas general self-efficacy focuses on the motivational belief about task capabilities (Chen, Gully, & Eden, 2004). Self-esteem is an affective variable due to an individual's general feelings regarding his/her value and self-worth (Kanfer et al., 1997). Self-esteem is *not a decision but a feeling… based not on a dispassionate consideration of what one is but on feelings of affection for who one is* (Brown, 1998, p. 372). Self-esteem therefore has a self-worth component that self-efficacy does not have. Thus, an individual may have high self-efficacy beliefs in terms of mastered certain skills, however, the individual may feel that these mastered skills are of no value to his/her self-worth (Judge et al., 2002, p. 96).

The final emotion-based fortigenic variable to be used in the current study is resilience, which is conceptualised through sense of coherence. Both these concepts are defined in the following section.

1.4.3.2.2. Defining resilience and sense of coherence

Resilience can be defined as *a class of phenomena characterized by patterns of positive adaptation in the context of significant adversity or risk* (Masten & Reed,

2005, p. 75). Thus, for an individual to be considered as resilient, he/she must firstly do better than expected given the expectations of the situation. In addition, the individual can be identified as being resilient when he/she has been exposed to very challenging situations that posed a threat to good outcomes – and successfully dealt with those challenging situations. However, the following definition includes the importance of both emotions and cognitions to adapt to adverse situations. Resilience can also be defined as a *pattern of psychological activity which consists of a motive to be strong in the face of inordinate demands, which energizes goal-directed behaviour to cope and rebound (or resile), as well as accompanying emotions and cognitions* (Strümpfer, 2001b, p. 36). Resilience (e.g. career resilience) is the persistence component of motivation (London, 1983, 1993, 1997). Factors that contribute to an individual's ability to successfully manage stressors include specific skills and psychological resources (Lustig et al, 2002, p. 2). Antonovsky (1987) conceptualised resilience as sense of coherence.

Antonovsky (1987) is of the opinion that one psychological resource, that mediates the individual's ability to manage stressful events, is sense of coherence (SOC). Sense of coherence can be defined as a dynamic feeling of confidence that the individual has about the predictability of his/her internal and external environments. In addition, the individual feels that there is a high probability that things will work out as well as can be reasonable expected (Coetzee & Cilliers, 2001). A person with a strong sense of coherence is more likely to view and understand problems as challenges, and is more likely to select the most appropriate coping behaviour for the specific problem. Sense of coherence is the overall orientation that the environment is comprehensible, manageable, and meaningful (Antonovsky, 1987). Feelings of sense of coherence are enhanced by the availability of Generalised Resistance Resources (GRRs) (Antonovsky, 1987). These GRRs usually take the form of cognitive skills, social support, specific skills and other psychological resources (Lustig et al, 2002, p. 2). It can be suggested that both cognitive (locus of control, self-efficacy, optimism, and hope) as well as emotional (self-esteem) fortigenic variables can be viewed as GRRs that can be used by aspiring chartered accountants to enhance their levels of resilience and their persistence. The inclusion of both cognitive and emotional variables as GRRs is also supported by Strümpfer's (2001b) perspective that resilience is accompanied by an individual's emotions and cognitions when coping with setbacks.

Antonovsky (1979) proposed that the availability of these resources helps the individual to develop a sense of coherence, which in turn mobilises the resources to avoid or deal with stress. The latter experiences provide feedback and reinforce a sense of coherence.

Resilience, as an emotional fortigenic variable, is defined as follows in the current study:

> Resilience focuses on an individual's emotional ability to bounce back after negative experiences and to successfully adapt to the current situation. The ability to bounce back is dependent upon the individual's ability to identify effective coping mechanisms.

Whether or not the fortigenic variables discussed in the previous section are states or traits are important considerations when adhering to the principles of positive organisational behaviours and psychological strengths. The latter are discussed in the following section.

1.4.4. The importance of viewing variables as states and not traits

It was previously stated, during the discussion of Positive Psychology and Positive Organisational Behaviour, that psychological strengths and capabilities must be measured, developed, and managed to improve organisational performance (Luthans, 2002a, 2002b). Of importance is the concept of "development". This implies that, in order for a psychological strength to be enhanced, it must be able to function as a state and not a trait. A fortigenic variable is state-like when it is possible to change and enhance the levels of that factor. The following sections provide support for the view that all the fortigenic variables, both cognitive and emotional, are state-like and open to development.

1.4.4.1. Locus of control as a cognitive psychological state

Thompson and Wierson (2000) were of the opinion that perceived personal control could be enhanced through different strategies. In addition to these authors, Wong and Sproule (1984) viewed locus of control as a bidimensional construct, suggesting that individuals can at any given time be aware that both internal and external factors are influencing their behaviour and outcomes. Thus, locus of control enables the

individual to determine his/her degree of perceived control over these factors. Various interventions can be employed to enhance an individual's perceptions of control over situations. Specific interventions with examples, to develop perceptions of control, are discussed in Chapter 2.

1.4.4.2. Self-efficacy as a cognitive psychological state

Self-efficacy can also be viewed a state, open to development by the individual (Luthans, 2002a, p. 60). Self-efficacy refers to an individual's confidence in his/her abilities to successfully execute a specific task (Stajkovic et al, 2003, p. 132). Thus, applying self-efficacy to the current study, the individual must be able to develop his/her accounting skills in order to pass the qualifying exam. Thus, self-efficacy can be enhanced through gaining more experience in dealing with the task. Interventions to enhance self-efficacy are provided in Chapter 2.

1.4.4.3. Optimism as a cognitive psychological state

Optimism is another cognitive fortigenic that is suggested to be state-like (Luthans, 2002a, p. 64). As an explanatory style, it emphasises the individual's thoughts about the reason why positive and negative outcomes occur (Seligman, 1991). Due to the fact that a cognitive process is involved, it is possible to suggest interventions aimed at changing the irrational thought processes of pessimistic individuals through cognitive-behavioural therapy. The aim of cognitive-behavioural therapy is to assist the individual in transforming his/her problem into a goal that can be achieved through a series of procedures or steps with empirical evidence of their efficacy in relation to goal attainment (Beck, 1995). This is supported by Schulman (1999, p. 34) that states pessimistic cognitive styles can be changed by using cognitive retraining techniques. The latter assists the individual to learn to overcome pessimistic, self-defeating beliefs. Interventions aimed at enhancing rational thinking processes aligned with an optimistic explanatory style are discussed in Chapter 2.

1.4.4.4. Hope as a cognitive psychological state

According to Luthans (2002a, p. 63; 2004, pp. 521-522) hope can be viewed as a state that can be developed. Further evidence of hope as a state is provided by Snyder and his colleagues (1996), in the development of the State Hope Scale. Snyder also suggested that hope can be enhanced through the use of cognitive-behavioural therapy

(Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000). Numerous interventions can be used to enhance an individual's levels of hope (e.g. Luthans, Van Wyk, & Walumba, 2004). These are discussed in detail in Chapter 2.

1.4.4.5. Self-esteem as an emotional psychological state

Self-esteem can be defined as the sense of self-respect, worthiness, and adequacy and as the self-evaluation of one's self-concept. In addition, self-esteem has been conceptualised as efficacy based on the fact that it is actively acquired and thereby responsive to change (Gecas and Schwalbe as cited by Hughes, Robinson-Whelen, Taylor, Swedlund, & Nosek, 2004, p. 295). Self-esteem can be viewed as a state as well as a trait (Heatherton & Polivy, 1991). Although individuals may feel generally good or bad about themselves, there are fluctuations around this stable baseline. Fluctuations in state self-esteem suggest that there are certain circumstances when individuals who feel good about themselves, may experience self-doubt and dislike of themselves. These fluctuations are associated with an increase in the concern the individual may have about how he/she views himself/herself as well as an increase in the sensitivity of social evaluations (Kernis, 1993). Interventions aimed at enhancing an individual's levels of self-esteem are discussed in the following Chapter 2.

1.4.4.6. Resilience as an emotional psychological state

Antonovsky (1987) conceptualised resilience as sense of coherence. The author identified the use of general resistance resources that the individual can use to deal with setbacks and failure in order to resile. It therefore implies that an individual can be assisted to increase the number of general resistance resources through various interventions (Masten et al., 2005, p. 83). Chapter 2 provides a detailed discussion of the various interventions that may enhance resilience in individuals.

Based on the definitions provided in the previous sections of each of the fortigenic variables to be used in the current study, the following section revisits the differences between persistent and helpless individuals and provides a theoretical link to the various fortigenic variables and each of these differences.

1.4.5. Relationship between persistence, helplessness, and the identified fortigenic variables

It was previously stated that the impact of affective reactions after failing at a task may provide possible insight into the affective reactions and coping strategies to failure (Dweck, 2000; Dweck & Leggett, 1998). Individuals, who were helpless, exhibited the following after failure: (a) strong negative affect, (b) self-depreciating statements, (c) task-irrelevant behaviours, and (d) decrease in performance levels. In contrast, persistent individuals who experienced failure exhibited the following after failure: (a) maintaining a positive affect, (b) predicted that success would be forthcoming with greater effort, and (c) used a variety of problem-solving strategies.

From this comparison, it is now clear that both cognitive and emotional variables influence persistent behaviour. Positive and negative affect are related to the fortigenic concept of self-esteem. The prediction that success would be forthcoming is related to the fortigenic concept of hope. The impact of greater effort is related to the fortigenic concepts of self-efficacy and self-confidence. The use of a variety of problem-solving strategies is related to various fortigenic concepts, including hope, locus of control, and self-efficacy – all possible generalised resistance resources to be used by individuals to be more resilient.

With a better understanding of persistence as well as the cognitive and emotional factors influencing it, it is possible to evaluate existing models trying to explain persistent behaviour. Each of the following three models explains the impact of non-achievement of a career goal and subsequent persistence. These models are the Career Management Model of Greenhaus and Callanan (1994), the Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994), and the Theory of Career Motivation (London, 1983).

1.5. Three models of career management and career counselling

The current study will only focus on behaviours of aspiring chartered accountants after writing Part 1 of the Qualifying Examination due to the fact that this exam has the highest failure rate in the accounting profession. The question can therefore be posed: How will aspiring chartered accountants who have failed Part 1 of the Qualifying Exam experience the failure as well as which psychological resources will they use to persist in writing this exam? To provide tentative answers to this question,

three models of career management and career counselling are explored to determine how each one explains the impact of negative feedback and which factors motivate an individual to persist with a stated career goal after receiving negative feedback. The following section describes persistence from the perspective of the Career Management Model of Greenhaus and his colleagues (1994).

1.5.1. Career Management Model of Greenhaus and Callanan (1994)

Greenhaus and Callanan (1994) state that career management consists of several steps that an individual will follow when deciding on and planning his/her career. In order to make a realistic decision about a career, an individual starts off by exploring various careers. Career exploration assists the individual in obtaining relevant information about himself/herself, the occupation, and the type of organisations he/she is likely to work for. Once career exploration is completed, the individual sets a career goal. The establishment of a realistic goal facilitates the development and implementation of a career strategy – a plan of action to achieve the desired career goal. The individual can now start to implement a career strategy. Successful implementation of the latter facilitates the progress towards the career goal. When implementing the career strategy, the individual obtains feedback regarding the effectiveness of the strategy as well as the appropriateness of the career goal. Feedback is obtained from both work and non-work environments. The information obtained from the feedback forces the individual to re-appraise his/her chosen career. Re-appraisal of the chosen career can take the form of changing the career goal or keeping the career goal but changing the strategy. This information is fed back into career exploration and the process starts again (Greenhaus et al., 1994).

The career appraisal process is thus the point at which the individual may choose to quit and change the career goal, change the career strategy but keep the career goal, or keep both the goal and the strategy. Negative feedback regarding the progress towards the career goal is likely to influence the individual to change his/her career goal if the necessary support is not given in the objective evaluation of the negative feedback. The career appraisal process is that part in the career management model that can be targeted to influence the persistence of candidates toward their career goals (Greenhaus et al., 1994).

1.5.1.1. Benefits and shortcomings of Greenhaus and Callanan's Model for explaining persistence

One of the benefits claimed for this career management model is the fact that it provides a normative approach to career management (Greenhaus et al., 1994). The latter suggests that this model provides information on how individuals should manage their careers. A second benefit is that the model provides a step-by-step approach that can be used to assist individuals to make career decisions on the basis of individual information (individual career exploration regarding personality, ability, and interest) as well as environmental information (career exploration regarding the chosen profession, qualifications required to practice, and entrance requirements) (Greenhaus et al, 1994). One shortcoming of this model is that the career appraisal process does not provide guidance as to which factors influence the individual's processing of negative feedback of not attaining the career goal and its sub-goals. Another shortcoming is that the model does not suggest any cognitive, social, or emotional interventions to limit the negative impact of not achieving a stated career goal and of eventual abandonment of the career goal.

One model that tries to include both the social and cognitive aspects related to career choice, interests, and performance is the Social Cognitive Career Theory of Lent and colleagues (1994).

1.5.2. Social Cognitive Career Theory of Lent, Brown, and Hackett (1994)

The Social Cognitive Career Theory (SCCT) (Lent et al., 1994) focuses on three processes related to careers and career management. The first process emphasises the development of career interests by the individual, while the second process focuses on the development of career choices. The third process focuses on attaining various levels of performance and persistence in career pursuits (Albert & Luzzo, 1999; Diegelman & Subich, 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs & Roessler, 2004). For the purposes of this discussion, emphasis is placed on the third process of Social Cognitive Career Theory due to its theoretical explanation of persistence in career goals.

1.5.2.1. Development of interests

According to Social Cognitive Career Theory individuals develop their interests in a particular career by being exposed by career-related activities (e.g. subjects taken at school, participating in sports, etc.). In addition to being exposed to these activities, the individual is also encouraged by significant others, usually the parents and peers, to pursue these activities and to achieve satisfactory performance in these activities. Through participating in these activities and receiving feedback regarding their performance on these activities, individuals start to develop a sense of efficacy regarding these activities (Albert et al., 1999; Diegelman et al., 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs et al., 2004).

Based on these self-efficacy beliefs, the individual is more likely to pursue those career activities in which he/she feels competent to do (i.e. self-efficacy beliefs) as well as the positive outcomes associated with those activities that are important to the individual. Both self-efficacy beliefs and the positive outcomes expected influence the individual's choice of career interests. Thus, career interests are chosen by the individual based on his/her beliefs and confidence regarding the tasks that are related to a future career as well as the outcomes of doing these activities. These career interests form the basis of setting career goals that may provide additional exposure to these activities that provide further experiences to support self-efficacy beliefs. Thus, Social Cognitive Career Theory suggests that self-efficacy beliefs regarding career-specific activities influence interests (Albert et al., 1999; Diegelman et al., 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs et al., 2004).

1.5.2.2. Development of occupational choice

Based on the individual's self-efficacy beliefs regarding career-specific activities, and on these activities' influence on interests, the individual chooses a career and sets appropriate career goals. Social Cognitive Career Theory suggests that individuals' career interests determine the career goals they are likely to set. In order to achieve these career goals, the individual is likely to develop career strategies. When the individual implements his/her strategies to achieve a career goal, it is likely that the individual will experience two different types of performance experiences: success or failure. Implementation of a strategy that leads to failure may prompt the individual to revise his/her self-efficacy beliefs, leading to a possible change in the goal (Albert et

al., 1999; Diegelman et al., 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs & Roessler, 2004).

However, career interests are not the only determinants of career choice. The latter may also be directly influenced by the individual's self-efficacy beliefs and outcome expectations. The individual is more likely to set career goals (i.e. choosing a particular career) when he/she believes that they are efficacious about these goals and that the latter will lead to desirable outcomes (Albert et al., 1999; Diegelman et al., 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs et al., 2004).

1.5.2.3. Career-related performance and persistence

Career-related performance is based on two important aspects, viz: a) the degree to which an individual succeeds and is proficient in his /her work tasks and b) the degree to which he/she persist at a particular career path. Thus, career performance is based on the individual's abilities, self-efficacy, outcome expectations, and performance goals. Social Cognitive Career Theory hypothesises that an individual's ability influences performance through its effects on self-efficacy and outcome expectations. Both self-efficacy and outcome expectations influence the type of goals the individual is likely to set for himself/herself. By setting these goals, the individual can set goals of different levels of difficulty. The more difficult the goal, the higher is the probability that the individual may experience barriers to achieving his/her goals. Social Cognitive Career Theory suggests that an individual can enhance his/her levels of dealing with career barriers by developing high levels of coping efficacy. The latter implies that the individual must develop coping skills to deal with failure (Lent, Brown, et al., 1996; Lent et al., 1994; Albert et al., 1999). It can therefore be suggested that these individuals believe that they are capable of setting and achieving career goals.

1.5.2.4. Benefits and shortcomings of Social Cognitive Career Theory in explaining persistence

The Social Cognitive Career Theory does have several benefits. Firstly, the SCCT provides an in-depth approach in understanding the development of occupational interests and choices. The impact of self-efficacy on the development of interests and choices are useful. In addition, the SCCT points to the importance of choosing appropriate strategies to achieve career goals. It is suggested that individuals are likely

to change their career goals if they have unsuccessfully implemented career strategies. This approach is similar to hope theory (Snyder, 1994, 1995) in that it suggests that individuals use different pathways to achieve important goals in their lives. However, hope theory suggests that an individual would rather first change his/her career strategies (i.e. pathways) than abandoning the career goal.

Unfortunately the SCCT does have limitations for explaining the process of persistence. Firstly, the SCCT's main focus is on self-efficacy. In the discussions in the previous sections, it was highlighted that both cognitive and emotional factors influence persistence (Svartdal, 2003). Self-efficacy is just one of the numerous cognitive factors that are suggested to influence persistence. By just changing efficacy beliefs about career goals and career strategies may not fully comprehend the emotional component related to the experience of failure. Although the SCCT may apply similar principles related to Snyder's Hope Theory (1994, 1995) in terms of career strategies and career goals, no clear indication is given as how individuals can use other psychological resources than self-efficacy and possibly hope. The SCCT also suggests that individuals may have to develop coping efficacy in dealing with career barriers. However, no clear indication is provided of which coping strategies are successful as well as which combination of coping strategies are available to individuals with career barriers. In addition, no process of persistence is suggested that can be applied when individuals experience the non-attainment of career goals through unsuccessful career strategies. It can therefore be suggested that SCCT may not be the most appropriate theory to use when trying to assist individuals that have failed and not achieved their career goals.

One theory that tries to include additional factors, other than self-efficacy, when describing which assets individuals can use to deal with career barriers is the Theory of Career Motivation, discussed in the following section.

1.5.3. Theory of Career Motivation

London (1983, p. 620) developed the theory of career motivation and defined the theory as *the set of individual characteristics and associated career decisions and behaviors that reflect the person's career identity, insight into factors affecting his or her career, and resilience in the face of unfavourable career conditions* (London, 1983, p. 620). Career motivation consists of three central components, viz: a) career

identity, b) career insight, and c) career resilience (London, 1983, 1993, 1997). Each of these three components is discussed in the following sections.

1.5.3.1. Career identity

This concept reflects how central an individual's career is to his/her identity. An individual with a strong career identity is usually very involved with his/her job, career, and profession (London, 1993). Career identity consists of two sub-domains, viz: (a) work involvement and (b) desire for upward mobility (London, 1983). The work involvement dimension includes job involvement, professional orientation, commitment to managerial work, and identification with the organisation. The desire for upward mobility sub-domain includes the need for achievement, recognition, dominance, and money (London, 1983, p. 621).

1.5.3.2. Career insight

Career insight focuses on the degree to which an individual has realistic career expectations, knowledge concerning strengths and weaknesses, and specific career goals (Noe, Noe, & Bachhuber, 1990, p. 341). The individual must have realistic perceptions of himself and the organisation he wants to work for (or is working for). Individuals with career insight try to understand themselves and their environment. The career insightful individual sets specific career goals and formulates plans to achieve them. The individual also constantly seeks feedback on how he/she is doing (London, 1990). These perceptions can then be related to career goals. Goal clarity, path goal clarity, social perceptiveness, self-objectivity, realism of expectations, career decision making, and future time orientation seems to be related to career insight (Grzeda & Prince, 1997, p. 172; London, 1983, p. 621). Individuals high on career insight are likely to engage in activities such as investigating potential career changes, gathering information about career opportunities and identifying realistic goals and action plans, leading to more understanding of personal strengths, weaknesses, interests, and level of career satisfaction. These individuals constantly look for feedback about how well they are doing and use this information to set specific career goals and formulate plans to achieve them (London & Bassman as cited by Grzeda et al., 1997, p. 173; King, 1997, p. 34).

1.5.3.3. Career resilience

Career resilience focuses on the individual's ability to adapt to changing circumstances and cope with negative work situations, even when these are discouraging and disruptive (Noe et al., 1990, p. 341; London, 1997, p. 62). An individual's resistance to career disruptions in a less than optimal environment is the focus of career resilience. Thus, such an individual is more effective at coping with the negative situation (London, 1983). Career resilience consists of three sub-dimensions, viz: (a) self-efficacy; (b) risk taking, and (c) dependency (London, 1983). Self-efficacy includes the dimensions of self-esteem, need for autonomy, adaptability, internal control, need for achievement, initiative, need for creativity, inner work standards, and development orientation (London, 1983, p. 621). Risk-taking emphasises the levels of an individual's tendency to take risk, fear of failure, need for security, and tolerance for uncertainty. Dependency focuses on career dependency, need for superior approval, and a need for peer approval (London, 1983, p. 621). Individuals will be more resilient the higher they are on self-efficacy and risk-taking and the lower they are on dependency. Individuals high in resilience have high self-efficacy, seeing themselves as competent to take risks and responsibilities for their careers with a low need for dependency (King, 1997, pp. 34-35). Resilience is important because of personal characteristics that may a) compensate for the loss of competence during stress, b) protect the individual against perceptions of harm to the self-esteem, and c) interpret stressful situations as challenging (London, 1998, p. 77).
Career resilience therefore facilitates career insight. An individual who believes he/she is capable of being effective will use feedback obtained from his/her strengths and weaknesses and use this information to his/her benefit. This information is likely to be used to form a career identity that is meaningful, one that matches interests and abilities (London, 1990, p. 60). An individual is more likely to change careers when identification with work weakens; when insight indicates that available career behaviours are not functional; or when self-confidence and desire for achievement (resilience) weakens (London, 1990, p. 60).

1.5.3.4. Career decisions and behaviours

Career decision-making is a cognitive process which manifests itself in observable career behaviours in the form of career strategies that are developed and implemented. In addition, these decisions and behaviours also include generating alternative courses

of action, seeking information about them, evaluating information, setting goals, making decisions to behave accordingly, and carry out the decisions. Career decisions and behaviours are guided by desired outcomes as well as the expectations for attaining them (London, 1983, pp. 624-625). An individual's career motivation will affect what will happen in the future, or what the individual hopes will happen in the future. The concept of hope is discussed later in detail (Snyder, 2002).

However, there are several behaviours associated with individuals with high levels of career motivation, viz:

a) Individuals who are strong on career resilience are likely to have strong career identities and use feedback to strengthen their career identities.
b) Individuals who change their career goals on the basis of the feedback they receive.
c) Individuals, who experience failure, use their career resilience to take action and restore their beliefs in themselves.
d) Individuals who experience failure together with self-doubt, who in spite of the failure eventually achieve small successes and establish new and realistic goals (London, 1997, p. 64).

With an overview of the Theory of Career Motivation, the following section evaluates it usefulness for explaining persistent behaviour.

1.5.3.5. Benefits and shortcomings of Career Motivation Theory in explaining persistence

The Theory of Career Motivation is beneficial in understanding persistence through career resilience. This concept seems to include a number of the fortigenic variables discussed in the current chapter, viz: self-efficacy, self-esteem, and internal locus of control. In addition, the concept of career insight focuses on the individual being able to identify his/her strengths and weaknesses when setting career goals – similar to the fortigenic variable of hope. However, there are several shortcomings. The Theory of Career Motivation lacks the theoretical framework depicting which sequence of factors is likely to influence persistence. No clear indication is given as to why a certain combination of both cognitive and emotional fortigenic variables may enhance levels of persistence. In addition, the Theory of Career Motivation does not provide a

detailed description of separate fortigenic variables and their impact, directly or indirectly, on persistent behaviour.

Therefore, all three career management and career development models discussed in the previous sections are limited in their ability to explain persistence in aspiring chartered accountants who have passed or failed the Qualifying Exam but still persisted. Some of the career management models are good at identifying how individuals are likely to choose careers (SCCT), while others provide a normative approach to career management (Greenhaus et al., 1994). Even the Theory of Career Motivation does provide useful information on career resilience and persistence. However, these theories all have the same limitation – they do not provide an integrated overview of the sequence of fortigenic variables that influence persistence, directly or indirectly. None provides a sound rationale for including both cognitive and emotional variables when studying persistence. They all provide little information on how the experience of failure is likely to impact on an individual, both cognitively and emotionally, with consequences either being quitting or persisting. None of these career management models provide specific information as to how each of the fortigenic variables is to be developed for the individual to become more resilient and persistent. It is therefore advisable to explore a theoretically based model depicting the process of persistence, using both cognitive and emotional fortigenic variables, which influence persistence directly and indirectly through other fortigenic variables – as suggested in Figure 1.1 below.

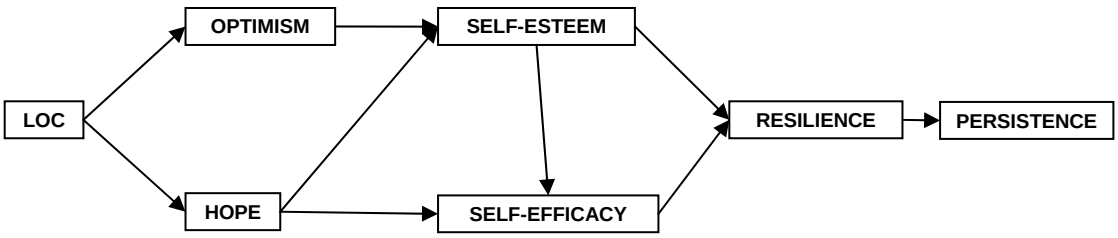

Figure 1.1 Conceptual model depicting the process of persistence

The theoretical rationale for this proposed model of persistence is provided at the end of Chapter 2.

With a brief overview of the definitions and career management models trying to explain persistence, it is possible to provide an indication of both the research problem and research propositions that will guide the current study.

1.6. Problem statement and research questions

A problem statement is the most fundamental component of research and provides a point of departure for scientific investigation. On the basis of the problem statement, it is possible to develop three research questions for the present study.

Based on the overview provided in the current chapter, the following problem statement is formulated: "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?"

In order to provide an answer to this problem statement, three separate research questions are developed to guide the current study. These three research questions are provided below.

1) "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?"
2) "Which fortigenic factors influence the persistence of aspiring chartered accountants who *passed* Part 1 of the Qualifying Exam during 2005?"
3) "Which fortigenic factors influence the persistence of aspiring chartered accountants who *failed* Part 1 of the Qualifying Exam during 2005?"

Research question 2 and research question 3 are possible due to the large numbers of repeat students writing Part 1 of the Qualifying Exam of SAICA. It is therefore possible to evaluate how two groups, one experiencing the achievement of a career goal after persisting, and another failing a career goal but still persisting, possess the various psychological strengths discussed in the current chapter to persist. More important, research question 3 may provide information on what the cognitive and emotional impacts are of failing and not achieving a career goal.

1.7. Aims of the current study

In answering each of these three research questions, the study has several aims to assist in providing valid and reliable scientific evidence to support conclusions about each of these three research questions.

To provide answers to each of the three research questions, four aims are proposed. For each of these aims, there are guiding propositions that will assist this study in achieving the stated aim. Each of the four aims, together with their associated propositions is discussed below.

1. Describing the fortigenic constructs and determining their construct validity for a South African sample. In addition, the current study also aims at describing the relationships among the identified fortigenic variables as well as their relationship with persistence. Theoretical descriptions of these fortigenic variables are provided in Chapter 2. Evidence regarding the descriptions of the factor structures of the fortigenic measuring instruments used in the current study is discussed in Chapter 3.
2. Explaining the process of persistence is the second aim of this study. Whereas the descriptive aim of this study focuses on which factors influence persistence and which factor structures are applicable to the current sample, the explanatory purpose of scientific research focuses on why. The latter suggest that the question must be posed as to why aspiring chartered accountants persist after failing part 1 of the qualifying exam and why these fortigenic variables (in a hypothetical, sequential order) explain persistent behaviour. The explanatory purpose of this study is therefore to explain why persistent behaviour of the aspiring accountant can be explained through a theoretical model. Explanation is based on the relationships among the fortigenic variables and persistence. A theoretical process depicting persistence is used to suggest such a process. This theoretical model is discussed in Chapter 2. Statistical evidence supporting the accuracy of the description of the proposed theoretical process is discussed in Chapter 4.
3. Prediction is the third aim of the current study. Prediction is only possible if the previous two purposes of scientific research are met. Thus, it is only possible to predict persistence of aspiring chartered accountants if the fortigenic variables under study are accurately described. The description of the characteristics of the fortigenic variables and their interrelationships allow for the development of possible explanations for why these variables, in a theoretical sequential model, explain the process of persistence after failing Part 1 of the Qualifying Exam. The aforementioned allows for the possibility of determining which variables accurately predict persistence under which circumstance. Statistical evidence supporting the predictive aim of the current study is discussed in Chapter 4.

4. The final aim of the current study is intervention. The latter emphasises the use of corrective action to change a situation. Applying the intervening purpose of scientific research to the current study the following is suggested: After describing the characteristics of the sample, the factor structures of the identified fortigenic variables, and their relationship with persistence, it is possible to theorise and explain why these fortigenic variables influence persistence under certain circumstances. This allows for the prediction of persistent behaviour of aspiring chartered accountants who wrote Part 1 of their Qualifying Exam during 2005. After identifying the factors that predict persistent behaviour, it is possible to develop intervention programmes to assist those aspiring chartered accountants who fail to improve their probability of passing. The intervening purpose of this study is elaborated on in the conclusions, interventions, and suggestions for further research sections of Chapter 5.

The following sections link the relevant aims of the current study with research propositions related to each of the three research questions, including methodological propositions, which are outlined in the following section

1.7.1. Research propositions related to methodological aspects of the current study

The following two propositions will guide the current study in obtaining methodological evidence related to factors structures and structural equivalence of the instruments when applied to different samples before interpreting the results of the current study:

- Research propositions related to the descriptive aim of the current study
    - Proposition 1: There will be interpretable and understandable factor structures for each of the identified fortigenic measures.
    - Proposition 2: There will be evidence of structural equivalence, for each of the identified fortigenic variables, between male and female participants, black and white participants, and participants who have passed and failed.

Proposition 1 forms the basis of evaluating which factor structure is applicable to the current sample. Since the operationalised measures of the variables are from American studies, it is important to determine if a similar or different factor structure

emerges within a South African sample. If a different structure emerges, then it must be interpretable and understandable given the theoretical basis of the construct being measured. The factor structures identified through Proposition 1 will be used in further data analysis for the current study. The remaining research propositions will then be evaluated on the basis of the identified factor structures applicable to the South African sample.

Therefore, Propositions 1 and 2 will provide evidence of both the construct validity of the measuring instruments to be used in the current study, as well as qualitative evidence of structural equivalence between white and designated group individuals, female and male individuals, as well as individuals that passed and failed in terms of each of the measuring instruments to be used. Proposition 2 is important to allow for the comparison of differences using certain biographical variables and the fortigenic variables, as evident in the remaining propositions to be outlined below.

On the basis of objective evidence of valid and interpretable factor structures, the current study will then be able to conduct further statistical analyses with confidence in the understandable and interpretable structures associated with each of the fortigenic variables.

The following section provides an outline of the research propositions that will guide the answering of the first research question.

1.7.2. Research propositions guiding Research Question 1

The first research question was formulated as follows: "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?" The following research propositions will guide the current study in answering this question:

- Research propositions related to the descriptive aim of the current study
    - Proposition 3a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients.
    - Proposition 3b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership.

- Research propositions related to the explanatory aim of the current study
    - Proposition 4: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence.
- Research propositions related to the predictive aim of the current study
    - Proposition 5: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence

After evaluating the general structure of the process of persistence and the fortigenic variables that influence this general process of persistence, it may also be possible to evaluate and compare these findings to a group of aspiring chartered accountants that persisted and passed the Part 1 of the Qualifying Exam during 2005 – the second research question. Research propositions aimed at providing answers to this second research question are outlined in the following section.

1.7.3. Research propositions guiding Research Question 2

The second research question was formulated as follows: "Which fortigenic factors influence the persistence of aspiring chartered accountants who *passed* Part 1 of the Qualifying Exam during 2005?" The following research propositions will guide the current study in answering this question:

- Research propositions related to the descriptive aim of the current study
    - Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
    - Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
- Research propositions related to the explanatory aim of the current study
    - Proposition 7: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model

depicting the process of persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

- Research propositions related to the predictive aim of the current study
    - Proposition 8: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

After evaluating the applicability of fortigenic variables that influence persistence of those individuals that have persisted and passed, it may also be possible to evaluate and compare these findings to a group of aspiring chartered accountants that failed Part 1 of the Qualifying Exam during 2005, but still persisted in writing – the third research question. Research propositions aimed at guiding this third research question are outlined in the following section.

1.7.4. Research propositions guiding Research Question 3

The third and final research question was formulated as follows: "Which fortigenic factors influence the persistence of aspiring chartered accountants who *failed* Part 1 of the Qualifying Exam during 2005?" The following research propositions will guide the current study in answering this question:

- Research propositions related to the descriptive aim of the current study
    - Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
    - Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Research propositions related to the explanatory aim of the current study
    - Proposition 10: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model

depicting the process of persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

- Research propositions related to the predictive aim of the current study
    - Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Research propositions related to both the descriptive and explanatory aims of the current study
    - Proposition 12: There will be evidence of measurement equivalence of the measurement model used to test the validity of the structural model, between participants who have passed and failed.

Proposition 12 will assist the current study to determine whether the difference in fit of the theoretical model depicting the process of persistence, when comparing the individuals that failed with the individuals that passed, is not due to measurement non-equivalence. In general, all 12 of these research questions and propositions focus on relationships, significance of group membership, and structure (Tabachnick & Fiddel, 2001) within three different groups.

If the abovementioned research questions can be answered, there will be several benefits associated with the outcomes of the current study, as discussed in the following section.

1.8. Benefits of the current study

This study will contribute to the existing understanding of persistence in general, and specifically in terms of the following:

1. Locally, no previous study has investigated the optimal combination of fortigenic variables to enhance persistence of aspiring chartered accountants.
2. Fortigenic constructs have not yet been integrated to understand the sequential process of persistence. Previous research only investigated the various fortigenic variables separately in relation to persistence.

3. A realistic environment is used to determine the impact of fortigenic variables on persistence. The task to be completed is the passing of a Qualifying Examination. Previously, persistence research was conducted mainly in laboratory settings using puzzles as tasks to be completed.
4. The factor structures of various fortigenic variables will be validated within a South African sample. None of the chosen variables, except for sense of coherence, has been validated in a South African study using aspiring chartered accountants.
5. No previous research within the South African context has provided theory-based as well as results-based persistence enhancing interventions to individuals who have experienced non-achievement of a career goal.

In order to provide relevant and valid evidence to support the various research propositions, to answer each of the research questions, a logical and step-by-step outline of the current study may assist in understanding the remainder of this thesis.

1.9. Proposed outline of the current study

The logic of research is based on four concepts, viz: (a) the research problem, (b) the research design, (c) evidence, and (d) conclusions (Mouton, 2001, pp.113-114). In addition, Mouton (2001, p. 113) is of the opinion that *the logic of the research thesis is the logic of validation*. The logic of validation focuses on the importance that the research problem dictates the type of research design required to validly answer the research problem. In addition, the evidence obtained through the identified research design will influence the type of conclusions that can be drawn from the results. Therefore, when combining the logic of the research process and the logic of the research thesis, the following chapter outline is suggested to logically providing evidence that is based on a sound research design that may assist in drawing valid conclusions about which factors influence persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005.

- Research problem

  To fully understand the research problem, both Chapter 1 and Chapter 2 will form the basis of the reasons for conducting the current study, the theoretical rationale for the current study, the authoritative viewpoints of researchers that explored persistence, as well as the proposed theoretical model depicting the sequential

process of persistence. After reading Chapters 1 and 2, the reader will have an understanding of the research problem to be studied in the current thesis.

To provide answers to which fortigenic factors influence persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005, an appropriate research design is required to collect empirical evidence for the current study.

- Research design

Chapter 3 will provide the reader with the details of the research design employed in the current study. Emphasis is placed on both survey and statistical modelling research designs, and their associated statistical methodologies (such as structural equations modelling), which will allow the current study to evaluate each of the research propositions. In addition, Chapter 3 has three focus areas. Firstly to communicate the sample characteristics of the individuals that participated in the current study. Secondly, Chapter 3 will focus on appropriate factor structures for each of the measured fortigenic constructs that are applicable to the current sample through exploratory factor analysis. Thirdly, Chapter 3 will evaluate these identified and revalidated factor structures using confirmatory factor analysis. On the basis of the methodological evidence (both exploratory and confirmatory factor analyses), the current study will then continue to report evidence of which fortigenic factors influence persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005.

- Evidence

The evidence that the current thesis will use to draw conclusions and intervene to enhance persistence of aspiring chartered accountants is reported in Chapter 4. The evidence reported in Chapter 4 will focus on statistically describing which factors influence persistence of aspiring chartered accountants, statistically explaining which fortigenic factors influence persistence of aspiring chartered accountants, as well as statistically predicting which fortigenic factors contribute significantly to the variance in persistence.

- Conclusions

Finally, the current thesis will draw conclusions, in Chapter 5, based on the statistical evidence as to the validity of the theoretical model depicting the sequential process of persistence as well as available theory. In addition, Chapter 5 will also suggest methodological interventions to improve future research as well as practical interventions to enhance and develop persistent behaviour in aspiring chartered accountants.

1.10. Summary

The current chapter provided the context within which the current study will be conducted, which is the identification of those factors that influence persistent behaviour of aspiring chartered accountants who write Part 1 of the Qualifying Exam of SAICA. The current chapter also provided an overview of the career requirements of becoming a Chartered Accountant (SA). SIACA allows individuals to write their qualifying exam five times. Statistics regarding the failure rate of Part 1 of the Qualifying Exam also highlighted the large number of individuals who repeated the exam of SIACA. Previous research on aspiring chartered accountants and factors influencing their persistence were mentioned and critiqued for their lack of a clear process depicting persistence. The chapter then provided a justification of the use of both cognitive and emotional variables to be included when studying persistence. All these cognitive variables (locus of control, self-efficacy, optimism, hope) and emotional variables (self-esteem, resilience) were defined from a fortigenic perspective (i.e. psychological strengths perspective). The chapter concluded by stating the four aims of the current study, viz: a) describing those fortigenic factors that influence persistence, b) explaining the process of persistence using the identified fortigenic variables, c) predicting persistent behaviour under different circumstances, and d) intervening to improve the probability of aspiring chartered accountants to be persistent and pass the Qualifying Exam.

It must be noted that both Chapter 1 and Chapter 2 form a theoretical unit describing the fortigenic variables to the used in the current study. The following chapter is therefore a continuation of the description of the fortigenic variables to be used in the current study. However, Chapter 2 will emphasise empirical and theoretical evidence of the relationship between persistence and the various fortigenic variables. In

addition, Chapter 2 will also provide additional theoretically and empirical support for the suggested model depicting the sequential process of persistence.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

Chapter 1 suggested that both cognitive and emotional processes are involved in persistent behaviour. It was suggested that when feasible, both cognitive and emotional constructs be included in future research. In Chapter 1 the definitions of the various cognitive and emotional fortigenic variables to be used in the current study were provided as well as the benefits associated with persistent behaviour. Therefore, the current study includes the following cognitive fortigenic variables: personal control (consisting of both locus of control and general self-efficacy), optimism, and hope. The emotional fortigenic variables include self-esteem and resilience.

Chapter 2 will provide theoretical support and empirical evidence to three of the four aims of the current study which are (a) the description of those fortigenic variables that are related to persistence, (b) the explanation of the process of persistence, and (c) intervening to enhance persistence of aspiring chartered accountants who have failed their qualifying exam. Together with Chapter 1, the current chapter therefore provides the theoretical basis of the research problem to be investigated in the current study.

Before discussing the cognitive fortigenic variables that are related to persistence, Table 2.1 provides a summary of the studies consulted. Based on the information contained in Table 2.1, the following sections will then discuss in detail the theoretical and empirical relationships between the cognitive fortigenic variables and persistence. In addition, each section will also discuss possible interventions to enhance the specific cognitive fortigenic variables.

Table 2.1 Summary of previous research used in current study regarding the relationship between cognitive fortigenic variables and persistence

Variable	**Relationship with persistence**	**Type of study**	**Outcome of study and Strength of relationship**	**Authors**
Locus of control	Positive	Conceptual	Higher levels of persistence is associated with Internal LOC	James & Rotter, 1958
	Positive	Empirical	*t*-test results: Higher Internal LOC = Higher Persistence	Starnes & Zinser, 1983
Self-efficacy	Positive	Empirical	Higher levels of perceived competence is associated with persistence	Messick and Streufert & Streufert as cited by Chaikin, 1971
	Positive	Empirical	Higher self-confidence is related to persistence	Chaikin, 1971
	Positive	Meta-analysis	Effect size estimate of 0.34	Multon, Brown, & Lent, 1991
	Positive	Empirical/ Conceptual	Persistence is best predicted by both self-efficacy and past performance	Sexton & Tuckman, 1991
	No significant correlation	Empirical	Non-significant	Koestner & Zuckerman, 1994
	Positive	Empirical	Significant correlation of $r = 0.16$	Khan & Nauta, 2001

Table 2.1 Summary of previous research used in current study regarding the relationship between cognitive fortigenic variables and persistence (Continued)

Variable	Relationship with persistence	Type of study	Outcome of study and Strength of relationship	Authors
Hope	Positive	Empirical	Higher levels of hope are associated with persistence on career goals	Woodburry as cited by Snyder, 2002
	Positive	Conceptual	Use feedback from failure to improve persistence-related thoughts and strategies for future situations	Snyder, 1999; 2002
	Positive	Conceptual	High hope individuals create more pathways to achieve goals if previous strategies failed	Snyder, 1994
	Positive	Conceptual/ Empirical	High hope students stay longer on tasks	Onwuegbuzie & Snyder, 2000
Optimism – Attributional Style	Positive	Empirical	Pessimists are twice as likely as optimists to quit	Seligman & Schulman, 1986
	Positive	Empirical	Optimistic explanatory style is associated with persistence – multiple regression results	Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990
	Positive	Empirical	Significant correlation of 0.42 between persistence and optimism (as measured by the Life Orientation Test)	Lufi & Cohen, 1987

The following two sections provide support for the relationship between persistence and the cognitive fortigenic variable locus of control together with possible interventions to enhance perceptions of control.

2.2. The locus of control component of personal control (Cognitive fortigenic variable)

It was previously stated that perceived personal control is a combination of internal locus of control (i.e. what I achieve is dependent upon my own action) and self-efficacy (i.e. I have the ability to take effective action) (Thompson, 2005, p.205). The following section focuses on locus of control and its empirical relationship with persistence. Two empirical studies form the basis of the discussion.

2.2.1. Relationship between persistence and locus of control (LOC)

From two studies on the relationship between locus of control and persistence (James & Rotter, 1958; Starnes & Zinser, 1983) evidence seems to suggest that there is a positive relationship between internal locus of control and persistence. Both these studies tested this relationship in laboratory settings. For example the Starnes and Zinser study (1983) used 120 undergraduate students to participate in the experiment to evaluate their levels of persistence when faced with a difficult task. Based on the results of a t-test, it was concluded that participants with an internal locus of control persisted with the task. External locus of control individuals perceived no relationship between their behaviours and consequences. These two outcomes can be explained by the fact that individuals with internal locus of control perceive a relationship between their efforts and outcomes of their efforts in completing a task. External locus of control individuals perceives no relationship between how many times they attempt to complete a task and the associated outcomes (James & Rotter, 1954).

It is therefore suggested that individuals with an internal locus of control are more persistent when they experience setbacks.

Due to the assumption that locus of control is a psychological state, the following section explores interventions to enhance perceptions of control of aspiring chartered accountants.

2.2.2. Interventions to enhance perceived personal control and locus of control

It was suggested that perceived personal control consists of the two components viz: a) locus of control and b) self-efficacy. The current section deals separately with specific perceived personal control and locus of control interventions. Interventions to enhance self-efficacy are discussed later in this chapter.

There are three broad categories of interventions to enhance personal control as well as internal locus of control. The first category focuses on developing effective stress-reduction and coping skills. The second category focuses on interventions to deal with challenging situations with a degree of control. The third and final category emphasises interventions that either assist the individual to influence or change the situation that may cause some discomfort. Each of these three categories is discussed below.

a) Interventions to develop effective stress-reduction and coping skills.

Thompson (2005, pp. 208-209) suggested that control perceptions can be enhanced through a) developing stress-reduction and coping skills, and b) direct participation in treatment or treatment decisions (i.e. therapeutic decisions). Through the enhancement of stress-reduction and coping skills (i.e. cognitive behavioural therapeutic interventions), aspiring chartered accountants may be assisted in dealing effectively with challenges – such as writing Part 1 of the Qualifying Exam. These positive experiences in successfully dealing with the latter may enhance their sense of control. Control perceptions may also be enhanced through active participation in the advice and strategies suggested to enhance control. Aspiring chartered accountants are expected to participate in reading up on the strategies, vicariously learning these strategies by observing other chartered accountants who have successfully dealt with Part 1 of the Qualifying Exam. Emphasis is therefore placed on identifying controllable and uncontrollable events. In addition to these two general strategies, the following three strategies may also enhance perceived personal control (Thompson, 2005, pp. 208-209).

b) Interventions to develop personal control when dealing with challenging situations.

Thompson and Wierson (2000) suggested three strategies to maintain perceived control during situations that may be challenging and difficult. These three strategies

are a) changing individual goals that are more achievable, b) developing new areas of personal control, and c) accepting current circumstances. Firstly, aspiring chartered accountants may enhance their levels of perceived personal control by changing their goals to more achievable goals. When the goal set by the aspiring chartered accountants is too difficult to attain, it is possible for the individual to enhance his/her levels of perceived personal control by identifying alternative goals that are more attainable. Emphasis is however not placed on relinquishing goals at the first experience of loss of control due to non attainment. Emphasis is however placed on flexibility by the individual in terms of both goals and strategies to achieve those goals. It may be beneficial to change the strategy of achieving the goal (as suggested through pathways thinking in hope theory) rather than relinquishing the goal itself (Snyder, 1991, 1994, 1995, 1999, 2002).

Secondly, individuals may experience a lack of personal control in some areas in their lives. However, they do have control over the remaining areas in their lives, such as attitude and information gathering. For instance, the aspiring chartered accountant may not have control over the level of difficulty of the qualifying exam, or the type of questions that will be asked (Thompson et al., 2000). However, the aspiring chartered accountant does have control over his/her attitude towards the qualifying exam, as well as information to be obtained in how to prepare for the exam, by working through examples, etc. Another area of control may be social support. The individual can join a support group that has similar experiences as the individual. Through these social support groups, the individual starts developing alternative areas of perceived personal control by sharing with and learning from others (Thompson et al., 2000).

Finally, accepting that there may be circumstances that may not be controllable by the aspiring chartered accountant, the best strategy is to accept the circumstances. The latter assists the individual in feeling less of a victim and increases levels of perceived personal control through the making of a conscious decision to accept the situation. Focus is therefore placed on the meaning of and positive outcomes associated with not being able to control the current situation – such as not passing Part 1 of the Qualifying Exam (Thompson et al., 2000).

c) Interventions aimed at influencing or changing the environment.

In addition to the interventions suggested by Thompson et al. (2000), Rothbaum, Weisz, and Snyder (1982) suggested the individual can focus on primary and

secondary forms of control. Primary control refers to an individual changing his/her behaviour to change the situation. Thus, the individual is able to change the situation in order to achieve set goals. In contrast, secondary control emphasises strategies used by the individual to influence his/her situation. Secondary control focuses on the individual's ability to accept that certain circumstances cannot be changed. When aspiring chartered accountants can accept that little control over the situation (e.g. Qualifying Exam) is possible, they may be assisted in identifying the benefits and advantages in their current circumstances. Therefore, the aspiring chartered accountant may change his or her expectations of success, change his/her attributions of success (which is the focus of an optimistic explanatory style), relying on luck or powerful others (which are two components of locus of control), or deriving meaning from the situation (which is a component of sense of coherence) (Rothbaum et al., 1982).

With an overview of the various interventions to enhance locus of control, the second component of personal, which is self-efficacy, is discussed in the following section together with interventions to enhance self-efficacy in aspiring chartered accountants.

2.3. The self-efficacy component of personal control (Cognitive fortigenic variable)

According to self-efficacy theory, two types of expectancies determine behavioural change, viz: (a) outcome expectancies and (b) efficacy expectancies (Bandura, 1982). Outcome expectancies relate to the probability that the specified behaviour will lead to the specific desired outcome. In addition to outcome expectancies, efficacy expectations relate to an individual's belief that he has the capacity to exhibit the desired behaviour. Bandura (1977) was of the opinion that efficacy expectations had a greater impact on behaviour than outcome expectancies. Thus, self-efficacy refers to a person's belief that he/she is competent at producing the behaviour in question (Bandura, 1977). Self-efficacy emphasises the individual's perception as to whether the individual can perform the behaviour necessary in a specific situation – the capacity to act (Snyder, 2002, p. 258). Snyder (as cited by Carifio et al., 2002, p. 126) is of the opinion that low self-efficacy may be the result of low levels of hope and/or the inadequate number of alternative strategies for solving problems. This will be elaborated on in the discussion of hope.

Whereas self-efficacy theory focuses on outcome and efficacy expectations, control theory (Carver & Scheier as cited by Jacobs, Prentice-Dunn, & Rogers, 1984, p. 334) suggests that there are two antecedent conditions required for expectancies to exist, viz: an individual's conscious attention on (a) the environment, and (b) the self (i.e. self-awareness). Self-aware individuals are more aware of social norms and standards regarding behaviour and emotions. A high self-aware individual may therefore be aware of the fact that there may be a discrepancy between current behaviour and salient social standards and norms. The individual will then try to rectify this discrepancy between behaviour and the social norm (Jacobs et al., 1984, pp. 334-335). In addition to these two antecedent conditions, control theory also suggests that persistence will be influenced by two factors, viz: (a) degree of self-awareness and (b) the expectancy of capacity to complete the task (i.e. self-efficacy) (Carver, Blaney, & Scheier as cited by Jacobs et al., 1984, p. 335). These researchers hypothesised that high self-aware individuals will be aware of the discrepancy between their behaviour (i.e. failure) and the social standard (success) and try to rectify this discrepancy. In addition, these researchers hypothesised that high self-aware individuals with positive expectancies (i.e. self-efficacy) will persist longer. Both these hypotheses were confirmed by the research study conducted by Carver et al (1979). As stated earlier, self-awareness focuses the individual's attention on both the standards of behaviour and emotions. It is suggested that during events with a strong emotional component, high self-aware individuals may focus on the emotion, either positive or negative, rather than on the personal or social standards. It is suggested that this strong focus on emotion may be the result of increased self-awareness overriding the effect of efficacy expectations (Jacobs et al., 1984, p. 345).

The importance of self-efficacy in self-regulating behaviour is discussed in the following section.

2.3.1. The role of self-efficacy in self-regulation

Bandura's social cognitive theory and self-efficacy theory (1977, 1986, 1997) assumes that individuals do have the ability to self-regulate and initiate change. This self-regulation provides information on how individuals pursue their goals and guide their behaviours in achieving those goals. Self-regulation depends on three interacting components, viz: a) goals and standards of individual performance, b) self-evaluating

statements about performance, and c) self-efficacy beliefs (Bandura, 1986, 1997). Each of these interacting components of self-regulation is discussed below. The importance of self-efficacy's impact on persistence becomes clearer in this discussion. Firstly, individuals self-regulate their behaviours, thoughts, and emotions to achieve the goals that they have set for themselves. These goals assist individuals to set themselves standards against which they evaluate themselves, as well as their progress towards their goals in terms of their abilities (Snyder et al., 2005). Secondly, during the evaluation of an individual's progress towards the goal, the individual is likely to develop certain beliefs about his/her progress and efficacy. The individual thus engages in self-evaluative thinking (i.e. self-esteem). These self-evaluative reactions manifest themselves in certain types of emotions (e.g. anxiety). The latter negatively impacts the cognitive and behavioural evaluations of individuals that are likely to hinder their progress towards the stated goal. Individuals with high levels of self-efficacy in goal achievement are less likely to experience extreme negative emotions that in turn influence effective self-regulation towards goal achievement. Finally, self-efficacy beliefs influence self-regulation in the following ways (Maddux, 2005). Self-efficacy therefore influences the goals that individuals are likely to set for themselves. The more self-efficacious the individual is within a given domain (e.g. accountancy), the higher the goal will be (e.g. passing the exam within two attempts). In addition to influencing the choice of goals, self-efficacy beliefs also influence the individual's levels of effort and persistence when faced with challenges and obstacles when trying to achieve goals (Bandura, 1986; Locke & Latham, 1990; Maddux, 2005). Thus, individuals with high levels of self-efficacy beliefs are relatively resistant to disruptions and setbacks that may influence their self-regulation and are therefore more persistent. Individuals with high self-efficacy beliefs are more able to regulate their emotional responses to setbacks and challenges, which positively impacts their self-regulation behaviours. Persistence eventually leads to the achievement of the set goal, which in turn positively influences self-efficacy beliefs.

The following section reports empirical evidence supporting the relationship between self-efficacy and persistence.

2.3.2. Relationship between persistence and self-efficacy

To provide support for the relationship between self-efficacy and persistence, the following section discusses four studies that investigated this relationship.

According to Multon, Brown, and Lent (1991), it is important to define the term persistence when investigating its relationship with self-efficacy. They found that when persistence was defined as time spent on the task, self-efficacy accounted for only 17% of the total variance. However, when persistence was defined as the number of attempts made to complete a task, self-efficacy accounted for 48% of the total variance. For this reason, persistence will be defined as the number of attempted qualifying examinations.

Another study (Sexton & Tuckman, 1991) attempted to determine the relationship between self-efficacy and persistence, as well as immediate past performance and persistence. This latter study concluded that persistence is best predicted by a combination of both self-efficacy and past performance on a task. Continued experience with the task suggests that consequences of previous responses are the best predictor of persistence. Therefore, individuals also perceive a relationship between their skills and the behavioural outcomes. Both these two studies were conducted in laboratory settings.

A meta-analytical study, based on 36 studies, was conducted to examine the relationship between self-efficacy and academic persistence (Multon, Brown et al., 1991). Evidence from this meta-analysis suggests that participants with high self-efficacy persisted more than participants low on self-efficacy. A significant effect size estimate of 0.34 was reported for the relationship between persistence and self-efficacy (Multon, Brown et al., 1991, p. 34). Evidence from this meta-analysis suggested that participants with high self-efficacy persisted more than participants low on self-efficacy.

In contrast to the previous two studies' significant positive correlations, a study conducted by Koestner and Zuckerman (1994) found no significant correlations. They used a sample of 166 college students.

Building on the positive relationship between self-efficacy and persistence of the first two studies, Khan and Nauta (2001) used a sample of 400 college students to determine if self-efficacy was related to their academic persistence. They found a statistically significant relationship of $r = 0.16$ (Khan et al., 2001, p. 641).

In another study it was posited that low self-efficacy scores could be a result of low levels of hope and/or inadequate repertoires of strategies for solving problems (Carifio & Rhodes, 2002; Snyder et al, 1991). The latter assumption will be discussed later in the current chapter.

In general, there appears to be support for the relationship between self-efficacy and persistence (Multon, Brown, et al, 1991). Individuals with higher levels of self-efficacy should be more persistent than individuals with lower levels of self-efficacy.

Due to the assumption that self-efficacy is a psychological state that can be enhanced, the following section explores various interventions to develop aspiring chartered accounts' levels of self-efficacy.

2.3.3. Interventions to enhance self-efficacy

Maddux (2005, pp. 282-284) suggested that the following interventions can be used to enhance self-efficacy.

2.3.3.1. Increase probability of performance experiences

In order to enhance the probability of success, and thus increasing the individual's levels of self-efficacy, mastery experiences are required. The latter is facilitated by allowing the individual to experience successful coping during challenging situations. Mastery experiences are more likely to occur when the goals set by the individual are specific, concrete, and short-range. Therefore, aspiring chartered accountants may have to focus on learning goals rather than on performance goals (Seitjs & Latham, 2005). It is suggested that a learning goal focuses an individual's attention on the acquisition of knowledge and specific skills (e.g. I want to master the skills and knowledge to become a chartered accountant). In contrast, a performance goal is only focused on performance (e.g. I must pass Part 1 of the Qualifying Exam on my first attempt). Thus, an aspiring chartered accountant may enhance his/her mastery experiences of coping with the qualifying exam by setting specific learning goals that are concrete and focus on the short-term aspects of preparing for the qualifying exam (Latham et al., 2005; Maddux, 2005).

2.3.3.2. Verbal persuasion

By using cognitive behavioural therapy (discussed at the end of this chapter), the psychologist can engage with the aspiring chartered accountant regarding his/her irrational beliefs about failing the qualifying exam, dysfunctional attitudes associated with failing, and unrealistic expectancies. The verbal persuasion, in the form of challenging irrational beliefs, helps the individual to see and experience the irrationality and self-defeating nature of these beliefs about failing the qualifying exam. During these verbal persuasion sessions, the psychologist assists the individual to adopt new, rational, and self-helping beliefs (Maddux, 2005).

2.3.3.3. Vicarious learning and vicarious experiences

In addition to learning new coping skills and new rational beliefs about themselves, aspiring chartered accountants can also learn how to be successful in coping and passing the qualifying exam by observing how other individuals have passed and coped successfully with the qualifying exam. Thus, the individual may mimic the behaviours exhibited by successful candidates who have failed the qualifying exam, but persisted and passed the latter exam successfully. Identifying a mentor and participating in mentorship programmes may be a form of vicarious learning of how to successfully complete the qualifying exam. In addition to individual-based vicarious learning, the individual may also participate in group-based learning experiences. In such cases the individual may become part of a support group of candidates who have failed the qualifying exam with assistance of individuals who have also failed the qualifying exam but passed it during subsequent attempts. The group thus facilitates sharing ideas and strategies on how to prepare, cope, and successfully passing the qualifying exam (Maddux, 2005).

2.3.3.4. Imaginable experiences

The qualifying exam may be assumed to be a stressful situation due to the impact of not passing it on an individual's earning potential and type of future employment. It is assumed that individuals will react anxiously to this exam. It may be possible to enhance an aspiring chartered accountant's levels of self-efficacy by modifying his/her images of anxiety when writing the qualifying exam. The individual can be assisted in imagining how he/she successfully copes with the anxiety of preparing for and writing the qualifying exam. Thus, the individual must imagine a future self that

successfully deals with the challenging situation (i.e. qualifying exam). By using this technique, the individual may gain a sense of control over the qualifying exam by imagining how he/she effectively deals with that situation. Cognitive and hypnotherapy may be useful mediums to facilitate the identification of a future self that successfully engages with the qualifying exam (Maddux, 2005).

2.3.3.5. Dealing with physiological and emotional states

The previous intervention, imaginable experiences, focused on how the aspiring chartered accountant can successfully deal with the qualifying exam by imagining what he/she may require to cope and pass the qualifying exam. Associated with that intervention, the aspiring chartered accountant must successfully deal with his/her emotions. Thus, an individual may feel more self-efficacious when he/she is calm and less anxious about the coming qualifying exam. In order to successfully deal with these emotions, the individual can be assisted by the psychologist to develop strategies to control and reduce the negative impact of emotions on self-efficacy beliefs. Some of these strategies include hypnosis, relaxation training, meditation, and medication. By successfully dealing with the emotions associated with the qualifying exam, the individual may experience more control and self-efficacy about his/her behaviours to deal with these emotions in a constructive manner that facilitates the possibility of successfully passing the qualifying exam (Maddux, 2005).

2.3.3.6. Viewing competence as incremental

During the discussion of the first intervention to enhance self-efficacy, increasing the probability of performance experiences, the concept of mastery experiences was briefly mentioned. In order for the individual to profit from these mastery experiences, it is crucial that the individual understands that mastery experiences – and thus developing competence – can only be achieved through effort and experience (Seijts et al., 2005). Developing competence to successfully deal with the emotional and technical aspects of writing the qualifying exam, the aspiring chartered accountant must view competence as a set of skills (i.e. technical and psychological) that must be used during the qualifying exam. In addition, it is suggested that the aspiring chartered accountant view the development of this competence as a long-term future goal, consisting of short-term incremental goals (Simons, Vansteenkiste, & Lens, & Lacante, 2004) that are based on intrinsic motivation and self-worth together

within a supportive environment (Pelletier, Fortier, Vallerand, & Brière, 2002; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). This incremental perspective may assist the individual to persist when faced with challenging situations – such as the qualifying exam (Dweck, 2000; Valle, Cabanach, Núñez, González-Pienda, Rodríguez, & Piñeiro, 2003).

2.3.3.7. Changing causal attributions

Attributions are given to both positive and negative outcomes experienced by individuals. The range of attributions to these outcomes will be discussed under the fortigenic construct optimism and pessimism – both of which are explanatory styles used by the individual. These causal attributions influence self-efficacy (Maddux, 1999). For this reason the aspiring chartered accountant may attribute success to his/her own behaviours and efforts rather than the environment or other individuals (Fosterling, 1986; Thompson, 1991). Thus, it is therefore important to include both interventions dealing with optimism/pessimism and self-efficacy.

2.3.3.8. Encouraging minor distortions

From the discussion on the previous types of interventions, it is therefore possible to enhance the levels of self-efficacy of aspiring chartered accountants who are low on self-efficacy. By assisting these individuals with low self-efficacy to believe that they are more competent than they believe they are (based on their own subjective observations), they can be motivated to take action that may lead to an increase in self-efficacy and success (Maddux, 2005).

It was suggested in the previous section that attributions are given to both positive and negative outcomes experienced by individuals. These causal attributions influence self-efficacy (Maddux, 1999). When an individual has to attribute reasons to success or failure, an explanatory style is used. This explanatory style determines whether or not the aspiring chartered accountant is optimistic, which is discussed in the following section. Interventions to develop an optimistic explanatory style are also explored.

2.4. Optimistic explanatory style (Cognitive fortigenic variable)

In general, there are two approaches to understand the differences between optimism and pessimism. The first approach focuses on the role that past causes of events play

in future expectations. The second approach emphasises the role of attributional style to explain the reasons for both positive and negative outcomes.

2.4.1. Expectancy approach to optimism

Optimism focuses on an individual's expectations regarding the future (Carver et al., 2003; Carver et al., 2005; Peterson & Seligman, 1984; Seligman, 1991). It is thus possible for the individual to have certain expectations regarding his/her future that are based on past experiences – hence the theoretical and conceptual relationship with locus of control (Stajkovic et al., 2003, p. 132). When explanations about past failures focus on stable causes of failure, it is highly likely that the individual will have negative expectations of future outcomes in a similar situation. In contrast, when explanations about past failures focus on unstable (i.e. temporary) causes, it is highly likely for the individual to have positive expectations of future outcomes in a similar situation. If the explanations for past failures are global (i.e. applies to all areas of the individual's life), the expectancy of future outcomes, across many different areas, will be negative. The reason for the latter is that global reasons for failure are everywhere. When these explanations are specific, the future expectations are more positive because the reasons for the past failure are not applicable to the current situation (Peterson et al., 1984; Seligman, 1991). While the above theory of optimism emphasises the role of expectancy to determine whether an individual is likely to be optimistic or pessimistic, attributional/explanatory style is another approach to be used to understand the difference between optimism and pessimism.

2.4.2. Attributional/explanatory style approach to optimism

The attributional/explanatory style approach to optimism stems from research conducted on learned optimism (also known as learned helplessness) (Maier & Seligman, 1976; Overmier & Seligman, 1967, Seligman & Maier, 1967). In order to apply the learned helplessness model, the latter model was combined with attribution theory (Abramson, Seligman, & Teasdale, 1978, Kelly, 1973). This revised theory suggested that individuals ask themselves the question "why do bad, uncontrollable events happen?" Thus, an individual's expectations about the response-outcome independence are the proximal cause of helplessness (Peterson et al., 2005, p. 247). In a study conducted by Peterson and De Avila (1995), it was found that a positive

explanatory style was associated with the belief that good health can be controlled (i.e. linked with locus of control and perceived personal control).

When individuals experience both positive and negative outcomes in their lives, they have to provide an explanation for these outcomes. Optimists provide explanations to events (specifically negative/bad events) that are temporary, specific, and external. Thus, failing to achieve a goal the optimists is more likely to attribute this goal non-attainment to external reasons (i.e. caused by other people or situations), the non-attainment of the goal is just temporary, and finally that not achieving the current goal is just specific to the current situation. The latter is thus not generalised to all areas of the individual's life. In contrasts, pessimists are more likely to attribute the non-attainment of a goal to stable, internal, and global causes. Thus, failing to achieve a goal the pessimist is more likely to attribute this goal non-attainment to internal reasons (i.e. lack of skills, bad person, etc.), the non-attainment of the goal is stable (i.e. the goal will never be achieved), and is generalised to all areas of the individual's life (i.e. it is not just in this one area that failure is stable and general) (Abramson et al., 1978). The stability of the causes of the negative event is related to the duration of the feelings of helplessness. The globality of the causes of the negative event is related to the generalisation of helplessness to other areas of the individual's life. Finally, the internality of the causes of the negative event is related to self-esteem and depression. Optimists and pessimist do have different expectations regarding the future. Individuals using a pessimistic explanatory style is more likely to view the future as uncontrollable and thus increasing their levels of helplessness. Optimists are more likely to view the future and its outcomes to be more controllable, resulting in more resilient behaviour (Abramson et al., 1978; Snyder et al., 2003).
The following section discusses the results of two studies that explored the assumed relationship between attributional style (i.e. optimism) and persistence. One study is briefly mentioned that used a different questionnaire that measured optimism and its relationship with persistence.

2.4.3. Relationship between persistence and optimism

Research on the relationship between persistence and optimism explored the relationship between attributional style and persistence (Seligman & Schulman, 1986; Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990).

Seligman and Schulman (1986) used a sample of swimmers (n = 46). They reported that pessimists were twice as likely as optimists to quit (59 dropouts versus 42 survivors). In addition, they found that pessimists scored in the bottom half of the Attributional Style Questionnaire's dimension on negative events, thus using a pessimistic explanatory style (Seligman et al, 1986). From this reported study, optimists attributed their failure to temporary, specific, and external events, while pessimists make stable, global, and internal explanations for failure. Emphasis is thus on cognitive styles flowing from levels of optimism and pessimism.

Building on the positive relationship between attributional style and persistence, Seligman, Nolen-Hoeksema and their colleagues (1990) conducted another study using a sample of sales representatives (n = 101). The research evidence, based on multiple regression results, suggested that optimism is associated with persistence (Seligman et al, 1990).

In addition to the previous two studies, Lufi and Cohen (1987) conducted a study on the influence of optimism (as measured by the Life Orientation Test) and persistence. They reported a statistically significant correlation of 0.42 using a group of 50 child-gymnasts (Lufi et al., 1987, p. 182).

Based on the reported evidence based on these three studies, there seems to be support for the relationship between optimism and persistence. Therefore, individuals who are more optimistic seem to be more persistent in different tasks.

If it is assumed that an explanatory style to optimism is based on an individual's cognitive styles, then it may be possible to change these perceptions through interventions.

2.4.4. Interventions to enhance optimism

Schulman (1999, p. 34) stated that pessimistic cognitive styles can be changed by using cognitive retraining techniques. The latter assists the individual to learn to overcome pessimistic, self-defeating beliefs. In addition to these self-defeating beliefs, the individual may also experience irrational assumptions (e.g. To be a successful chartered accountant, I must do everything perfectly – and pass the qualifying exam with the highest marks). Errors in logic may also be characterised by an individual with low levels of optimism. For example the individual may focus on

either overstressing the negatives of why he/she did not pass the qualifying exam and minimise the strengths that he/she has to persist (Seligman, 1991, Schulman, 1999).

In order to change the pessimistic explanatory style of aspiring chartered accountants, the following steps can be followed (Schulman, 1991; Ellis, 2001):

1. Assist the individual to identify the self-defeating beliefs that he/she may or may not be aware of. In addition, it is important to identify the trigger (e.g. failing Part 1 of the Qualifying Exam) that initiated these pessimistic thoughts (Schulman, 1991).
2. The individual must obtain evidence in order to evaluate the accuracy and applicability of the self-defeating thoughts that are triggered by the event. The purpose is therefore to determine whether or not there is objective evidence to support or refute the pessimistic belief (about failing Part 1 of the Qualifying Exam). Emphasis is thus placed on objective information gathering (Schulman, 1991).
3. During the final step, the individual is assisted in replacing the negative and irrational beliefs with more accurate and constructive thoughts (Schulman, 1991).

The above three steps are similar to the A-B-C-framework suggested by Ellis (2001). This framework is discussed at the end of Chapter 2 as a general framework for enhancing the fortigenic variables in aspiring chartered accountants as discussed in Chapter 1 and Chapter 2.

It was previously mentioned that optimism as a cognitive psychological construct has been defined as *hopeful expectations in a given situation* (Scheier & Carver, 1988 as cited by Scheier et al., 2003, p. 57). However, optimism and hope are not the same psychological constructs. The cognitive fortigenic variable hope is discussed in the following section emphasising the construct's relationship with persistence as well as interventions to enhance aspiring chartered accountants' levels of hope.

2.5. Hope (Cognitive fortigenic variable)

It was previously stated that hope is primarily a way of thinking – focusing on the cognitive (Snyder, 2002, p. 249). Individuals are likely to think in terms of goals and how to develop routes to attain those goals. Hope can thus be defined as *a positive*

motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals) (Snyder, Irving, & Anderson, 1991, p. 287). Hopeful thinking thus requires both pathways and agency thinking. Thus, hope is only possible if the individual has confidence in his/her ability to produce multiple routes to achieve a specific goal, as well as the necessary motivation to use these different routes to achieve the stated goal.

Hope theory is based on the goal-directed thought processes of individuals. Individuals have goals and develop certain strategies to achieve those goals. In addition to these strategies, individuals also have the motivational levels in using these strategies (Snyder, 1994, 1995, 1999, 2002; Snyder, Rand, & Sigmon, 2005). Individuals with similar talents are likely to perform differently, due to their levels of hope, when they are faced with stressful situations. High hope individuals adapt better to stressful situations due to the assumption that they are able to develop multiple strategies (i.e. pathways) to successfully achieve their goals and initiate and continue on the chosen strategy (i.e. agency) (Curry & Snyder, 2000). In addition, hopeful thinking blocks self-defeating thoughts (i.e. self-rumination during low levels of self-esteem) and assist individuals to stick to the task and persist (Snyder, 1999).

When confronting stressful situations (in the form of not achieving a stated goal), hope facilitates the individual's ability to find alternative paths to still achieve the goal, as well as being motivated to using those paths. In essence, the individual chooses the most appropriate path to still achieve his/her goal (Snyder, 1994, 1995, 1999, 2002; Snyder et al., 2005). Thus, high levels of hope facilitate successful goal attainment and persistence. This successful pursuit of goals is also associated with higher levels of self-esteem and well-being (Snyder, Feldman, et al., 2000). According to Snyder et al (1991) low self-efficacy scores could be a result of low levels of hope as well as a limited range of abilities (i.e. pathways) to solve problems when faced with challenging situations.

The following two sections discuss both the pathways and agency components related to hope theory in more detail.

2.5.1. Pathways thinking

Theory on pathways thinking emphasises an individual's ability to produce alternative routes to a stated goal when the goal-achievement is being impeded. Pathways

thinking also include the positive self-talk about being able to produce alternative routes to the desired goal (Lopez et al., 2003, p. 94, Snyder et al., 2005). Pathways thinking become important when individuals are faced with goal blockages (e.g. failing Part 1 of the Qualifying Exam). High-hope individuals are more likely to produce more than one pathway of reaching a particular goal, with a sense of confidence in that route. High-hope individuals would be more decisive about their pathways for their goals (Snyder et al., 2005). This has been supported for career goals (Woodbury, 1999). Thus, high-hope individuals should be good at producing alternative routes to attain their goals – especially during impeding circumstances. High-hope individuals have described themselves as flexible thinkers (Snyder, 2002, p. 251). Low-hope individuals may find pathways thinking to be exhausting and not well articulated. Low-hope individuals should be unlikely to develop alternate routes to attain their goals (Snyder, 2002, p. 251).

2.5.2. Agency thinking

The motivational component in hope theory resides with agency thinking (Snyder, 2002, p. 251, Snyder et al., 2005). Individuals must have the perceived capacity to use one of their multiple pathways to achieve their goals. The individual must be motivated to use these alternative pathways to achieve the goals when the latter are being blocked. Thus, it involves the cognitive energy to begin and continue using a pathway. This is especially important if individuals are faced with goal blockages – agency thinking helps individuals to direct their motivation to the most appropriate/alternative pathway (Snyder, 2002, p. 251, Snyder et al., 2005). In order to direct their motivation to alternative pathways, high-hope individuals are more likely to engage in agentic personal self-talk phrases (e.g. I will not give up) (Lopez et al., 2003, p. 103).

2.5.3. Hope, goal non-attainment, and emotions

The non-attainment of a set goal can be viewed as a barrier. Such a situation can impact an individual's agency thinking. However, theoretically it is predicted that high-hope individuals will rebound faster after the initial setback than low-hope individuals. This relationship has not yet been tested (Snyder, 2002, p. 252). Snyder's hope theory thus incorporates both emotions and cognitions (Snyder, 1994, Snyder et al., 1991). When individuals experience barriers to goals that they have set, they

experience these barriers as stressful. *Goal-pursuit cognitions cause* emotions (Snyder et al., 2005, p. 259). Positive emotions are experienced on the basis of the individual's past experiences of successful goal pursuit. Negative emotions are more likely to be experienced by individuals who experienced unsuccessful goal pursuits in the past. The non-attainment of a set goal can thus be the cause of negative emotions. Such a setback may confirm doubts about abilities and uncertain control (Martin & Marsh, 2003, p. 31). These emotions will differ between high-hope and low-hope individuals. High-hope individuals will have more positive emotions as contrasted by low-hope individuals who will have negative emotions (Snyder, 2002, p. 252, Snyder et al., 2005). The non-attainment of a set goal can be viewed as stressful. However, the high-hope individual will view the blockage (although initially stressful) as being less stressful during their subsequent thoughts about the blockage (Snyder, 2002, p. 253, Snyder et al., 2005). This may be due to the influence of alternative pathways and positive agency thoughts. In contrast, the low-hope individual may use the feedback from the blockage to produce self-doubt. In contrast, the high-hope individual is more likely to use the feedback from non-attainment of a set goal to improve their pathways thinking and agency thinking should the same situation be encountered again in the future (Snyder, 2002, p. 255).

2.5.4. Global hope

Global hope refers to an individual's overall evaluation of his/her ability to construct pathways and generate the motivation (agency) to achieve set goals (Snyder, 1995). The focus is on the ability to achieve goals in general. It is therefore possible to have high global hope, but the same ability to generate agency and pathways within a particular domain is low. It is necessary to identify domain-specific hope beliefs.

2.5.5. Domain-specific hope

It is possible for an individual who is high on global hope to be high on domain-specific hope as well (Snyder, 1995). However, this may not always be the case. Individuals may be hopeful in general, but display low hope in a specific domain in life. For instance, an individual who wrote and failed Part 1 of the Qualifying Exam may be hopeful in general, but may be less hopeful about being able to understand and master the auditing section of the total qualifying exam

2.5.6. Goal-specific hope

When an individual is high on both global and domain-specific hope (i.e. mathematics/accountancy) but may perceive to be unable to reach a specific goal (qualifying as a Chartered Accountant (SA)), goal-specific hope needs exploring (Snyder, 1995). Another perspective is to view goals as the product of value, interest, and hope (Value x Interest x Hope = Goal Choice) (Snyder et al., 2002). The choice to pursue a specific goal is determined by the value (i.e. importance) the candidate places on achieving the goal, the interest of the candidate in the goal, as well as hope. If any of these variables are low, it is possible for the candidate to stop pursuing the goal.

2.5.7. Attachment and challenge in developing hope

It is possible to use counselling to increase an individual's level of hope (Snyder 1995, Snyder et al., 2002). Thus hope can be learned – linking it with the positive approach to organisational behaviour (Luthans, 2002a, 2002b). It is therefore suggested that a trusting connection with another significant person is important to developing hope (Snyder et al., 2002). Developing a secure attachment to such a person becomes important. Having a secure attachment empowers the individual to pursue challenging goals, even when experiencing obstacles. The individual may want to succeed and is capable of succeeding, but may not believe he/she will succeed. To understand this will to succeed, the construct of optimism must be taken into consideration. It was previously stated that individuals may be hopeful but not optimistic (Carifio et al., 2002, p. 127).

The following section reports the results of several conceptual and empirical studies that explored the relationship between hope and persistence.

2.5.8. Relationship between persistence and hope

Theoretical assumptions and empirical research examining the relationship between persistence and hope has focused on hope and career goals (Woodburry as cited by Snyder, 2002), the influence of hope on goal non-attainment (Snyder, 1999, 2002), pathways thinking and agency thinking on goal setting and attainment (Snyder, 1994), hope and the consideration of barriers (Snyder, 2002), and hope and staying on tasks (Onwuegbuzie & Snyder, 2000).

Hopeful thinking requires both pathways and agency thinking. High-hope individuals are more likely to produce more than one pathway of reaching a particular goal, with a sense of confidence in that route. High-hope individuals would be more decisive about their pathways for their goals. This has been supported for career goals (Woodbury, 1999). Thus, high-hope individuals should be good at producing alternative routes to attain their goals – especially during impeding circumstances.
High-hope individuals have described themselves as flexible thinkers (Snyder, 2002, p. 251). Low-hope individuals may find pathways thinking to be exhausting and not well articulated. Low-hope individuals should be unlikely to develop alternate routes to attain their goals (Snyder, 2002, p. 251). The motivational component in hope theory resides with agency thinking (Snyder, 2002, p. 251). It involves the cognitive energy to begin and continue using a pathway. This is especially important if individuals are faced with goal blockages – agency thinking helps individuals to direct their motivation to the most appropriate/alternative pathway (Snyder, 2002, p. 251).
High hope individuals were more decisive about their pathways (Woodburry, 1999). Snyder (1999, 2002) posited that high-hope individuals were better at using feedback from failure to improve their goal pursuit thoughts and strategies for similar future situations. Low-hope individuals can use negative feedback to produce rumination and self-doubt (instead of improving strategies for future situations). High-hope individuals generated more alternative strategies (pathways thinking) to achieve their goals (agency thinking motivates individuals to channel their motivation to alternative pathways) (Snyder, 1994). High-hope students stayed longer on tasks (due to multiple pathways and agency thinking). High-hope students should not be prone to self-depreciatory thinking and negative emotions (Onwuegbuzie et al, 2000). There is also evidence supporting the assumption that hope effects self-esteem (Snyder, Cheavens, & Michael, 1999).

Due to the assumption that hope is a psychological state, the following section explores several interventions to enhance the levels of hope of aspiring chartered accountants who fail Part 1 of the Qualifying Exam.

2.5.9. Interventions to enhance hope

According to Lopez, Floyd, et al (as cited in Lopez, Snyder, Magyar-Moe, et al, 2004, p. 393), the purpose of hope-enhancement strategies *are designed to help clients in*

conceptualizing clearer goals, producing numerous pathways to attainment, summoning the mental energy to maintain the goal pursuit, and reframing insurmountable obstacles as challenges to be overcome. The hopeful therapeutic relationship facilitates these hope components. Interventions to enhance hope have been associated with an increase in positive emotions and a decrease in negative emotions. Some of these emotions include higher levels of confidence (i.e. self-efficacy), higher levels of self-worth (i.e. self-esteem), and lower levels of depression (Snyder et al., 2005).

As was stated previously, hope can be viewed as a state – thus a temporary frame of mind (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 390). Based on this viewpoint, it is possible to suggest hope enhancing strategies when dealing with aspiring chartered accountants that have failed the Qualifying Exam.

2.5.9.1. Cognitive behavioural therapy and hope

Hope theory is a cognitive based fortigenic variable. It is cognitive based due to the importance of thoughts in developing both pathways and agency thinking (Snyder, 1994, 2000). A feature of cognitive-behavioural therapy is to assist the individual in transforming his/her problem into a goal that can be achieved through a series of procedures or steps with empirical evidence of their efficacy in relation to goal attainment (Beck, 1995). Hope theory states that an adaptive approach is to be followed by the aspiring chartered accountant when he/she experiences goal-blockages. This implies that the first step is to break down the goal (i.e. passing Part 1 of the Qualifying Exam) into manageable, smaller, and easier subgoals (e.g. preparing for accounting, then auditing, then financial management, etc.). Research evidence supported this strategy for high-hope individuals (Snyder, 1994). It is therefore appropriate that a cognitive-behavioural approach to enhancing an individual's levels of hope is suggested (Snyder, Ilardi, et al., 2000).

For the individual to expect that any form of therapy is likely to have a positive impact on his/her life is the primary source of change needed for therapeutic intervention. The individual seeking assistance is of the opinion that by initiating and maintaining the motivation for using therapy is similar to the agency component of hope theory. The agency component of hope theory emphasises the individual's perception of his/her capacity to initiate and sustain the motivation for using strategies to reach desired goals – the latter being the pathways component of hope theory. It is

therefore advisable to first try to enhance the agency component of hope (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 389).

Using a cognitive behavioural approach to therapy, hope can be developed using the following interventions (Snyder, Ilardi, et al., 2000).

2.5.9.2. Specific interventions aimed at developing hope

Because most individuals have the cognitive capacity needed to generate a hopeful line of thought, it is possible to enhance this positive psychological strength (Lopez, Snyder, Magyar-Moe, et al., 2004). To develop hopeful thinking Lopez and his colleagues suggested four specific interventions, viz: (a) hope finding, (b) hope bonding, (c) hope enhancing, and (d) hope reminding (2004). Each of these specific interventions are discussed below, emphasising their applicability in developing hope in aspiring chartered accountants who have failed their qualifying board exam.

2.5.9.3. Hope finding

Hope finding emphasises firstly the possibility that an intervention may assist the individual and secondly the person implementing the intervention is there to help the individual. In addition, during the hope finding intervention it is important to identify which goals the individual is hopeful about achieving. The latter goals can be categorised into three focus areas, viz: (a) goals in general, (b) goals associated with a certain life arena that are domain-specific, and (c) one goal in particular that is goal-specific (Lopez, Snyder, Magyar-Moe, et al., 2004). In determining which goals the individual has, it is possible for the psychologist to ask the individual to tell his/her story (i.e. narrative) about Part 1 of the Qualifying Exam of SAICA. The latter emphasises personal goal pursuit associated with Part 1 of the Qualifying Exam which is important for the individual to make hope more personal. By telling the story, the individual must be guided to identifying the hopeful elements in the story. By analysing the failure narratives of individuals who have failed and passed their qualifying exam, it becomes possible to integrate both the cognitive and emotional elements of the narratives (Lopez, Snyder, Magyar-Moe, et al., 2004). In analysing both the cognitive and emotional elements of the individual's narrative, the psychologist can focus on the following 14 aspects of the aspiring chartered accountant's narrative to determine how the aspiring chartered accountant who has

failed his/her qualifying exam thinks about goals, agency, and pathways (Lopez, Snyder, Magyar-Moe, et al., 2004, pp. 391-392):

1. How did the aspiring chartered accountant generate goals?
2. What was the motivation?
3. How attainable or realistic were the goals?
4. How were the goals perceived?
5. What was the aspiring chartered accountant's mood/attitude during the process of goal-setting?
6. How was the movement toward the goal initiated?
7. How was movement maintained?
8. What were the biggest barriers to reaching the goals? (E.g. failing Part 1 of the Qualifying Exam).
9. What emotions did these barriers elicit?
10. How were barriers overcome, and what steps were taken to reach the goals?
11. Were the goals attained?
12. How does the aspiring chartered accountant feel about the outcome?
13. If the aspiring chartered accountant were to attempt the same goal today (i.e. rewriting Part 1 of the Qualifying Exam after failing the previous attempt(s), what would he/she do differently?
14. Can the aspiring chartered accountant recast the failed experience in more hopeful terms (i.e. by identifying lessons learned that can facilitate future efforts)? (Lopez, Snyder, Magyar-Moe, et al., 2004, pp. 391-392).

2.5.9.4. Hope bonding

Hope can also be enhanced through the development of a strong social bond with a significant other (e.g. spouse, partner, mentor) in order to develop a sense of control in the world. This bond enables the aspiring chartered accountant to confide in someone his/her goals and aspirations. This relationship can be used by the aspiring chartered accountant to model hopeful behaviour from this significant other as well as support in terms of how to initiate and continue with goal pursuits (i.e. persisting and passing Part 1 of the Qualifying Exam) (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 393). Identifying and developing a supportive relationship with a "hope buddy" that supports the aspiring chartered accountant in his/her goal pursuits, who challenges him/her to pursue stretch goals, and encourages the individual to overcome barriers

may assist in crystallising hopeful thoughts (Lopez, Snyder, Magyar-Moe, et al., 2004, pp. 394-395).

2.5.9.5. Hope enhancing

Based on the aspiring chartered accountant's identification of hopeful elements in the narrative, as discussed during hope finding, it becomes possible to enhance hope levels (Lopez, Snyder, Magyar-Moe, et al., 2004). It is suggested that the following six steps be followed to enhance hope in aspiring chartered accountants who may have failed Part 1 of the Qualifying Exam (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398):

1. Administration of the Adult Hope Scale.

   By administering the Adult Hope Scale, it enables the psychologist to identify the aspiring chartered accountant's overall levels of hope. In addition, it is advisable to determine the aspiring chartered accountant's levels of pathways and agency thinking as well by scoring the subscales of the Adult Hope Scale (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

2. Learning about hope.

   After determining the overall hope score of the aspiring chartered accountant, the psychologist can then move forward by discussing hope theory and its relevance to positive outcomes (such as preparing for Part 1 of the Qualifying Exam after initial failure) and therapy (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

3. Structuring hope for the client.

   During the third step, the aspiring chartered accountant is required to identify important life components (such as career goals), determine which of these life components are the most important, and discuss his/her level of satisfaction within each of those areas (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

4. Creating positive and specific goals.

   Based on the important life components identified during step 3 the aspiring chartered accountant and psychologist work together to create workable goals, for preparing and passing Part 1 of the Qualifying Exam, that are both specific and positive. All these goals must be important to the individual. It is important that

the aspiring chartered accountant then develops multiple pathways for each goal as well as agency thoughts for each goal (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

5. Practice.

After the identification of the goals, the aspiring chartered accountant must start to visualise and verbalise the steps to reach each of the identified goals. Both the psychologist and the aspiring chartered accountant can collaborate on the most effective pathways and agency behind the goals to pass Part 1 of the Qualifying Exam (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

6. Report back on progress

The aspiring chartered accountant starts to incorporate the goals, pathways, and agency in his/her life and reports back on his/her progress and process of goal attainment. In conjunction with the psychologist, adjustments and modifications can be made regarding both strategies and thought processes that may hinder the successful achievement of the goals related to preparing, persisting, and passing (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

The above six steps continue in a cyclical manner until the aspiring chartered accountant has grasped the concepts of hope theory and can then take responsibility for implementing hope in his/her unique circumstances (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398).

In addition to these six steps to enhancing hope in adults, specific interventions to enhance both pathways and agency are discussed below (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399).

2.5.9.5.1. Enhancing pathways in aspiring chartered accountants

During the six steps discussed previously, it was suggested that the aspiring chartered accountant must develop multiple pathways for each of his/her identifiable goals (Lopez, Snyder, Magyar-Moe, et al., 2004). The following checklist can be used for enhancing pathways in aspiring chartered accountants (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399):

1. The aspiring chartered accountant must break long-term goals into short-term steps of subgoals.
2. The aspiring chartered accountant must start his/her pursuit of a long-term goal by concentrating on the first subgoal.
3. Practising developing different routes to goals and select the most appropriate one is also required by the aspiring chartered accountant.
4. Mental rehearsal of what the aspiring chartered accountant is likely to do when he/she encounters a goal blockage, such as failing Part 1 of the Qualifying Exam.
5. The aspiring chartered accountant must be able to identify new skills that may be required to reach his/her goals.
6. Finally, the aspiring chartered accountant can enhance his/her pathways by identifying an individual that may provide a supporting relationship were advice is both given and provided (e.g. training partners at accounting and auditing companies) (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399).

Hope theory also states that hope is only possible if both pathways and agency thinking are present. The previous section provided suggestions as to how the individual can develop pathways thinking. The next section discusses how the individual can enhance his/her levels of agency thinking.

2.5.9.5.2. Enhancing agency in accountants

During the six steps discussed previously, it was suggested that the aspiring chartered accountant must develop agency thoughts for each of his/her identifiable goals (Lopez, Snyder, Magyar-Moe, et al., 2004). The following checklist can be used for enhancing agency in aspiring chartered accountants (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399):

1. The aspiring chartered accountant must take ownership of his/her goal. This becomes possible if the individual has chosen his/her goal. This requires the individual to take responsibility to go after it (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399).
2. Positive self-talk must be developed in order to enhance agency thinking (e.g. I can do this!).
3. Recalling previous successful goal pursuits, particularly when the aspiring chartered accountant may be experiencing difficulties in goal attainment.

4. Use of humour is advisable when the aspiring chartered accountant encounters some impediment to achieving goals.
5. The aspiring chartered accountant is encouraged to identify a substitute goal only when the original goal is blocked solidly, such as the Association of Certified and Chartered Accountants (ACCA) or Certified Institute of Management Accountants (CIMA) qualifications.
6. It is advisable for the aspiring chartered accountant to focus on the process of achieving his/her goal and not just to focus on the final attainment – seeing it as learning goal and not a performance goal (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 399).

2.5.9.6. Hope reminding

For hope to act as a change agent of the individual's behaviour, the previous three interventions (hope finding, bonding, and enhancing) culminate in feedback for the intervention process. The emphasis of hope reminding is on the identification of both goal thoughts and barrier thoughts. These thoughts may negatively impact the individual's selection of a goal as well as negative thoughts that may create self-doubt (Lopez, Snyder, Magyar-Moe, et al., 2004). When the aspiring chartered accountant is able to identify these negative thoughts related to goals and barriers, it is suggested that the aspiring chartered accountant, in conjunction with the psychologist, use "mini-interventions" (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398) in dealing with them. These suggested interventions can be used by the aspiring chartered accountant on a daily basis each time he/she becomes aware of significant goal and barrier thoughts. Examples of such mini-interventions include (Lopez, Snyder, Magyar-Moe, et al., 2004, p. 398):

1. Reviewing the aspiring chartered accountant's favourite hope narrative (developed during hope finding).
2. Identifying automatic negative thoughts, record them, and confront these irrational thoughts.
3. Reviewing the aspiring chartered accountant's personal hope statement that was developed during hope finding.
4. Identifying with another individual to discuss current goals and barriers in a supportive manner, as suggested during hope bonding.

With an understanding of the relationship between all the cognitive fortigenic variables (locus of control, self-efficacy, optimism, and hope) and their relationship with persistence, the previous sections explored the numerous interventions to enhance each of the cognitive fortigenic variables. The following sections, however, focus on the two emotional fortigenic variables in the current study, which are self-esteem and resilience.

Table 2.2 (see the following page) provide a summary of the studies consulted in determining the relationship between persistence and all the emotional fortigenic variables. Both conceptual and empirical studies are highlighted. Based on the information reported in Table 2.2, the remaining sections discuss these studies in detail. Before these emotional fortigenic variables are discussed, an overview is provided of the impact of failure (e.g. not passing Part 1 of the Qualifying Exam) on emotions and the appraisal of negative feedback. The importance of self-esteem, the first emotional fortigenic variable, in appraising negative feedback, is then explored.

2.6. The importance of emotions and failure

When an individual experiences failure and non-attainment of a goal, he/she may experience a complex set of emotions. If the individual is unable to effectively deal with these negative emotions, due to failure, this may hinder the individual's ability to cope effectively with the negative feedback. Without effective coping, the individual is less likely to persist (Brown, Westbrook, & Challagalla, 2005). According to Brown et al. (2005, p. 792) negative emotions are likely to be experienced by the individual when negative feedback about goal-achievement is received. Negative emotions that may be experienced by the individual for not achieving a goal, such as failing Part 1 of the Qualifying Exam, may include anger, fear, sadness, guilt, and shame (Martin & Marsh, 2003, p. 31). Lazarus (1999, p. 36) is of the opinion that all these emotions are stress-related emotions. What all these emotions do have in common is the negative evaluation of an experience, resulting in possible negative emotions, as well as the need to change the current situation (Ben-Ze`ev, 2000, p. 94). Negative emotions are thus associated with ongoing problems, failure, and ineffective plans to achieve set goals. By experiencing these negative emotions, the individual is forced to shift attention away from ongoing goal pursuit to dealing effectively with the here and now of failure and its associated emotions.

Table 2.2 Summary of previous research used in the current study regarding the relationship between emotional fortigenic variables and persistence

Variable	Relationship with persistence	Type of study	Outcome of study and Strength of relationship	Authors
Self-esteem	Positive	Empirical	Low self-esteem individuals persist if they experience success	Shrauger & Sorman, 1977 Shrauger & Rosenburg, 1970
	Positive	Empirical	High self-esteem individuals use compensatory self-enhancement to persist after failure	Baumeister & Jones, 1978 Baumeister, 1982 McFarlin & Blascovich, 1981
	Positive	Empirical	High self-esteem individuals still expect success after failure, therefore influencing persistence	McFarlin, Baumeister, & Blaskovich, 1984
	Positive	Empirical	High self-esteem individuals actively seek assistance after failure to improve persistence on the task	Karabenick & Knapp, 1991
	Positive	Empirical	Higher levels of self-liking (a component of self-esteem) is associated with persistence – based on ANOVA results	Tafarodi & Vu, 1997
Resilience	Positive	Conceptual	Positive relationship between career resilience and persistence	London, 1983, 1997
	Positive	Empirical	Higher levels of resilience are associated with persistence – Multiple Regression results	Kemp, 2002

Without an accurate appraisal of the negative emotions, and the appropriate response and personal evaluation of the failed experience, the individual's future performance is likely to be hampered (Brown et al., 2005, p. 793). Support for this assumption is provided by Audia and colleagues (2003) that stated that the effective use of negative feedback by the individual stems mainly from an inability to conduct an accurate appraisal of the failure experience. The appraisal of negative feedback may result in the individual's ability to find meaning in the negative feedback and develop their current levels of knowledge (Audia et al., 2003, p. 635). In trying to deal with the negative feedback, the individual is likely to use "defence mechanisms" to protect the self-esteem (Baron as cited by Audia et al., 2003, p. 636). It is suggested that the negative feedback is distorted (i.e. defence mechanism) by attributing undesirable outcomes to external factors, and desirable outcomes to internal factors. This defence mechanism seems to be related to the optimistic explanatory style associated with attributional theory of optimism (Seligman et al., 1990; Seligman & Schulman., 1986; Seligman, Hoeksema, et al., 1990). The attributional theory suggested that individuals using an optimistic explanatory style attribute the reason for failure to external sources that are temporary and specific to the current situation.

Most individuals do not want to experience negative feedback because it threatens their self-esteem and sense of competence. It is suggested that self-esteem is a critical factor in determining how an individual is likely to experience negative feedback and identify the possible benefits of negative feedback (Audia et al., 2003, p. 632). When the individual experiences negative feedback, time must be taken to evaluate the impact of the negative feedback as well as the most appropriate coping strategy to continue with goal pursuits. It is therefore suggested that coping techniques may moderate the relationship between negative feedback and goal-pursuit.

The following section elaborates on the importance of self-esteem, the first emotional fortigenic variable, in appraising negative feedback in the form of failing Part 1 of the Qualifying Exam. In addition, empirical findings of the relationship between persistence and self-esteem, as well as possible interventions to develop the levels of self-esteem of aspiring chartered accountants who have failed Part 1 of the Qualifying Exam are reported.

2.7. Self-esteem (Emotional fortigenic variable)

Self-esteem can generally be defined as *the evaluative dimension of the self-concept. It is viewed as a psychological state of self-evaluation that ranges from positive (or self-affirming) to negative (or self-denigrating)* (Hewitt, 2005, p. 135). It is however important to note that self-esteem is of motivational importance for the individual. In conforming to the social expectations of other people, individuals are more likely to receive the approval of significant others, thereby enhancing their levels of self-esteem. Self-esteem also has a self-serving bias that guards the self-esteem against failure. This self-serving bias assists the individual to take credit for achieving accomplishments and blame other factors when the individual has failed (Brown & Rogers, 1991; Snyder, Higgins, & Strucky, 1983).

It is also possible to view self-esteem as rooted in four ideas, viz: acceptance, evaluation, comparison, and efficacy (Hewitt, 2005, pp. 136-137). An individual's self-esteem is developed early in childhood by the non-conditional acceptance of the individual by significant others. At that point the individual's acceptance is not always conditional on the basis of behaving and performing in a specific way. As the individual develops, he/she is evaluated in terms of performance and other social norms. If the individual is evaluated favourably, then positive feedback is provided to the individual about his/her performance evaluation. This positive evaluation increases the levels of self-esteem. However, negative evaluations of the individual are likely to lead to lower levels of self-esteem. In addition to acceptance and evaluation, the third idea that is related to self-esteem is comparison. The individual is likely to compare him/her against other individuals to determine how well he/she is doing in relation to others. The individual's self-esteem will be positively affected when the comparison with others is favourable and negative when the comparison is unfavourable. However, the individual does not only compare himself/herself against others. The individual also compares himself/herself against a desired or ideal self. Thus, the individual can compare himself/herself against an ideal self, how the individual must be able achieve what he/she has set out to achieve. Finally, the individual must act accordingly in order to achieve the set goals of society, significant others, or their ideal self (Damon, 1995; Swann, 1996; Wills, 1981).

Individuals with low levels of self-esteem are therefore assumed to be more likely to avoid negative feedback. When individuals with low levels self-esteem receive

negative feedback about their performance, they tend focus their attention to the negative meaning that information has for their self-image, instead of focusing on the details of the task and how to complete the task. Negative feedback provides negative information about their self-image that activates more negative emotions. The latter, if not properly dealt with, may hinder low self-esteem individuals to carefully evaluate the negative feedback to employ appropriate task relevant coping strategies. Thus, individuals with high levels of self-doubt, that is associated with low levels of self-esteem, are more likely to engage in a ruminative style of information processing that may reduce their ability to objectively asses the information in the negative feedback (Audia et al., 2003; Kluger et al., 1996).

The previous section highlighted the possible impact of negative feedback on an individual's self-esteem. It is however possible for individuals to protect their self-esteem from negative feedback and persist through the use of compensatory self-enhancement, discussed in the following section.

2.7.1. Self-esteem and compensatory self-enhancement

High self-esteem individuals probably view failure as an unusual experience due to the assumption that they may have only received positive feedback from their past experiences. Experiencing failure may just be a temporary setback to attaining a set goal. Therefore, the individual still expects subsequent success (McFarlin & Blascovich as cited by McFarlin et al., 1984, p. 139). These authors suggested that one possible explanation for the role of high self-esteem in persistence is the role of compensatory self-enhancement (Baumeister & Jones as cited by McFarlin et al., 1984, p. 139). Individuals try to be consistent in the ways that they represent themselves to others in relation to what others expect and know about them. However, it is also possible for individuals to compensate for the negative expectations and knowledge others may have of them. It is possible for these individuals to compensate for the negative image others may have of them. Individuals who compensate will try to counteract these negative expectations by presenting new (but unrelated) information about themselves. These individuals risk the fact that their compensatory self-enhancing statements may be contradicted and disconfirmed in the future (Baumeister, 1982). It is suggested that individuals with high self-esteem is of the opinion that others like them in general. In addition, they are also of the opinion that

others may come to accept them and become aware of their qualities if given the opportunity to get to know them better. An individual who experiences a negative view from others is likely to make positive claims about him/her although he/she is aware of the fact that future interaction is required. The individual is convinced that future interactions will not contradict the positive claims being made. In fact, a high-self esteem individual expects that these self-enhancing statements will be supported by future actions (Baumeister, 1982, p. 30). In contrast, it is suggested that a low-self-esteem individual is not able to supply compensatory statements to contradict others' current expectations about the individual. The individual is also less convinced that compensatory statements are likely to be supported by future events. A low self-esteem individual may believe that he/she has very few distinguishing characteristics, thus being reluctant to pretend to be otherwise (Baumeister, 1982, p. 30). To test these two hypotheses, Baumeister (1982) conducted a study to determine whether high self-esteem individuals will conform verbally but not behaviourally to the negative expectations of others, while low self-esteem individuals will conform to the negative expectations of others, both verbally and behaviourally. Thus, a high self-esteem individual is more likely to use compensatory self-enhancement than a low self-esteem individual. Both these hypotheses were confirmed by Baumeister's study (1982). In support of the results of Baumeister (1982), another study reported that individuals that received negative feedback on tests that they completed, used self-affirming statements contradicting the outcomes of the test results (which were experimentally manipulated) to protect their self-concepts (DasGupta & Liang, 1988). It is therefore possible that an individual's need to succeed after failure may lead to an increase in effort by high self-esteem individuals. Persistence is a form of effort (McFarlin et al., 1984, p. 139). Increased persistence may be a characteristic of high-self-esteem individuals who experience unexpected failure. This was confirmed by that study (McFarlin et al., 1984, pp. 143-144).

It can therefore be suggested that individuals who have a high self-esteem and expect success perceive a relationship between their efforts and their outcomes. However, low self-esteem individuals who do not expect success tend to perceive no relationship between their efforts and their outcomes (Cohen as cited by McFarlin et al., 1984, p. 150).

In addition to the theoretical link between self-esteem and persistence – through compensatory self-enhancement – the following section reports on conceptual suggestions and empirical findings of previous studies that investigated the relationship between self-esteem and persistence.

2.7.2. Relationship between persistence and self-esteem

Self-esteem has been associated with being psychologically happy and healthy (Branden, 1994; Taylor & Brown, 1988). The theory of achievement motivation (McClelland, Atkinson, Clark, & Lowell as cited by Chaikin, 1971, p. 512) suggests there are two motivational states, viz: (a) need for achievement, and (b) fear of failure. Motivated by the fear of failure, an individual can avoid future interaction with the environment if it is possible to stop a failing task immediately, thereby protecting the self-esteem. This is in contrast with the fact that the individual may not be able to avoid interaction with the environment because of failure that has already occurred (Chaikin, 1971, p. 512). Receiving just positive feedback can only be viewed as positive reinforcing. However, negative feedback followed by positive feedback (ascending schedule of outcome) serves an additional purpose by reducing the negative impact of previous negative feedback on lowered self-esteem (Aronson & Linder as cited by Chaikin, 1971, p. 513).

In two other studies (Messick and Streufert & Streufert, as cited by Chaikin, 1971, p. 514) candidates on an ascending schedule of outcome attributed their outcomes to an internal locus of control. One possible explanation for the persistence was the perceived competence an individual had of himself/herself – the ability to still attain the desired outcome through own efforts. Those individuals who only received negative feedback (descending schedule of outcome) attributed their outcomes less to an internal locus of control.

The findings of another study (Chaikin, 1971) found a significant relationship between an ascending schedule of outcomes and persistence. In addition to perceived self-competence, it was also found that individuals persisted more on a task if they had a higher self-esteem (Shrauger & Sorman as cited by McFarlin, Baumeister, & Blascovich, 1984, p. 138). Thus, individuals with a low self-esteem may respond favourably to positive feedback while these same individuals may react extremely defensibly to negative feedback (Heatherton et al., 2003, p. 224).

In addition to the studies mentioned above, various other studies have examined the relationship between self-esteem and persistence (Perez, 1973), low self-esteem and persistence after experiencing success (Shrauger & Sorman, 1977), self-esteem and compensatory self-enhancement (Baumeister & Jones, 1978; Baumeister, 1982; McFarlin & Blascovich, 1981), self-esteem and attributional style (Janoff-Bulman & Brickman, 1982), self-esteem and future performance (McFarlin, Baumeister, & Blascovich, 1984), self-esteem and assistance seeking and support (Karabenick & Knapp, 1991). Another study (Carifio et al, 2002) investigated the relationship between self-esteem and optimism.

Based on a sample of undergraduate males (n = 36), low self-esteem individuals persisted after failure if they experienced success (Shrauger & Sorman, 1977; Shrauger & Rosenburg, 1970). Low self-esteem individuals cannot determine if failure is due to the situation or their inabilities (Janoff-Bulmann et al, 1982). Evidence from research (Baumeister et al, 1978; Baumeister, 1982; and McFarlin et al, 1981) suggested that high self-esteem individuals engage in compensatory self-enhancement (conform to their "bad" reputations verbally, not behaviourally). They are confident that others like them in general. When faced with failure, they would make positive claims about themselves because they hope that future interaction will justify their self-enhancing claims. High self-esteem individuals described themselves favourably on dimensions not related to the evaluation after failure. Low self-esteem individuals may lack confidence to contradict what others expect of them (after failure) - both verbally and behaviourally.

Research evidence (McFarlin et al, 1984), based on an all male undergraduate sample (n = 93) required to solve puzzles, also suggested that high self-esteem individuals still expect success after failure – based on a history of past positive feedback. Another study (Karabenick & Knapp, 1991), based on a sample of undergraduate students (n = 612), also found that high self-esteem individuals are more likely to seek assistance after failure. It is possible that low self-esteem individuals perceived help-seeking as more threatening. Research (Tafarodi & Vu, 1997), based on a sample of undergraduate students (n = 160), also provided evidence for the relationship between self-liking and persistence, based on ANOVA results. Low self-liking was associated with decreased persistence after failure. Low self-esteem individuals engage in punitive self-reflection and overgeneralised their failure. Low self-liking individuals showed less persistence. Feelings of being unworthy seemed to be more important

than feelings of competence (Tafarodi & Vu, 1997). The fact that low self-esteem individuals overgeneralised their failure is supported by the fact that scores on the Life Orientation Test (a measure of optimism) was positively related with self-esteem scores (Carifio et al, 2002). From these studies, the following was supported by the research evidence. Higher self-esteem is associated with persistence (Perez, 1973).

Therefore it is suggested that a positive relationship exists between self-esteem and persistence. It appears that individuals with low self-esteem are less persistent after failure than are individuals who have higher levels of self-esteem (McFarlin, Baumeister, & Blascovich, 1984, p. 138; Pittenger, 2002, p. 256). Janoff-Bulman and Brickman (as cited by Pittenger, 2002, p. 256) found that low self-esteem individuals that were facing a failure situation could not determine whether the failure was due to the situation or their inability to complete the task. High self-esteem individuals may abandon such tasks if they believe that persistence is not appropriate.
Perceived success or failure does not only reflect the efficacy of a given action, but also the power and worth of person behind the action. The experience of failure can either affect the individual positively or negatively. It seems as if individuals with low self-esteem respond more negatively to failure, and persisting less, than those with high self-esteem. It is suggested that individuals low on self-esteem negatively interpret failure and perceiving persistence as futile. This may be due to their negative expectancies of persistent behaviour – their general lack of self-confidence in their abilities. Individuals high on self-esteem seem to persist because they have confidence in their ability to adapt to challenging situations and ultimately succeed – even after initial failure (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997).

It was previously stated that during task performance, the motivational states (e.g. general self-efficacy) improved the allocation of resources and persistence of on-task performance, while affective states (e.g. self-esteem) relate to off-task, emotionally based thoughts and feelings (Kanfer et al, 1997). It is therefore possible that negative feedback may impact the self-esteem, which may hinder the individual to focus on the task at hand – such as preparing to change in order to pass Part 1 of the Qualifying Exam. Therefore individuals with low levels of self-esteem may focus unnecessary on the failure and the emotions associated with failure, instead of focusing on problem-

solving strategies. Due to the assumption that negative feedback, such as not passing Part 1 of the Qualifying Exam, may impact on aspiring chartered accountants' levels of self-esteem, several interventions are suggested in the following section.

2.7.3. Interventions to enhance self-esteem

Self-esteem, as an emotional fortigenic variable, is viewed as a state that can be developed by the individual (Gecas and Schwalbe as cited by Hughes, Robinson-Whelen, Taylor, Swedlund, & Nosek, 2004, p. 295; Heatherton & Polivy, 1991). Due to the assumption of self-esteem's state-like nature, it is possible to identify intervention strategies. The following section firstly explores general coping strategies in dealing with negative feedback to protect the self-esteem. Secondly, two specific interventions strategies are then discussed in the following section. The first strategy focuses on the thoughts that may lead to negative self-evaluations (and emotions), and by changing these thoughts (McGuire & McGuire, 1996). The second strategy provides evidence of the effectiveness of temporary disengagement from the negative feedback received from a failure experience in order to focus on what the individual wants to achieve by discounting the relevance of the negative feedback to his/her actual self-worth (Nussbaum & Steele, 2006, in press).

2.7.3.1. General coping strategies in dealing with negative feedback

Effectively coping with the negative feedback received from not achieving personal goals requires the aspiring chartered accountant to focus on both psychological (e.g. emotional) and behavioural responses to resolve the situation. Lazarus (1991) identified two types of coping strategies to deal with negative experiences. Firstly, individuals may use problem-focused coping strategies to deal with the negative emotions resulting from non-attainment of personal goals. Individuals who use a problem-focused coping strategy are able to avoid focusing on the incapacitating nature of rumination and self-doubt that hinders effective continuation of goal pursuits. Rumination and self-doubt are associated with individuals with low self-esteem, low hope, and a pessimistic explanatory style (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafardoi & Vu, 1997; Snyder, 1994, 1995, 1999, 2002; Snyder & Lopez, 2005; Seligman et al., 1990; Seligman & Schulman., 1986; Seligman, Hoeksema, et al., 1990). Thus, aspiring chartered accountants who are more focused on the task (i.e. preparing and passing Part 1 of the Qualifying Exam)

will try to change the strategy but still maintain the personal goal, as individuals with high hope (Brown et al., 2005). By focusing on the task, these individuals are also more likely to effectively deal with the negative emotions.

The second coping strategy is emotion-focused. The aim of this strategy is to lessen the impact of the negative experiences by limiting counterproductive inclinations (Brown et al., 2005, p. 794). Previous research conducted (Dweck, 2000; Dweck & Leggett, 1998) on the impact of affective reactions after failing at a task provides possible insight into the affective reactions and coping strategies to failure. Individuals, who were helpless, exhibited the following after failure: (a) strong negative affect, (b) self-depreciating statements, (c) task-irrelevant behaviours, and (d) decrease in performance levels.

With a clear understanding of the impact of negative feedback on emotions and the general coping strategies that can be employed by aspiring chartered accountants that have failed Part 1 of the Qualifying Exam, the following sections elaborate on two specific interventions to develop self-esteem.

2.7.3.2. Enhancing self-esteem through directed-thinking tasks

It is possible for an individual to change his/her self-esteem by redirecting thoughts (that lead to emotions) to relevant information already within the individual's thought system (McGuire & McGuire, 1996). This is formally achieved by providing the individual with a directed thinking-task (McGuire & McGuire, 1991). Applying the basics of such a directed thinking-task to an aspiring chartered accountant who has failed the qualifying exam, the following two questions can be asked: "Please write down all the characteristics you have to become a chartered accountant". This question taps the cognitive/thought process involved when dealing with self-esteem. Thus, emphasis is on the identification of the presence of affirming positive information about the self. The second question emphasises the affective/emotional evaluation by the individual. An example of such a question may be the following: "Please identify the desirable characteristics you need to have to become a chartered accountant". In essence, the aim of the directed-thinking task is to assist the aspiring chartered accountant to move away from negative and unfavourable information about the self (e.g. lacking desirable characteristics and possessing undesirable characteristics) to positive information about the self (e.g. identifying positive

characteristics that are present and negative characteristics that are not present) (McGuire & McGuire, 1996, pp. 1118-1119). Thus, enhancing an aspiring chartered accountant's levels of self-esteem will be associated with an increase in more positive and favourable self-information and less unfavourable information. The directed-thinking tasks seem to be effective based on research conducted by McGuire and his colleague (1996). Based on these researchers' results, self-esteem was enhanced when the individual could identify favourable and positive characteristics instead of identifying those favourable characteristics that were lacking. They suggested that low levels of self-esteem were the result of the individuals' thoughts of undesirable characteristics that they possessed rather than of desirable characteristics that they did not have. Therefore, low levels of self-esteem can be enhanced by focusing thoughts on those desirable characteristics that the individual do posses (McGuire & McGuire, 1996, p. 1124). Therefore, ruminative thought after failure may be enhanced through self-affirming feedback relating to the overall goal of passing the Qualifying Exam that is task specific (Rothermund, 2003, p. 351). Ironically, this seems to suggest that the individual must focus on the strengths and what is good that is already there, rather than focusing on what is lacking and what is wrong – the basic principles of Positive Psychology.

In addition to directed thinking tasks, the following section explores temporary disengagement as in intervention to enhance self-esteem.

2.7.3.3. Enhancing self-esteem through situational/temporary disengagement

Situational or temporary disengagement refers to the process by which the individual disengages his/her self-esteem from the negative evaluation being received, thereby protecting feelings of self-worth from a possibly devaluing situation. This enables the individual to distance himself/herself from the negative effects to the ego from the specific situation temporarily in order to remain committed to the larger domain and goal (Nussbaum & Steele, 2006, in press). These authors provided support, through an experimental study using 80 undergraduate students, that persistence could be enhanced and enabled through situational/temporary disengagement from a negative environment with negative feedback. They also observed that students, who failed the task given to them during the experiment, were more willing to take on more of the same task on which they had performed poorly during their disengagement

(NussBaum & Steele, 2006, in press). Instead of permanently removing himself/herself from the negative situation, it is suggested that the aspiring chartered accountant disengage from a particular performance (e.g. failing Part 1 of the Qualifying Exam) by denying its relevance to the individual's self-worth and thus persist in the domain (i.e. keep on writing Part 1 of the Qualifying Exam given the additional focus on building accounting competency to enhance self-efficacy) even when experiencing frustration (Nussbaum & Steele, 2006, in press). By focusing on the particular domain may theoretically be related to domain specific hope discussed previously, where the individual may or may not be hopeful about a domain related to his/her performance but still is hopeful in general (Snyder, 1995). In addition, the concept of temporary disengagement seems to be related to what Baumeister and Jones (as cited by McFarlin et al., 1984, p. 139) proposed in terms of compensatory self-enhancement. The latter implies that the aspiring chartered accountant protects his/her self-esteem by conforming verbally, but not behaviourally, to the negative feedback received about performance. It is possible that this strategy may in itself be a form of disengagement. The latter may be supported by Major and Schmader's (as cited by Nussbaum & Steele, 2006, in press) view that disengagement is *the detachment of the self-esteem from external feedback…such that feelings of self-worth are not dependent on successes or failures in that domain*.

It is therefore possible that aspiring chartered accountants may separate the link between negative feedback about performance on the qualifying exam and their concept of intelligence and ability to become a chartered accountant. During this time of temporary disengagement, these aspiring chartered accountants may be able to focus their attention to improve on their accounting skills and other related skills in order to improve the chances of passing the qualifying exam (Nussbaum & Steele, 2006, in press).

2.7.3.4. General responses to negative feedback

In addition to task-focused or emotion-focused coping strategies suggested by Lazarus (1991), the aspiring chartered accountant is likely to respond to negative feedback in three ways: (a) accepting the negative feedback and adjusting behaviour accordingly, (b) dismissing the negative feedback while continuing with the current course of action, and (c) persisting with the current strategy while trying to obtain additional information and feedback (Audia et al, 2003).

The first response to negative feedback may result in either persisting with the set goal or quitting (Audia et al, 2003). The aspiring chartered accountant is more likely to quit the achievement of a goal when self-esteem and self-efficacy are low. Thus, this type of individual views his/her abilities as inadequate to achieve the personal goal, with the confounding problem of not having a positive evaluation of his/her self-worth. It is possible that individuals with low self-esteem may use quitting as a defence mechanism to avoid future negative feedback. In contrast to quitting, the aspiring chartered accountant may change his/her strategy to adjust to the negative feedback. Thus, the individual is likely to determine whether he/she should put in more effort in the current strategy achieving the goal. The latter implies that the individual will use the same strategy in achieving the set goal and work harder. In contrast, it is possible for the individual to keep the goal, but use different task strategies to achieve the goal, thus working smarter (Wood & Locke, 1975; Kluger & DeNisi, 1996). Although these authors did not mention hope, the "working smarter" strategy seems to be theoretically linked to hope theory (Snyder, 1994, 1995, 1999, 2002; Snyder & Lopez, 2005). The latter states that an individual will be more hopeful when there are multiple pathways to achieve the desired goal, with the associated agency in each of the different pathways. Thus, pathways thinking suggest that the individual has more than one strategy to achieve a specific goal. Thus, negative feedback is likely to activate alternative strategies to persisting until the goal is achieved when individuals are hopeful.

The second response to negative feedback is to dismiss the information received while continuing with the current course of action (Audia et al., 2003). In such an instance, the aspiring chartered accountant does not agree behaviourally with the negative feedback and persist with the current course of action. One strategy that the individual can use in this case is known as Compensatory Self-Enhancement. Evidence from research (Baumeister et al, 1978; Baumeister, 1982; and McFarlin et al, 1981) suggested that high self-esteem individuals engage in compensatory self-enhancement (conform to their negative feedback verbally, not behaviourally). They are confident that others like them in general. When faced with failure, they would make positive claims about themselves because they hope that future interaction will justify their self-enhancing claims. High self-esteem individuals described themselves favourably on dimensions not related to the evaluation after failure. Thus, the individual is likely

state verbally that he failed, but will not focus on behaviours that will support the negative feedback of having failed and not being viewed as competent yet. The individual therefore uses self-esteem to build levels of self-confidence in the face of negative feedback.

The third, and final, response to negative feedback focuses on the aspiring chartered accountant persisting with the current strategy while trying to obtain additional information and feedback (Audia et al., 2003). In these instances, the individual is likely to delay the acceptance of the feedback until he/she can obtain additional information that may not be part of the initial negative feedback. Thus, the aspiring chartered accountant gathers additional information on possible developmental areas that may need attention in order to determine if he/she should continue with the stated goal but change the strategy to achieve the objective. Thus, it is suggested that individuals high on self-esteem are more likely to seek additional information and support in order to make the necessary adjustments to their strategies (Tafarodi & Swann, 1995, Tafarodi & Swann, 2001; Tafarodi & Vu, 1997) and build their levels of self-confidence and self-efficacy. In addition, high- hope individuals are also more likely to develop alternative pathways based on information obtained from additional feedback to enhance the probability of achieving the set goal.

With a clear understanding as to how self-esteem influences persistent behaviour, as well as how to enhance an individual's levels of self-esteem, the following section explores the relationship between persistence and resilience – the second emotional fortigenic variable.

2.8. Resilience

Resilience (e.g. career resilience) is the persistence component of motivation (London, 1983, 1993, 1997). Factors that contribute to an individual's ability to successfully manage stressors include specific skills and psychological resources (Lustig et al, 2002, p. 2). Resilience is important because of personal characteristics that may a) compensate for the loss of competence during stress, b) protect the individual against perceptions of harm to the self-esteem, and c) interpret stressful situations as challenging (London, 1998, p. 77). One indicator and psychological

resource of resilience is sense of coherence, which is discussed in the following section.

2.8.1. Sense of coherence as an indicator of resilience

One psychological resource, that mediates the individual's ability to manage stressful events, is sense of coherence (SOC) (Antonovsky, 1987). Emphasis is placed on how people manage stress and still be able to function. To understand sense of coherence, generalised resistance resources (GRR) describe the individual's characteristics that facilitates avoiding or dealing with stress. Factors that contribute to an individual's ability to successfully manage stressors include specific skills and psychological resources (Lustig et al, 2002, p. 2). Examples of these resources include cognitive (knowledge and intelligence), interpersonal relationships, and social support. It can be suggested that both cognitive (locus of control, self-efficacy, optimism, and hope) as well as emotional (self-esteem) fortigenic variables can be viewed as GRRs that can be used by aspiring chartered accountants to enhance their levels of resilience and their persistence. This suggestion is supported by Benard (as cited by Kemp, 2002, p. 66) that stated that *resilience skills that foster and support individual strengths and abilities include, but are not limited to internal locus of control, positive self-regard, and sense of humor*. Positive self-regard is related to high levels of self-esteem. Antonovsky (1979) proposed that the availability of these resources helps the individual to develop a sense of coherence, which in turn mobilises the resources to avoid or deal with stress. The latter experiences provide feedback and reinforce a sense of coherence. A person with a strong sense of coherence is more likely to view and understand problems as challenges, and is more likely to select the most appropriate coping behaviour for the specific problem. Sense of coherence is therefore the overall orientation that the environment is comprehensible, manageable, and meaningful (Antonovsky, 1987).

Comprehensibility focuses on an individual's perception that the world (i.e. environment) is predictable, ordered, and understandable. Consistent life experiences form the basis for comprehensibility (Antonovsky, 1987; Lustig et al, 2002).

Manageability focuses on the degree to which an individual believes that he/she has the personal and social resources to deal with the demands of the world. Experiences that reinforce an individual's belief that there are resources available to meet these demands form the basis of manageability (Antonovsky, 1987; Lustig et al, 2002). In

addition, Strümpfer (2005, p. 33) is of the opinion that manageability is related to personal control over these resources.

Meaningfulness indicates the belief the demands placed on the individual are worthwhile the effort, investment, and commitment. Experiences that require the individual to participate in shaping outcomes form the basis of meaningfulness (Antonovsky, 1987; Lustig et al., 2002). Antonovsky (1987) is of the opinion that meaningfulness (which is the emotional component of sense of coherence) is the most important component of the three. Meaningfulness motivates the individual to look for order, make use available resources, and to seek new resources for managing the demands placed on him.

In a study conducted by Strümpfer (2001b), a factor analysis was conducted of a projective technique used together with other psychological instruments, including the shorter Sense of Coherence scale of Antonovsky (1987). Factor 1 consisted of the four sense of coherence components, plus resilience goal and hope, both adding a future orientation. The second factor loaded on resilient behaviour, receiving social support and three outcome categories (Strümpfer, 2001b, pp. 40-41). The results of the latter study seem to provide support for the assumption that the fortigenic variables measured in the current study may be viewed as Generalised Resistance Resources.

With a clear indication of the definition and components of resilience, the following sections highlight several theoretical models of resilience that may be applicable to assist aspiring chartered accountants.

2.8.2. Models of resilience

The field of resilience, which has mainly focused on resilient children, has identified assets, resources, protective factors, and protective processes in understanding what makes an individual more resilient (Masten et al., 2005). Although most of the research on resilience has focused on children, the assets, resources, protective factors, and protective processes will be applied to the current study with examples of each.

Assets are associated with the positive outcomes related to good adaptation. They are the opposite of risk factors. Resources include social, human, and material resources used in adaptive processes. These resources and assets seem to be similar to Antonovsky's (1987) generalised resistance resources. Protective factors are qualities

of individuals or the environment that act as assets that matter most when individuals are faced by challenging situations. Finally, protective processes describe how protective factors work; these are the processes by which positive outcomes are achieved in the face of challenging situations (Masten et al., 2005).

The following sections elaborate on the different models of resilience that can be used to understand how assets, risks, and protective factors interact to enhance the possibility of the individual to successfully adapt to a challenging situation.

2.8.2.1. Variable-focused models of resilience

These types of models focus on the interrelationship between the individual, environment, and their experiences and tries to determine which factors contribute to positive outcomes when individuals are faced with challenging and high-risk situations (Masten et al., 2005, p. 77). These variable-focused models of resilience focus on the impact that both risk and assets have, independently, on the adaptation of an individual. In essence, the variable-focused models of persistence states that those assets contribute positively to a good adaptation. If these assets are not present, then no affect occurs. In contrast, the presence of risks lead to a negative adaptation of the individual to his/her situation. The absence of these risks does not lead to any affects. Thus, according to the variable-focused models of resilience, assets counterbalance the impact of risks. These models are thus additive in nature – the more assets there are to counterbalance the impact of risks, the higher the probability of a positive adaptation by the individual. Although the variable-focused models of resilience are useful, they do have two major disadvantages. Firstly, they view resilience as a static process. However, resilience is continually being influenced by both assets and risks that interact with one another. Thus, risks influence assets and *vice versa*. Secondly, variable-focused models of resilience do not capture the whole process of resilience. The latter is multidimensional (Masten et al., 2005, pp. 77-80). The deal with both these shortcomings person-focused models of resilience are discussed next.

2.8.2.1.1. Applying the variable-focused models to the current study

The current study focuses on those psychological strengths that can assist individuals to persist after they have failed their qualifying exam of SAICA. The risks that may be identified, according to the variable-focused models of resilience are: a) studying part-time towards qualification, b) lack of technical competence in accountancy,

taxation, law, etc., and c) poor preparation for the profession (undergraduate and postgraduate studies) as well as the qualifying exam. However, it is possible to view the identified fortigenic factors that contribute to persistence as assets. Thus, the psychological assets of internal locus of control, self-esteem, self-efficacy, hope, optimism, and resilience can all individually and collectively contribute to positive adaptation to failing the qualifying exam. It is thus possible to view these assets as generalised resistance resources (Antonovsky, 1987).

2.8.2.2. Person-focused models of resilience

Person-focused models of resilience identify individuals who are resilient and describing the differences between resilient individuals and those who do not fair that well in challenging situations (Masten et al., 2005, p. 78). There are two types of person-focused models of resilience. Firstly, resilience can be investigated from a single case study. In essence these case studies are used to identify individuals who are resilient and that motivate further scientific investigation. Case studies are by their very nature conceptual and serve an exploratory purpose. To counteract these shortcomings, a second type of person-focused model of resilience can be used. The latter focuses on identifying high risk individuals who do well. These individuals who do well can then be compared against those individuals who do not that well. Unfortunately this second person-focused model of resilience does have the following two disadvantages. Firstly, it is not always possible to create two groups that are equal in their exposure to risk and adversity. This may make direct comparison of the group that resiled with the group that did not resile difficult. The second disadvantage of the person-focused models of resilience is based on the difficulty of determining whether those factors that correlate with resilience are general predictors of resilience or specific protective factors. The latter is problematic due to the fact that low-risk groups are not always included in studies (Masten et al., 2005, pp. 77, 80-81).

2.8.2.2.1. Applying the person-focused models of resilience to the current study

The current study may have certain characteristics that are associated with the second person-focused model of resilience: studying high-risk individuals who do well. One of the sub-samples of the current study focus on individual who have failed their previous attempts at passing SIACA's qualifying exam but who have passed the latter during 2005. These individuals were at risk due to the fact that they had to deal with a

very challenging situation – failing all previous attempts at passing the qualifying exam. By identifying which assets (both emotional and cognitive) these individuals used in persisting and passing the 2005 qualifying exam is one of the aims of this current study.

The following section highlights the limited number of previous studies that explored the relationship between persistence and resilience.

2.8.3. Relationship between resilience and persistence

Theoretical and conceptual research seems to suggest that there is a relationship between career resilience and persistence (London, 1983, 1997). Individuals high on career resilience are more likely to persist when faced with unfavourable career situations. However, very little empirical research has been conducted to specifically investigate the relationship between resilience and persistence.

One exception is a study conducted by Kemp (2002). Using a sample of 124 college students, the study found significant differences between persisters and non-persisters for four resiliency skills (relationships, general resilience, initiative, and insight) and five of the resilience subskills (attaching, persistence, valuing, recruiting, and generating) (Kemp, 2002, pp. 71-72). These resiliency skills were measured by the Resiliency Attitude Scale. In addition, all these identified resiliency skills (except relationships) could successfully classify 66.12% of the sample into persisters and non-persisters (Kemp, 2002, p. 73). Finally, the following resilience variables were the best predictors of persistence: insight, relationships, generating, recruiting, attaching, initiative, valuing, general resistance, and persistence (Kemp, 2002, p. 74). Based on these results, there seems to be tentative support for a positive relationship between resilience and persistence.

In contrast to the limited number of empirical studies investigating the relationship between persistence and resilience, there are numerous interventions that can be used to assist aspiring chartered accountants to develop their levels of sense of coherence and generalised resistance resources. These interventions are discussed in the following section.

2.8.4. Interventions to enhance resilience and sense of coherence

As stated previously, research conducted in the field of resilience primarily stems from dealing with children and determining which assets and risks influence these children to successfully adapt to challenging situations (Masten et al., 2005). Sense of coherence can however be applied to young adults and the field of Industrial Psychology (Strümpfer & Mlonzi, 2001; Strümpfer, 2005). It is thus possible, with some adjustments, to use the latter research to focus on young adults entering the chartered accountancy profession. The main theme of all these interventions is that *promoting healthy development and competence is at least as important as preventing problems and will serve the same end* (Masten et al., 2005, p. 84). Some suggestions regarding protective factors and specific interventions to enhance resilience and sense of coherence are discussed below.

2.8.4.1. Protective factors

Protective factors are those assets that the individual can use to deal exclusively with adversity (Masten et al., 2005, p. 83). Adjusting the protective factors for psychosocial resilience in children and youth to aspiring chartered accountants that must deal with failure, the following suggestions are made:

2.8.4.1.1. Within the individual

a) Good cognitive abilities.
b) Problem-solving skills (related to hope and locus of control).
c) Positive self-efficacy.
d) Faith and a sense of meaning in life (related to the meaningfulness concept associated with resilience and sense of coherence).
e) A positive outlook on life (related to optimistic explanatory style).
f) Good self-regulation of emotions and impulses (related to self-esteem and self-evaluation).
g) Talents that are valued by self and society.
h) Good sense of humour (Masten et al., 2005, p. 83).

2.8.4.1.2. Within the profession

a) Close relationships with competent mentors.
b) Organised working environment.

c) Organised study environment.
d) Mentors with the same characteristics labelled in 2.8.4.1.1.
e) Effective training institutions.
f) Effective training contracts and training experiences (Masten et al., 2005, p. 83).

Building on these protective factors, the following specific interventions as to how to build resilience and sense of coherence in aspiring chartered accountants who have failed their qualifying exams are discussed.

2.8.4.2. Risk-focused interventions

The major aim of risk-focused interventions is to prevent or reduce risks and stressors experienced by aspiring chartered accountants who have failed their qualifying exam. Some risk-focused interventions for these individuals are:

a) Increase the likelihood of individuals wanting to take accountancy, maths, and English at school through programmes such as Thutuka.
b) Prevent or reduce the likelihood of individuals studying at a tertiary training institution that is not providing adequate training (Masten et al., 2005, p. 83).

2.8.4.3. Asset-focused interventions

Improving the number or quality of resources that the aspiring chartered accountant can use to deal with the setback of failing the qualifying exam are the emphasis of asset-focused interventions. Examples of asset-focused interventions for aspiring chartered accountants are:

a) Provide a tutor.
b) Provide a mentor.
c) Organise a support group.
d) Enhance the psychological strengths of individuals (e.g. cognitive and emotional psychological strengths).
e) Develop organisational and profession-based (i.e. accountancy) support programmes (Masten et al., 2005, p. 83).

2.8.4.4. Process-focused interventions

Process-focused interventions aim to mobilise the power of the individual's adaptational system. Some interventions to mobilise the power of these individuals include:

a) Build self-efficacy through graduated success model of training.
   1. Emphasise mastery experiences that activates the mastery motivation that may enable the individual to experience success and motivation to succeed.
b) Teach effective coping skills for the possibility of failing the qualifying exam.
c) Foster closer working relationships between the mentor and the aspiring chartered accountant, as well as between the profession and the aspiring chartered accountant (Masten et al., 2005, p. 83).

The previous three types of interventions aimed at enhancing resilience of aspiring chartered accountants who have failed their qualifying exams. The following section explores those interventions that may enhance the sense of coherence of these aspiring chartered accountants.

2.8.4.5. Enhancing manageability

Manageability focuses on the degree to which an individual believes that he has the personal and social resources to deal with the demands of the world. Experiences that reinforce an individual's belief that there are resources available to meet these demands form the basis of manageability (Antonovsky, 1987; Lustig et al, 2002).

Examples of personal resource the aspiring chartered accountant can use when faced with failing the qualifying exam, suggested by the current study are:

a) Enhance levels of self-efficacy through mastery experiences.
b) Enhance levels of self-esteem by limiting self-ruminating thoughts.
c) Enhance levels of hope by focusing on additional pathways.
d) Enhance levels of locus of control by focusing only on those areas within the individual's life that can be better managed to enhance chances of succeeding.
e) Enhance levels of optimism by attributing stable, specific, end temporary reasons for failing the qualifying exam.

Examples of personal resource the aspiring chartered accountant may use when faced with failing the qualifying exam, suggested by the current study are:

a) Ask the assistance of a tutor for both social and technical support.
b) Identify a mentor that can assist the individual in developing appropriate perceptions about the profession and the qualities needed to succeed.
c) Join a support group of aspiring chartered accountants who have failed their qualifying exams, but have succeeded in passing.
d) Join the accounting firm's or the accounting profession's support programmes.

2.8.4.6. Enhancing controllability/comprehensibility

Comprehensibility focuses on an individual's perception that the world (i.e. environment) is predictable, ordered, and understandable. Consistent life experiences form the basis for comprehensibility (Antonovsky, 1987; Lustig et al, 2002).

One possible intervention to enhance the aspiring chartered accountant's levels of understanding the world as being predictable, ordered, and understandable is to focus on his/her perceptions of locus of control. Enhancing an individual's perceptions of locus of control can be done through the following, as suggested by the current study:

a) Enhance levels of locus of control by focusing only on those areas within the individual's life that can be better managed to enhance chances of succeeding.

2.8.4.7. Enhancing meaningfulness

Meaningfulness indicates the belief that demands placed on the individual are worthwhile the effort, investment, and commitment. Experiences that require the individual to participate in shaping outcomes form the basis of meaningfulness (Antonovsky, 1987; Lustig et al., 2002). Antonovsky (1987) is of the opinion that meaningfulness (which is the emotional component of SOC) is the most important component of the three, viz: manageability, meaningfulness, and comprehensibility. Meaningfulness motivates the individual to look for order, make use of available resources, and to seek new resources for managing the demands placed on him/her. It can therefore be suggested that interventions aimed at enhancing and increasing the available psychological resources at the disposal of aspiring chartered accountants who have failed Part 1 of the Qualifying Exam, may enhance meaningfulness. In addition, to enhance meaningfulness (emphasising the ability of the aspiring chartered accountants to look for order), locus of control may also be a specific intervention (as discussed in previous sections). Enhancing meaningfulness through locus of control may assist aspiring chartered accountants, who have failed, to perceive the preparation

and writing of Part 1 of the Qualifying Exam as an orderly process, with controllable behaviours and emotions when writing this exam. Therefore, interventions aimed at enhancing the experience of meaningfulness will be based on a culmination of all the suggested behavioural and emotional interventions to enhance controllability as well as manageability.

With a clear understanding of the various interventions aimed at enhancing the cognitive fortigenic variables (locus of control, self-efficacy, optimism, hope) as well as the emotional fortigenic variables (self-esteem and resilience), the following section explores a therapeutic framework within which all these interventions may be administered.

2.9. Therapeutic framework to be used with identified interventions

The previous sections suggested various interventions to enhance an individual's cognitive (locus of control, general self-efficacy, optimism, hope) and emotional (self-esteem, resilience) resources. The following section suggests an overarching therapeutic framework when implementing all these suggested interventions. The overarching therapeutic framework suggested is Rational Emotive Behaviour Therapy of Albert Ellis (Corey, 2005; Ellis, 2001; Ivey, Ivey, & Simek-Morgan, 1997). As was previously suggested, persistence research should try to include both the cognitive and emotional processes involved in persistent behaviour (Svartdal, 2003); Rational Emotive Behaviour Therapy focuses on both cognitive and emotional processes during a therapeutic intervention. Therefore, the "rational" component emphasises cognitive thought processes while the "emotional" component focuses on the emotional consequences. Therefore, when assisting aspiring chartered accountants who have failed Part 1 of the Qualifying Exam, using Rational Emotive Behavioural Therapy together with the suggested interventions to enhance both cognitive and emotional psychological strengths, the following section may assist in developing a workable framework for therapy.

2.9.1. Cognitive Behavioural Therapy and Rational Emotive Behavioural Therapy

Due to the assumption that all the fortigenic variables focus on both cognitive and emotional interpretations following failure (Snyder, Rand, et al., 2005, p. 258), the

following A-B-C-D-E-F framework is suggested when dealing on a one-on-one intervention workshop with aspiring chartered accountants who have failed Part 1 of the Qualifying Exam (Corey, 2005; Ellis, 2001; Ivey, Ivey, & Simek-Morgan, 1997). It is suggested that group-based persistence enhancing workshops be coupled with individual-based workshops to go through the A-B-C-D-E-F framework. The skills learned through the one-on-one workshops can then be transferred to skills to be learned through a group-based workshop – showing candidates that they are not alone in their efforts to persist and pass the qualifying exam.

2.9.2. A-B-C of Rational Emotive Therapy

Rational Emotive Therapy primarily consists of an A-B-C framework. A refers to an activating event – such as failing Part 1 of the Qualifying Exam. This activating event manifests itself through both behavioural and emotional consequences. For example, a behavioural consequence, after failing Part 1 of the Qualifying Exam may be to quite writing Part 1 of the Qualifying Exam. An example of an emotional consequence may be a lowered self-esteem. However, it is the aspiring chartered accountant's belief (B) about failing (i.e. being a failure or being rejected by significant others for not passing Part 1 of the Qualifying Exam) that causes the behavioural and emotional consequences, and not the failing of the Qualifying Exam. Therefore, candidates who have failed their qualifying exams (A) may focus on behavioural (i.e. intentions to quit) and their emotional (i.e. lower levels of resilience, and self-esteem) consequences (C). Some candidates may start to overgeneralise their failure and catastrophying the failure possibly due to lowered self-esteem and lowered optimism. Emphasis will thus be placed on these irrational beliefs about being a failure and incompetent at passing the qualifying exam, which is the focus of the following section (Corey, 2005; Ellis, 2001; Ivey, Ivey, et al., 1997).

2.9.3. D-E-F of Rational Emotive Therapy

These irrational, non-helping beliefs must be challenged (i.e. **D**isputed) and the individuals must start developing self-helping, rational beliefs about their competence (focusing on optimism, hope, self-efficacy, and locus of control) to prepare and pass Part 1 of the Qualifying Exam. These newly developed self-helping, rational beliefs and thoughts (**E**ffect of disputing interventions) about their abilities and competence will assist in replacing self-depreciating thoughts and feelings. The end result of such

a one-on-one process is the development of new feelings that are more realistic and healthy in relation to the situation, after failing Part 1 of the Qualifying Exam (**F**eelings) (Corey, 2005; Ellis, 2001; Ivey, Ivey, et al., 1997).

Given the theoretical and empirical evidence of the relationship between the cognitive and emotional fortigenic variables and persistence, the theoretical explanation for the proposed theoretical model depicting the process of persistence, which is a major component of current study, is discussed in the following section

2.10. The sequence of variables depicting the process of persistence

During the presentation of the three career management and counselling models in Chapter 1, it became evident that no theoretical process of persistence exists in the literature. Although each of the models identified which variables may influence persistence, no effort was made to explain the interaction among the various fortigenic constructs that influence persistence. To justify the sequential order of fortigenic variables, a theoretical basis must be provided before such a process can be tested. In this section, such a theoretical explanation for the sequential order is provided.

From the literature reviewed in Chapter 1 and Chapter2, it is evident that both cognitive-based and emotion-based fortigenic variables influence persistence. However, to determine which variables are to be preceded by which other variables are based on theoretical inputs. Snyder, LaPointe, Crowson, and Early (1998, p. 809) are of the opinion that thoughts lead to emotions. Later, Snyder and his colleagues (2005, p. 258) also suggested that goal-pursuit cognitions cause emotions. Thus, thoughts determine what kind of emotions and emotional interpretations the aspiring chartered accountant is likely to experience when thinking about a task that he/she failed (i.e. failing Part 1 of the Qualifying Exam). These two assumptions provide theoretical support for the assumption held in the current study that cognitive-based fortigenic variables (locus of control, optimism, hope, and self-efficacy) precede the emotion-based fortigenic variables (self-esteem and resilience). Table 2.3 (see the following page) provide a summary of the studies consulted to provide both theoretical and empirical support for the suggested interrelationships among the fortigenic variables and persistence. These are discussed in detail in the following sections.

Table 2.3 Summary of previous research used in the current study regarding the relationships suggested by the theoretical model depicting the process of persistence

Variable	**Relationship with other fortigenic variables (as suggested by the theoretical model)**	**Type of study**	**Outcome of study and Strength of relationship**	**Authors**
Locus of control	Optimism	Conceptual	Perceptions of control are related to increased effort and persistence	Seligman, 1975
		Empirical/ Conceptual	Optimism is related to levels of personal control	Reker as cited by Peacock & Wong, 1996
		Empirical	Significant correlation between optimism and locus of control (r = 0.31)	Klein & Helweg-Larsen, 2002
	Hope	Conceptual	Increased personal control is associated with an increase in initiating problem-solving activities High hope individuals generate multiple pathways when faced with setbacks – conceptually similar to problem solving activities	Thompson, 2005 Lopez & Snyder, 2003 Snyder & Lopez, 2005

Table 2.3 Summary of previous research used in the current study regarding the relationships suggested by the theoretical model depicting the process of persistence (Continued)

Variable	**Relationship with other fortigenic variables (as suggested by the theoretical model)**	**Type of study**	**Outcome of study and Strength of relationship**	**Authors**
Optimism	Self-esteem	Conceptual	Optimists do not overgeneralise their attributions to failures High self-esteem individuals do not overgeneralise their self-evaluations	Seligman, 1991
		Empirical	Significant correlation of $r = 0.40$ between optimism and self-esteem	Chen & Furnam, 2003
Hope	Self-esteem	Conceptual	Assumption that hope effects self-esteem due to high levels of self-doubt in low hope individuals	Snyder, Cheavens, & Michael, 1999
		Conceptual	Low hope individuals use negative feedback to create self-doubt and focus on negative information Low self-esteem individuals only focus on negative self-referential information	Snyder, 1999 Michael, 2000

Table 2.3 Summary of previous research used in the current study regarding the relationships suggested by the theoretical model depicting the process of persistence (Continued)

Variable	**Relationship with other fortigenic variables (as suggested by the theoretical model)**	**Type of study**	**Outcome of study and Strength of relationship**	**Authors**
Hope	Self-efficacy	Conceptual	Low levels of self-efficacy may be the result of low levels of hope	Snyder, Harris et al., 1991
		Empirical	Significant correlation between self-efficacy and pathways thinking (r = 0.45) and agency thinking (r = 0.49)	Carifio & Rhodes, 2002
		Empirical	Significant correlation of 0.592 between hope and self-efficacy	Magaletta & Oliver, 1999
Self-esteem	Self-efficacy	Empirical	Significant correlation of 0.74 between self-efficacy and self-esteem	Judge, Erez, Bono, & Thoreson, 2002
		Empirical	Significant correlation of 0.67 between self-esteem and self-efficacy	Chen, Gully, & Eden, 2004
	Resilience	Conceptual	Self-esteem may be viewed as one of the Generalised Resistance Resources that are related to resilience	Antonovsky, 1987

Table 2.3 Summary of previous research used in the current study regarding the relationships suggested by the theoretical model depicting the process of persistence (Continued)

Variable	**Relationship with other fortigenic variables (as suggested by the theoretical model)**	**Type of study**	**Outcome of study and Strength of relationship**	**Authors**
Self-esteem	Resilience	Empirical	Positive self-regard (i.e. self-esteem) is suggested to be a resilience skill	Benard, 1991
Self-efficacy	Resilience	Conceptual	Self-efficacy may be viewed as one of the Generalised Resistance Resources that are related to resilience	Antonovsky, 1987
		Conceptual	Individuals with high levels of resiliency have high self-efficacy	King, 1997
		Conceptual	Self-efficacy beliefs influence resilience to adversity	Bandura as cited by O'Brien, 2003
Resilience	Persistence	Conceptual	Generalised Resistance Resources influence overall levels of resilience More resources are related to more persistence	Antonovsky, 1987
		Empirical	Numerous resiliency skills are significant predictors of persistence	Kemp, 2002

2.10.1. Relationship between locus of control and optimism

The reason for starting the model with locus of control may be explained in the following manner. Locus of control is based on causal beliefs regarding behaviour-outcome expectations of the individual. This concept of expectancies is important because this theoretical viewpoint regarding locus of control provides the building block for optimism as an explanatory style – which is also based on previous expectancies. The explanatory style the individual uses to explain the outcomes of behaviour are based on expectancies and past experiences. Individuals learn *generalised expectancies to view events as being directly determined by their own behaviour or as being beyond their control* (Stajkovic et al., 2003., p. 133).

Therefore, it is assumed that both locus of control and optimism are based on an individual's outcome expectancies (Stajkovic et al., 2003, p. 132; Carver et al., 2003; Carver et al., 2005; Peterson & Seligman, 1984; Seligman, 1991). Seligman (1975) is of the opinion that an individual who believes he/she has no control over set objectives may be less likely to increase effort to achieve that goal. A consequence of this belief is that the individual may not learn that he/she does have control, even when evidence is provided that the stated goal can be achieved (Schulman, 1999). In addition to the conceptual and theoretical link between locus of control and optimism through outcome expectancies, the perception of control is also important.

An optimistic orientation has been associated with increased problem-solving abilities (Scheier & Carver, 1985) particularly when the situation can be controlled (Scheier, Weintraub, & Carver, 1986; Peacock & Wong, 1996). An individual with internal control beliefs is more likely to view a stressful situation as personally controllable and the result will be an increase in problem-focused strategies. Similarly, an optimistic individual is also likely to view the stressful situation as manageable (i.e. controllable) and will engage in problem-focused strategies to resolve the situation (Peacock & Wong, 1996, pp.206-207). Supporting the previous studies' findings, in a study conducted by Peterson and de Avila (1995), it was found that a positive explanatory style is associated with the belief that good health could be controlled (i.e. linked with locus of control and perceived personal control).

Reker (as cited by Peacocock and Wong, 1996, p. 207) found that optimism was related to perceived levels of personal control. More important, Reker and Wong (as cited by Peacock and Wong, 1996, p. 207) proposed a two dimensional conceptualisation of optimism. An individual's expectations of a positive outcome

(i.e. optimism) can be the result of either (a) the individual's belief about being confident about his/her own abilities (thus, under his/her control) or (b) an expectation of good luck. The latter is similar to the conceptualisation of external locus of control in terms of chance (Levenson, 1981). A statistically significant correlation, of r = 0.31, between locus of control and optimism is also reported (Klein & Helweg-Larsen, 2002, p. 439) in a meta-analytical study consisting of 22 research projects. Therefore, the current study concurs that an individual seems to have higher levels of optimism if he/she believes that certain events are controllable and lower levels of optimism for uncontrollable events (Weinstein as cited by Klein & Helweg-Larsen, 2002, p. 438).

The following section explores the relationship between locus of control and hope, as suggested by the theoretical model depicting the process of persistence. The relationship between locus of control and hope is discussed focusing on theoretical and conceptual studies.

2.10.2. Relationship between locus of control and hope

The influence of locus of control on hope can be explained in the following manner. Previously, locus of control was defined as an *individual's beliefs about the causes of events in their lives* (Judge & Bono, 2002, p. 97). If an individual believes that the outcome of an event is the result of his/her efforts, then that individual has an internal locus of control. However, if the individual believes that the outcome of an event is based on luck or other factors outside of his/her control, then the individual has an external locus of control. In addition, the current study accepts the conceptualisation of hope as defined by Snyder and his colleagues (1991, p. 287), that states that hope is *a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals)*. During Chapter 1, it became evident that hope is based on an individual's expectancies of the future. In addition Stotland (1969, p.2) defined hope as *an expectation greater than zero of achieving a goal*, providing support for the assumption that hope may also focus on expectancies. Thus, the expectations associated with hopeful thinking can be theoretically linked to the development of these expectations in past behaviours, therefore providing the theoretical link between locus of control and hope. However, to explain why locus of control may influence

hope, emphasis is placed on the construct of perceived personal control and one of its associated advantages – initiating problem-solving strategies (Thompson, 2005).

Personal control (which also incorporates locus of control) focuses on an individual's ability to adapt to situations that may seem to be providing little opportunities for control. The individual must therefore evaluate the extent to which he/she has the ability to exert control over the given situation. This evaluation is known as perceived personal control. One of the advantages associated with perceived personal control is that, when the individual experiences personal control, he/she will activate his/her problem-solving abilities and attention to possible solutions (Thompson, 2005, p. 203). This allows the individual to evaluate the situation and determine what can be done to alleviate the situation. This provides information for the possible theoretical relationship between locus of control and hope – specifically pathways thinking. Thus, an individual with high personal control and internal locus of control may activate problem-solving activities and focus on possible solutions. The latter seems to imply that the individual is focusing on increasing control by developing alternative paths (i.e. possible solutions) to overcome goal blockages. To develop such alternative solutions, the individual must be flexible in his/her thinking style.

Pathways thinking emphasises an individual's ability to produce alternative routes to a stated goal when the goal-achievement is being impeded (Lopez et al., 2003, p. 94, Snyder et al., 2005). Pathways thinking become important when individuals are faced with goal blockages. High-hope individuals are more likely to produce more than one pathway of reaching a particular goal, with a sense of confidence in that route. High-hope individuals would be more decisive about their pathways for their goals (Snyder et al., 2005). Therefore, it is assumed that high-hope individuals should be good at producing alternative routes to attain their goals – especially during impeding circumstances. High-hope individuals have described themselves as flexible thinkers (Snyder, 2002, p. 251). The rationale for locus of control influence hope and optimism separately is based on the assumption that is possible for an individual to be hopeful but not optimistic, often seen in individuals with high external locus of control (Carifio et al., 2002, p. 127).

With a clear understanding as to how locus of control may be related to both optimism (through past expectancies) and hope (through both past expectancies and the initiation of problem-solving strategies as expressed through different pathways), the

following section provides the theoretical and empirical link between optimism and self-esteem.

2.10.3. Relationship between optimism and self-esteem

Optimism was conceptualised as a thinking style, focusing on the attributions individuals make about the causes of events that they experience (Seligman, 1991). Thus, when individuals experience both positive and negative outcomes in their lives, they have to provide an explanation for these outcomes. Optimists provide explanations to events (specifically negative/bad events) that are temporary, specific, and external. Optimists attribute the causes of the events in their lives to temporary, external, and specific causes. In contrast, pessimists attribute the causes of events in their lives to permanent, internal, and global causes. The latter is particularly relevant to the theoretical link with self-esteem. Pessimist overgeneralise the attributions of their failure to all areas of their lives. They do not attribute failure to a specific cause – they claim that the reasons for failure are present in all aspects of their lives.

The assumption that low self-esteem individuals overgeneralise their failure is supported by the results reported that scores on the Life Orientation Test (LOT) (a measure of optimism) was positively related with self-esteem scores (Carifio et al, 2002).

In addition, results of a study conducted by Cheng and Furnam (2003, p. 127), with a sample of 88 undergraduate students, optimism as measured by the Attributional Style Questionnaire, had a statistically significant correlation of 0.40 with self-esteem. Therefore, there seems to be both theoretical and statistical support for the assumption that optimism may influence self-esteem.

With an understanding as to why optimism may be related to self-esteem (through overgenralisation of failure and self-worth), the following section provides the theoretical and conceptual link between hope and self-esteem.

2.10.4. Relationship between hope and self-esteem

Self-esteem is theoretically built on goal-directed thinking (Hewitt, 1998). Hope also focuses on the importance of goals and individuals' way of thinking to achieve those goals (Snyder, 1994, 1995, 1999, 2002). There is support for the assumption that hope effects self-esteem and not vice versa (Snyder, Cheavens, & Michael, 1999; Snyder,

2002, p. 258). One possible explanation is the assumption that high-hope individuals exhibit less negative emotions after initial setback due to the use of this feedback for improvement purposes. However, low-hope individuals use feedback from goal non-attainment to produce self-doubt – the self-liking component of self-esteem (Snyder, 1999; Michael, 2000). This assumption was later supported in a study that reported evidence that high-hope individuals preferred listening to positive messages relating to successful goal achievement. In contrast, low-hope individuals were able to better recall negative self-referential statements (Snyder, LaPointe, Crowson, and Early, 1998). One explanation is that high-hope individuals focus more on positive self-statement than low-hope individuals who focus on negative self-statement (Snyder, LaPointe, et al., 1998, p. 809). Further theoretical support is provided by the importance of agency thinking. Agency refers to an individual's belief that he/she can initiate and maintain movement along a chosen pathway toward a chosen goal. These agency thoughts serve as motivators for the individual, and they manifest themselves in the form of "affirming self-statement" (Snyder, Ilardi, Cheavens, et al., 2000, p. 749). Examples of such statements include "I know I can do this" and "I will finish" (Snyder, Ilardi, Cheavens, et al., 2000, p. 749). In the event of the individual experiencing a goal-blockage, successful agency thinking allows the individual to direct his/her positive motivation (i.e. thoughts and emotions) to alternative pathways (Snyder, 1994). Goal non-attainment produces emotional reactions. According to hope theory, hope-related thoughts cause emotions (Snyder, Ilardi, Cheavens, et al., 2000, p. 750).

Therefore, hope (cognition) may be related to self-esteem (emotion) due to the fact that self-esteem emphasises the individual's perception of self-worth based on self-referential statements. After experiencing goal non-attainment, it is assumed that high-hope individuals use positive emotions and thoughts to focus on the identification of alternative pathways, which enables them to use feedback from failure to build their levels of self-esteem.

The previous section provided theoretical support for the assumption that hope may be related to self-esteem through agency thinking, self-referential statements, and self-liking. The following section provides both theoretical and statistical support for the relationship between hope and self-efficacy.

2.10.5. Relationship between hope and self-efficacy

Snyder (as cited by Carifio et al., 2002, p. 126) is of the opinion that low self-efficacy may be the result of low levels of hope and/or the inadequate number of alternative strategies for solving problems. As stated previously, hope theory conceptualises the construct to consist of two components, viz: (a) pathways thinking, and (b) agency thinking (Snyder 1994, 2000). The theoretical link between hope and self-efficacy is suggested by focusing on the high-hope individual's perceived ability to formulate alternative routes to identified goals (Snyder, Ilardi, Cheavens, et al., 2000, p. 749). Thus, self-efficacy may be influenced by the individual's previous self-efficacy beliefs based on the ability to develop alternative pathways when being confronted with goal blockages. The ability to develop alternative pathways may thus strengthen self-efficacy beliefs in general. There is evidence to support the fact that high-hope individuals actually produce more pathways when compared to low-hope individuals (Snyder, Ilardi, Cheavens, et al., 2000, p. 749).

Support for the assumption that hope is related to self-efficacy is based on two empirical studies. In a study conducted by Magaletta and Oliver (1999, p. 545), they reported a statistically significant correlation of 0.592 between hope and self-efficacy using a sample of 204 undergraduate students. Therefore, the implementation of a strategy that leads to failure may prompt the individual to revise his/her self-efficacy beliefs (Albert et al., 1999; Diegelman et al., 2001; Lent & Brown, 1996; Lent, Brown, et al., 1994; Ochs & Roessler, 2004). The second study conducted by Carifio and Rhodes (2002, p. 134), reported that hope was significantly related to self-efficacy, with a correlation of 0.49 for agency thinking and 0.45 for pathways thinking using a sample of 22 undergraduate students.

With both theoretical and statistical evidence that hope is related to self-efficacy through an individual's ability to develop alternative pathways when experiencing goal blockages, the following section provides both theoretical and statistical support for the possible relationship between self-esteem and self-efficacy.

2.10.6. Relationship between self-esteem and self-efficacy

Self-regulation depends on three interacting components, viz: a) goals and standards of individual performance, b) self-evaluating statements about performance, and c)

self-efficacy beliefs (Bandura, 1986, 1997). The importance of self-esteem's impact on self-efficacy becomes clearer in the following discussion.

Firstly, individuals self-regulate their behaviours, thoughts, and emotions to achieve the goals that they have set for themselves. These goals assist individuals to set themselves standards against which they evaluate themselves, as well as their progress towards their goals in terms of their abilities (Snyder et al., 2005). Secondly, during the evaluation of an individual's progress towards the goal, the individual is likely to develop certain beliefs about his/her progress and efficacy. The individual thus engages in self-evaluative thinking (i.e. self-esteem). Self-esteem has a self-worth component that self-efficacy does not have. Thus, an individual may have high self-efficacy beliefs in terms of mastered certain skills, however, the individual feels that these mastered skills are of no value to his/her self-worth (Judge et al., 2002, p. 96). Self-esteem is an attitude about oneself, and is related to personal beliefs about skills, abilities, and future outcomes (Heatherton et al., 2003, p. 220).

Therefore, it is possible that self-esteem may be related to self-efficacy through these personal beliefs and emotions attached to those beliefs. To further understand the possible impact of self-esteem on self-efficacy, the conceptualisation of self-esteem consisting of both self-liking and self-competence may be helpful (Tafarodi & Swann, 1995; Tafarofi & Swann, 2001; Tafarodi & Vu, 1997) together with compensatory self-enhancement (Baumeister, 1982).

Self-competence refers to an individual's sense of efficacy (i.e. self-efficacy), while self-liking refers to an individual's general sense of social worth (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). Low self-esteem individuals engage in punitive self-reflection and overgeneralise their failure. Feelings of being unworthy (i.e. low self-esteem and low self-liking) seem to be more important than feelings of competence (i.e. self-competence) (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997) – providing theoretical support for the assumption that self-esteem is related to self-efficacy. However, using compensatory self-enhancement (Baumeister, 1982), individuals with high levels of self-esteem focus on those areas that they are competent in as a reference to their abilities and self-evaluations. It is possible for these individuals to compensate for the negative image others may have of them. Individuals who compensate will try to counteract these negative expectations by presenting new (but unrelated) information about themselves. These individuals risk the fact that their compensatory self-enhancing

statements may be contradicted and disconfirmed in the future (Baumeister, 1982). It is suggested that individuals with high self-esteem is of the opinion that others like them in general. In addition, they are also of the opinion that others may come to accept them and become aware of their qualities if given the opportunity to get to know them better. An individual who experiences a negative view from others is likely to make positive claims about him/her although he/she is aware of the fact that future interaction is required. The individual is convinced that future interactions will not contradict the positive claims being made. In fact, a high-self esteem individual expects that these self-enhancing statements will be supported by future actions (Baumeister, 1982, p. 30).The latter suggest that these future actions are based on self-efficacious beliefs.

Empirical support for the relationship between self-esteem and self-efficacy are evident in the following two studies. Judge, Erez, Bono, and Thoresen (2002, p. 698) reported a statistically significant correlation of 0.74 between generalised self-efficacy and self-esteem. Later, Chen, Gully, and Eden (2004, p. 386) reported a statistically significant correlation of 0.67, between self-esteem and self-efficacy using a sample of 267 undergraduate students.

Based on the theoretical assumption that self-esteem may be related to self-efficacy, through feelings of self-worth and compensatory self-enhancement supported by empirical evidence, the following section discusses the relationship between self-esteem and resilience (the persistence component of motivation).

2.10.7. Relationship between self-esteem and resilience

The current study hypothesises that self-esteem is related to persistence through resilience (which is measured by the Sense of Coherence Scale of Antonovsky, 1987). This assumption is based on the theoretical assumption that individuals who have a sense of coherence have several resources available to deal with negative feedback and setbacks (Antonovsky, 1979; Lustig et al., 2002). Antonovsky (1979) proposed that the availability of these resources helps the individual to develop a sense of coherence, which in turn mobilises the resources to avoid or deal with stress. The latter experiences provide feedback and reinforce a sense of coherence. A person with a strong sense of coherence is more likely to view and understand problems as challenges, and is more likely to select the most appropriate coping behaviour for the

specific problem. Sense of coherence is therefore the overall orientation that the environment is comprehensible, manageable, and meaningful (Antonovsky, 1987). These latter three concepts were discussed earlier. However, for the purpose of providing a theoretical link between self-esteem and sense of coherence, the importance of manageability is briefly highlighted again. Manageability focuses on the degree to which an individual believes that he/she has the personal and social resources to deal with the demands of the world. Experiences that reinforce an individual's belief that there are resources available (such as self-esteem) to meet these demands form the basis of manageability (Antonovsky, 1987; Lustig et al, 2002). It was also suggested earlier that self-esteem can be viewed as a generalised resistance resource that individuals can use in order to view the failing of Part 1 of the Qualifying Exam as more manageable, and increase there levels of sense of coherence. It was also suggested that self-esteem, as a generalised resistance resource, can be part of an overall intervention programme to enhance resilience in aspiring chartered accountants. The viewpoint that self-esteem may be viewed as a resilience resources was supported by Kemp (2002, p. 66). In addition to the theoretical assumption that self-esteem is related to persistence through sense of coherence, sufficient empirical evidence was earlier reported to substantiate the direct relationship between self-esteem and persistence (Carifio et al, 2002; Kahn et al., 2001; Koestner & Zuckerman, 1994; Tafarodi & Swann, 1995, Tafarodi & Swann, 2001; Tafarodi & Vu, 1997; Seo, 2004).

The following section highlights the theoretical importance of self-efficacy, another possible generalised resistance resource, which may be indirectly related to persistence through resilience.

2.10.8. Relationship between self-efficacy and resilience

The current study also hypothesises that self-efficacy is indirectly related to persistence through sense of coherence (Antonovsky, 1987). This assumption is based on the theoretical assumption that individuals who have a sense of coherence have several resources available to deal with negative feedback and setbacks (Antonovsky, 1979; Lustig et al., 2002). Bandura was of the opinion that self-efficacy beliefs influenced resilience to adversity and the presence of helpful or hindering

cognitions (O'Brien, 2003, p. 110), supporting the assumption of the current study's hypothesis that self-efficacy influence resilience.

Of the three concepts related to sense of coherence (controllability, manageability, and meaningfulness), manageability is of theoretical importance to explain why self-efficacy may be viewed as a generalised resistance resource. Meaningfulness focuses on the degree to which an individual believes that he/she has the personal and social resources to deal with the demands of the world. Experiences that reinforce an individual's belief that there are resources available (such as self-efficacy) to meet these demands form the basis of manageability (Antonovsky, 1987; Kemp, 2002; Lustig et al, 2002). It was also suggested earlier that self-efficacy can be viewed as a generalised resistance resource that individuals can use in order to view the failing of Part 1 of the Qualifying Exam as more manageable, and increase there levels of sense of coherence. It was also suggested that self-efficacy, as a generalised resistance resource, can be part of an overall intervention programme to enhance resilience in aspiring chartered accountants. In addition to the theoretical assumption that self-efficacy may be indirectly related to persistence through sense of coherence, sufficient empirical evidence was reported earlier to substantiate the direct relationship between self-efficacy and persistence (Carifio et al, 2002; Kanfer et al, 1997; Multon et al., 1991; Sexton et al., 1991; Snyder et al, 1991).

With an indication of the role that both self-esteem and self-efficacy (two examples of generalised resistance resources) are related to resilience, the following section investigates the hypothesised relationship between resilience and persistence.

2.10.9. Relationship between resilience and persistence

Resilience was previously defined as a *pattern of psychological activity which consists of a motive to be strong in the face of inordinate demands, which energizes goal-directed behaviour to cope and rebound (or resile), as well as accompanying emotions and cognitions* (Strümpfer, 2001b, p. 36). Resilience (i.e. career resilience) is the persistence component of motivation (London, 1983, 1993, 1997). Resilience is important because of personal characteristics that may a) compensate for the loss of competence during stress, b) protect the individual against perceptions of harm to the self-esteem, and c) interpret stressful situations as challenging (London, 1998, p. 77). Factors that contribute to an individual's ability to successfully manage stressors

include specific skills and psychological resources (Lustig et al, 2002, p. 2). One indicator and psychological resource of resilience is sense of coherence (Antonovsky, 1977, 1987). A person with a strong sense of coherence is more likely to view and understand problems as challenges, and is more likely to select the most appropriate coping behaviour for the specific problem. Sense of coherence is the overall orientation that the environment is comprehensible, manageable, and meaningful (Antonovsky, 1987). Feelings of sense of coherence are enhanced by the availability of Generalised Resistance Resources (GRRs) (Antonovsky, 1987). These GRRs usually take the form of cognitive skills, social support, specific skills and other psychological resources (Lustig et al, 2002, p. 2). It was earlier that both cognitive (locus of control, self-efficacy, optimism, and hope) as well as emotional (self-esteem) fortigenic variables can be viewed as generalised resistance resources (GRRs) (Antonovsky, 1977, 1987) that can be used by aspiring chartered accountants to enhance their levels of resilience and their persistence.

It is therefore assumed that individuals, who have more skills and psychological resources (locus of control, general self-efficacy, optimism, hope, and self-esteem) at their disposal to be more resilient, and in turn should also, be more persistent. Kemp (2002) found empirical support for the relationship between resilience and persistence. In contrast, individuals who have depleted these resources (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister, 2002; Kroll, 1990; Schmeichel, Baumeister, & Vohs, 2003) due to previous failures and negative feedback may have less generalised resistance resources at their disposal, lowering their resilience, and lowering their persistence.

2.11. Summary

Chapter 2 provided both theoretical and empirical support for the relationship between the fortigenic variables to be studied and persistence. It can therefore be suggested that individuals who have an internal locus of control, who are more optimistic about the outcomes of their goals, who have multiple pathways and feel confident in those pathways to assist them in achieving their goals will be more persistent. In addition, those individuals who perceive that they have the necessary skills and confidence in those skills to complete a given task will also be more persistent. Supporting the relationships between the cognitive fortigenic variables and persistence, similar evidence was reported for the emotional fortigenic variables. Individuals who have a

better evaluation of their self-worth and self-competence together with the availability of generalised resistance resources will be more resilient and persistent.
Chapter 2 also provided suggestions as to the various interventions available to enhance each of the fortigenic variables, together with a theoretical explanation of the process depicting persistence.

With an overview of the literature and the research problem that is based on these theoretical assumptions and empirical evidence, the following chapter continues with the logic of research – which is the research design. Chapter 3 will therefore focus on survey and statistical modelling research designs (emphasising structural equations modelling) used by the current study to investigate the research problem which is "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?" Chapter 3 will report the sample characteristics as well as the factor structures of each of the measured fortigenic constructs that are applicable to the current sample using both exploratory and confirmatory factor analysis.

CHAPTER 3

METHODOLOGY

3.1. Introduction

The current study is guided by the following research problem "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?" To provide an answer to this research problem, three research questions were developed to guide the current study. Chapter 3, the current chapter, firstly revisits the three research questions. To systematically provide answers to the three research questions, an appropriate research design is required. Secondly, the chapter focuses on the research design, research methodology, and statistical techniques used to test the research propositions by explaining the aims of science and scientific research. Thirdly, the sample design as well as the data collection procedures using various fortigenic measuring instruments is discussed. The sample characteristics are also reported in this chapter. Emphasis is placed on the portability of the measuring instruments and the identified factor structures through multivariate data analysis techniques, which are exploratory factor analysis and confirmatory factor analysis. The logic of discussing these results in the methodology chapter is that the results of this study are based on the factor structures identified through these two techniques. It thus becomes a methodological issue that must be discussed before the presentation of the results of this study. Identifying the factor structures and confirming them is an attempt to ensure methodological rigour before presenting results based on these structures. Finally, the chapter ends with a discussion of additional data analysis methods used for this study, emphasising structural equations modelling.

3.2. Research Questions

There are three research questions (which were derived from the research problem) that guide the choice of research method used for the current study. These questions dictate which process will be more appropriate to answer them. Before discussing the research design employed in this study, the three research questions are stated again. This serves as starting point to understand the chosen methodology.

In order to provide an answer to the problem statement, three separate research questions are developed to guide the current study. These three research questions are provided below.

1) "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?"
2) "Which fortigenic factors influence the persistence of aspiring chartered accountants who *passed* Part 1 of the Qualifying Exam during 2005?"
3) "Which fortigenic factors influence the persistence of aspiring chartered accountants who *failed* Part 1 of the Qualifying Exam during 2005?"

Research question 2 and research question 3 are appropriate due to the large numbers of repeat students writing Part 1 of the Qualifying Exam of SAICA. It is therefore possible to evaluate how two groups, one experiencing the achievement of a career goal after persisting, and another failing a career goal but still persisting, possess the various psychological strengths to persist. More important, research question 3 may provide information on what the cognitive and emotional impacts are of failing and not achieving a career goal.

In order to answer the three research questions developed for the current study, twelve propositions were formulated in Chapter 1. The sequence of testing these propositions is important. Proposition 1 form the basis of evaluating which factor structures are applicable to the current sample. Since the operationalised measures of the variables are from American studies, it is important to determine if a similar or different factor structure emerges within a South African sample. If a different structure emerges, then it must be interpretable and understandable given the theoretical basis of the construct being measured. The factor structures identified through Proposition 1 will be used in further data analysis for the current study. Proposition 2 must also be tested before continuing with further data analysis. The latter proposition will determine whether the structures of the various fortigenic variables are structurally equivalent across different groups. This provides qualitative evidence of the equivalence of the measuring instrument across groups, such as gender and race. The remaining research propositions (Propositions 3a through 12) will then be evaluated on the basis of the identified factor structures applicable to the South African sample in Chapter 4.

In addition to guiding the research methodology of the current study, the twelve propositions also guide and determine the data analysis techniques to be used. Appropriate data analysis methods will be discussed, to evaluate each of these propositions, in sections later in Chapter 3. When discussing the data analysis methods employed in the current study, specific reference to a stated proposition will be made.

Due to the assumption that the research questions determine the research design and methodology, the following section elaborates on it – focusing on the aims of science, the nature of scientific research, as well as survey research and statistical modelling studies.

3.3. Research Design

An appropriate research design and a research methodology are chosen on the basis of the research questions and research propositions. The research questions pose a question to a problem that must be answered. To provide an answer to the research questions, it is important to follow a rigorous procedure to arrive at a possible answer. This process used at arriving at the answer constitutes the practice of scientific research and its associated characteristics. Firstly, this section identifies the purpose of science and scientific research. Secondly, this section elaborates on the logic of the chosen research design and research methodology for this study. In addition, emphasis is placed on the two types of studies employed for the current research, namely survey research and statistical modelling studies.

3.3.1. Purpose of science and scientific research

Science has a basic aim of using theory in explaining a phenomenon. These explanations are known as theories. A theory can be defined as "a set of interrelated constructs (concepts), definitions, and propositions that represent a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena" (Kerlinger & Lee, 2000, p. 11). In addition to this basic aim, scientific research in general has four major purposes, viz: description, explanation, prediction, and intervention (Babbie, 1998; Bless & Higson-Smith, 1995: Kerlinger et al., 2000). Each of these four purposes is relayed back to the definition of a theory during each of their discussions.

3.3.1.1. Description

Scientific research aims to describe the phenomenon under study. This is usually achieved through describing the characteristics of the sample that participated in a study, the characteristics of the measuring instruments used, and their factor structure for a particular study. Describing the relationships among the variables identified during the literature review, using existing theory, and the subsequent descriptions of these relationships also form part of the descriptive purpose of scientific research. In this study, the descriptive purpose of scientific research is achieved in the following manner: (a) by conducting a literature review of existing theories on fortigenic factors that influence persistence (Chapter 1 and Chapter 2); (b) describing the characteristics of the sample that participated in this study in terms of their biographical variables (Chapter 3); (c) describing the factor structures of the measurements of the identified fortigenic variables as they apply to the current sample used (Chapter 3); (d) describing the relationships between persistence and the measurements of the identified fortigenic variables on the basis of the literature review and theorising in conjunction with statistical correlations (Chapter 2 and Chapter 4); (e) describing differences between those aspiring candidates who have passed part 1 of the qualifying exam with those who did not pass (Chapter 4); and (f) describing relationships between various biographical variables and the measurements of the identified fortigenic variables (Chapter 4). In short, the descriptive purpose of this study is to describe the interrelationships among the fortigenic variables and persistence through the use of theory, based on the identified factor structures of the measurements of the fortigenic variables. The analytical techniques to be used in describing the biographical variables and the identified fortigenic variables are descriptive statistics, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). The descriptive purpose of this study is therefore guided by Propositions 1, 2, 3a, 3b, 6a, 6b, 9a, 9b, and 12.

Propositions 1, 2, and 12 are research propositions focusing on structure, while Propositions 3a, 3b, 6a, 6b, 9a, and 9b are research propositions focusing on the degree of relationship among measured variables. Describing the significance of group difference is also a research proposition being evaluated in the descriptive purpose of research (Tabachnick et al., 2001).

The following section explores the explanatory purpose of science and the current study.

3.3.1.2. Explanation

In addition to describing the interrelationships among the fortigenic variables, the second purpose of scientific research is to explain the phenomenon under study. Whereas the descriptive purpose of scientific research focuses on which factors influence persistence and which factor structures are applicable to the current sample, the explanatory purpose of scientific research focuses on why these fortigenic factors influence persistence directly or indirectly (through other fortigenic variables) in a complex sequential manner. For example the latter suggest that the question must be posed as to why aspiring chartered accountants persisted after failing Part 1 of the Qualifying Exam and why these fortigenic variables (in a hypothetical, sequential order) explain persistent behaviour. The explanatory purpose of this study is thus to explain why persistent behaviour of aspiring accountant can be explained through a theoretical model. Explanation is therefore based on the relationships among the fortigenic variables and persistence. The latter was discussed in Chapter 2. The analytical technique to be used in explaining why the identified fortigenic variables, in their theoretical sequential order, explain persistence of aspiring chartered accountants is structural equation modelling. The explanatory purpose of this study is therefore guided by Propositions 3a, 4, 6a, 7, 9a, and 10.

Propositions 3a, 6a, and 9a are research propositions focusing on the degree of relationship among variables, while Propositions 4, 7, and 10 are research propositions focusing on structure (Tabachnick et al, 2001).

With a general overview of the explanatory purpose of science, the following section discusses the predictive purpose of science and the current study.

3.3.1.3. Prediction

Prediction is the third purpose of scientific research. Prediction is only possible if the previous two purposes of scientific research are met. Thus, it is only possible to predict persistence of aspiring chartered accountants if the measured fortigenic variables under study are accurately described. The description of the characteristics of the measured fortigenic variables and their interrelationships allow for the

development of possible explanations for why these variables, in a theoretical sequential model, explain the process of persistence of aspiring chartered accounts who wrote Part 1 of the Qualifying Exam. The aforementioned allows the possibility of predicting which variables accurately predict persistence under which circumstances. The analytical technique to be used in predicting the persistence of aspiring chartered accountants is multiple regression analysis. The predictive purpose of this study is guided by Propositions 5, 8, and 11. Thus, the latter propositions focus on the degree of relationships among variables as a research question (Tabachnick et al, 2001).

With a clear understanding of the descriptive, explanatory, and predictive purposes of science and the current study, the final purpose of science which is prediction, is discussed in the following section.

3.3.1.4. Intervention

The final purpose of scientific research is intervention. The latter emphasises the use of corrective action to influence or change a situation. Applying the intervening purpose of scientific research to the current study the following is suggested: After describing the characteristics of the sample, the factor structures of the identified measured fortigenic variables, and their relationship with persistence, it is possible to theorise and explain why these fortigenic variables influence persistence directly and indirectly under certain circumstances. This allows for the prediction of persistent behaviour of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam. After identifying the factors that predict persistent behaviour, it is possible to develop intervention programmes to assist those aspiring chartered accountants who have failed, to improve their probability of passing. The intervening purpose of this study is elaborated on in Chapter 5.

To fulfil and achieve these four purposes of scientific research, and to arrive at a possible answer for each of the three research questions, a plan of systematic data collection and objective investigation is required. The research design, which outlines such a plan, is discussed in the following section.

3.3.2. Logic of chosen research design and research methodology

The choice of a research design is governed by the research questions and research problem of a given study. The research questions and research problem is derived from the literature review and suggests the most appropriate methodology to answer the research problem. *Theories can be used to guide a research plan by generating testable hypotheses and to organize facts obtained from the testing of these hypotheses* (Kerlinger et al., 2000, p. 13). The research problem is broken down into manageable focus areas (i.e. research questions and propositions) – each representing a stated research proposition. By focusing on the four purposes of scientific research and their associated propositions, it is then possible to provide answers to the three research questions. These research questions are thus answered by using the propositions of this study that requires the use of an appropriate research design and research methodology – based on theory. In order to test these propositions, a systematic and objective observation procedure is required.

To determine the interpretable and understandable factor structures associated with each of the fortigenic variables (Proposition 1) as well as their structural equivalence between groups (Proposition 2) requires the use of a research design that makes possible the empirical collection of the data on fortigenic variables from a large sample of respondents. One approach to collect empirical information on these fortigenic variables from a large enough sample is through the use of a survey. In addition to empirical evidence obtained through a survey, the research design must also enable the statistical evaluation and statistical modelling of these identified factor structures. This is primarily done by using statistical modelling studies. Thus, Propositions 1 and 2 pose a descriptive question that must be answered.

In order to identify the significant relationships between persistence and the measured fortigenic variables (Propositions 3a, 3b, 6a, 6b, 9a, and 9b) requires a research design that allows for the statistical analysis of these propositions based on collected survey data. These propositions thus pose descriptive questions.

Finally, the research design must enable the evaluation of a theoretical model's goodness of fit of the structural model depicting persistence (Propositions 4, 7, and 10). To evaluate each measured fortigenic variable's contribution to a significant proportion of variance in persistence (Propositions 5, 8, and 11) also requires a suitable statistical technique. Therefore, both sequential and predictive questions are

posed. Due to the fact that a statistical model is developed and the latter must be evaluated, a statistical modelling study is required.

From each of the above propositions, it can thus be suggested that a combination of both a survey and statistical modelling study (Babbie, 1998; Kerlinger et al., 2000; Mouton, 2001; Newman, 1997) is the most appropriate research design to evaluate these propositions. The characteristics of both these two types of studies are briefly discussed below.

3.3.2.1. Survey studies

Survey research is quantitative in nature and tries to provide a broad overview of the phenomenon being studied using a sample. Primary data is collected through standardised questionnaires that allows for numerical manipulation. Surveys are mainly used in research that focuses on both describing and explaining the phenomenon being investigated. Survey research can be theory-driven when the research aims at evaluating propositions regarding the relationship between variables as well as theoretical models. The data collected by means of standardised questionnaires are analysed using descriptive statistics and inferential statistics, focusing on factor analysis, correlations, comparison of means, and regression analysis. Survey studies do have the potential to provide high measurement reliability and construct validity when standardised questionnaires are used. If an appropriate sampling design is used, the results can sometimes be generalised to the population from which the sample was drawn (Babbie, 1998; Kerlinger et al., 2000; Mouton, 2001; Newman, 1997). The data analysis techniques suggested for survey studies are discussed later in the data analysis section of this chapter.

Survey studies do have certain advantages (Babbie, 1998; Kerlinger et al., 2000; Newman, 1997). They can obtain a large amount of information from a large population. When information is obtained on such a large scale, it is usually accurate (given the sampling error). Thus, they are useful in describing the characteristics of a large population. Survey studies can reach a large number of respondents to participate in the research study. Flexibility is another advantage of survey studies. The latter implies that survey studies allow asking questions on numerous variables simultaneously – saving time. Surveys can also provide anonymity when respondents complete the survey. If anonymity cannot be guaranteed, then the respondent's

identity must be kept confidential and only aggregated results be made public regarding the survey (Babbie, 1998; Kerlinger et al., 2000; Newman, 1997).
However, survey studies also have disadvantages (Babbie, 1998; Kerlinger et al., 2000; Newman, 1997). Completing a survey is done on a voluntary basis. Respondents do not always respond promptly or even complete the survey instrument correctly. Some survey studies do not always provide in-depth information on the phenomenon being studied. In a sense, survey studies are nomothethic rather than ideographic in nature. Survey studies cannot always deal with the context of the phenomenon being studied. Although a general description is provided, rarely is a feel provided for the total life situation in which respondents are thinking, living, and experiencing (Babbie, 1998; Kerlinger et al., 2000; Newman, 1997).

Due to the assumption that survey studies employ statistical techniques, it is appropriate to elaborate on statistical modelling studies in the following section.

3.3.2.2. Statistical modelling studies

Although survey studies provide a broad overview of the phenomenon being studied, it lacks the ability to evaluate the theoretical models developed through a literature review. To overcome this limitation, statistical modelling studies must also be combined with survey studies. Theory development is the central aim of scientific research (Kerlinger et al., 200). To assist theory development, statistical modelling studies evaluate and validate a theoretical model of the phenomenon being studied. The theoretical model is developed through a process of theorising about the process as observed in the real world. Data, collected through the use of survey studies, is used to quantitatively validate the theoretical model. Most often multivariate statistical analyses are used to evaluate and validate theoretical models. These analyses include multiple regression analysis and structural equation modelling (Kerlinger et al., 2000; Mouton, 2001). Multiple regression and structural equation modelling are discussed in the data analysis section of this chapter.

Both survey and statistical modelling studies have in common the use of survey data based on a sample. The selection of a sample from the population is important during the research design due to the following two reasons. Firstly, the respondents being sampled must be able to provide answers to the questions being posed in the

questionnaires (Kerlinger et al., 2000; Mouton, 2001). These respondents must have experience of the phenomenon being studied. Secondly, the sample should be as representative of the population as possible. It is impossible to require all the individuals in a given population to respond. However, the opinions and attitudes of the sample used must be reflective of the opinions and attitudes of the population. The importance of sampling and the sampling design used for this study is elaborated on in the next section.

3.4. Sampling design

Sampling refers to the process of systematically selecting cases for the participation in a survey. The selection of cases (elements) is obtained from a population. The aim of sampling is to obtain a representative indication regarding a sample's opinions and attitudes regarding the phenomenon being studied which is reflective of the total population (Kerlinger et al., 2000; Mouton, 2001, Newman, 1997).

The population of this study is defined in the following section.

3.4.1. Population

For the current study, the population is defined as follows: All candidates who were registered with the South African Institute of Chartered Accountants (SAICA) who wrote Part 1 of the Qualifying Exam during 2005.

The sample drawn from this population is defined in the following section.

3.4.2. Defining the sample

The sample used for this study is defined as follows: All candidates who are registered with the South African Institute of Chartered Accountants (SAICA) who wrote Part 1 of the Qualifying Exam during 2005. It includes those candidates who passed this examination on their first, second, third, fourth, or fifth attempt. It also includes those candidates who failed this examination on their first, second, third, fourth, or fifth attempt.

The methods of obtaining respondents from the sample that represent the population are briefly discussed below.

3.4.3. Sampling method

This study used the complete database of SAICA that included the e-mail addresses of registered candidates. Survey questionnaires were e-mailed to all these registered candidates. The total population of registered candidates with e-mails were used for this study. No sample was drawn from the population. Thus, the total population was treated as the potential sample.

The following sections describe the sample characteristics of the respondents that completed the survey questionnaires.

3.4.4. Describing the sample

This section describes the characteristics of the sample of respondents that completed the survey questionnaires. Their characteristics in terms of the following variables are provided: gender, race, designated group, number of candidates passing Part 1 of the Qualifying Exam, number of candidates passing and failing Part 1 of the Qualifying Exam according to training in the "Big Four", number of candidates passing Part 1 of the Qualifying Exam according to number of attempts, number of years to complete undergraduate studies, and number of years to complete postgraduate studies.

Table 3.1 Number of Female and Male participants

	Frequency	Percent	Cumulative Percent
Female	161	54.6	54.6
Male	134	45.4	100.0
Total	295	100.0	

From Table 3.1 it is evident that female subjects were in the majority comprising 55% of the sample.

Table 3.2 Frequency distribution of the race-grouping of the participants

	Frequency	Percent	Cumulative Percent
Black	58	19.7	19.7
Coloured	13	4.4	24.1
Indian	36	12.2	36.3
White	188	63.7	100.0
Total	295	100.0	

From Table 3.2 it is evident that the majority of the sample (64%) comprised of white candidates.

Table 3.3 Frequency distribution of the Designated group versus the White group

	Frequency	Percent	Cumulative Percent
Designated Group	107	36.3	36.3
White Group	188	63.7	100.0
Total	295	100.0	

It is possible to collapse the Black, Coloured, and Indian race groups into a single group known as the Designated Group. The latter term refers to those groups that are targeted by Affirmative Action initiatives of organisations according to the Employment Equity Act (55 of 1998). From Table 3.3 it is evident that the Designated Group comprised of 34% of the sample.

Table 3.4 Number of candidates passing Part 1 of Qualifying Exam

	Frequency	Percent	Cumulative Percent
Yes	139	47.1	47.1
No	156	52.9	100.0
Total	295	100.0	

From Table 3.4 it is evident that the majority of the candidates (53%) in this sample did not pass Part 1 of the Qualifying Exam – irrespective of number of attempts.

Table 3.5 Number of candidates passing Part 1 of the Qualifying Exam taking into consideration Big Four Training Contract

Passed 2005 QE 1	Big Four Training Contract		Total
	Yes	No	
Yes	76	62	138
No	49	107	156
Total	125	169	294

The "Big Four: companies consist of KPMG, PriceWaterhouseCoopers, Deloitte & Touche, and Ernst & Young. From Table 3.5 it is evident that the majority of candidates who failed Part 1 of the Qualifying Exam did not do their training in one of the "Big Four".

Table 3.6 Years to complete undergraduate training

	N	Minimum	Maximum	Mean	Std. Deviation
Time to complete undergraduate training	295	1.00	12.00	3.7644	1.06006

From Table 3.6 it is evident that the average time taken by the candidates in this sample to complete their undergraduate training was four years. It is possible for an individual with a BCom-degree to take extra courses to complete the BCompt-degree or BAcc-degree within one year.

Table 3.7 Number of candidates passing and failing Part 1 of the Qualifying Exam at each of the five attempts

Passed 2005 QE 1	Number of attempts					Total
	1	2	3	4	5	
Yes	94	22	17	5	1	139
No	57	45	32	17	5	156
Total	151	67	49	22	6	295

From Table 3.7 it is evident that the majority (64%) of candidates in this sample failed Part 1 of the Qualifying Exam during attempts 2 through 5.

Table 3.8 Number of years to complete CTA training

Time to complete CTA training	N	Minimum	Maximum	Mean	Std. Deviation
Total	295	1	6	1.9220	1.33402

From Table 3.8 it is evident that the candidates in this sample took on average about two years to complete their Certificate in the Theory of Accountancy (CTA) training.

Table 3.9 Number of candidates passing and failing Part 1 of the Qualifying Exam by Race Group

			Number of attempts					Total
			1	2	3	4	5	
Designated Group	**Passed 2005 QE 1**	**Yes**	17	5	7	1	1	31
		No	21	27	20	7	1	76
	Total		38	32	27	8	2	107
White Group	**Passed 2005 QE 1**	**Yes**	77	17	10	4	0	108
		No	36	18	12	10	4	80
	Total		113	35	22	14	4	188

From Table 3.9 it is evident that the majority (71%) of the designated group candidates failed versus 29% who passed Part 1 of the Qualifying Exam. In the case of the White group 57% passed versus 43% who failed.

Table 3.10 Number of candidates passing and failing Part 1 of the Qualifying Exam by Gender

			Number of attempts					Total
			1	2	3	4	5	
Female	**Passed 2005 QE 1**	**Yes**	44	11	9	4	0	68
		No	29	31	17	12	4	93
	Total		73	42	26	16	4	161
Male	**Passed 2005 QE 1**	**Yes**	50	11	8	1	1	71
		No	28	14	15	5	1	63
	Total		78	25	23	6	2	134

From Table 3.10 it is evident that the majority (60%) of the female candidates in this sample failed Part 1 of the Qualifying Exam at each of the five attempts. The opposite is true for the male candidates.

3.4.5. Sample size

After e-mailing the survey to the population, a total of 295 candidates with usable responses were included in this sample.

3.4.6. Representativity

In reviewing the descriptive statistics describing the sample, the results are similar to those reported by SAICA in Chapter 1 of this thesis. However, to determine if the results obtained from the measured fortigenic variables are generalisable to the population, the standard error of the mean must be evaluated.

The standard error of the mean is a statistic that can be used to provide an indication of how representative the sample statistics are of the population. A large standard error (in proportion to the mean) indicates variability between the different sample means. The latter indicates a sample that may not be that representative. In contrast, a small standard error (in relation to the mean) indicates less variability between the

different sample means. A small standard error suggests that the sample is representative (Field, 2005, p. 17).

Table 3.11 Sample statistics

Variable	N	Minimum	Maximum	Mean	Std. Error of the Mean	Skeweness
SOCTOT	295	53.00	122.00	91.606	0.70730	-0.217
HOPETOT	295	13.00	42.00	31.220	0.33537	-0.440
CTSTOT	295	21.00	49.00	37.006	0.37336	-0.209
PERSIST	295	32.00	82.00	60.559	0.54288	-0.100
ASQG	295	70.00	126.00	99.372	0.68114	-0.142
ASQB	295	17.00	90.00	50.637	0.65840	0.010
SLSC	295	45.00	112.00	81.349	0.84035	-0.145
LOCE	295	17.00	96.00	52.162	0.82539	0.284
LOCINT	295	8.00	35.00	27.901	0.22262	-0.782
GSETOT	295	53.00	113.00	89.576	0.66822	-0.527
SCSF1	295	13.00	42.00	29.864	0.35740	-0.082
SCSF2	295	5.00	21.00	14.786	0.18202	-0.257

Note: SOCTOT = Resilience, HOPETOT = Hope, CTSTOT = Performance self-esteem, Persist = Persistence, ASQG = Optimistic Explanatory style for good events, ASQB = Optimistic explanatory style for bad events, SLC = Self-esteem, LOCE = External locus of control, LOCINT = Internal locus of control, GSETOT = General self-efficacy, SCSF1 = Behavioural component of persistence, SCSF2 = Emotional component of persistence. Shaded cells = significant deviation from normal distribution.

It is important to note that the statistical results reported in the table above are based on the Confirmatory Factor Analysis results of the revalidated instruments used in the current study. The results of the Confirmatory Factor Analyses are reported later in this chapter.

From Table 3.11 it is evident that due to the relatively small values of the standard error of the mean, it is possible to cautiously generalise the findings to the population.

In addition, all of the variables are normally distributed except for Hope, Internal and External Locus of Control, and General Self-Efficacy.

The following section elaborates on the process of data collection used in the current study.

3.5. Data collection

The following sections provide information on how data for this study was collected. Information is also provided in terms of the characteristics of the standardised questionnaires used in this study – based on previous research documented in the literature.

3.5.1. Procedure followed

This studied followed an electronic approach in both distributing and capturing survey data from questionnaires e-mailed to the sample. The e-mailed survey consisted of eight questionnaires that members of the sample completed via the Internet. A secure database site was developed that allowed for the safe completion of the survey by respondents. Instructions on both the e-mail and website were provided to ensure respondents of confidentiality (regarding their identities) as well as the reason for conducting this study.

3.5.2. Operationalisation of the fortigenic constructs

Measuring the identified fortigenic variables, require the use of standardised measuring instruments to operationalise each variable. Eight questionnaires were identified through the literature review as being reliable, valid, and probably applicable to this study. Each of these questionnaires is briefly discussed below.

3.5.2.1. Persistence (Criterion construct)

The combined criterion measure of persistence consisted of the persistence components of both the Self-Control Scale (SCS) of Tangney, Baumeister, and Boone (2004) (9 items) and the General Self-Efficacy Scale of Sherer and colleagues (1996) (4 items). Unfortunately Tangney and colleagues (2004) did not calculate separate reliabilities for separate dimensions. However, their overall coefficient alpha reliability for the SCS is 0.95 (2004, p. 21). Bosscher and Smit (1998) reported a

Cronbach's alpha of 0.64 for the Persistence subscale of the General Self-Efficay scale (Sherer et al., 1982).

3.5.2.2. Locus of control (Cognitive fortigenic construct)

The first cognitive fortigenic construct is locus of control and forms part of the personal control concept. The personal control construct's second component is self-efficacy, which is elaborated on in the following section. The current study used the Internality, Powerful others, and Chance Scales (Levenson, 1981) to operationalise the locus of control construct. In this measuring instrument locus of control is assumed to consist of two components, viz: (a) internal locus of control, and (b) external locus of control. More specifically, the external locus of control component can be further distinguished in terms of powerful others and chance factors that may make up external locus of control perceptions and cognitions. This measuring instrument has 24 items measuring an individual's causal beliefs distinguishing between two external forces – chance (C) and powerful others (P) – together with internality (I). There are three sub-scales with 8 items each. A high score on one of these scales indicates that the individual views this source of control as having a considerable influence on what he/she experience. Cronbach's alpha for (I) = 0.64, (C) = 0.78, and (P) = 0.77 (Levenson, 1981).

3.5.2.3. Self-efficacy (Cognitive fortigenic construct)

The second cognitive fortigenic variable, self-efficacy, was operationalised using Sherer and colleagues' General Self-Efficacy Scale (1982). The 12-item instrument consists of three subscales, viz: (a) initiative, (b) effort, and (c) persistence (Bosscher et al., 1998). The original 17-item scale had an alpha of 0.86. The 12-item scale had a Cronbach alpha of 0.69 for the whole scale. The subscales had the following Cronbach alphas: (a) 0.64, (b) 0.63, and (c) 0.64.

3.5.2.4. Optimism (Cognitive fortigenic construct)

Optimism was operationalised in the current study using The Attributional Style Questionnaire (ASQ) (Petersen, Semmel, et al., 1982). This instrument was used to measure an individual's attributional style regarding positive experiences (i.e. good outcomes) and negative experiences (i.e. goal blockages). Higher scores on the good outcomes are indicative of an optimistic explanatory style. However, of major

importance is the explanatory style used by an individual when facing negative outcomes. In the latter case, after reverse scoring, higher scores are indicative of an optimistic explanatory style (i.e. external, temporary, and specific). Peterson, Semmel, and their colleagues (as cited by Tennen & Herzberger, 1986, p. 22) reported Cronbach's alpha ranging from 0.44 to 0.69.

3.5.2.5. Hope (Cognitive fortigenic construct)

The State Hope Scale was used to operationalise the third cognitive fortigenic variable hope (Snyder et al., 1996). This questionnaire has three agency and three pathways items to which respondents must describe them in terms of how they are "right now". Cronbach's alpha for the State Hope Scale range from 0.74 to 0.95 for the overall scale, and 0.90 and higher for the agency and pathway factors on the State Hope Scale (Snyder, 1995).

3.5.2.6. Self-esteem (Emotional fortigenic construct)

The Self-Liking/Self-competence Scale (SCLSR) was used to operationalise self-esteem for the current study (Tafarodi et al, 1995). There are 8 items that measure self-linking (Alpha = 0.92) and 8 items that measure self-competence (Alpha = 0.89).
The Current Thoughts Scale (Heatherton & Polivy, 1991) consisting of 8 items, was used to measure performance self-esteem in the current study. Unfortunately Heatherton and his colleagues did not report a reliability coefficient for this subscale; however the overall CTS had a Cronbach's alpha of 0.93 for the total scale consisting of 27 items.

3.5.2.7. Resilience (Emotional fortigenic construct)

Antonovsky's Sense of Coherence Scale (SOCS) (1987) was used to operationalise the fortigenic construct of resilience. There are two versions of the SOCS – a 27-item scales and a shorter 13-item scale. The lowest Cronbach's alpha for the SOCS is 0.82 (Gana & Garnier, 2001). The SOCS consists of three subscales, viz: (a) manageability, (c) comprehensibility, and (c) meaningfulness. Antonovsky (1987, 1993), however, insists that the SOCS must be viewed as a single factor construct.

In order to analyse the factor structures of the scales to measure the variables, various data analysis techniques were employed – specifically techniques that focus on structure and correlation. These are discussed in the following section.

3.6. Data analysis techniques

The choice of data analysis technique is dependent on the type of research question the study is aiming to answer. As stated earlier, this study's research question is guided by several propositions, each focusing on a specific purpose associated with scientific research. The following sections will elaborate on the various data analysis techniques to be employed to test each of the propositions. In general, data analysis techniques focus on relationships, significance of group membership, and structure (Bohrnstedt & Knoke, 1994; Field, 2005; Hair, Black, Babin, Anderson, & Tatham, 2006; Grim & Yarnold, 1995; Grim & Yarnold, 2000; Kerlinger et al., 2000, Tabachnick et al, 2001; Rogelberg, 2004; Thompson, 2004; Tredoux & Durrheim, 2002). The following sections elaborate on the various data analysis techniques to be employed in this study to test the various propositions.

3.6.1. Determining the degree of relationship among variables

In Chapter 1, six research propositions (3a, 5, 6a, 8, 9a, and 11) were identified suggesting statistical analysis techniques that can determine the relationships among the measured fortigenic variables. These propositions focus on both the descriptive purpose and predictive purpose of research. All these propositions focus on the question of relationship among variables and how to predict the dependent variable (persistence) using the various independent variables.

Two of the most appropriate data analysis techniques that can be employed in evaluating these propositions are bivariate *r* and multiple *R* (Bohrnstedt et al., 1994; Field, 2005; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Tredoux et al., 2002). Both of these techniques are discussed below.

3.6.1.1. Correlation (Bivariate *r*)

The first statistical technique that can be used to determine the strength between two variables is Pearson's product-moment correlation coefficient (also known as Pearson's *r*). Thus, Pearson's *r* is used to provide the degree to which two variables covary. This correlation coefficient provides two important aspects of the strength

between two variables. Firstly, the correlation coefficient provides an indication of the direction of the found relationship. Secondly, the correlation coefficient provides an indication of the strength of the association between the two variables. Thus, correlation is used to measure the size and direction of the linear relationship between two variables (Bohrnstedt et al., 1994; Field, 2005; Grimm et al., 1995; Hair et al., 2006; Kerlinger et al., 2000; Tabachnick et al., 2001; Tredoux et al., 2002). To determine the strength of these relationships, Guilford's informal interpretations of *r* can be used. These interpretations are discussed in the following section.

3.6.1.2. Magnitude of *r* (Guilford's informal interpretations)

To evaluate the strength of a statistically significant relationship, it is useful to have a guide to interpret the strength of the identified correlation. Guilford (cited in Tredoux et al., 2002) provides a useful reference to interpret statistical significant relationships among variables. Thus, although a correlation may be statistically significant it must still be evaluated in the context of its associated strength and value to the research. This guideline is similar to Cohen's *d* (Cohen, 1998), which indicates the effect size associated with a significant difference between two group differences. Guilford's informal interpretations of the magnitude of *r* are presented the table below.

Table 3.12 Guilford's informal interpretations of the magnitude of *r*

Value of *r* (+ or -)	**Informal interpretation**
< 0.2	Slight; almost no relationship
0.2 – 0.4	Low correlation; definite but small relationship
0.4 – 0.7	Moderate correlation; substantial relationship
0.7 – 0.9	High correlation; strong relationship
0.9 – 1.0	Very high correlation; very dependable relationship

The following section elaborates on multiple regression analysis to evaluate which independent variables contribute significantly to the variance in the dependent variable.

3.6.1.3. Multiple regression (Multiple *R*)

Multiple regression is used to predict the level of the dependent variable using an independent variable. When more than one independent variable is used to predict a dependent variable multiple regression is used. The latter technique can identify the relative contribution each of the independent variables to the prediction of the dependent variable.

Standard multiple regression is used for this study. The latter includes all independent variables simultaneously into the multiple regression equation and determines each independent variable's contribution to the prediction of the dependent variable. However, the issue of multicolinearity must be taken into consideration when including independent variables. The latter provides an indication of level of correlations among the independent variables. The impact of such high correlations is that the multiple regression analysis will be affected due to the fact that highly correlated independent variables explain a high degree of variance in one another. When these correlations are 0.8 or higher, it is suggested that these independent variables be removed from the multiple regression (Bohrnstedt et al., 1994; Field, 2005; Grimm et al., 1995; Hair et al., 2006; Kerlinger et al., 2000; Tabachnick et al., 2001; Tredoux et al., 2002).

The following sections highlight the model statistics as well as the model parameters.

3.6.1.3.1. Summary of the multiple regression model

During the interpretation of the multiple regression analysis, the following key indicators are focused on – as provided in the model summary. Firstly, R^2 provides a measure of how much of the variance in the dependent variable is accounted for by the independent variables. Secondly, the adjusted R^2 is an indication of how well the model generalises. Ideally, the adjusted R^2 must be very close to R^2. Both these measures are found in the model summary section discussed of each multiple regression in Chapter 3. Thirdly, the ANOVA provides an indication of whether the model is a statistically significant fit with the data used for the multiple regression analysis (Bohrnstedt et al., 1994; Field, 2005; Grim et al., 1995; Hair et al., 2006; Kerlinger et al., 2000; Tabachnick et al., 2001; Tredoux et al., 2002).

3.6.1.3.2. Model parameters

The statistics discussed in the section above provide an indication of how well the model predicts the dependent variable using the independent variables. It is also important to determine whether or not each of the independent variables make a significant contribution to the prediction of the dependent variable. If an independent variable makes a significant contribution to the prediction of the dependent variable, then it must be determined what the standardised β associated with each are. The standardised β provide information on how much (in standard deviations) the dependent variable will change if the relevant independent variable also changes. The standardised β thus provide an indication of how important the specific independent variable is in the given model (Bohrnstedt et al., 1994; Field, 2005; Grim et al., 1995; Hair et al., 2006; Kerlinger et al., 2000; Tabachnick et al., 2001; Tredoux et al., 2002).

In addition to using statistics to determine the degree of relationships among variables, it is also important to determine the significance of group differences in this study. The latter are discussed in the following section.

3.6.2. Determining the significance of group differences

Propositions 3b, 6b, and 9b – identified in Chapter 1 – are used in guiding the current study in determining significant group differences. These research propositions focus on two aspects determining data analysis techniques, viz: (a) describing differences between those aspiring candidates who have passed part 1 of the qualifying exam with those who did not pass; and (b) describing differences between various biographical variables and the identified fortigenic variables.

In order to conduct a useful analysis of the significance of group differences, several appropriate data analysis techniques can be used in this study. The current study will use the *t*-test and discriminant analysis (Bohrnstedt et al., 1994; Field, 2005; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Tredoux et al., 2002). These techniques are discussed in the following sections.

3.6.2.1. Comparing two groups using the *t*-test

From the above brief discussion of some of the comparison of group differences that are likely to be done in this study, it is evident that a statistical technique is required to determine whether or not the scores of groups differ significantly from one another.

When comparing two means with one other, the most appropriate statistical technique to use is the *t*-test. More specifically, when two different groups are being compared then an independent *t*-test is used. The latter is the technique employed in this study. The *t*-statistic together with the degrees of freedom associated with the comparison is used to determine if the two groups differ significantly from each other. Thus, by comparing the means of the two groups it is possible to determine whether or not they differ significantly from each other (Bohrnstedt et al., 1994; Field, 2005; Kerlinger et al., 2000; Tabachnick et al., 2001; Tredoux et al., 2002). However, it is also important to determine the effect size associated with the identified statistically significant difference. Calculating the effect size assist in determining whether or not the effect (of the difference between the two groups) is substantive. Cohen's *d* (Cohen, 1998) is a measure of effect size that is used in this study. It is discussed in the following section.

3.6.2.2. Effect size (Cohen's *d*)

During the discussion of the magnitude of *r*, it was suggested to use Guilford's guidelines on interpreting statistically significant correlations. This is done to evaluate the value of the obtained result to the research. In a similar manner, when statistically significant differences are identified in terms of group differences, these statistically significant results must also be evaluated in terms of their value to the research. Cohen's *d* (Cohen, 1998) can be used to indicate the effect size associated with a significant difference between two group differences. The interpretation of the effect size associated with a statistically significant result is provided in following table.

Table 3.13 Effect sizes associated with Cohen's *d*

Value of *d*	**Effect size**
< 0.10	Very small
0.20	Small
0.5	Medium
0.8	Large
> 1	Very large

In addition to the *t*-test, it is possible to determine which combination of variables can correctly classify individuals into groups, which is the focus of discriminant analysis discussed in the following section.

3.6.3. Discriminant analysis

Whereas the *t*-test aims to identify significant differences between the scores of individuals, discriminant analysis determines whether these differences in the scores of individuals on several variables can be used to predict group membership using the best possible combination of these variables. Discriminant analysis determines how accurately group membership can be predicted (i.e. classified) using the best combination of variables. When interpreting the findings of discriminant analysis, it is important to identify which variables were used in the discriminant analysis as well as the percentage of correct classification of group membership using the identified variables. Discriminant analysis employs two randomly selected samples from the dataset to derive the information necessary for interpretation. The first sample is used to develop the discriminant function, containing the number of variables used in classifying the sample into two groups. The second sample is used to test the discriminant function. For the purposes of the current study, stepwise estimation is used to determine sequentially which combination of fortigenic variables successfully classify respondents into passing or failing Part 1 of the 2005 Qualifying Exam (Field, 2005; Tabachnick et al., 2001; Hair, Black, et al., 2006).

Statistics is not just used to determine the degree of relationships among variables together with the significance of group differences in this study. It is also important to determine the structure of the variables used in this study. The latter is discussed in the following section.

3.6.4. Determining the latent structure underlying a set of variables

In order to determine the latent structures underlying the measured fortigenic variables, research propositions 1, 2, and 4 – as identified in Chapter 1 - act as guidelines. These three propositions pose questions related to the structure of the measurements that were used for this study. The variables in this study must be evaluated against their identified factor structures applicable to the sample in the current study. The factor structures to be determined in the current study are based on

a theoretical approach based on the assumption that this study aims to understand the underlying structure of the various fortigenic variables; using factor analysis. After the identification of the factor structures, the latter must be validated. In addition, these factor structures may be evaluated in respect of their applicability to various groups, such as gender and race, using target rotation after conducting factor analysis. On the basis of the evidence obtained, the study will then continue to test the validity of the theoretical structure depicting the process of persistence.

Evaluating the process depicting persistence is also based on a theoretical approach due to the fact that the proposed model is based on the theoretical sequential relations among the fortigenic variables and persistence (Bohrnstedt et al., 1994; Field, 2005; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000; Bless et al., 1995; Tabachnick et al., 2001; Tredoux et al., 2002; Thompson, 2004). Both these theoretically based approaches, viz: (a) factor analysis and structural equivalence and (b) structural equation modelling are discussed in the following section.

3.6.4.1. Factor analysis

One of the aims of this study is to determine what is the underlying structure associated with each of the measured fortigenic variables. The use of theories is important in this instance. During the discussion of the measuring instruments used for the current study, it became evident that some of the constructs consist of more than one factor while others consist of a single dimension (factor). Due to the fact that all these measuring instruments' factor structures are based on American samples, it is important to determine if the South African sample's responses provide similar or different factor structures – as proposed by the developers of these instruments. The evaluation of the factor structures of the various fortigenic variables thus becomes a methodological issue. Using factor structures that do not represent and validly reflect the sample introduces unnecessary error into the results. Error leads to invalid conclusions and recommendations. Error caused by measuring instruments on the basis of invalid factor structures limit the usefulness of the results on which these "incorrect" factor structures are based. Before continuing with the analyses regarding the relationships among the variables, it is thus important to determine the factor structures to be used do provide a reliable and valid representation of the responses of

the sample used. The results of the factor structures that reliable and validly represent the responses of the South African sample will be presented in detail in the following sections.

Before presenting the identified factor structures, it is important to understand the two approaches to be used when determining the underlying factor structures associated with a construct. These two approaches, explanatory and confirmatory factor analysis, are discussed below together with the results of the fortigenic variables' factor structures. Emphasis is placed on the purpose of factor analysis.

3.6.4.1.1. Purpose of factor analysis

In general, factor analysis has three purposes (Thompson, 2004). Firstly, factor analysis is used to determine the construct validity of a particular construct. Factor analysis thus aids in answering the construct validity question "is the construct measuring the proposed theoretical construct and its associated dimensions correctly?" Thus, applying the first purpose of factor analysis to this study, emphasis is placed on determining if the identified fortigenic variables do have an interpretable and understandable structure of the theoretical construct it is supposed to be measuring. Secondly, factor analysis is used to develop a theory regarding the nature of the fortigenic constructs. Thus, the factor analysis identifies underlying factor structures to be identified in further analyses. Finally, factor analysis is used to summarise the relationships in the form of identifiable and understandable factors that can be used in subsequent analysis. This final purpose of factor analysis provides support for the fact that factor analysis is not the final analysis in this study. It is an intermediate step in this study. Thus, factor analysis identifies the unreliable variance in the original fortigenic variables. This allows the current study to use the new factor structures that may be more reliable and valid for the South African sample (Thompson, 2004).

The following section focuses on the two major approaches to factor analysis; exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

3.6.4.1.2. Exploratory factor analysis

Exploratory factor analysis is conducted when there are no specific expectations regarding the number and nature of the underlying factors in each of the fortigenic

constructs. Although this study does have information on the American factor structures associated with each of the fortigenic variables, it is important to determine the factors structures applicable for the South African sample. The assumption that the same factor structure associated with each of the fortigenic variables (based on American sample) will be applicable to the South African sample must be tested scientifically. Using the existing factor structure of the measuring instruments for each of the fortigenic variables will result in adverse impact on the reliability and the eventual validity of the same construct if the structure is not appropriate for the South African sample. In addition, some of the reliabilities of the chosen fortigenic scales and subscales are relatively low or not available. It is therefore advisable to re-examine the psychometric properties of the fortigenic measuring instruments to be used in the current study. The exploratory factor analysis and the associated item analysis guard against deliberate measurement errors that do not provide a valid representation of the fortigenic variables being measured in the South African sample of this study. Although the original factor structures (based on American samples) may have construct validity when used on the participants on whose responses it is based, the latter cannot automatically be assumed for the South African sample.

In order to conduct exploratory factor analysis on the identified fortigenic variables in respect of the South African sample, the following steps are proposed (Field, 2005; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004): (a) determining how many factors can be extracted, (b) deciding which method of extraction should be used to extract the factors, (c) identifying the most appropriate method of rotating the factors, and (d) determining how factor scores must be computed if factor scores are of interest.

3.6.4.1.2.1. Determining how many factors can be extracted

Before determining how many factors can be extracted, it is important to first determine if the identified fortigenic variable can be factor analysed. This is done by calculating both the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. If the KMO statistic is above 0.6 and Bartlett's test is significant, then the identified fortigenic variable is factor analysable. On the basis of these two results, two strategies are used to determine how many factors can be

extracted (Field, 2005; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004).
Firstly, there is the eigenvalue greater than 1.0 rule. Thus, it is possible to identify the number of factors to be extracted by identifying how many variables have eigenvalues of 1.0 and above. However, theory must also guide the decision in deciding how many factors are to be extracted. In short, just focusing on the eigenvalues may only provide a statistical answer, but not a theoretically sound answer.
In addition to the eigenvalue greater than 1.0 rule, it is also possible to conduct a scree test for determining the number of factors. The scree test is analysed as follows: Plotted eigenvalues that are further apart from one another give an indication of separate factors. The levelling of the scree plot indicates the point at which further identification of factors should be stopped (Field, 2005; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004). Both these strategies are employed and reported in the exploratory factor analysis results of each of the fortigenic variables and their associated measuring instruments.

After identifying the number of factors to be extracted, it must be determined which method of extraction should be used, which is discussed in the following section.

3.6.4.1.2.2. Deciding which method of extraction should be used

Principal axis method of extraction is used in this study. (Field, 2005; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004).

3.6.4.1.2.3. Identifying the most appropriate method of rotating the factors

After identifying the method of extracting the factors, it is also important to identify the most appropriate method of rotating the factors. But why is rotation required? The results obtained after factor extraction is not always that interpretable, sometimes even impossible. An unrotated factor matrix produces in infinite number of possible reference axes that can produce a factor matrix. These unrotated factor matrixes do not provide scientifically interpretable structures. In order to make these structures more interpretable, an appropriate rotation technique must be used. The choice of rotation technique is however based on the following question: “are the factors

correlated?" If the answer is positive, then an oblique rotation is used. Due to the assumption that theoretically all the measured fortigenic variables are correlated with each other, it is advisable to use the oblique rotation method for this study. The structure matrix produced by the oblique rotation assists in identifying an understandable and interpretable factor structure associated with each of the fortigenic variables (Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004).

3.6.4.1.2.4. Determining which items to be removed from factor structure

The final decision to be made during exploratory factor analysis is which items must be removed from the factor structure. The reasoning behind the removal of items from the factor structure can be explained as follows. Items that do not correlate with other items negatively impact the overall reliability of the factor structure. These items' impact on the measurement error of the construct is thus undesirable. Although there is random error in any measure, the deliberate inclusion of items that negatively impact both reliability and validity is a scientific oversight. For this study, items that do not have an item-to-total correlation of 0.250 and a factor loading of 0.250 are to be excluded from the factor structures of the fortigenic variables representing the South African sample. In addition, if item are cross-loading on more than one factor, than they will be excluded if the difference between them are less than 0.250.

The following section provides detailed results of the exploratory factor analyses conducted on each of the identified fortigenic variables. Information on whether the identified fortigenic variable is factor analysable, the number of factor to be extracted, as well as the item analysis based on the identified factor structure is provided. Summaries of the exploratory and confirmatory factor analyses for each of the fortigenic variables used in this study are provided at the end of this chapter.

3.6.4.1.2.5. Exploratory factor analysis of the cognitive fortigenic construct Locus of control

The following sections report results regarding the factor structure of the instrument that was used to measure the construct locus of control applicable to the current sample.

Table 3.14 KMO-statistic and Bartlett's Test for Locus of Control

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.837
Bartlett's Test of Sphericity	Approx. Chi-Square	1694.364
	df	276
	Sig.	.000

From Table 3.14 it is evident that the locus of control construct can be factor analysed due to the appropriate levels of both the KMO-statistic and Bartlett's Test of Sphericity.

The screeplot of the eigenvalues obtained is shown in Figure 3.1.

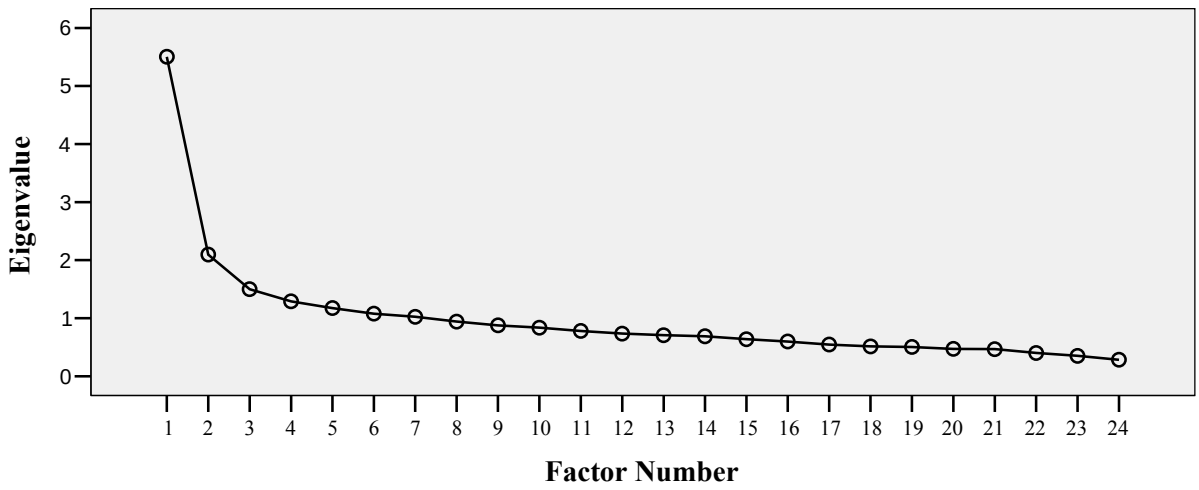

Figure 3.1 Screeplot: Locus of Control

It seems from Figure 3.1 that a two factor solution, based on the scree test, is indicated. The results from the two-factor extraction are shown in Table 3.15.

Table 3.15 Eigenvalues and Total Variance Explained: Locus of Control

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.503	22.931	22.931	4.964	20.682	20.682	2.837
2	2.096	8.733	31.664	1.495	6.230	26.911	1.379
3	1.500	6.249	37.913	.891	3.713	30.625	2.568
4	1.289	5.371	43.284	.674	2.810	33.435	1.609
5	1.174	4.893	48.177	.598	2.491	35.926	3.093
6	1.078	4.491	52.668	.541	2.254	38.181	.865
7	1.024	4.268	56.936	.473	1.972	40.152	3.068
8	.941	3.920	60.856				
9	.876	3.651	64.507				
10	.837	3.488	67.995				
11	.780	3.251	71.246				
12	.733	3.056	74.302				
13	.708	2.949	77.251				
14	.687	2.864	80.115				
15	.639	2.661	82.777				
16	.599	2.494	85.271				
17	.545	2.270	87.541				
18	.513	2.139	89.680				
19	.503	2.097	91.777				
20	.471	1.962	93.739				
21	.466	1.942	95.681				
22	.401	1.670	97.352				
23	.351	1.463	98.815				
24	.284	1.185	100.000				

From Table 3.15 it is suggested that a two factor structure should be used due to the extraction sum of squared loadings with eigenvalues larger than 1.

The following section reports on results of the exploratory factor analysis for a two factor solution regarding the instrument that was used to measure the construct locus of control. Only the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct locus of control.

Table 3.16 Structure Matrix: Locus of Control (2 Factor Solution, Round 1)

Item	Factor	
	1	2
I1	-.007	.270
C2	.434	-.270
P3	.604	-.077
I4	.040	.203
I5	-.201	.504
C6	.477	-.176
C7	.487	-.309
P8	.606	.005
I9	.386	.117
C10	.309	.041
P11	.715	-.190
C12	.327	-.197
P13	.599	-.292
C14	.521	-.427
P15	.600	-.103
C16	.551	-.118
P17	.503	-.355
I18	-.209	.359
I19	-.238	.456
P20	.382	-.040
I21	-.112	.568

Note: I = Internal locus of control, P = Powerful others, C = Chance factors.

Table 3.16 Structure Matrix: Locus of Control (2 Factor Solution: Round 1) (Continued)

Item	Factor 1	Factor 2
P22	.531	-.059
I23	-.201	.542
C24	.414	-.192

Note: I = Internal locus of control, P = Powerful others, C = Chance factors.

The structure matrix reported in Table 3.16, suggest that item 4 must be removed due to a factor loading lower than 0.250 during round 1. Therefore, a second round of exploratory factor analysis is conducted for the fortigenic construct locus of control, assuming a two factor solution – after the removal of item 4.
The following section reports on the results of the second round of factor analysis for Locus of Control.

Table 3.17 KMO-statistic and Bartlett's Test for responses on the Locus of Control measurement (2 Factor Solution: Round 2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.848
Bartlett's Test of Sphericity	Approx. Chi-Square	1629.48
	df	253
	Sig.	.000

With an indication that the responses of the locus of control measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the following section reports the screeplot – after the removal of item 4.

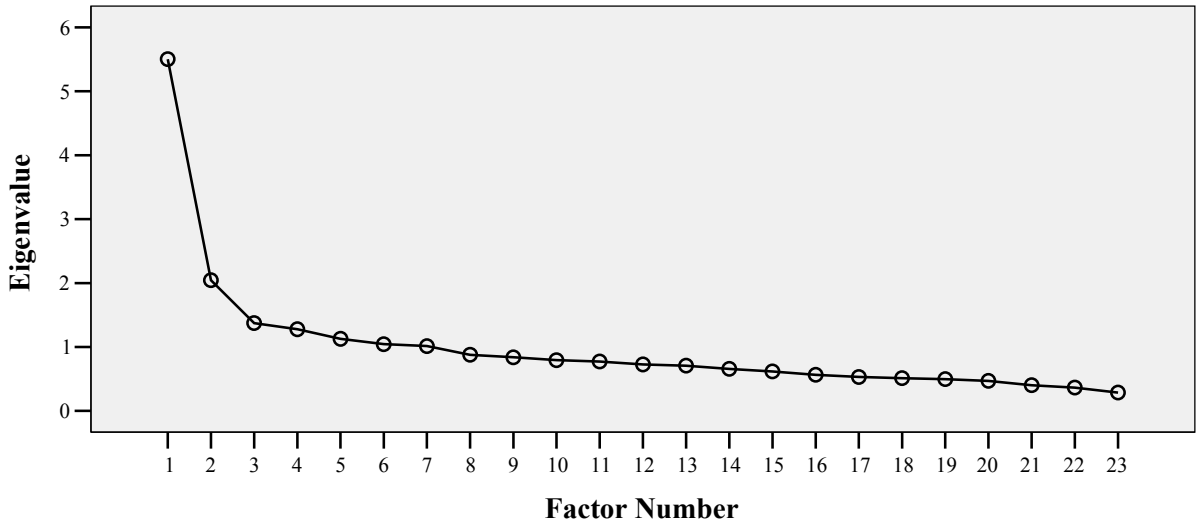

Figure 3.2 Screeplot: Locus of Control (2 Factor Solution, Round 2)

It seems from Figure 3.2 that a two factor solution, based on the scree test, is indicated.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct locus of control. Both the eigenvalues and the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct locus of control.

Table 3.18 Eigenvalues and Total Variance Explained: Locus of Control (2 Factor Solution, Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.503	23.926	23.926	4.818	20.947	20.947	4.540
2	2.044	8.887	32.814	1.317	5.726	26.673	2.301

Table 3.18 Eigenvalues and Total Variance Explained: Locus of Control (2 Factor Solution, Round 2) (Continued)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
3	1.374	5.975	38.789				
4	1.278	5.557	44.345				
5	1.128	4.904	49.249				
6	1.043	4.535	53.785				
7	1.014	4.407	58.192				
8	.878	3.819	62.011				
9	.838	3.645	65.657				
10	.794	3.451	69.108				
11	.771	3.354	72.462				
12	.726	3.157	75.619				
13	.707	3.075	78.694				
14	.657	2.859	81.553				
15	.617	2.683	84.236				
16	.563	2.449	86.685				
17	.531	2.308	88.993				
18	.512	2.228	91.221				
19	.497	2.160	93.381				
20	.470	2.044	95.425				
21	.401	1.744	97.169				
22	.365	1.585	98.754				
23	.287	1.246	100.000				

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct locus of control after the removal of item 4. Only the

structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct locus of control.

Table 3.19 Structure Matrix: Locus of Control (2 Factor Solution, Round 2)

Item	Factor 1	Factor 2
I1	-.006	.245
C2	.429	-.300
P3	.603	-.134
I5	-.186	.523
C6	.481	-.198
C7	.483	-.338
P8	.604	-.060
I9	.381	.052
C10	.317	.030
P11	.714	-.247
C12	.336	-.179
P13	.592	-.346
C14	.519	-.441
P15	.591	-.178
C16	.552	-.159
P17	.495	-.398
I18	-.200	.371
I19	-.224	.484
P20	.387	-.062
I21	-.095	.577
P22	.533	-.100
I23	-.201	.542
C24	.414	-.192

Note: I = Internal locus of control, P = Powerful others, C = Chance factors.

The structure matrix reported in Table 3.19, suggest that item 1 must be removed due to a factor loading lower than 0.250 during round 1. Therefore, a third round of exploratory factor analysis is conducted for the fortigenic construct locus of control, assuming a two factor solution – after the removal of item 1.

Table 3.20 KMO-statistic and Bartlett's Test for Locus of Control (2 Factor Solution, Round 3)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.851
Bartlett's Test of Sphericity	Approx. Chi-Square	1596.98
	df	231
	Sig.	.000

With an indication that the responses of the locus of control measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the following screeplot is shown in Figure 3.3 – after the removal of item 1.

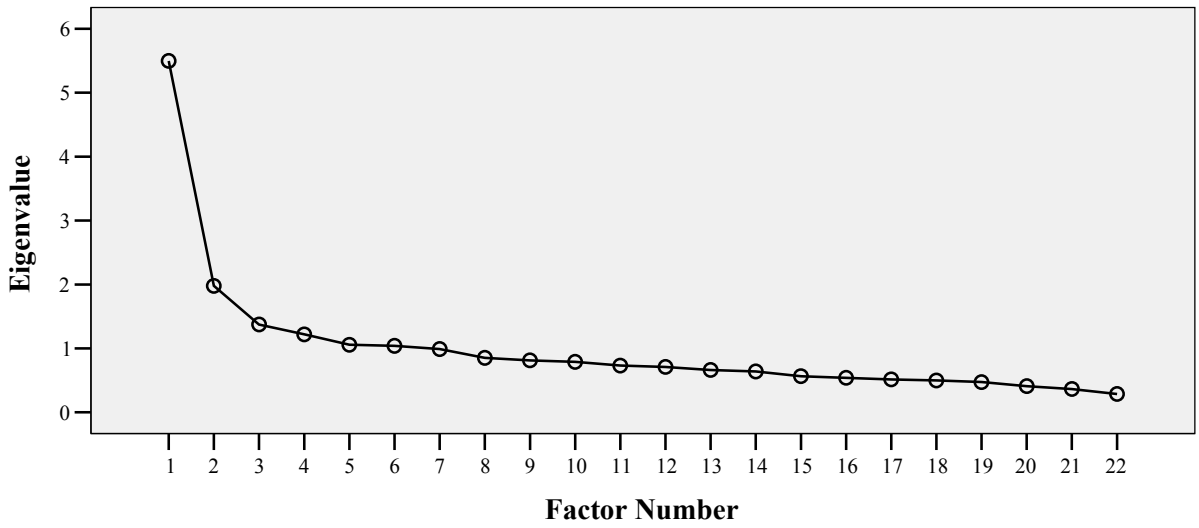

Figure 3.3 Screeplot: Locus of Control (2 Factor Solution, Round 3)

It seems from Figure 3.3 that a two factor solution, based on the scree test, is indicated.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct locus of control. Only the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct locus of control.

Table 3.21 Eigenvalues and Total Variance Explained: Locus of Control (2 Factor Solution, Round 3)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.497	24.986	24.986	4.813	21.879	21.879	4.479
2	1.978	8.989	33.975	1.256	5.708	27.587	2.542
3	1.374	6.244	40.219				
4	1.220	5.546	45.765				
5	1.057	4.805	50.570				
6	1.040	4.725	55.296				
7	.990	4.498	59.794				
8	.852	3.873	63.667				
9	.812	3.692	67.359				
10	.790	3.591	70.949				
11	.731	3.323	74.273				
12	.710	3.226	77.498				
13	.663	3.012	80.510				
14	.639	2.903	83.413				
15	.565	2.568	85.981				
16	.539	2.450	88.431				
17	.515	2.341	90.772				
18	.498	2.265	93.037				
19	.472	2.147	95.184				
20	.408	1.856	97.040				

Table 3.21 Eigenvalues and Total Variance Explained: Locus of Control (2 Factor Solution, Round 3) (Continued)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
21	.365	1.657	98.697				
22	.287	1.303	100.000				

A two factor solutions is still suggested by the sum of square loadings eiegenvalues reported in Table 3.21.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct locus of control. Only the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct locus of control.

Table 3.22 Structure Matrix: Locus of Control (Round 3)

Item	Factor	
	1	2
C2	.420	-.344
P3	.608	-.174
I5	-.170	.528
C6	.473	-.254
C7	.474	-.384
P8	.608	-.112
I9	.381	.001
C10	.316	-.013
P11	.715	-.299
C12	.334	-.203

Note: I = Internal locus of control, P = Powerful others, C = Chance factors.

Table 3.22 Structure Matrix: Locus of Control (Round 3) (Continued)

Item	Factor	
	1	2
P13	.585	-.395
C14	.506	-.487
P15	.589	-.233
C16	.555	-.196
P17	.486	-.430
I18	-.188	.387
I19	-.204	.516
P20	.395	-.073
I21	-.082	.549
P22	.535	-.146
I23	-.174	.539
C24	.416	-.232

Note: I = Internal locus of control, P = Powerful others, C = Chance factors.

All the remaining items have acceptable factor loadings for the two factor solution of the locus of control construct, as reported in Table 3.22.

Table 3.23 Factor Correlation Matrix: Locus of Control

Factor	1	2
1	1.000	-.327
2	-.327	1.000

The two factors extracted from the locus of control construct correlate negatively with each other, as evident from Table 3.23.

The two extracted factors, accounting for 34% of the variance, are Internal Locus of Control and External Locus of Control.

Examples of items measuring Internal Locus of Control are:

- When I make plans, I am almost certain to make them work.
- I can pretty much determine what will happen in my life.

- I am usually able to protect my personal interests.
- When I get what I want, it's usually because I worked hard for it.
- My life is determined by my own actions.

Examples of items measuring External Locus of Control are:

- To a great extent my life is controlled by accidental happenings.
- I feel like what happens in my life is mostly determined by powerful people.
- Often there is no chance of protecting my personal interests from bad luck happenings.
- When I get what I want, it's usually because I'm lucky.
- Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.

The following section reports the item analysis results for each of the two factors extracted based on the responses for the locus of control construct. However, the Internal Locus of Control factor's item analysis results are reported first.

Table 3.24 Item Analysis for Factor 1 (Internal Locus of Control)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I5	22.3051	11.199	.356	.593
I18	23.0169	8.779	.369	.603
I19	22.5627	10.199	.401	.570
I21	21.8237	11.187	.376	.586
I23	21.8983	9.731	.463	.538

From Table 3.24 it is evident that the internal locus of control component of the locus of control scale has acceptable item-total correlations. The Internal Locus of Control factor has a reliability of 0.631.

The following section reports the item analysis results for the External Locus of Control factor structure based on the responses for the locus of control construct. Both inter-item correlations and reliability are reported.

Table 3.25 Item Analysis for Factor 2 (External Locus of Control)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
C2	49.8339	183.901	.419	.839
P3	49.1627	177.089	.524	.834
C6	48.5525	178.643	.458	.837
C7	49.8102	182.175	.467	.837
P8	48.5559	173.050	.521	.834
I9	48.1593	181.345	.323	.846
C10	47.4678	186.229	.281	.846
P11	49.6373	174.436	.647	.828
C12	49.2034	183.693	.337	.844
P13	49.5186	177.543	.554	.833
C14	49.6610	180.545	.508	.835
P15	48.8373	175.252	.530	.833
C16	49.1220	176.876	.502	.835
P17	50.0983	182.402	.469	.837
P20	48.4576	182.562	.363	.842
P22	48.8407	177.522	.480	.836
C24	49.6847	182.353	.396	.840

From Table 3.25 it is evident that the external locus of control component of the locus of control scale has acceptable item-total correlations. The external locus of control factor has a reliability of 0.846.

As stated previously, the personal control concept consists of both locus of control and general self-efficacy. The General Self-Efficacy scale's exploratory factor analysis results are reported in the following sections.

3.6.4.1.2.6. Exploratory factor analysis of the cognitive fortigenic construct General Self-Efficacy

The following sections report results regarding the factor structure of the instrument that was used to measure the construct general self-efficacy applicable to the current sample.

Table 3.26 KMO-statistic and Bartlett's Test for General Self-efficacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	1314.45
	df	136
	Sig.	.000

With an indication that the responses of the general self-efficacy measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of the eigenvalues obtained is shown in Figure 3.4.

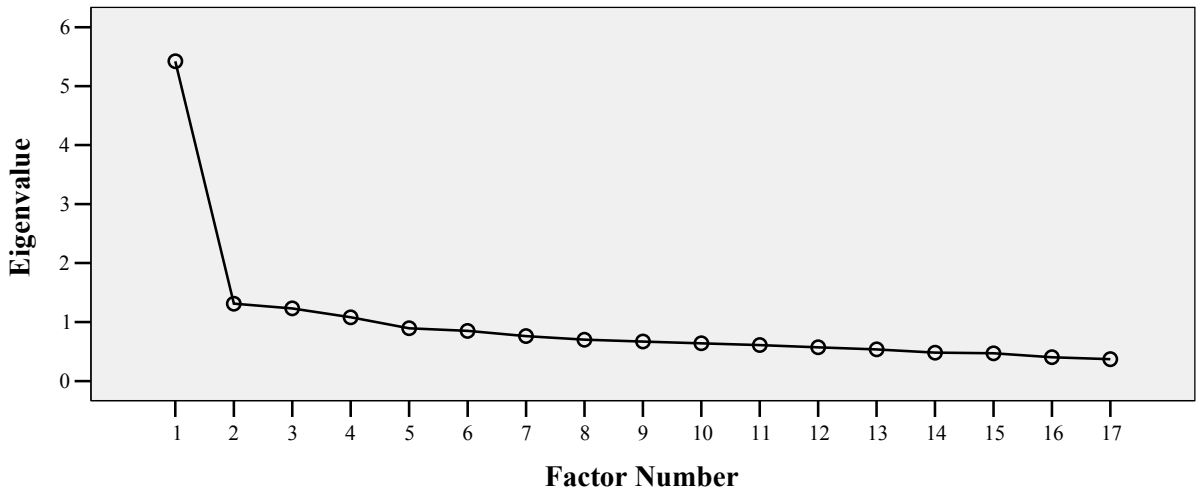

Figure 3.4 Screeplot: General Self-efficacy

It seems from Figure 3.4 that a one-dimensional factor solution, based on the scree test, is indicated. This can be substantiated by the eigenvalues in column 5 of Table 3.27.

The results of the exploratory factor analysis for a one-dimensional factor solution of the construct general self-efficacy are shown in Table 3.27. Both the eigenvalues and the structure matrix results are reported and interpreted for a one-dimensional factor solution of the fortigenic construct General Self-efficacy.

Table 3.27 Eigenvalues and Total Variance Explained: General Self-efficacy

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.421	31.889	31.889	4.822	28.362	28.362	3.917
2	1.311	7.714	39.603	.754	4.434	32.796	1.978
3	1.231	7.242	46.844	.616	3.621	36.417	1.789
4	1.079	6.348	53.193	.457	2.688	39.105	3.315
5	.894	5.258	58.451				
6	.851	5.003	63.454				
7	.762	4.482	67.936				
8	.700	4.115	72.051				
9	.670	3.941	75.991				
10	.640	3.764	79.756				
11	.609	3.585	83.341				
12	.572	3.365	86.706				
13	.536	3.155	89.861				
14	.481	2.827	92.688				
15	.469	2.761	95.449				
16	.404	2.377	97.826				
17	.370	2.174	100.000				

From Table 3.27 it is evident that a one factor solution is suggested by the extraction square sums of loadings eignevalues that are bigger than 1.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct general self-efficacy. Only the factor matrix results are reported and interpreted for a one-dimensional factor solution of the fortigenic construct General Self-efficacy.

Table 3.28 Factor Matrix: General Self-efficacy

	Factor
Item	1
GSE1	.574
GSE3	.531
GSE8	.393
GSE9	.423
GSE13	.531
GSE15	.354
GSE7	.578
GSE12	.605
GSE10	.543
GSE16	.688
GSE6	.549
GSE5	.515
GSE2	.408
GSE4	.575
GSE14	.485
GSE11	.514
GSE17	.584

Table 3.28 seems to suggest that all of the items in the general self-efficacy measuring instrument may be retained.

The single extracted factor, accounting for 32% of the variance, is General Self-efficacy.

Examples of items measuring General Self-efficacy are:

- If something looks too complicated, I will not even bother to try it.
- I avoid trying to learn new things when they look to difficult.
- When trying something new, I soon give up if I am not initially successful.
- When I decide to do something, I go right to work on it.
- Failure just makes me try harder.
- When I set important goals for myself, I rarely achieve them.
- I do not seem to be capable of dealing with most problems that come up in my life.
- When unexpected problems occur, I don't handle them very well.

The following section reports the item analysis results for each of items of the one-dimensional factor extracted based on the responses for the General Self-efficacy construct. Both inter-item correlations and reliability are reported.

Table 3.29 Item Analysis for General Self-efficacy

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GSE1	87.8678	147.775	.523	.845
GSE3	87.4746	148.393	.476	.846
GSE8	88.3559	144.114	.376	.852
GSE9	88.3424	145.369	.425	.848
GSE13	87.9797	142.503	.501	.844
GSE15	87.6949	149.403	.328	.852
GSE7	87.5254	145.277	.531	.844
GSE12	87.7458	142.496	.546	.842
GSE10	87.8542	144.615	.481	.845
GSE16	87.4034	143.194	.624	.840
GSE6	88.5797	138.251	.521	.843

Table 3.29 Item Analysis for General Self-efficacy (Continued)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GSE5	87.6000	145.629	.475	.846
GSE2	89.0881	141.169	.385	.853
GSE4	87.7356	145.658	.511	.844
GSE14	88.5695	140.321	.454	.847
GSE11	88.3051	144.743	.463	.846
GSE17	87.4712	145.964	.521	.844

All the items in the general self-efficacy measurement provide acceptable levels of above 0.250 for the inter-item correlations. The General Self-efficacy measuring instrument has a reliability coefficient of 0.854.

With an indication of the factor structures of both Locus of Control and General Self-efficacy, the third cognitive fortigenic variable, which is Optimism, is explored in following section.

3.6.4.1.2.7. Exploratory factor analysis of the cognitive fortigenic construct Optimism as measured by the Attributional Style Questionnaire

The following sections report results regarding the factor structure of the instrument used to measure the construct Optimism applicable to the current sample.

Table 3.30 KMO-statistic and Bartlett's Test for Optimism as measured by the Attributional Style Questionnaire (Round 1)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.726
Bartlett's Test of Sphericity	Approx. Chi-Square	3309.46
	df	630
	Sig.	.000

The optimism construct can be factor analysed due to the appropriate statistics associated with the KMO-statistic as well as Bartlett's Test of Sphericity, as evident from Table 3.30.

With an indication that the responses of the Optimism measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of the eigenvalues obtained are shown in Figure 3.5.

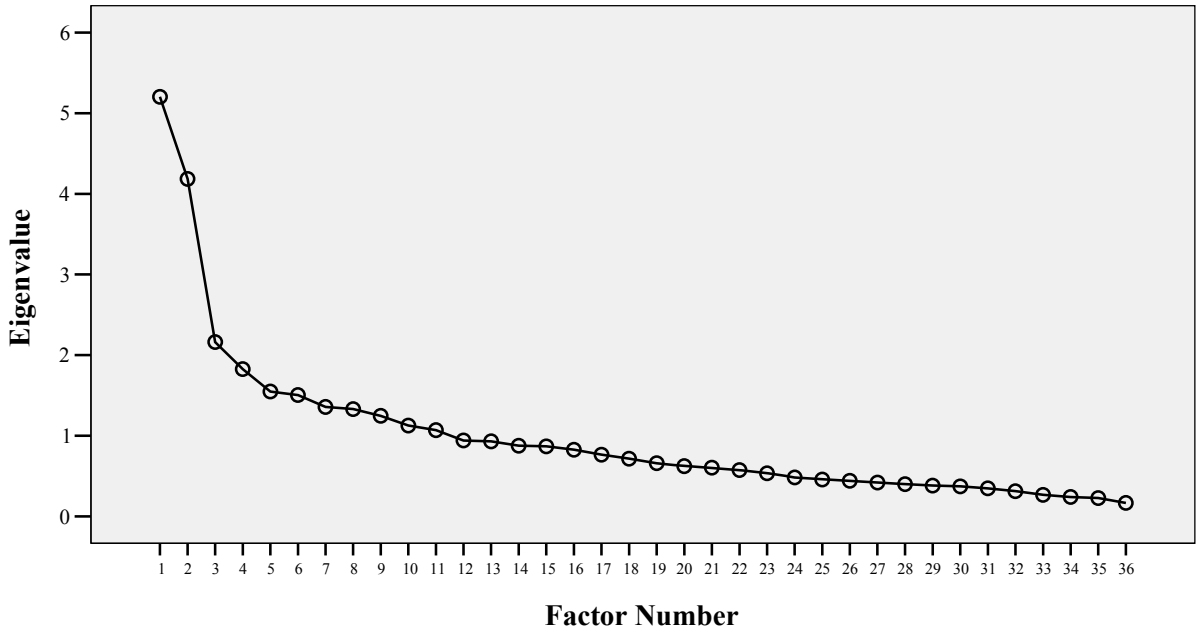

Figure 3.5 Screeplot: Optimism as measured by the Attributional Style Questionnaire (Round 1)

The screeplot of the Optimism construct seems to suggest a two factor solution, as depicted in Figure 3.5.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct Optimism. Both the eigenvalues and the structure matrix results are reported and interpreted for a two factor solution of the fortigenic Optimism.

Table 3.31 Eigenvalues and Total Variance Explained: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 1)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.204	14.455	14.455	4.736	13.154	13.154
2	4.185	11.626	26.081	3.681	10.226	23.380
3	2.162	6.007	32.088	1.647	4.575	27.955
4	1.826	5.071	37.159	1.276	3.545	31.500
5	1.548	4.300	41.459	1.099	3.053	34.553
6	1.505	4.180	45.639	.974	2.704	37.257
7	1.357	3.769	49.408	.870	2.416	39.673
8	1.330	3.696	53.104	.772	2.144	41.817
9	1.247	3.463	56.567	.715	1.986	43.803
10	1.127	3.131	59.697	.607	1.685	45.488
11	1.069	2.970	62.667	.542	1.506	46.994
12	.941	2.615	65.282			
13	.931	2.585	67.868			
14	.876	2.434	70.302			
15	.869	2.414	72.716			
16	.827	2.297	75.013			
17	.766	2.128	77.141			
18	.716	1.989	79.130			
19	.660	1.834	80.964			
20	.623	1.729	82.693			
21	.604	1.678	84.371			
22	.574	1.596	85.967			
23	.534	1.482	87.449			
24	.483	1.341	88.790			
25	.457	1.270	90.060			
26	.442	1.229	91.289			
27	.420	1.167	92.456			

Table 3.31 Eigenvalues and Total Variance Explained: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 1) (Continued)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
28	.400	1.111	93.567			
29	.381	1.060	94.626			
30	.372	1.033	95.660			
31	.348	.966	96.625			
32	.312	.867	97.492			
33	.267	.743	98.235			
34	.241	.670	98.904			
35	.228	.632	99.537			
36	.167	.463	100.000			

Although Table 3.31 provides numerous factors to be extracted from the Attributional Style (Optimism) construct, the screeplot information will be used to test a two factor solution.

The following section reports on additional results of the exploratory factor analysis for a two factor solution of the construct Optimism. Only the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct Optimism.

Table 3.32 Structure Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 1)

Item	Factor	
	1	2
ATSG2	.327	-.211
ATSG3	.397	-.093

Note: ATSG = Optimistic explanatory style for a good event, ATSB = Optimistic explanatory style for a bad event.

Table 3.32 Structure Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 1) (Continued)

Items	Factor	
	1	2
ATSG4	.415	.121
ATSB6	.165	.073
ATSB7	-.006	.313
ATSB8	-.043	.516
ATSG10	.367	-.021
ATSG11	.472	.088
ATSG12	.447	.168
ATSB14	.028	.082
ATSB15	.144	.357
ATSB16	-.043	.484
ATSB18	.057	.049
ATSB19	-.208	.493
ATSB20	-.005	.626
ATSG22	.482	-.048
ATSG23	.579	-.033
ATSG24	.662	.134
ATSB26	.014	.238
ATSB27	-.012	.480
ATSB28	-.054	.659
ATSB30	.090	.162
ATSB31	-.025	.458
ATSB32	-.032	.515
ATSG34	.394	-.018
ATSG35	.389	-.054
ATSG36	.396	.147
ATSG38	.497	-.135
ATSG39	.640	-.018

Note: ATSG = Optimistic explanatory style for a good event, ATSB = Optimistic explanatory style for a bad event.

Table 3.32 Structure Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 1) (Continued)

Items	Factor	
	1	2
ATSG40	.576	.195
ATSB42	.135	.312
ATSB43	-.051	.427
ATSB44	.066	.552
ATSG46	.473	-.200
ATSG47	.626	-.176
ATSG48	.501	.163

Note: ATSG = Optimistic explanatory style for a good event, ATSB = Optimistic explanatory style for a bad event.

The structure matrix of the attributional style construct suggests that items 6, 14, 18, 26, and 30 be removed due to them crossloading higher than 0.250 on the two factors, as evident from Table 3.32. These items will be removed, and a second round of factor analysis will be reported in the following sections

Table 3.33 KMO-statistic and Bartlett's Test for Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	2939.45
	df	465
	Sig.	.000

After the removal of the five items, the Optimism construct still provides evidence of factor analysability, as reported in Table 3.33.

With an indication that the responses of the Optimism measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test

of Sphericity. The interpretation of the screeplot (Figure 3.6) also seems to suggest that a two-factor solution to Optimism is warranted.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct optimism. Both the eigenvalues and the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct Optimism.

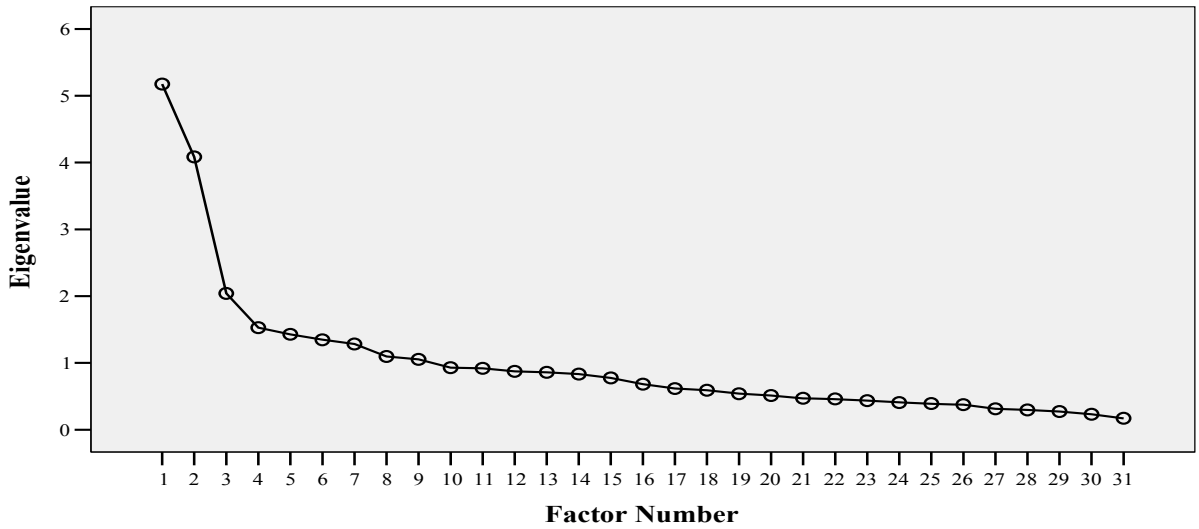

Figure 3.6 Screeplot: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2)

The following section reports on results of the second round – after the removal of items 6, 14, 18, 26, and 30 - of exploratory factor analysis for a two factor solution of the construct Optimism. Both the eigenvalues and the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct Optimism.

Table 3.34 Eigenvalues and Total Variance Explained: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.175	16.693	16.693	4.471	14.422	14.422	4.430
2	4.085	13.177	29.870	3.363	10.849	25.272	3.417
3	2.042	6.586	36.456				
4	1.528	4.930	41.385				
5	1.429	4.608	45.993				
6	1.347	4.345	50.338				
7	1.283	4.138	54.476				
8	1.097	3.539	58.015				
9	1.052	3.395	61.410				
10	.929	2.998	64.408				
11	.920	2.967	67.376				
12	.874	2.819	70.194				
13	.860	2.773	72.968				
14	.833	2.688	75.655				
15	.776	2.503	78.158				
16	.683	2.202	80.360				
17	.617	1.989	82.349				
18	.591	1.908	84.257				
19	.539	1.740	85.997				
20	.512	1.650	87.648				
21	.470	1.517	89.165				
22	.461	1.486	90.651				
23	.436	1.407	92.058				
24	.407	1.313	93.371				

Table 3.34 Eigenvalues and Total Variance Explained: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2) (Continued)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
25	.393	1.267	94.638				
26	.376	1.214	95.852				
27	.314	1.012	96.864				
28	.297	.958	97.822				
29	.273	.880	98.702				
30	.232	.747	99.449				
31	.171	.551	100.000				

It is evident that the two factor structure of the Optimism construct has a combined variance of 25.27%, as reported in Table 3.34.

The following section reports on results of the exploratory factor analysis for a two factor solution of the construct optimism. Only the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct optimism.

Table 3.35 Structure Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2)

Item	Factor	
	1	2
ATSG2	.323	-.243
ATSG3	.399	-.115
ATSG4	.412	.096
ATSB7	.003	.326
ATSB8	-.061	.512

Note: ATSG = Optimistic explanatory style for a good event, ATSB = Optimistic explanatory style for a bad event.

Table 3.35 Structure Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2) (Continued)

	Factor	
	1	2
ATSG10	.364	-.043
ATSB27	-.021	.467
ATSB28	-.066	.651
ATSB31	-.029	.461
ATSB32	-.045	.507
ATSG34	.388	-.051
ATSG35	.390	-.073
ATSG36	.392	.120
ATSG38	.495	-.164
ATSG39	.642	-.047
ATSG40	.573	.173
ATSB42	.110	.277
ATSB43	-.059	.437
ATSB44	.051	.551
ATSG46	.476	-.231
ATSG47	.634	-.204
ATSG48	.502	.143
ATSG11	.475	.079
ATSG12	.452	.164
ATSB15	.138	.362
ATSB16	-.047	.507
ATSB19	-.214	.508
ATSB20	-.022	.622
ATSG22	.484	-.069
ATSG23	.584	-.053
ATSG24	.662	.112

Note: ATSG = Optimistic explanatory style for a good event, ATSB = Optimistic explanatory style for a bad event.

The structure matrix of the second round of factor analysis of the two factor structure of the optimism construct suggests that all the remaining items can be retained in the final measure, as reported in Table 3.35.

Table 3.36 Factor Correlation Matrix: Optimism as measured by the Attributional Style Questionnaire (Two Factor Solution, Round 2)

Factor	1	2
1	1.000	-.030
2	-.030	1.000

The two factors extracted from the optimism construct only correlates poorly with each other, as evident from Table 3.36.

The two extracted factors, accounting for 25% of the variance, are Optimistic Explanatory Style for Good Events and an Optimistic Explanatory Style for Bad Events.

Examples of items measuring an Optimistic Explanatory Style for Good Events are:

- Is the cause of your friend's compliment due to something about you or something about other people or circumstances?
- In the future, when you are with your friend, will this cause again be present?
- Is the cause something that just affects interacting with friends, or does it also influence other areas of your life?
- Is the cause of your being praised due to something about you or something about other people or circumstances?
- In the future when you do a project, will this cause again be present?
- Is the cause something that just affects doing projects, or does it also influence other areas of your life?

Examples of items measuring an Optimistic Explanatory Style for Bad Events are:

- Is the cause of your friend acting hostile due to something about your or something about other people or circumstances?
- In the future when interacting with friends, will this cause again be present?

- Is the cause something that just influences interacting with friends, or does it also influences other areas of your life?
- Is the cause of your not getting the work done due to something about you or something about other people or circumstances?
- In the future when doing work that others expect, will this cause again be present?
- Is the cause something that just affects doing work that others expect of you, or does it also influence other areas of your life?

The following section reports the item analysis results for each of the two-dimensional factor structure based on the responses for the optimism construct. Both inter-item correlations and reliability are reported. However, the results for the optimistic explanatory style for good events (optimism/good events) are reported in the following section.

Table 3.37 Item Analysis for Factor 1: Good Events

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ATSG2	93.7153	128.184	.292	.836
ATSG3	93.9288	125.937	.369	.833
ATSG4	94.3254	121.880	.385	.833
ATSG10	93.8441	124.125	.344	.835
ATSG11	93.6305	121.601	.446	.829
ATSG12	93.5932	123.208	.425	.830
ATSG22	93.7729	124.224	.431	.830
ATSG23	93.6475	123.086	.512	.827
ATSG24	93.7051	120.433	.596	.822
ATSG34	94.1729	124.082	.377	.833
ATSG35	93.8814	126.200	.368	.833
ATSG36	94.1898	123.175	.371	.834

Table 3.37 Reliability Analysis for Factor 1: Good Events (Continued)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ATSG38	93.8475	124.014	.436	.830
ATSG39	93.6610	123.252	.568	.825
ATSG40	93.8881	120.018	.514	.826
ATSG46	93.9017	122.613	.429	.830
ATSG47	93.6373	122.178	.558	.825
ATSG48	93.9966	120.221	.448	.829

All the items in the optimistic explanatory style for good events provide acceptable levels of above 0.250 for the inter-item correlations. The optimistic explanatory style for good events component of the Attributional Style Questionnaire has a reliability coefficient of 0.854.

The following section reports the item analysis results for the optimistic explanatory style for bad events.

Table 3.38 Item Analysis for Factor 2: Bad Events

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ATSB7	46.3356	114.149	.293	.793
ATSB8	46.8542	106.948	.462	.777
ATSB15	46.7729	113.646	.327	.790
ATSB16	46.9322	107.349	.442	.780
ATSB19	47.0237	110.289	.463	.778
ATSB20	46.9763	104.683	.541	.769
ATSB27	46.7627	113.188	.422	.781

Table 3.38 Item Analysis for Factor 2: Bad Events (Continued)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ATSB28	47.0034	105.446	.562	.768
ATSB31	46.4610	113.004	.429	.781
ATSB32	46.6644	110.543	.422	.781
ATSB42	46.5729	118.708	.244	.795
ATSB43	46.6169	114.074	.422	.782
ATSB44	46.6712	108.745	.482	.776

All the items in the optimistic explanatory style for bad events provide acceptable levels of above 0.250 for the inter-item correlations. The optimistic explanatory style for the bad events component of the Attributional Style Questionnaire has a reliability coefficient of 0.794.

With an indication of the factor structures of locus of control, general self-efficacy, and optimism, the fourth and final cognitive fortigenic variable, which is hope, is explored in following section.

3.6.4.1.2.8. Exploratory factor analysis of the cognitive fortigenic construct Hope

The following sections report results regarding the factor structure of the instrument that was used to measure the construct Hope as applicable to the current sample.

Table 3.39 KMO-statistic and Bartlett's Test for Hope

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.803
Bartlett's Test of Sphericity	Approx. Chi-Square	652.555
	df	15
	Sig.	.000

Table 3.39 provides evidence for the factor analysability of the Hope construct, with an acceptable KMO-statistic and Bartlett's Test of Sphericity being significant.
With an indication that the responses of the Hope measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of eigenvalues obtained are shown in Figure 3.7.

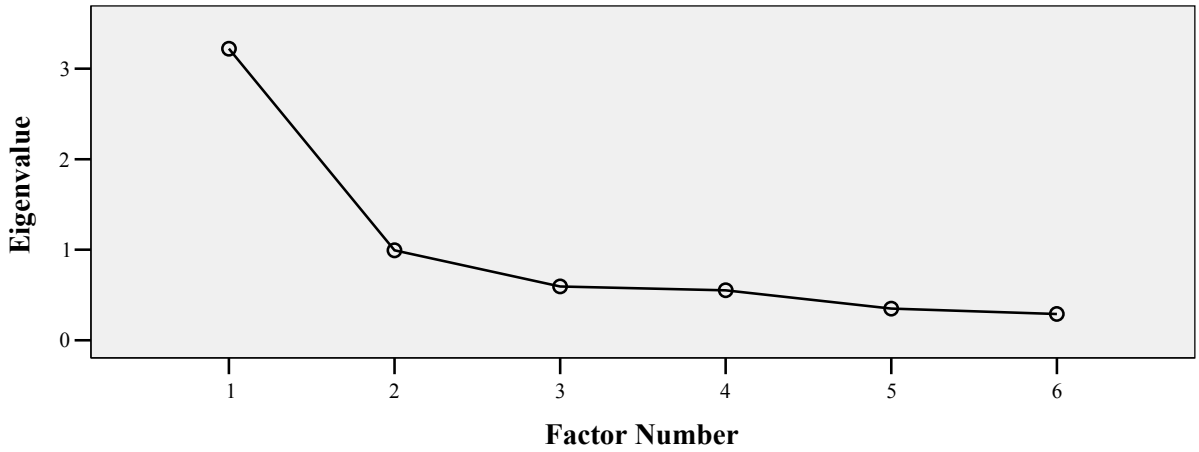

Figure 3.7 Screeplot: Hope
The screeplot seems to suggest a single factor solution to the hope construct, as depicted in Figure 3.7.

The following section reports on results of the exploratory factor analysis for a one-dimensional factor solution of the construct hope. Both the eigenvalues and the factor matrix results are reported and interpreted for a one-dimensional factor solution of the fortigenic construct Hope that is also supported by the results obtained in Table 3.40.

Table 3.40 Eigenvalues and Total Variance Explained: Hope

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.221	53.688	53.688	2.727	45.446	45.446
2	.994	16.559	70.247			
3	.594	9.895	80.142			

Table 3.40 Eigenvalues and Total Variance Explained: Hope

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
4	.552	9.198	89.340			
5	.349	5.821	95.161			
6	.290	4.839	100.000			

Table 3.40 provides further support for a single factor structure for the Hope construct, with only one eigenvalue bigger than 1, accounting for 45.446% of the variance.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct Hope. Only the factor matrix results are reported and interpreted for a one-dimensional factor solution of the fortigenic construct Hope.

Table 3.41 Factor Matrix: Hope

Item	Factor 1
HOPE1	.407
HOPE2	.697
HOPE3	.662
HOPE4	.744
HOPE5	.836
HOPE6	.619

All the items in the hope measuring instrument provide factor loadings above 0.250, as reported in Table 3.41.

Examples of items that represent the cognitive fortigenic construct Hope are:

- If I should find myself in a jam, I could think of many ways to get out of it.
- At the present time, I am energetically pursuing my goals.
- There are lots of ways around any problem that I am facing now.
- Right now, I see myself as being pretty successful.
- I can think of many ways to reach my current goals.
- At this time, I am meeting the goals that I have set for myself.

The following section reports the item analysis results for each of the items in the one-dimensional factor extracted based on the responses for the Hope construct. Both inter-item correlations and reliability are reported.

Table 3.42 Item Analysis for Hope

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HOPE1	25.8712	26.909	.366	.835
HOPE2	25.8305	23.298	.635	.782
HOPE3	25.9153	24.391	.597	.791
HOPE4	26.0203	23.088	.661	.776
HOPE5	26.0644	22.258	.732	.760
HOPE6	26.4000	23.254	.546	.803

Table 3.41 provides support that all the items in the hope measuring instrument does have inter-item correlations above 0.250, which is the cut-off suggested by this study. In addition, hope, as measured by the State Hope Scale, has a reliability of 0.821.

With an indication of the factor structures of cognitive fortigenic variables to be used in the current study (Locus of Control, General Self-efficacy, Optimism, and Hope), the emotional fortigenic variables' factor structures also need to be identified. The factor structure of the first emotional fortigenic variable, Self-Esteem is reported in the following section.

3.6.4.1.2.9. Exploratory factor analysis of the emotional fortigenic construct Self-esteem as measured by the Self-Liking/Self-Competence Scale

The following sections report results regarding the factor structure of the instrument that was used to measure the construct Self-Esteem applicable to the current sample.

Table 3.43 KMO-statistic and Bartlett's Test for Self-Competence/Self-Liking measure of Self-esteem

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2129.26
	df	120
	Sig.	.000

From Table 3.43 it is evident that the Self-esteem/Self-competence measure of Self-Esteem can be factor analysed due to the appropriate levels of both the KMO-statistic and Bartlett's Test of Sphericity. The screeplot of the eigenvalues obtained is shown in Figure 3.8.

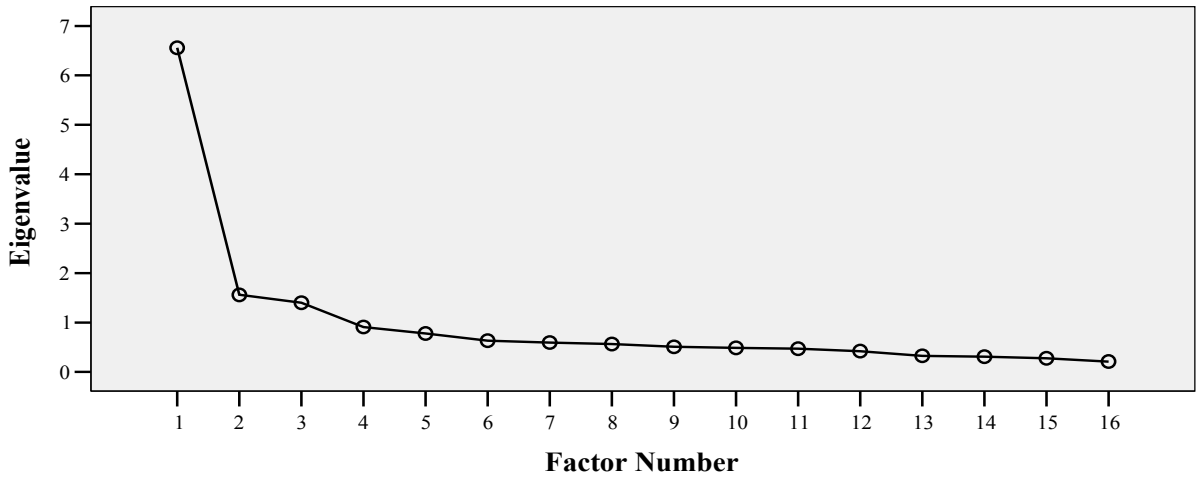

Figure 3.8 Screeplot: Self-Competence/Self-Liking measure of Self-Esteem

It is evident from Figure 3.8 that the Self-competence/Self-liking measure of Self-Esteem suggests a two-dimensional factor solution, based on the scree test.

The following section reports on additional results of the exploratory factor analysis for a two-dimensional factor solution of the construct Self-Esteem. Both the

eigenvalues and the structure matrix results are reported and interpreted for a two-dimensional factor solution of the emotional fortigenic construct Self-Esteem.

Table 3.44 Eigenvalues and Total Variance Explained: Self-Competence/Self-Liking measure of Self-esteem (2 Factor Solution)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.557	40.984	40.984	6.042	37.762	37.762	5.861
2	1.559	9.745	50.729	1.017	6.356	44.118	3.463
3	1.399	8.746	59.475				
4	.909	5.683	65.158				
5	.777	4.855	70.013				
6	.633	3.954	73.967				
7	.595	3.716	77.683				
8	.565	3.531	81.214				
9	.508	3.177	84.391				
10	.487	3.042	87.433				
11	.469	2.933	90.366				
12	.420	2.626	92.991				
13	.326	2.035	95.026				
14	.309	1.933	96.959				
15	.276	1.726	98.685				
16	.210	1.315	100.000				

From Table 3.44 it seems as if a two factor structure is suggested due to the extracted sums of square loadings eigenvalues larger than 1.

The following section reports on additional results of the exploratory factor analysis for a two factor solution of the construct Self-Esteem. Only the structure matrix

results are reported and interpreted for a two factor solution of the fortigenic construct Self-Esteem.

Table 3.45 Structure Matrix: Self-Competence/Self-Liking measure of Self-esteem (2 Factor Solution)

Item	Factor	
	1	2
SLSC1	.612	.458
SLSC6	.664	.445
SLSC7	.733	.389
SLSC15	.573	.388
SLSC8	.386	.634
SLSC10	.446	.734
SLSC13	.297	.630
SLSC16	.309	.478
SLSC3	.783	.364
SLSC5	.804	.347
SLSC9	.846	.415
SLSC11	.697	.304
SLSC2	.489	.422
SLSC4	.561	.472
SLSC12	.620	.412
SLSC14	.501	.314

Due to the large number of items that cross load (items 1, 2, 4, 6, 8, 12, 14, 15, and 16); the two factor solution is abandoned, as reported in Table 3.45. The reason for abandoning the two factor structure is also based on the fact that by removing these 9 items, the overall reliability of the measuring instrument will be compromised.

For this reason a one factor solution is explored in the following section. Table 3.46 seems to suggest, that when a one-dimensional structure for self-esteem is explored, that solution accounts for 37.434% of the variance.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct Self-Esteem. Only the factor matrix results are reported and interpreted for a one-dimensional factor solution of the emotional fortigenic construct Self-Esteem.

Table 3.46 Factor Matrix Self-esteem (One Factor Solution)

Item	Factor 1
SLSC9	.817
SLSC5	.762
SLSC3	.750
SLSC7	.718
SLSC6	.673
SLSC11	.664
SLSC1	.631
SLSC12	.628
SLSC4	.590
SLSC15	.582
SLSC10	.526
SLSC2	.516
SLSC14	.504
SLSC8	.461
SLSC13	.381
SLSC16	.368

All the items in the one factor solution, for the emotional fortigenic construct Self-Esteem, has acceptable factor loadings with the Self-Esteem construct, as reported in Table 3.46.

Examples of items that are part of the one-dimensional construct of Self-Esteem are:

- I tend to devalue myself.
- I am highly effective at the things I do.
- I am very comfortable with myself.

- I am almost always able to accomplish what I try for.
- I am secure in my sense of self-worth.
- It is sometimes unpleasant for me to think about myself.

The following section reports the item analysis results for the one-dimensional factor extracted based on the responses for the Self-Esteem construct. Both inter-item correlations and reliability are reported.

Table 3.47 Item Analysis for Self-esteem

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SLSC1	76.8203	175.277	.612	.885
SLSC6	76.0847	178.874	.638	.883
SLSC7	75.8712	178.698	.670	.882
SLSC15	76.1322	178.455	.556	.887
SLSC8	76.8203	185.100	.470	.890
SLSC10	76.4475	185.439	.538	.887
SLSC13	77.2102	190.139	.391	.893
SLSC16	77.5627	187.186	.373	.895
SLSC3	75.7898	184.588	.674	.883
SLSC5	75.9186	182.422	.691	.882
SLSC9	75.8407	181.216	.742	.881
SLSC11	76.4136	179.638	.600	.885
SLSC2	75.6983	193.041	.485	.889
SLSC4	75.7966	191.047	.549	.888
SLSC12	75.8475	189.096	.586	.886
SLSC14	75.9831	190.221	.460	.890

From Table 3.47 it is evident that all the items provide acceptable levels of inter-item correlations above 0.250. The one-dimensional factor structure of the emotional fortigenic construct Self-Esteem has a reliability of 0.893.

With an indication of the factor structure of Self-Esteem, the first emotional fortigenic, the factor structure of the second emotional fortigenic variable, Performance Self-Esteem, is reported in the following section.

3.6.4.1.2.10. Exploratory factor analysis of the emotional fortigenic construct Performance Self-Esteem as measured by the Current Thoughts Scale

The following sections report results regarding the factor structure of the instrument used to measure the construct Performance Self-Esteem applicable to the current sample.

Table 3.48 KMO-statistic and Bartlett's Test for Current Thoughts Scale measure of Performance Self-Esteem

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	601.078
	df	21
	Sig.	.000

With an indication that the responses of the performance self-esteem measurement can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of the eigenvalues obtained is shown in Figure 3.9.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct Performance Self-Esteem. Both the eigenvalues and the structure matrix results are reported and interpreted for a one-dimensional factor solution of the emotional fortigenic construct performance self-esteem.

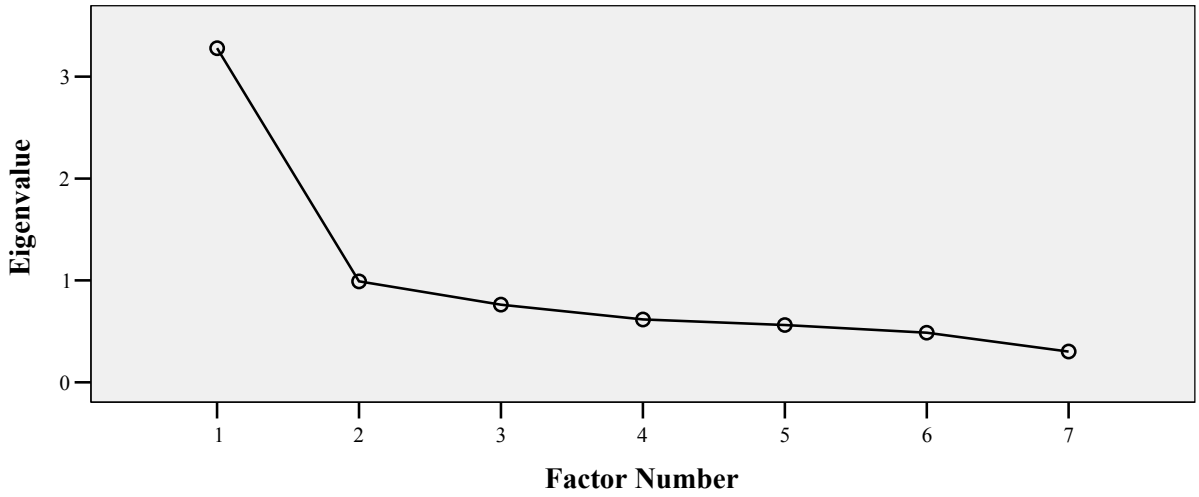

Figure 3.9 Screeplot: Current Thoughts Scale measure of Performance Self-Esteem

Figure 3.9 seems to suggest a one-dimensional factor solution for the Performance Self-Esteem construct.

Table 3.49 Eigenvalues and Total Variance Explained: Current Thoughts Scale measure of Performance Self-Esteem

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.278	46.830	46.830	2.723	38.905	38.905
2	.991	14.150	60.980			
3	.762	10.888	71.868			
4	.617	8.811	80.678			
5	.563	8.039	88.718			
6	.487	6.961	95.679			
7	.302	4.321	100.000			

From Table 3.49 it is suggested that a single factor solution of the Performance Self-Esteem construct will account for 38.9% of the total variance.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct Performance Self-Esteem. Only the factor matrix results are reported and interpreted for a one-dimensional factor solution of the emotional fortigenic construct Performance Self-Esteem.

Table 3.50 Factor Matrix: Current Thoughts Scale measure of Performance Self-Esteem

Item	Factor 1
CTS1	.553
CTS9	.720
CTS14	.834
CTS19	.664
CTS4	.511
CTS5	.563
CTS18	.431

From Table 3.50 it is evident that all the items of the Performance Self-Esteem measuring instrument has factor loadings bigger than 0.250.

Examples of items that are related to the construct Performance Self-Esteem are:

- I feel confident about my abilities.
- I feel frustrated or rattled about my performance.
- I feel I have trouble understanding things that I read.
- I feel as smart as others.
- I feel confident that I understand things.
- I feel that I have less scholastic ability right now than others.
- I feel like I am doing well.

The following section reports the item analysis results for the one-dimensional factor extracted based on the responses for the Performance Self-Esteem construct. Both inter-item correlations and reliability are reported.

Table 3.51 Item Analysis for Current Thoughts Scale measure of Performance Self-Esteem

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CTS1	31.5458	33.174	.463	.775
CTS9	31.6407	30.279	.594	.750
CTS14	31.3966	31.376	.700	.740
CTS19	31.6644	31.754	.585	.755
CTS4	32.2983	30.271	.467	.778
CTS5	31.5797	30.564	.524	.764
CTS18	31.9153	31.418	.403	.791

All the items in the performance self-esteem construct has inter-item correlations higher than 0.250, as reported in Table 3.51. The performance self-esteem construct has a reliability of 0.791.

With an indication of the factor structures of Self-Esteem and Performance Self-Esteem, the factor structure of the third emotional fortigenic variable, Resilience, is reported in the following section.

3.6.4.1.2.11. Exploratory factor analysis of the emotional fortigenic construct Resilience as measured by the Sense of Coherence Scale

The following sections report results regarding the factor structure of the instrument used to measure the construct Resilience applicable to the current sample.

Table 3.52 KMO-statistic and Bartlett's Test for Resilience as measured by the Sense of Coherence Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	1515.53
	df	1
	Sig.	231
		.000

Table 3.52 seems to suggest that the Sense of Coherence Scale, which measures Resilience, can be factor analysed due to the acceptable values of the KMO-statistic as well as Bartlett's Test of Sphericity. The screeplot of the eigenvalues obtained is shown in Figure 3.4.

The screeplot of the Sense of Coherence Scale suggests a one-dimensional factor solution due to the "elbow-shape" of the plot, as depicted in Figure 3.10.

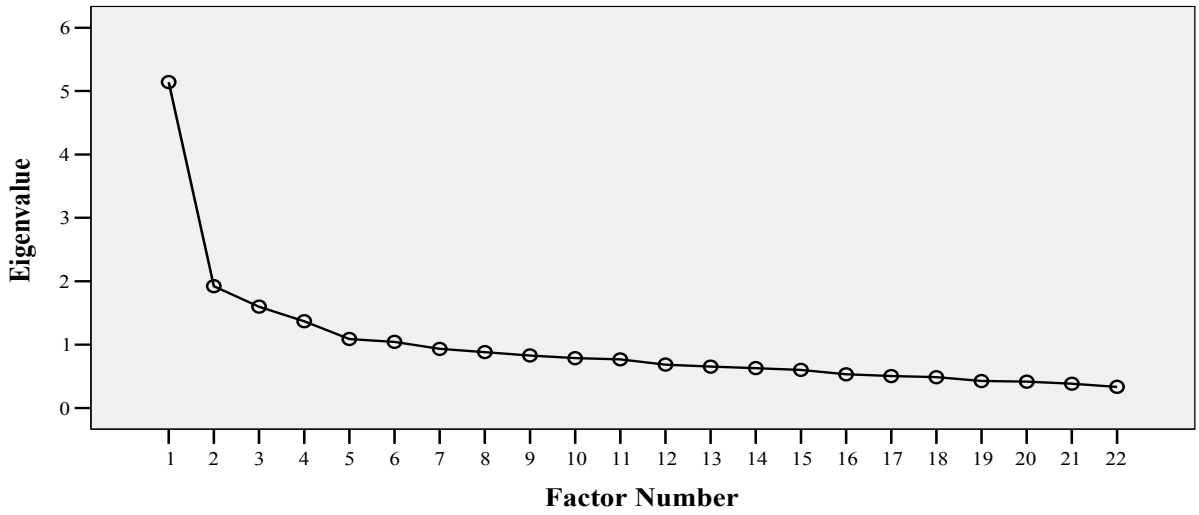

Figure 3.10 Screeplot: Resilience as measured by Sense of Coherence

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct resilience. Both the eigenvalues

and the structure matrix results are reported and interpreted for a one-dimensional factor solution of the fortigenic construct Resilience.

Table 3.53 Eigenvalues and Total Variance Explained: Resilience as measured by the Sense of Coherence Scale

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.141	23.368	23.368	4.546	20.663	20.663	3.344
2	1.921	8.731	32.099	1.399	6.358	27.020	1.398
3	1.598	7.265	39.365	1.060	4.820	31.840	2.277
4	1.368	6.219	45.584	.710	3.226	35.066	1.402
5	1.088	4.947	50.531	.486	2.208	37.274	1.772
6	1.043	4.741	55.272	.445	2.021	39.295	2.821
7	.933	4.241	59.513				
8	.881	4.006	63.519				
9	.828	3.762	67.281				
10	.786	3.571	70.852				
11	.767	3.485	74.338				
12	.685	3.111	77.449				
13	.653	2.969	80.418				
14	.629	2.858	83.276				
15	.602	2.736	86.012				
16	.531	2.415	88.427				
17	.503	2.288	90.715				
18	.486	2.207	92.922				
19	.425	1.934	94.856				
20	.416	1.892	96.748				
21	.383	1.740	98.488				
22	.333	1.512	100.000				

Although Table 3.53 seems to suggest that more than one factor can be extracted from the sense of coherence construct, the screeplot (Figure 3.10) is used to make the final decision as to how many factors to be extracted.
Further analysis refers to a one factor solution for the Resilience construct.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the construct resilience. Only the factor matrix results are reported and interpreted for a one-dimensional factor solution of the emotional fortigenic construct Resilience.

Table 3.54 Factor Matrix: Resilience as measured by the Sense of Coherence Scale (Round 1)

Item	Factor 1
SOC2	.411
SOC3	.358
SOC8	.336
SOC9	.440
SOC10	.132
SOC12	.540
SOC15	.475
SOC17	.170
SOC18	.454
SOC19	.644
SOC21	.577
SOC22	.457
SOC1	.203
SOC4	.247
SOC5	.485
SOC6	.457
SOC7	.479
SOC11	.488
SOC13	.478

Table 3.54 Factor Matrix: Resilience as measured by the Sense of Coherence Scale (Round 1) (Continued)

Item	Factor 1
SOC14	.551
SOC16	.520
SOC20	.492

Based on the information reported in Table 3.54, items 1, 4, 10, and 17 must be removed from further analyses due to their low factor loadings within the one factor solution. Therefore, a second round of exploratory factor analysis is conducted for the emotional fortigenic construct Resilience, assuming a one-dimensional factor solution – after the removal of those four items.

The following section reports the second round of results of the factor analysis, assuming a one-dimensional factor structure for the emotional fortigenic construct resilience. The next section provides results of the KMO-statistic, Bartlett's Test of Sphericity, as well as the eigenvalues and screeplot.

Table 3.55 KMO-statistic and Bartlett's Test for Resilience as measured by the Sense of Coherence Scale (Round 2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.862
Bartlett's Test of Sphericity	Approx. Chi-Square	1260.40
	df	153
	Sig.	.000

After the removal of the four items, the Resilience construct is still factor analysable due to the KMO-statistic as well as the value associated with Bartlett's Test of Sphericity.

With an indication that the responses of the sense of coherence measurement of resilience can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the interpretation of the screeplot (Figure 3.11), seems to suggest that a one-dimensional factor solution to resilience is warranted.

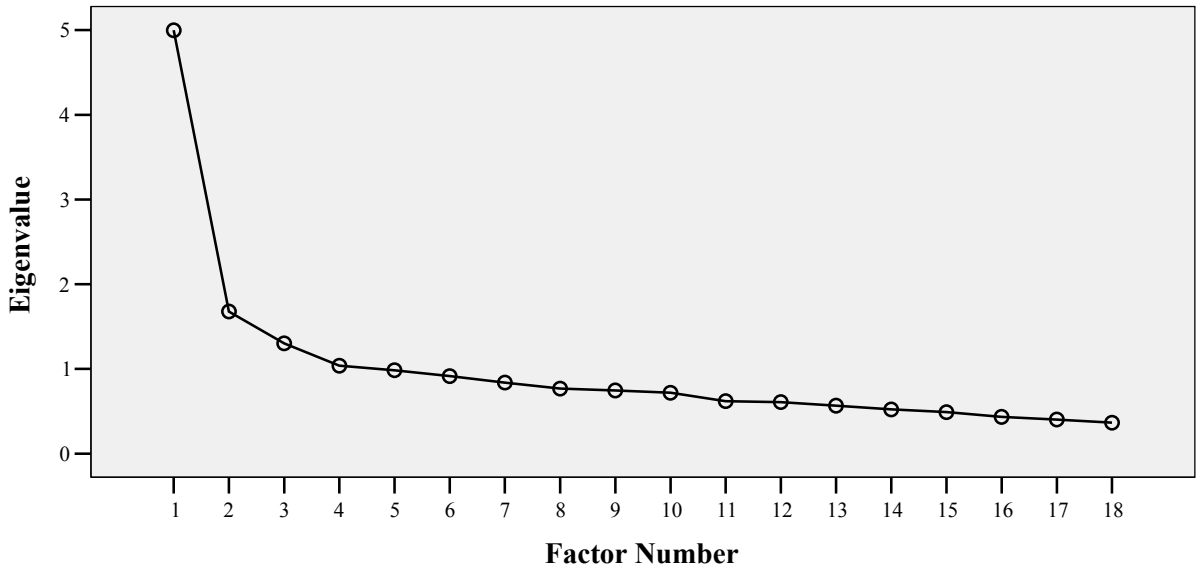

Figure 3.11 Screeplot: Resilience as measured by Sense of Coherence (Round 2)

A one factor solution is again suggested by the screeplot of the sense of coherence construct during round two (after the removal of four items), as evident from Figure 3.11.

The following section reports on the second round results of the exploratory factor analysis for a one-dimensional factor solution of the construct Resilience. Both the eigenvalues and the factor matrix results are reported and interpreted for a one-dimensional factor solution of the emotional fortigenic construct Resilience.

Table 3.56 Eigenvalues and Total Variance Explained: Resilience as measured by the Sense of Coherence Scale (Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.998	27.765	27.765	4.253	23.628	23.628
2	1.678	9.323	37.087			
3	1.302	7.231	44.319			
4	1.038	5.769	50.087			
5	.985	5.472	55.559			
6	.916	5.087	60.647			
7	.839	4.662	65.309			
8	.768	4.269	69.578			
9	.745	4.142	73.719			
10	.719	3.995	77.715			
11	.620	3.443	81.158			
12	.609	3.382	84.539			
13	.566	3.146	87.686			
14	.522	2.901	90.587			
15	.490	2.723	93.309			
16	.434	2.412	95.721			
17	.404	2.243	97.964			
18	.366	2.036	100.000			

Table 3.56 seems to suggest that, after removing the four items from the measurement, the one factor solution still accounts for 23.628% of the variance.

Table 3.57 Factor Matrix: Resilience as measured by the Sense of Coherence Scale (Round 2)

Item	Factor 1
SOC2	.411
SOC3	.372
SOC8	.305
SOC9	.439
SOC12	.538
SOC15	.471
SOC18	.458
SOC19	.632
SOC21	.570
SOC22	.452
SOC5	.475
SOC6	.454
SOC7	.493
SOC11	.502
SOC13	.490
SOC14	.569
SOC16	.526
SOC20	.492

Table 3.57 suggests that all the remaining items making up the Resilience construct be retained for subsequent statistical analysis, due to their factor loadings being above the 0.250 cut-off.

Examples of items that are related to the Resilience construct as measured by the Sense of Coherence Scale are:

- When you talk to people, do you have the feeling that they don't understand you?
- Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?

- Do you think there will *always* be people whom you'll be able to count on in the future?
- Many people - even those with a strong character - sometimes feel like losers or blunderers ("sad sacks") in certain situations. How often have you felt this way in the past?
- How often do you have the feeling that there's little meaning in the things you do in your daily life?
- How often do you have feelings that you're not sure you can keep under control?

The following section reports the item analysis results for the one-dimensional factor extracted based on the responses for the Resilience construct. Both inter-item correlations and reliability are reported.

Table 3.58 Item Analysis for Resilience as Measured by the Sense of Coherence Scale (1 Factor Solution)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SOC2	86.6644	134.305	.388	.836
SOC3	86.8881	135.773	.347	.838
SOC8	85.8305	139.230	.267	.841
SOC9	86.9593	129.835	.408	.836
SOC12	86.6881	129.433	.496	.830
SOC15	86.9966	135.303	.437	.834
SOC18	86.5864	131.237	.410	.835
SOC19	87.0407	126.107	.581	.825
SOC21	87.1390	126.970	.523	.829
SOC22	85.4339	137.872	.407	.835
SOC5	87.1492	131.291	.451	.833
SOC6	87.3932	132.403	.425	.834
SOC7	86.0203	131.816	.440	.833

Table 3.58 Item Analysis for Resilience as Measured by the Sense of Coherence Scale (1 Factor Solution) (Continued)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SOC11	86.1831	134.524	.453	.833
SOC13	85.5797	136.775	.436	.834
SOC14	85.7119	133.811	.516	.831
SOC16	86.8915	132.403	.482	.831
SOC20	86.1593	132.522	.438	.833

Table 3.58 provides evidence that all the remaining items in the sense of coherence construct provide acceptable inter-item correlations of above 0.250. The emotional fortigenic construct Resilience, as measured by the Sense of Coherence Scale, has a reliability of 0.841.

With an indication of the factor structures of cognitive fortigenic variables to be used in the current study (Locus of Control, General Self-efficacy, Optimism, and Hope), as well as factor structures of the emotional fortigenic variables (Self-Esteem, Performance Self-Esteem, and Resilience), the criterion measure of persistence is explored in the following sections. Two sections are discussed below. The first section reports the factor structure of the persistence component of the Self-Control Scale (SCS) (Tangney et al., 2004). The second section then reports the combined criterion measure of persistence – consisting of the persistence dimension of the Self-Control Scale and the Persistence component of the General Self-efficacy scale (original measure) (Sherer et al., 1982).

3.6.4.1.2.12. Exploratory factor analysis of Persistence as measured by the Self-Control Scale

The following sections report results regarding the factor structure of the instrument used to measure the construct Persistence, as measured by the SCS, applicable to the current sample.

Table 3.59 KMO-statistic and Bartlett's Test for the Self-Control Scale measure of Persistence

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	547.634
	df	36
	Sig.	.000

With an indication that the responses of SCS measurement component of Persistence can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of the eigenvalues obtained is shown in Figure 3.12.

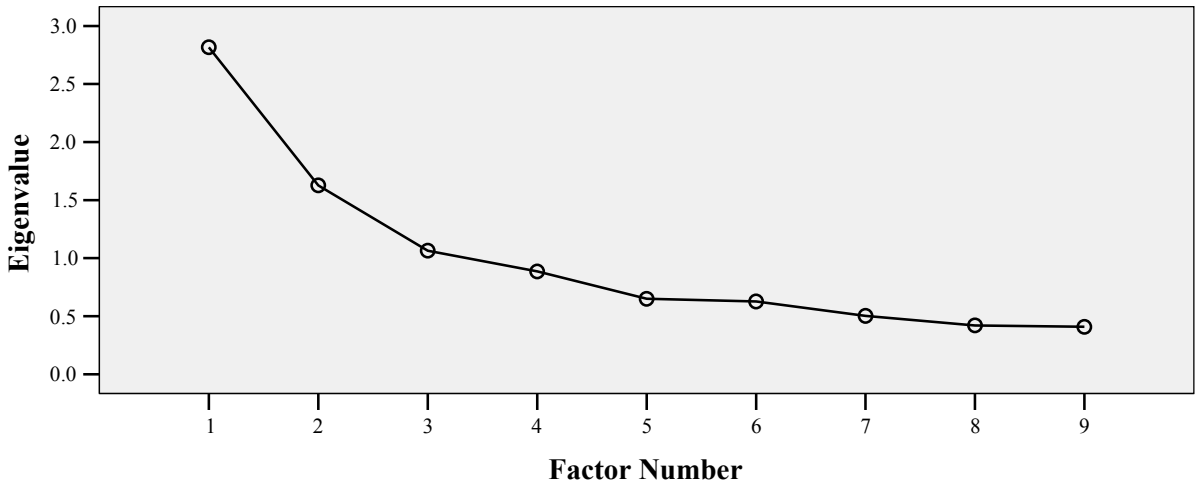

Figure 3.12 Screeplot: Self-Control Scale measure of Persistence

The screeplot of the self control measure of persistence, depicted in Figure 3.12, seems to suggest a two-dimensional factor solution to the construct persistence, as measured by the SCS.

The following section reports on additional results of the exploratory factor analysis for a two factor solution of the construct persistence, as measured by the SCS. Both

the eigenvalues and the structure matrix results are reported and interpreted for a two factor solution of the fortigenic construct persistence, as measured by the SCS.

Table 3.60 Eigenvalues and Total Variance Explained: Self-Control Scale measure of Persistence

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.816	31.293	31.293	2.273	25.258	25.258	1.781
2	1.627	18.075	49.369	1.091	12.119	37.377	1.514
3	1.064	11.823	61.192	.442	4.915	42.291	1.503
4	.886	9.839	71.031				
5	.650	7.220	78.252				
6	.626	6.960	85.212				
7	.503	5.585	90.797				
8	.420	4.670	95.467				
9	.408	4.533	100.000				

Table 3.60 seems to suggest a two-dimensional factor solution of the self control measure of Persistence accounts for 37.377% of the variance.

The following section reports on additional results of the exploratory factor analysis for a two-dimensional factor solution of the criterion construct persistence, as measured by the SCS. Only the factor matrix results are reported and interpreted for a two factor solution of the fortigenic construct Persistence, as measured by the SCS.

Table 3.61 Structure Matrix: Self-Control Scale measure of Persistence (2 Factor Solution)

Item	Factor	
	1	2
SCS3	**.628**	.207
SCS4	**.734**	.223
SCS5	**.453**	.115
SCS6	**.698**	.182
SCS1	**.362**	.040
SCS2	**.454**	.237
SCS7	.148	**.716**
SCS8	.189	**.512**
SCS9	.209	**.730**

The two factor structure of the SCS measure of Persistence clearly indicates two distinct factors, as evident from Table 3.61.

Factor 1 is labelled as the "Behavioural Component of Persistence", while Factor 2 is labelled the "Emotional Component of Persistence".

Examples of the items that measured the Behavioural Component of Persistence include:

- I am lazy.
- I wish I had more self-discipline.
- I am good at resisting temptation.
- People would say that I have iron self-discipline.
- I am not easily discouraged.
- I am able to work effectively toward long-term goals.

Examples of items that are related to the Emotional Component of Persistence include:

- People describe me as impulsive.
- I get carried away by my emotions.
- I do things on the spur of the moment.

Table 3.62 Factor Correlation Matrix: State Self-Control Capacity Scale measure of persistence (2 Factor Solution)

Factor	1	2
1	1.000	.277
2	.277	1.000

The two factors extracted from the self control measure of persistence have a relatively small correlation between, as reported in Table 3.62.

The following section reports the item analysis results for each of the factors extracted based on the responses for the SCS measure of Persistence. Both inter-item correlations and reliability are reported. However, the results of the Behavioural Component of Persistence are reported first.

Table 3.63 Item Analysis for Factor 1 (Behavioural component of persistence)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SCS1	24.4814	28.441	.339	.708
SCS2	25.5932	26.018	.413	.688
SCS3	25.2542	26.823	.495	.657
SCS4	25.3153	25.319	.585	.626
SCS5	24.4373	30.553	.338	.702
SCS6	24.2407	28.904	.558	.651

The items making up the behavioural component of persistence has acceptable inter-item correlations above 0.250. The reliability of the Behavioural Component of Persistence is 0.712.

The following section reports the results of the Emotional Component of Persistence.

Table 3.64 Item Analysis for Factor 2 (Emotional component of persistence)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SCS7	8.8373	7.144	.529	.543
SCS8	8.9627	7.295	.423	.685
SCS9	9.2169	7.164	.538	.532

The emotional component of persistence, consisting of three items, suggests that the latter have acceptable levels of inter-item correlations. The emotional component has a reliability of 0.681. It is important to note that the reliability could have been bigger if more items were available.

With a clear indication that the SCS has an interpretable factor structure, the following section explores the combined criterion measure to be used for persistence in the current study.

3.6.4.1.2.13. Exploratory factor analysis of the criterion construct Persistence (Combined measure from items of General Self-Efficacy subscale and Self-Control Scale)

The following sections report results regarding the factor structure of the instrument used to measure the combined criterion construct Persistence, as measured by the persistence components of the Self-Control Scale and General Self-Efficacy Scale, applicable to the current sample.

Table 3.65 KMO-statistic and Bartlett's Test for the combined criterion measure Persistence

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.752
Bartlett's Test of Sphericity	Approx. Chi-Square	786.336
	df	78
	Sig.	.000

With an indication that the responses of the combined criterion measure of persistence can be factor analysed, based on the KMO-statistic as well as a significant value for Bartlett's Test of Sphericity, the screeplot of the eigenvalues obtained is shown in Figure 3.13.

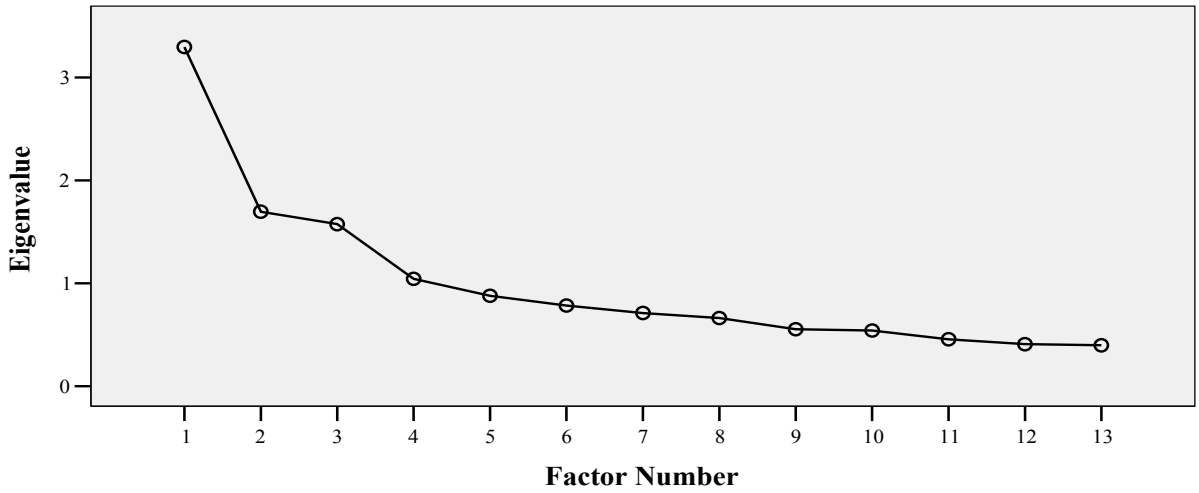

Figure 3.13 Screeplot: Combined Criterion Measure of Persistence

The screeplot of the combined criterion measure of Persistence, depicted in Figure 3.13, suggests a one factor solution due to the distance between the first and second eiegenvalues.

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the combined criterion construct Persistence.

Both the eigenvalues and the factor matrix results are reported and interpreted for a one-dimensional factor solution of the combined criterion construct Persistence.

Table 3.66 Eigenvalues and Total Variance Explained: Combined Criterion Measure of Persistence

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.297	25.360	25.360	2.739	21.067	21.067	2.096
2	1.696	13.047	38.407	1.179	9.071	30.138	1.489
3	1.575	12.112	50.519	.989	7.605	37.743	1.795
4	1.043	8.024	58.544	.461	3.547	41.289	1.370
5	.878	6.755	65.299				
6	.783	6.021	71.320				
7	.711	5.470	76.790				
8	.663	5.097	81.887				
9	.553	4.252	86.139				
10	.541	4.158	90.297				
11	.456	3.508	93.805				
12	.408	3.140	96.945				
13	.397	3.055	100.000				

Although Table 3.66 seems to suggest that more than one factor can be extracted, the analysis of the screeplot suggests only one factor to be extracted.

Table 3.67 Factor Matrix: Combined Criterion Measure of Persistence (1 Factor Solution: Round 1)

Item	Factor 1
SCS6	.628
SCS4	.598
SCS3	.537
SCS5	.516
SCS2	.460
GSE14	.446
GSE17	.412
SCS8	.407
GSE11	.389
SCS1	.312
SCS9	.311
GSE15	.289
SCS7	.241

The factor matrix reported in Table 3.67, suggest that item 7 must be removed due to a factor loading of lower than 0.250 during round 1. Therefore, a second round of exploratory factor analysis is conducted for the criterion construct persistence, assuming a one-dimensional factor solution – after the removal of item 7.

Table 3.68 KMO-statistic and Bartlett's Test for the Combined Criterion Measure for Persistence (1 Factor Solution: Round 2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.759
Bartlett's Test of Sphericity	Approx. Chi-Square	665.790
	df	66
	Sig.	.000

After the removal of item 7, the combined persistence measure is still factor analysable, as reported in Table 3.68.

The screeplot presented in Figure 3.14, reported below, also seems to suggest a one-dimensional factor structure for the criterion measure persistence.

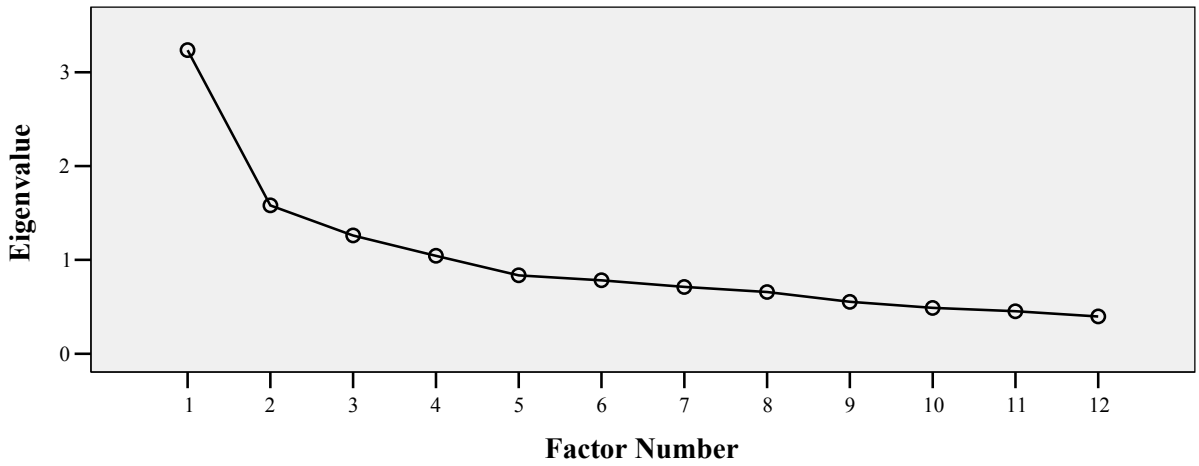

Figure 3.14 Screeplot: Persistence (1 Factor Solution: Round 2)

The following section reports on additional results of the exploratory factor analysis for a one-dimensional factor solution of the combined criterion construct Persistence. Both the eigenvalues and the factor matrix results are reported and interpreted for a one-dimensional factor solution for the criterion construct persistence.

Table 3.69 Eigenvalues and Total Variance Explained: Combined Criterion Measure for Persistence (1 Factor Solution: Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.236	26.969	26.969	2.489	20.743	20.743
2	1.581	13.175	40.144			
3	1.261	10.508	50.652			
4	1.043	8.692	59.344			
5	.836	6.967	66.311			

Table 3.69 Eigenvalues and Total Variance Explained: Combined Criterion Measure for Persistence (1 Factor Solution: Round 2) (Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
6	.783	6.523	72.834			
7	.711	5.926	78.760			
8	.658	5.480	84.240			
9	.553	4.606	88.846			
10	.488	4.068	92.914			
11	.453	3.776	96.689			
12	.397	3.311	100.000			

The removal of item 7 in the previous round of factor analysis has increased the variance to be explained by this single factor of Persistence to 20.743% of the variance, as reported in Table 3.69.

The following section reports the factor matrix results of the criterion measure persistence.

Table 3.70 Factor Matrix: Persistence (1 Factor Solution: Round 2)

Item	Factor
	1
SCS6	.636
SCS4	.596
SCS3	.538
SCS5	.535
SCS2	.452
GSE14	.451
GSE17	.435
GSE11	.401
SCS8	.372
SCS1	.320

Table 3.70 Factor Matrix: Persistence (1 Factor Solution: Round 2) (Continued)

Item	Factor
	1
GSE15	.299
SCS9	.258

All the items have factor loadings of above the 0.250 cut-off used for the current study. As evident from Table 3.70, all the remaining items can be retained in the combined measure of persistence.

To ensure that the one factor solution is the optimal solution for the combined measure of Persistence, a two factor solution is also evaluated. The reason is based on the reported two-dimensional factor structure of the persistence component of the Self-Control Scale reported earlier. Based on Table 3.66, a two-dimensional factor solution to the criterion measure persistence, accounts for 30% of the variance.

The following section reports the results of the structure matrix of the two-dimensional criterion construct persistence.

Table 3.71 Structure Matrix: Persistence (2 Factor Solution, Round 1)

Item	Factor	
	1	2
SCS6	.637	.192
SCS4	.575	.254
SCS5	.557	.083
SCS3	.513	.240
GSE17	.482	-.028
GSE14	.451	.146
SCS2	.428	.248
GSE11	.405	.099
SCS1	.325	.059
GSE15	.324	.004

Table 3.71 Structure Matrix: Persistence (2 Factor Solution, Round 1) (Continued)

Item	Factor	
	1	2
SCS7	.083	.736
SCS9	.171	.735
SCS8	.325	.460

The structure matrix reported in Table 3.71, suggest that item 8 must be removed due to factor loading of lower than 0.250 during round 1. Therefore, a second round of exploratory factor analysis is conducted for the combined criterion construct Persistence, assuming a two factor solution – after the removal of item 8.

The following section reports on additional results of the exploratory factor analysis for a two-dimensional factor solution of the combined criterion construct Persistence. Both the eigenvalues and the structure matrix results are reported and interpreted for a two-dimensional factor solution of the combined criterion construct persistence.

Table 3.72 KMO-statistic and Bartlett's Test for Persistence (2 Factor Solution, Round 2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	677.188
	df	66
	Sig.	.000

Table 3.72 seems to suggest that the criterion measure of persistence is factor analysable. The screeplot of the eigenvalues obtained is shown in Figure 3.15.

Based on the screeplot of Figure 3.17, it seems as if a two-dimensional factor solution of the combined measure of persistence is still possible.

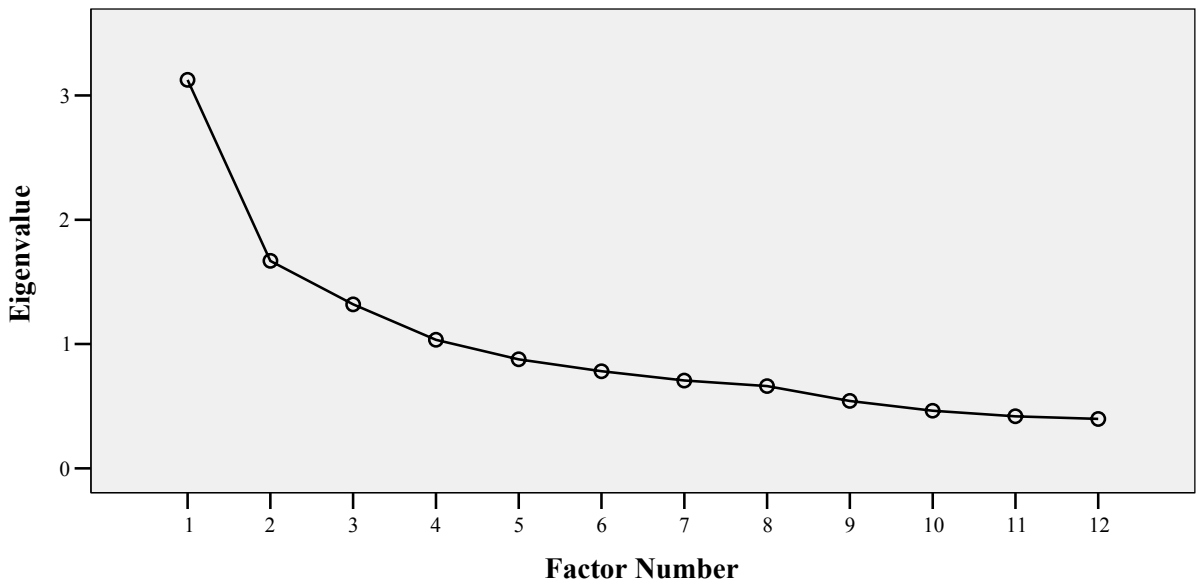

Figure 3.15 Screeplot: Combined Criterion Measure for Persistence (2 Factor Solution, Round 2)

The following section reports on second round's results of exploratory factor analysis for a two-dimensional factor solution of the combined criterion construct Persistence. Both the eigenvalues and the structure matrix results are reported and interpreted for a two-dimensional factor solution of the combined criterion construct Persistence.

Table 3.73 Eigenvalues and Total Variance Explained: Combined Criterion Measure of Persistence (2 Factor Solution, Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.124	26.033	26.033	2.465	20.540	20.540	1.945
2	1.670	13.913	39.946	.952	7.934	28.474	1.835
3	1.319	10.994	50.940				

Table 3.73 Eigenvalues and Total Variance Explained: Combined Criterion Measure of Persistence (2 Factor Solution, Round 2)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
4	1.035	8.622	59.562				
5	.878	7.313	66.875				
6	.782	6.514	73.389				
7	.706	5.886	79.275				
8	.662	5.519	84.795				
9	.543	4.524	89.318				
10	.464	3.867	93.185				
11	.420	3.499	96.685				
12	.398	3.315	100.000				

From Table 3.73, the extracted sums of square loadings seem to suggest that a single factor is plausible that accounts for 20.540% of the variance. However, the structure matrix, reporting the results of a two-dimensional factor structure, is evaluated in the following section.

Table 3.74 Structure Matrix: Combined Criterion Measure for Persistence (2 Factor Solution, Round 2)

Item	Factor	
	1	2
SCS4	.683	-.332
SCS3	.590	-.289
SCS6	.573	-.458
SCS2	.456	-.259
SCS9	.430	.036
SCS7	.397	.117

Table 3.74 Structure Matrix: Combined Criterion Measure for Persistence (2 Factor Solution, Round 2) (Continued)

Item	Factor	
	1	2
SCS1	.291	-.218
GSE17	.067	-.656
SCS5	.319	-.512
GSE11	.117	-.477
GSE14	.204	-.474
GSE15	.067	-.397

From Table 3.74 it is evident that a two factor solution of the combined measure of Persistence is unfeasible due to the removal of four items, as well as one item during Round 1. By removing these five items, the reliability of the composite measure of persistence will be compromised.

In addition to the examples of items that are related to the measure of Persistence using the Self-Control Scale (reported earlier), the following items from Sherer and colleagues' General Self-efficacy Scales are added to the combined criterion measure for Persistence:

- When I set important goals for myself, I rarely achieve them.
- I do not seem to be capable of dealing with most problems that come up in my life.
- When unexpected problems occur, I don't handle them very well.
- I feel insecure about my ability to do things.

The following section reports the item analysis results for the one-dimensional factor extracted based on the responses for the combined criterion construct Persistence. Both inter-item correlations and reliability are reported.

Table 3.75 Item Analysis for Combined Criterion Measure for Persistence (1 Factor Solution)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SCS3	55.9492	72.402	.435	.711
SCS4	56.0102	70.847	.485	.704
SCS5	55.1322	74.775	.426	.713
SCS6	54.9356	74.741	.510	.706
GSE15	54.7797	79.485	.248	.733
SCS1	55.1763	75.853	.269	.734
SCS2	56.2881	70.308	.407	.715
SCS8	56.0136	73.735	.359	.721
SCS9	56.2678	78.136	.236	.736
GSE14	55.6542	72.594	.394	.716
GSE11	55.3898	76.579	.364	.720
GSE17	54.5559	78.186	.372	.721

Table 3.75 reports that most of the items have inter-item correlations above 0.250. Only items 15 and 9 are below the cut-off. However, due to these two items' acceptable factor loadings (see Table 3.70) they are retained. In addition, the removal of these two items will not significantly impact the reliability of the overall measure of persistence. The reliability of the combined criterion measure used in the current study is 0.737.

The previous sections reported the factor structures that are applicable to the current sample. Exploratory factor analysis was done to determine these factor structures. In summary, the following fortigenic constructs had one-dimensional structures: General Self-Efficacy, Hope, Self-Esteem, Performance Self-Esteem, Resilience, and the combined criterion measure of Persistence. However, the following fortigenic constructs had two-dimensional factor structures: Locus of Control (internal and

external), Optimism (good events and bad events), and the Self-Control Scale as a measure of persistence (behavioural and emotional).

Further analyses to be conducted in the current study focus on group differences and group comparisons. Before these analyses can be conducted, it is suggested that the structural equivalence of each of the fortigenic variables being used in the current study, be evaluated for qualitative evidence of structural equivalence. The importance of structural equivalence in cross-cultural research is discussed in the following section.

3.6.4.1.3. Structural equivalence, target rotation, and Tucker's phi

The current study has information on various biographical variables including race and gender. It is also clear from Propositions 3b, 6b, and 9b that comparing different groups on the identified fortigenic variables are to be conducted. However, before these research propositions can be tested, Proposition 2 must be tested using appropriate statistical techniques.

Proposition 2 states that there will be evidence of structural equivalence, for each of the identified fortigenic variables, between male and female participants, black and white participants, and participants who have passed and failed. This section provides an overview of the theoretical basis, as well as statistical evidence, for the evaluation of structural equivalence.

When dealing with cross-cultural data it is important to evaluate the psychometric adequacy of the measuring instruments used in a study (van de Vijver & Leung, 1997; Hair et al., 2006). This process usually consists of two parts. The first part (also known as preliminary analysis) analyses the reliability of each of the revalidated fortigenic measuring instruments in relation to group and cultural identity. The second part of the analyses emphasises the determination of equivalence between the two groups (van de Vijver et al., 1997).

The aim of the preliminary analysis is to determine whether or not the various groupings have similar reliability coefficients (van de Vijver et al., 1997). Testing for the equality of reliability in two groups, it is advisable to use the following statistic $(1-\alpha_1)/(1-\alpha_2)$ where α_1 represents the reliability of the first group and α_2 represents the

reliability of the second group. Using the *F* ratio associated with the following degrees of freedom (N_1-1) and (N_2-1) - using the sample sizes of the two groups with *p*=0.05 - it is possible to determine whether the two groups differ in terms of their reliability on the same measuring instrument (van de Vijver et al, 1997, p. 60).

The following section reports the reliability coefficients for each of the revalidated fortigenic variables across different groups.

Table 3.76 Summary of reliability coefficients across the various subgroups

Construct	Designated Group	White Group	Female Group	Male Group	Failed Group	Passed Group
Internal Locus of Control	0.854	0.828	0.851	0.813	0.861	0.798
External Locus of Control	0.838	0.853	0.851	0.841	0.859	0.826
Optimism (Good Events)	0.820	0.828	0.826	0.836	0.843	0.805
Optimism (Bad Events)	0.803	0.781	0.763	0.819	0.768	0.820
Hope	0.846	0.808	0.810	0.834	0.813	0.840
Self-Esteem	0.887	0.895	0.892	0.896	0.883	0.907
Performance Self-Esteem	0.783	0.797	0.770	0.819	0.772	0.798
General Self-Efficacy	0.810	0.823	0.834	0.794	0.818	0.820
Resilience	0.832	0.849	0.836	0.847	0.857	0.820
Behavioural Component of Persistence	0.730	0.710	0.695	0.706	0.701	0.721

Table 3.76 Summary of reliability coefficients across the various subgroups (Continued)

Construct	Designated Group	White Group	Female Group	Male Group	Failed Group	Passed Group
Emotional Component of Persistence	0.755	0.669	0.734	0.705	0.714	0.687
Combined Measure of Persistence	0.765	0.723	0.750	0.724	0.723	0.752

Based on the results from Table 3.76, it is evident that the various groups do not differ that much in terms of their reliability coefficients, on the various revalidated measuring instruments used in this study. All the reliability coefficients are above 0.70, except for the Female group's reliability coefficient (0.695) for the Behavioural Component of Persistence and the White group's reliability coefficient (0.669) for the Emotional Component of Persistence. The former is close enough to the cut-off of 0.70, while the latter can be attributed to the small number of items (n = 3) that contain the Emotional Component of Persistence.

Determining the equivalence of the various measuring instruments used in a given study is the aim of the second part of cross-cultural research (van de Vijver et al., 1997). The most frequently used technique is to conduct exploratory factor analysis followed by target rotations and the computation of an index of agreement across cultural groups (McDonald as cited in van de Vijver et al., 1997, p. 90). After obtaining factor loadings from exploratory factor analysis, these loadings must be rotated as to determine their agreement. This is done by arbitrarily selecting one group as the target and the factor loadings of the second group are rotated toward the target group. The procedure used for target rotation is also known as Procrustean rotation (van de Vijver et al., 1997, p. 89). After such a Procrustean rotation, factorial or structural agreement must be determined. The technique most often used is Tucker's coefficient of agreement, also known as Tucker's phi (Tucker as cited in van de

Vijver et al., 1997, p. 91). Values of 0.95 are indicative of excellent levels of factorial similarity (i.e. structural equivalence) whereas values of 0.90 are indicative of adequate levels of factorial similarity (van de Vijver & Poortinga, 1994).

The following section reports the coefficients of agreement (Tucker's phi) for each of the fortigenic variables across different groups.

Table 3.77 Summary of Tucker's phi as an indication of structural equivalence across the various subgroups

Construct	**Designated and White Group**	**Female and Male Group**	**Failed and Passed Group**
Locus of Control	External = 0.99 Internal = 0.96	External = 0.97 Internal = 0.92	External = 0.98 Internal = 0.91
Optimism	Good = 0.97 Bad = 0.96	Good = 0.96 Bad = 0.94	Good = 0.96 Bad = 0.98
Hope	1.00	0.99	0.98
Self-Esteem	0.97	0.99	0.99
Performance Self-Esteem	0.98	0.98	1.00
General Self-Efficacy	0.97	0.99	0.99
Resilience	0.98	0.98	0.99
Persistence (Self-Control Scale)	Behavioural = 0.98 Emotional = 0.99	Behavioural = 0.99 Emotional = 0.97	Behavioural = 0.98 Emotional = 0.99
Combined Measure of Persistence	0.92	0.95	0.97

Based on the results from Table 3.77, it is suggested that the various groups have adequate to very good levels of factorial similarity on the various measuring instruments used in this study due to Tucker's phi values ranging from 0.91 to 1.00.

Whereas structural equivalence using target rotation is a form of qualitative equivalence (van de Vijver, 2006) measurement equivalence can also be determined

through more stringent techniques and approaches (van de Vijver et al, 1997; Hair et al., 2006). This requires the use of structural equations modelling. The technique implies that three constraints are placed on the model of the two groups, viz: (a) factor loading equivalence, (b) interfactor covariance, and (c) error variance equivalence (Hair et al., 2006, p. 821). This technique involves testing the null hypothesis that all three parameters are assumed to be equal across the two groups. The alternative hypothesis states that at least two of the parameters of the measurement model are not identical across the two groups. By determining the chi-square difference between the two groups, it is possible to determine measurement equivalence (i.e. metric invariance) based on a non-significant difference between the chi-square values of the two groups. Due to the fact that the purpose of this study is not to evaluate measurement equivalence of the various fortigenic measurement instruments, this technique is not employed – except to test Research Proposition 12. The latter states: There will be evidence of measurement equivalence of the measurement model to be used to test the validity of the structural model, between participants who have passed and failed.

The previous sections reported the factor structures that are applicable to the current sample. Exploratory Factor Analysis (EFA) was done to determine these factor structures. In summary, the following fortigenic constructs had one-dimensional structures: General Self-Efficacy, Hope, Self-Esteem, Performance Self-Esteem, Resilience, and the criterion measure of Persistence. However, the following fortigenic constructs had two-dimensional factor structures: Locus of Control (Internal and External), Optimism (Good Events and Bad Events), and the Self-Control Scale as a measure of Persistence (Behavioural and Emotional).

To evaluate the quality of the fortigenic measurements in terms of the data obtained (i.e. measurement models), confirmatory factor analysis must be conducted. The latter procedure is discussed in the following section.

3.6.4.1.4. Confirmatory Factor Analysis (CFA)

The purpose of carrying out Confirmatory Factor Analysis (CFA) was to provide statistical evidence on whether each of the identified fortigenic variables is adequately defined in terms of the common variance among the indicators (i.e. items) in a

measurement model (MacKenzie, Podsakoff, & Jarvis, 2005, p. 710). Confirmatory Factor Analysis focuses only on a measurement model. The Confirmatory Factor Analysis in this study was used to determine the following: (a) the certainty as to the number of factors that must be used, (b) which variables or items reflect the identified factors, and (c) whether these factors are correlated. The difference between confirmatory factor analysis and exploratory factor analysis is that in the latter, all factors affect the measured variables (i.e. items). In contrast, confirmatory factor analysis is based on the specification of which factors affect which measured variables (i.e. items). To do so requires theory. Without a solid theoretical background to each of the fortigenic variables, it would be unwise to conduct confirmatory Factor Analysis. The use of theory about the fortigenic variables are important during Confirmatory Factor Analysis due to the following reasons: (a) the theory underlying the identified fortigenic variables is tested directly using Confirmatory Factor Analysis and (b) the degree of measurement model fit can be evaluated and quantified in numerous ways. Applying these two aspects to this study, the following can be stated: the theoretical background developed through the literature review in Chapter 1 and Chapter 2 ensures that the structures identified during exploratory factor analysis can be theoretically justified. Secondly, the fit of the measurement model, through Confirmatory Factor Analysis, can be evaluated against the theoretical underpinnings associated with the confirmed factor structure (Drasgow & Schmitt, 2002; Grimm et al., 1995; Grimm et al., 2002; Hair et al., 2006; Kerlinger et al., 2000, Bless et al., 1995; Tabachnick et al., 2001; Thompson, 2004).

The following section explores both the variables and matrices used in conducting Confirmatory Factor Analysis of each of the measurement models for the fortigenic constructs.

3.6.4.1.4.1. Variables in Confirmatory Factor Analysis

There are several identified fortigenic constructs used in the current study. However, these constructs must be measured through several indicators (i.e. items in a questionnaire). Thus, latent variables are equivalent to the identified fortigenic variables used in the current study. The indicator variables (also known as manifest/observed variables) are equivalent to the items or parcels that are used to

measure these fortigenic constructs (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001).

3.6.4.1.4.2. The logic of using matrices in confirmatory factor analysis

The logic of confirmatory factor analysis is based on the need for two matrices to be compared with each other. The first matrix is known as the population/estimated covariance matrix (Σ_k). This is the matrix that is derived from the stated measurement model that depicts the direct affect of the factors on the measured variables. The second covariance matrix (the sample/observed covariance matrix) (S) is derived from the observed data. Confirmatory factor analysis then compares these two matrices and determines how well the observed data fits the proposed structure. In confirmatory factor analysis, only x-indicators (i.e. the different items) are required since there is not a full structural model. The degree to which the observed matrix fits the sample matrix is determined through goodness-of-fit tests, discussed in the following section (Bohrnstedt et al., 1994; Drasgow et al., 2002; Grimm et al., 2000; Tabachnick et al., 2001; Thompson, 2004).

In order to determine how well observed/sample covariance matrix fits the population/estimated covariance matrix, the method of estimation must be identified. The method of estimation is briefly highlighted in the following section.

3.6.4.1.4.3. Method of estimation

Once the measurement models have been specified, the next step is to determine how the measurement model will be estimated. The standard, and most widely researched, method of estimation used in CFA and structural equation modelling is maximum likelihood (ML). This is a very robust estimation method that functions well under less-than-perfect conditions (i.e. non-normality) (Hair et al., 2006, p. 743). Given the fact that the majority of variables used in the current study have normal distributions in relation to a standard error of skeweness of 0.142, as evident from Table 3.11, the current study will employ the Maximum Likelihood method of estimation.

After the measurement model has been specified, and the parameters estimated, the following step requires the assessment of the validity of each of the measurement models using a number of goodness of fit statistics.

3.6.4.1.4.4. Goodness of fit statistics

There are several goodness of fit statistics that can be used to determine the validity of the measurement models in the current study. For the purposes of the current study, only the following goodness of fit statistics are discussed, as they are the most widely reported and used fit statistics (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001): Chi-square (χ^2), Chi-square (χ^2)/*df* (Degrees of Freedom) ratio, Goodness-of-fit Index (GFI), Standardised Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), and Comparative Fit Index (CFI). Each of these fit statistics is briefly discussed below.

a) Chi-square (χ^2)

The most basic goodness-of-fit statistic is Satorra-Bentler Scaled Chi-Square. This measure of fit determines and provides a statistical test for the difference between the two covariance matrices (S- Σ_k). The χ^2 tests the null hypothesis that the discrepancies between S and Σ_k is zero and that the hypothesised model is true (Byrne, 1998; Marsh, Hau, & Weng, 2004; Marsh, Hau, & Grayson, 2005; Millsap, 2002; Tabachnik et al., 2001). However, it is not very practical to assume that data must fit the proposed model perfectly. Indeed, any model is just an approximation of reality (Marsh, Hau, et al., 2005). Unfortunately the chi-square indicator of model fit is influenced by sample size – as the sample increases so does the value of chi-square. In addition to being sensitive to large samples, the chi-square statistic is also influenced by model complexity. The latter implies that as the number of observed variables increase (i.e. making the model more complex), so does the chi-square statistic. The latter increase results in a statistically significant value for chi-square. The latter implies that the two covariance matrices differ significantly (Byrne, 1998; Hair et al., 2006; Marsh, Hau, et al., 2005; Millsap, 2002; Tabachnik et al., 2001). In order to deal with these negative consequences of the chi-square statistic, other fit indices can be used to evaluate model fit.

b) Chi-square (χ^2)/ degrees of freedom (df) ratio

Bollen (1989) developed and an incremental fit index based on the ratio of χ^2/df. The Satorra-Bentler Scaled Chi-Square is used for calculating this ratio. It is suggested

that values between 2 and 4 are indicative of acceptable levels of model fit. However, there are no clear guidelines for this fit index.

c) Goodness-of-Fit Index (GFI)

In dealing with the impact of larger samples, the GFI can be identified as an alternative indicator of model fit (Tabachnik et al., 2001). It may be less sensitive to sample size (Byrne, 1998; Hair et al., 2006). However, according to Marsh, Hau, and Grayson (2005, p. 304), the GFI should be used with caution because GFI may be heavily influenced by sample size. It is suggested that values higher than 0.9 are indicative of acceptable model fit (Bentler & Bonett, 1980). However, this value was increased to 0.95 (Hu & Bentler, 1999).

d) Standardised Root Mean Square Residual (SRMR)

When comparing the observed covariance matrix (derived from the observed data) with the estimated covariance matrix (derived from the theoretical model), the resulting difference between each covariance term is known as a residual. Thus, the error in prediction for each covariance term creates a residual. By squaring these residuals, and obtaining their average residual, it is possible to determine the square root of these mean residuals, resulting in the root mean square residual (RMSR). The standardised root mean residual (SRMR) is an alternative fit index that can be used to compare different models with each other (Byrne, 1998; Hair et al., 2006; Tabachnik et al., 2001). Both RMSR and SRMR are known as badness-of-fit measures, with higher values being indicative of poor model fit. An arbitrary cut-off of between 0.05 and 0.08 can be suggested for SRMR (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al, 2001). However, Marsh, Hau, and Grayson (2005, p. 300) caution on the use of this index due to disagreement on the impact of sample size and model misspecification on the value.

e) Root Mean Square Error of Approximation (RMSEA)

In addition to the goodness-of-fit index (GFI), the RMSEA is another fit index that tries correct for chi-square to reject models (i.e. stating that the observed and estimated covariance matrices differ significantly) with large sample sizes. RMSEA tries to effectively deal with both sample size and model complexity. In general, as with SRMR, values below 0.10 for the RMSEA are indicative of acceptable fit, with

values below 0.05 suggesting a very good fit (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Steiger, 1990; Tabachnik et al., 2001). Due to the fact that RMSEA is modestly affected by sample size, it is the goodness-of-fit measure suitable for routine use (Marsh, Hau, et al., 2005, p. 301).

f) Normed Fit Index (NFI)

Using a null model (which assumes that all observed variables are uncorrelated), the NFI evaluates how well the specified model fits such a null model. Initially, goodness-of-fit values of 0.9 and above were seemed as constituting acceptable model fit. However, NFI is also influenced by small sample sizes, resulting in the underestimation of fit (Bentler & Bonett, 1980; Byrne, 1998; Hair et al., 2006 Marsh, Hau, et al, 2005; Tabachnik et al., 2001).

g) Comparative Fit Index (CFI)

The CFI is an improved fit statistic of the NFI. One of the advantages of the CFI is its relative robustness when dealing with large sample sizes. Values above 0.9 are indicative of acceptable fit (Byrne, 1998; Hair et al., 2006; Tabachnik et al, 2001).

With a brief overview of the various goodness-of-fit statistics that can be used to evaluate the validity of the measurement models of each of the fortigenic constructs in the current study, the use of item parcels in measurement models (and structural models to be discussed later) is explored in the following section.

3.6.4.1.4.5. Item parcelling

The use of item parcels instead of individual items is an issue that must be addressed in the current study. In the section exploring the factor structures associated with the identified fortigenic variables it was evident that some of the scales produced a one-dimensional factor structure with the associated items. Other fortigenic variables produced two-factor structures with the relevant items associated with each factor. The information based on the exploratory factor analysis of the fortigenic variables is important in the discussion of item parcelling. The question must be answered as to whether these items are going to be combined to represent the latent factors?

The practice of item parcelling is based on evidence that parcelling results in better fitting solutions as measured by goodness of fit indices. The reason for this improved

fit when using parcelling can be attributed to the fact that parcels represent more normally distributed characteristics than items. However, the better fit may also be due to the fact that fewer data points must be fit in a confirmatory factor analysis model (as well as in a structural model). Thus, it reduces the number of variances and covariances that must be accounted for in the proposed model (Bandalos, 2002; Little, Cunnigham, et al., 2002).

Item parcelling can be defined as the combining or adding of items into parcels that represent the latent variable (or construct/factor). All the items must come from the same scale used to measure the latent construct. No item can be in more than one parcel (Bandalos, 2002, p. 78; Kishton & Widman, 1994, p. 757). Thus, item parcels' purpose is to act as indicators of the same latent construct. However, before items can be used in the creation of parcels, the unidimensionality of the items must be determined (Bandalos, 2002; Hagtvet & Nasser, 2004). Thus, items must be associated with only one factor and one parcel. Due to this requirement of unidimensionality, the current study first conducted exploratory factor analyses of all the identified fortigenic variables. This ensured that the correct items were identified that relate to the appropriate factor(s). According to cceptable practice (Little, Cunnigham, Shahar, & Widaman, 2002, p. 166), the factor loadings identified through the explratory factor analyses were used to anchor the various parcels. Thus, parcels would contain both high and low factor loadings. In addition to unidimensionality, it is also important to determine beforehand the factor structures of the fortigenic variables. Items that are parcelled on the basis of known factor structures (as identified through the exploratory factor analysis of the fortigenic variables) result in less biased estimations of the model parameters to be determined. This allows for the collection of statistical evidence of construct validity of the identified fortigenic variables. As stated earlier, the latter was identified through exploratory factor analysis and will be the focus of confirmatory factor analysis. In addition, there must also be no question as to the construct validity of the fortigenic variables using item parcels as indicators (Bandalos, 2002; Hagtvet et al., 2004). The latter issue is the focus of the following section – the Confirmatory Factor Analysis results of the measured fortigenic constructs used in the current study.

A summary of all the goodness-of-fit indexes for all the fortigenic variables are in the following section, starting with the cognitive fortigenic variables.

3.6.4.1.4.6. Confirmatory Factor Analysis of the measurement models for the Cognitive Fortigenic Variables

On the basis of the suggested factor structures obtained from Exploratory Factor Analysis of the Cognitive Fortigenic Variables, the quality of the measurements in terms of the data obtained was tested through Confirmatory Factor Analysis. The results of the Confirmatory Factor Analyses of the Cognitive Fortigenic Variables are presented in Table 3.78 below. The goodness-of-fit statistics of the original measurements (where applicable) are provided in brackets below the goodness-of-fit statistics of the revalidated structures.

Table 3.78 Psychometric properties of the cognitive fortigenic constructs measured in the current study

Variable	**Revalidated Factor Structure**	**Reliability**	χ^2/df	**RMSEA**	**SRMR**	**NFI**	**GFI**	**CFI**
Locus of control	Two-factor solution: Internal and External	Internal LOC = 0.631 External LOC = 0.846	2.644 (4.85)	0.075 (0.11)	0.056 (0.065)	0.92 (0.92)	0.95 (0.95)	0.94 (0.92)
General self-efficacy	One factor solution	0.854	5.612 (3.36)	0.13 (0.095)	0.038 (0.24)	0.97 (0.88)	0.96 (0.95)	0.97 (0.91)
Optimism	Two factor solution: Bad events and Good events	Bad events = 0.794 Good events = 0.838	1.90 (2.07)	0.055 (0.060)	0.068 (0.048)	0.96 (0.89)	0.95 (0.95)	0.97 (0.94)
Hope	One factor solution	0.821	6.823 (7.42)	0.14 (0.14)	0.12 (0.11)	0.95 (0.94)	0.98 (0.98)	0.95 (0.95)

The results from Table 3.78 of the Confirmatory Factor Analyses of the Cognitive Fortigenic Variables seem to suggest that all of the revalidated measures provided better fit statistics than the original measurements. The two variables comprising the personal control construct (i.e. Locus of Control and General Self-Efficacy) both provided acceptable levels of fit, with general self-efficacy providing a relatively poor fit in terms of RMSEA. However, the remaining fit statistics are indicative of acceptable levels of fit. In addition, both Hope and Optimism provide acceptable levels of fit, with Hope reporting relatively poor fit in terms of RMSEA and SRMR. However, the remaining fit statistics are indicative of acceptable levels of fit. Finally, all the Cognitive Fortigenic variables have acceptable reliability coefficients above 0.70, with only the Internal Locus of Control factor below 0.70. The latter result can probably be attributed to the limited number of questions comprising this factor (n = 5). These results are thus acceptable to be used in further analyses.

3.6.4.1.4.7. Confirmatory Factor Analysis of the measurement models for the Emotional Fortigenic Variables

The quality of the Emotional Fortigenic measurements in terms of the data obtained through the Exploratory Factor Analysis was tested through Confirmatory Factor Analysis. The results of the Confirmatory Factor Analyses of the Emotional Fortigenic Variables are presented in Table 3.79 below.

Table 3.79 Psychometric properties of the emotional fortigenic constructs measured in the current study

Variable	**Revalidated Factor Structure**	**Reliability**	χ^2/df	**RMSEA**	**SRMR**	**NFI**	**GFI**	**CFI**
Self-esteem	One factor solution	0.893	10.83 (2.99)	0.18 (0.082)	0.058 (0.24)	0.93 (0.95)	0.90 (0.97)	0.94 (0.96)
Performance self-esteem	One factor solution	0.791	3.39 (3.52)	0.09 (0.103)	0.089 (0.10)	0.93 (0.91)	0.98 (0.98)	0.95 (0.93)
Resilience	One factor solution	0.841	2.01 (4.95)	0.059 (0.116)	0.041 (0.23)	0.97 (0.79)	0.96 (0.92)	0.98 (0.82)

The majority the Emotional Fortigenic Variables seem to have better levels of fit than the original measures. The revalidated Self-Esteem variable has better fit statistics in terms of SRMR in comparison with the original Self-Esteem measure. However, the remaining levels of fit associated with the revalidated measure of Self-Esteem are in line with acceptable levels of fit. All the Emotional Fortigenic Variables have reliability coefficients above 0.79, which is more than acceptable. The results based on these Emotional Fortigenic Variables are therefore acceptable to be used in subsequent analyses.

3.6.4.1.4.8. Confirmatory Factor Analysis of the measurement models for Persistence

On the basis of the suggested factor structures obtained from Exploratory Factor Analysis of the two Persistence Variables, the quality of the measurements in terms of the data obtained was tested through Confirmatory Factor Analysis. The results of the Confirmatory Factor Analyses of the Persistence Variables are presented in Table 3.80 below.

Table 3.80 Psychometric properties of the persistence construct measured in the current study

Variable	**Revalidated Factor Structure**	**Reliability**	χ^2/df	**RMSEA**	**SRMR**	**NFI**	**GFI**	**CFI**
Self-Control Scale	Two-factor solution: Behavioural and Emotional	Behavioural = 0.712 Emotional = 0.681	2.61	0.074	0.093	0.91	0.98	0.94
Persistence	One factor solution	0.737	6.31	0.13	0.05	0.95	0.98	0.95

The fit statistics of the Self-Control Scale measure of Persistence have acceptable levels of fit. Although the reliability of the Emotional component of Persistence is below 0.70, the latter may be attributable to the fact that this component only consists

of three questions. The small number of questions may be the reason for the reliability. Although the combined criterion measure of Persistence has relatively poor levels of fit in terms of RMSEA, the remaining levels of fit are above what is acceptable. The combined criterion measure can therefore be used without any prejudice in further analyses in the current study.

On the basis of the results of the Cognitive, Emotional, and Persistence measures the current study can continue with additional data analysis with relative certainty about the interpretable factor structures of each of the measured fortigenic constructs.

In addition to determining the latent structure underlying a set of variables through exploratory and confirmatory factor analysis, the use of structural equations modelling is another technique that can be used. Some theory of structural equations modelling, and the applicable latent variables to be used in the evaluation of the theoretical model depicting the process of persistence, are discussed in the following section.

3.6.4.2. Structural Equation Modelling

Structural equation modelling is also known as covariance structure analysis. Structural equation modelling assists the researcher to test an entire theory with a technique that takes into consideration all relevant information. Structural equation modelling can simultaneously evaluate a number of dependence relationships (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001).

Research propositions 4, 7, and 10 are to be tested using structural equations modelling to test the current study's theory on the process of persistence in aspiring chartered accountants

It is important to note that structural equation modelling is an extension of two multivariate statistical techniques, viz: factor analysis and multiple regression analysis (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001).

The previous section highlighted that structural equations modelling tests a theory developed by the researcher. Therefore, the importance of theory cannot be underestimated in structural equations modelling. Theory assists in determining the relationships among the different variables. Theory determines which variables are to be used in measuring identified constructs. Theory facilitates the development of a structural model depicting dependence relationships and their sequence (see Figure 3. 16 below). In essence, structural equations modelling provide a confirmatory analysis

of the measures that represent various constructs in the model as well as the sequential order of variables in a structural model (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001). The model that will be tested in the current study is shown in Figure 3.16.

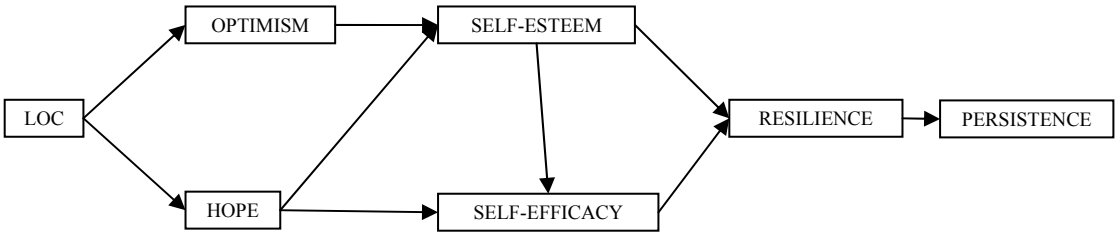

Figure 3.16 Conceptual model depicting the process of persistence

In the current study, the following theoretical constructs (i.e. factors) were used: (a) locus of control, (b) optimism, (c) hope, (d) self-esteem, (e) self-efficacy, (f) resilience, and (g) persistence. Without measuring these constructs, the model identified for this study will remain a conceptual model. To operationalise each of these (unobserved) theoretical constructs require that each of them must be operationalised by using standardised measuring instruments. Each of these operationalisations was verified in the section dealing with the confirmatory factor analysis of each of the identified fortigenic variables.

When combining the conceptual with the observed (or measured), structural equation modelling can be used. Thus, the indicators associated with each of the measured fortigenic variables form the measurement model for the current study. The hypothesised relationships among the constructs form the structural model for the current study (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001). The identification of which measured variables (that represent the theoretical factors) to be used in the structural model are determined through multiple regression. The use of multiple regression analysis in determining which measured variables are to be used in the structural model is presented in the following section.

3.6.4.2.1. Using multiple regression in determining which observed variables must be used in the structural model

Due to the fact that structural equation modelling is based on the principles of multiple regression (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001), it is logical to use this technique in determining which measured variables must be used to optimally predict the theoretical process of persistence.

The conceptual model predicts that locus of control (internal and external) will predict optimism (good events). The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.81 Model Summary for Internal Locus of Control and External Locus of Control predicting Optimism/Good events (ASQG)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.399(a)	.159	.154	10.76281

a Predictors: (Constant), LOCINT, LOCE

Table 3.82 ANOVA results for Internal Locus of Control and External Locus of Control predicting Optimism/Good events (ASQG)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6414.246	2	3207.123	27.686	.000(a)
Residual	33824.737	292	115.838		
Total	40238.983	294			

a Predictors: (Constant), LOCINT, LOCE; b Dependent Variable: ASQG

Table 3.83 Beta Coefficients for Internal Locus of Control and External Locus of Control predicting Optimism/Good events (ASQG)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	76.777	6.081		12.626	.000
LOCE	-.114	.047	-.138	-2.434	.016
LOCINT	1.022	.173	.334	5.910	.000

From Table 3.81, Table, 3.82, and Table 3.83 suggest that both internal and external locus of control as significant predictors of optimism (Good Events). The latter model is significant and accounts for 15.9% of the variance in optimism.

The conceptual model predicts that locus of control (internal and external) will predict optimism (bad events). The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.84 Model Summary for Internal Locus of Control and External Locus of Control predicting Optimism/Bad events (ASQB)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.237(a)	.056	.050	11.02392

a Predictors: (Constant), LOCINT, LOCE

Table 3.85 ANOVA results for Internal Locus of Control and External Locus of Control predicting Optimism/Bad events (ASQB)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2110.361	2	1055.181	8.683	.000(a)
Residual	35485.829	292	121.527		
Total	37596.190	294			

a Predictors: (Constant), LOCINT, LOCE; b Dependent Variable: ASQB

Table 3.86 Beta Coefficients for Internal Locus of Control and External Locus of Control predicting Optimism/Bad events (ASQB)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	50.450	6.228		8.100	.000
LOCE	-.135	.048	-.169	-2.829	.005
LOCINT	.357	.177	.121	2.016	.045

From Table 3.84, Table, 3.85, and Table 3.86 it is suggested that both internal and external locus of control as significant predictors of optimism (Bad Events). The latter model is significant and accounts for 5.6% of the variance in optimism (Bad Events).

The conceptual model predicts that locus of control (internal and external) will predict hope. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.87 Model Summary for Internal Locus of Control and External Locus of Control predicting Hope

R	R Square	Adjusted R Square	Std. Error of the Estimate
.448(a)	.201	.195	5.16729

a Predictors: (Constant), LOCINT, LOCE

Table 3.88 ANOVA results for Internal Locus of Control and External Locus of Control predicting Hope

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1958.033	2	979.016	36.666	.000(a)
Residual	7796.645	292	26.701		
Total	9754.678	294			

a Predictors: (Constant), LOCINT, LOCE; b Dependent Variable: HOPETOT

Table 3.89 Beta Coefficients for Internal Locus of Control and External Locus of Control predicting Hope

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	22.268	2.919		7.628	.000
LOCE	-.090	.022	-.222	-4.037	.000
LOCINT	.490	.083	.325	5.900	.000

From Table 3.87, Table, 3.88, and Table 3.89 it is suggested that both internal and external locus of control are significant predictors of hope. The latter model is significant and accounts for 20.1% of the variance in hope.

The conceptual model predicts that locus of control (internal and external) and optimism will predict self-esteem. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.90 Model Summary for Internal Locus of Control, External Locus of Control, Optimism/Good events (ASQG), and Optimism/Bad events (ASQB) predicting Self-esteem

R	R Square	Adjusted R Square	Std. Error of the Estimate
.612(a)	.375	.366	15.36893

a Predictors: (Constant), ASQB, ASQG, LOCE, LOCINT

Table 3.91 ANOVA results for Internal Locus of Control, External Locus of Control, Optimism/Good events (ASQG), and Optimism/Bad events (ASQB) predicting Self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Regression	41070.475	4	10267.619	43.469	.000(a)
Residual	68499.152	290	236.204		
Total	109569.627	294			

a Predictors: (Constant), ASQB, ASQG, LOCE, LOCINT; b Dependent Variable: SEST

Table 3.92 Beta Coefficients for Internal Locus of Control, External Locus of Control, Optimism/Good events (ASQG), and Optimism/Bad events (ASQB) predicting Self-esteem

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	43.678	11.685		3.738	.000
LOCE	-.345	.068	-.253	-5.055	.000
LOCINT	1.243	.263	.246	4.717	.000
ASQG	.471	.084	.285	5.624	.000
ASQB	.211	.082	.123	2.576	.010

a Dependent Variable: SEST

From Table 3.90, Table, 3.91, and Table 3.92 it is suggested that both internal and external locus of control, as well as optimism (Good Events) and optimism (Bad Events), are significant predictors of self-esteem. The latter model is significant and accounts for 37.5% of the variance in self-esteem.

The conceptual model predicts that locus of control (internal and external) and hope will predict self-esteem. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.93 Model Summary for Internal Locus of Control, External Locus of Control, and Hope predicting Self-esteem

R	R Square	Adjusted R Square	Std. Error of the Estimate
.683(a)	.466	.460	14.18201

a Predictors: (Constant), HOPETOT, LOCE, LOCINT

Table 3.94 ANOVA results for Internal Locus of Control, External Locus of Control, and Hope predicting Self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Regression	51040.953	3	17013.651	84.591	.000(a)
Residual	58528.675	291	201.129		
Total	109569.627	294			

a Predictors: (Constant), HOPETOT, LOCE, LOCINT; b Dependent Variable: SEST

Table 3.95 Beta Coefficients for Internal Locus of Control, External Locus of Control, and Hope predicting Self-esteem

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	55.978	8.774		6.380	.000
LOCE	-.287	.063	-.211	-4.546	.000
LOCINT	1.041	.241	.206	4.319	.000
HOPETOT	1.547	.161	.462	9.633	.000

a Dependent Variable: SEST

From Table 3.93, Table, 3.94, and Table 3.95 it is suggested that both internal and external locus of control, as well as hope are significant predictors of self-esteem. The latter model is significant and accounts for 46.6% of the variance in self-esteem.

The conceptual model predicts that self-esteem will predict general self-efficacy. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.96 Model Summary for Self-esteem predicting General self-efficacy

R	R Square	Adjusted R Square	Std. Error of the Estimate
.704(a)	.496	.494	8.16309

a Predictors: (Constant), SEST

Table 3.97 ANOVA results for Self-esteem predicting General self-efficacy

	Sum of Squares	df	Mean Square	F	Sig.
Regression	19201.658	1	19201.658	288.157	.000(a)
Residual	19524.376	293	66.636		
Total	38726.034	294			

a Predictors: (Constant), SEST; b Dependent Variable: GSETOT

Table 3.98 Beta Coefficients for Self-esteem predicting General self-efficacy

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	40.030	2.957		13.536	.000
SEST	.419	.025	.704	16.975	.000

a Dependent Variable: GSETOT

From Table 3.96, Table, 3.97, and Table 3.98 it is suggested self-esteem is a significant predictor of general self-efficacy. The latter model is significant and accounts for 49.6% of the variance in general self-efficacy.

The conceptual model predicts that self-esteem will predict resilience. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.99 Model Summary for Self-esteem predicting Resilience

R	R Square	Adjusted R Square	Std. Error of the Estimate
.650(a)	.423	.421	9.24669

a Predictors: (Constant), SEST

Table 3.100 ANOVA results for Self-esteem predicting Resilience

	Sum of Squares	df	Mean Square	F	Sig.
Regression	18336.534	1	18336.534	214.459	.000(a)
Residual	25051.853	293	85.501		
Total	43388.386	294			

a Predictors: (Constant), SEST; b Dependent Variable: SOCTOT

Table 3.101 Beta Coefficients for Self-esteem predicting Resilience

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	43.189	3.350		12.893	.000
SEST	.409	.028	.650	14.644	.000

a Dependent Variable: SOCTOT

From Table 3.99, Table, 3.100, and Table 3.101 it is suggested that self-esteem is a significant predictor of resilience. The latter model is significant and accounts for 43.1% of the variance in resilience.

The conceptual model predicts that general self-efficacy will predict resilience. The multiple regression results, in the following section, tests this hypothesis for the stated relationship.

Table 3.102 Model Summary for General Self-efficacy predicting Resilience

R	R Square	Adjusted R Square	Std. Error of the Estimate
.544(a)	.296	.294	10.20717

a Predictors: (Constant), GSETOT

Table 3.103 ANOVA results for General Self-efficacy predicting Resilience

	Sum of Squares	df	Mean Square	F	Sig.
Regression	12861.795	1	12861.795	123.450	.000(a)
Residual	30526.591	293	104.186		
Total	43388.386	294			

a Predictors: (Constant), GSETOT; b Dependent Variable: SOCTOT

Table 3.104 Beta Coefficients for General Self-efficacy predicting Resilience

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	39.984	4.684		8.536	.000
GSETOT	.576	.052	.544	11.111	.000

a Dependent Variable: SOCTOT

From Table 3.102, Table, 3.103, and Table 3.104 it is suggested that general self-efficacy is a significant predictor of resilience. The latter model is significant and accounts for 29.6% of the variance in resilience.

It seems to be suggested by the multiple regression analysis results that the proposed theoretical model depicting persistence may be evaluated using structural equations modelling, based on the significant multiple correlations.

The following section provides a summary of the variables to be used in both the measurement model and the structural model depicting the process of persistence of aspiring chartered accountants.

3.6.4.2.2. Types of variables used in structural equations modelling (SEM)

During the introductory section on structural equation model, it was suggested that latent variables are the factors/constructs to be used in this study. However, these constructs must be measured through several indicators (i.e. items in a questionnaire). Thus, latent variables are seen as representing the identified fortigenic variables included in this study. The indicator variables (also known as manifest/observed variables) are equivalent to the items that are used to measure these fortigenic constructs (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001).

In addition to latent and manifest variables, SEM also distinguishes between endogenous and exogenous variables. Exogenous variables are those factors in the structural model that are not predicted by any variable in the model. Locus of control is the only exogenous variable in the structural model depicting the process of persistence. In contrast, endogenous variables are predicted (i.e. preceded) by either an exogenous variables (such as optimism and hope in the proposed model) or by other endogenous variable(s) (such as self-esteem, self-efficacy, resilience, and hope). The relationship between an exogenous variable and a endogenous variable is denoted by β. The relationship between one endogenous variable and another endogenous variable is denoted by γ (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001).

For the exogenous variable, locus of control, there must be manifest variables. Thus, the factor locus of control must be related to the manifest variables that are supposed to be measuring locus of control. In the previous section focusing on the use of multiple regression analysis to predict the measurements to be used in the theoretical model, the manifest variables associated with internal locus of control are used in this model. The manifest variables representing the exogenous latent variable are denoted by x. For each of the exogenous variables, there must also be manifest variables that

measure these theoretical constructs. These indicator variables are denoted by *y* (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001).

The table below provides a summary of the type of variables and their associated manifest variables to be used in this study. Detailed information about the use of items and items parcels used as manifest variables for each of the latent variables were presented during the discussion of each of the fortigenic variables' exploratory and confirmatory factor analyses results. All item parcels are created on the basis of factors loadings. The use of item parcels was discussed during the section dealing with confirmatory factor analysis.

Table 3.105 Summary of manifest variables associated with latent variables

Variable	Type	Manifest variables
Internal Locus of Control	Exogenous (ξ_1)	5 items measuring internal locus of control
Optimism	Endogenous (η_1)	2 item parcels
Hope	Endogenous (η_2)	2 item parcels
Self-esteem	Endogenous (η_3)	3 item parcels
General Self-efficacy	Endogenous (η_4)	2 item parcels
Resilience	Endogenous (η_5)	2 item parcels
Persistence	Endogenous (η_6)	2 item parcels

To understand how structural equations modelling is able to test a theory of multiple correlations, the following section provides an overview of the logic of structural equations modelling.

3.6.4.2.3. The logic of SEM

Structural equation modelling is used to test a theory. It is in fact a confirmatory technique. Sample covariance matrix (observed covariance matrix) and population covariance matrix (estimated/expected covariance matrix) are used in conducting structural equation modelling. The sample variance-covariance matrix is then compared against the population variance-covariance matrix. Comparing these two variance-covariance matrices assist in determining how well the theoretical model (population variance-covariance matrix) fits the data (sample covariance-variance

matrix). Thus, the population covariance matrix is derived from the structural model – the structural model implies a specific covariance matrix. The sample covariance matrix is derived from the observed data. The implied and observed covariance matrices are then compared with each other to determine how well the observed covariance matrix fits the population covariance matrix (Bohrnstedt et al., 1994; Grimm et al., 2000; Tabachnick et al., 2001).

With an understanding as to how structural equations modelling functions, the issue of evaluating model fit can be addressed. In order to evaluate the overall fit of the measurement and structural models to be used in the current study, using the variables identified in Table 3.119, a brief overview is provided in the following section about the goodness of fit statistics.

3.6.4.2.4. Evaluating goodness of fit

Structural equations modelling uses a number a number of fit indexes to determine how well the model of multiple dependence relationships, derived from theory, fit the observed covariance matrix among the measured variables (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001).

As stated previously, structural equations modelling is based on a theoretical model from which estimates must be determined. The latter implies that the goodness-of-fit estimates determine how well the proposed theory (i.e. model represented by the estimated covariance matrix - Σ_k) fits reality (i.e. the data collected represented by the observed covariance matrix –S) (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001). By comparing Σ_k with S, it is possible to determine the difference between these two matrices. The closer these two matrices are to one another, the closer the fit. When evaluating the fit of these two matrices, the researcher is looking for evidence that these two matrices do not differ significantly from each other.

In analysing covariance structures, the researcher may have developed a measurement model to determine the validity of the measures to be used in evaluating the fit of the measures. The measurement model is a representation of which indicator variables the researcher are assigning to represent certain constructs. Once evidence is provided of the validity of the measurement model, the researcher can then continue in

determining the validity of the structural model. The structural model is the representation of the relationships amongst constructs based on the proposed theoretical model (Byrne, 1998; Hair et al., 2006; Millsap, 2002; Tabachnik et al., 2001). In evaluating the validity of both the measurement model and the structural model, several goodness-of-fit indexes are available. Examples of these fit indexes include: Chi-square (χ^2), Chi-square (χ^2)/ degrees of freedom (*df*) ratio, Goodness-of-Fit Index (GFI), Standardised Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Error of Approximation (RMSEA), and Normed Fit Index (NFI). These indexes were discussed in previous sections.

The following section provides guidelines as to how these fit indexes are to be interpreted.

No single fit index, discussed above, can be used in evaluating the overall goodness-of-fit for a particular model. McDonald and Ho (as cited in Marsh, Hau, et al., 2005, pp. 326-327) even argue for the need to separate the evaluation of fit of the measurement model and the structural model. They are also of the opinion that no global index of fit is a substitute for the evaluation of the fit results in relation to theory and common sense.

It is advisable that the following goodness-of-fit indexes be included when evaluating model fit: $\chi^2$and the associated *df* (degrees of freedom); the CFI, and the RMSEA (Hair et al., 2006). The current study employs 18 indicator variables for 7 constructs. Taking into consideration that the sample size is 295, the following guidelines are provided by Hair and his colleagues (2006, p. 753). Acceptable model fit is indicated by the CFI $\geq$ 0.92, the SRMR $\leq$ 0.08, and the RMSEA $\leq$ 0.07. However, as stated earlier, the evaluation of fit can not be substituted by common sense and an overall evaluation of both theory and fit statistics.

3.7. Summary

The current chapter provided an overview of the methodology used for the current study to answer the research problem "Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?" The methodology used in the current study consists of both a survey and statistical modelling research. Emphasis was placed on using both

exploratory and confirmatory factor analysis to identify and verify interpretable and understandable factor structures associated with each of the measured fortigenic constructs.

On the basis of the results reported in Chapter 3, the following measured fortigenic constructs had a unidimensional factor structure with acceptable levels of fit and reliability: general self-efficacy, hope, self-esteem, performance self-esteem, and resilience. In addition, the following measured fortigenic constructs had a two-dimensional factor structure: locus of control (internal and external), optimism (explanatory style for good and bad events), and the Self-Control Scale measure of persistence (behavioural and emotional components). The combined criterion measure for persistence had a unidimensional factor structure with acceptable levels of fit and reliability. It is important to note that all the revalidated fortigenic variables, based on the exploratory factor analysis of the current sample provided better levels of fit than the original measuring instruments and their associated items and structures. In addition, each of the fortigenic variables, and their associated factors structures, were structurally equivalent for the major groups in the current study, including male and females, passed and failed candidates, and designated and white group candidates. Based on Tucker's phi being above 0.9 (i.e. indicative of good factorial similarity) in all these groups, it can tentatively be sated that these groups have similar interpretations of the fortigenic variables used in the analyses of the current study.

Chapter 3 also provided support for the use of structural equations modelling in evaluating the theoretical model depicting the process for persistence in aspiring chartered accountants. It was reported that significant multiple correlations were observed, allowing for the use of structural equations modelling.

Chapter 4, the following chapter, will report the results of additional data analyses conducted using the current factor structures identified in Chapter 3. Emphasis will be placed on statistically describing the correlations between the measured fortigenic constructs and persistence (emphasising Pearson's *r*), statistically explaining the process of persistence (emphasising structural equations modelling), as well as statistically predicting (emphasising multiple regression analysis) which of the measured fortigenic constructs predict persistence.

CHAPTER 4

PRESENTATION OF RESULTS

4.1. Introduction

The current chapter reports statistical results that highlight the relationships among the various fortigenic variables and persistence. These statistical relationships provide evidence relating to the descriptive aim of the current study. Chapter 4 also provides evidence of the goodness of fit between the theoretical model depicting the process of persistence and the observed data. The latter provides information regarding the explanatory purpose of the current study. Finally, Chapter 4 also provides statistical results as to which fortigenic variables are significant predictors of persistence, providing evidence for the predictive purpose of the current study.

More specifically, Chapter 4 will provide statistical results applicable to the remaining research propositions related to the three research questions. The reporting of these results are categorised according to the three research questions. Thus, the first section reports the descriptive, explanatory, and predictive results of the total sample that wrote Part 1 of the Qualifying Exam during 2005. The second section of Chapter 4 will report the descriptive, explanatory, and predictive statistical results of the sample that passed Part 1 of the Qualifying Exam during 2005. The third and final section of Chapter 4 will provide the descriptive, explanatory, and predictive statistical results of those individuals that failed Part 1 of the Qualifying Exam that still persisted.

The following section reports the results of those factors that influence persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005.

4.2. Results of the factors that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005

The first research question was formulated as follows in Chapter 1: “Which fortigenic factors influence the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005?” In answering this research question, statistical evidence is reported related to the descriptive, explanatory and predictive aims of the

current study. Each of the following section will restate the appropriate research proposition associated with the particular aim of the current study, using responses of the total group for analyses.

4.2.1. Describing the factors that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 (Total Group)

The following sections provide the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.2.1.1. Group comparisons on fortigenic variables that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 (Total Group)

The following research proposition guides the reporting of the following section's results:

- Proposition 3b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership.

In order to evaluate Proposition 3b, *t*-test statistics are calculated together with group means, group standard deviations, *t*-values, *p*-values, as well as effect-sizes. The following groups were compared with one another:

a) Females versus Males
b) Designated group versus White group
c) Candidates who are completing their training contract at a "Big Four" organisation versus Candidates who are not completing their training contract at a "Big Four" organisation
d) Candidates who took up to 3 years to complete their undergraduate training versus Candidates who took more than 3 years to complete their undergraduate training
e) Candidates who took 1 year to complete CTA training versus Candidates who took more than 1 year to complete their CTA training

The results of these analyses are shown in the following section.

Table 4.1 T-test results comparing Female versus Male

Variable	Gender	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Female	161	92.0745	11.71994	0.724	0.469	0.084
	Male	134	91.0448	12.66507			
HOPETOT	Female	161	31.0683	5.57351	-0.496	0.620	0.057
	Male	134	31.4030	5.99263			
CTSTOT	Female	161	36.6460	6.17698	-1.060	0.290	0.123
	Male	134	37.4403	6.68239			
PERSIST	Female	161	59.6708	9.56215	-1.801	0.073	0.211
	Male	134	61.6269	8.94904			
ASQG	Female	161	98.5031	11.37603	-1.402	0.162	0.163
	Male	134	100.4179	12.03522			
ASQB	Female	161	51.7205	10.54527	1.810	0.071	0.210
	Male	134	49.3358	12.07367			
SLSC	Female	161	81.1801	14.13324	-.220	0.826	0.025
	Male	134	81.5522	14.83674			
LOCE	Female	161	52.5776	14.40514	0.550	0.582	0.064
	Male	134	51.6642	13.93429			
LOCINT	Female	161	27.7826	4.06463	-0.586	0.559	0.068
	Male	134	28.0448	3.52193			

Table 4.1 T-test results comparing Female versus Male (Continued)

Variable	Gender	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
GSETOT	Female	161	88.6149	11.73300	-1.581	0.115	0.185
	Male	134	90.7313	11.09505			
SCSF1	Female	161	28.6584	6.21601	-3.782	0.000	0.443
	Male	134	31.3134	5.73922			
SCSF2	Female	161	14.9752	3.06788	1.137	0.256	0.132
	Male	134	14.5597	3.19189			

Table 4.1 shows that males differed significantly more from females on the behavioural component of persistence (medium effect).

The following section compares scores of the designated group with the scores of the white group on the various fortigenic variables.

Table 4.2 T-test results comparing Designated Group versus White Group

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Designated Group	107	91.869	12.4983	0.279	0.780	0.033
	White Group	188	91.457	11.9756			
HOPETOT	Designated Group	107	31.616	6.27611	0.892	0.373	0.105
	White Group	188	30.994	5.44933			

Table 4.2 T-test results comparing Designated Group versus White Group (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
CTSTOT	Designated Group	107	37.729	6.58553	1.462	0.145	0.175
	White Group	188	36.595	6.29289			
PERSIST	Designated Group	107	60.953	9.97013	0.547	0.585	0.065
	White Group	188	60.335	8.95559			
ASQG	Designated Group	107	102.24	12.4361	3.229	0.001	0.384
	White Group	188	97.739	10.9598			
ASQB	Designated Group	107	56.009	12.2809	3.076	0.002	0.364
	White Group	188	51.856	10.4531			
SLSC	Designated Group	107	83.981	14.7168	2.382	0.018	0.286
	White Group	188	79.851	14.0902			
LOCE	Designated Group	107	51.000	14.7954	-1.063	0.289	0.127
	White Group	188	52.824	13.8083			
LOCINT	Designated Group	107	28.056	4.13643	0.523	0.602	0.062
	White Group	188	27.813	3.64206			

Table 4.2 T-test results comparing Designated Group versus White Group (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
GSETOT	Designated Group	107	90.429	11.7546	0.964	0.336	0.116
	White Group	188	89.090	11.3187			
SCSF1	Designated Group	107	29.429	6.45757	-0.917	0.360	0.109
	White Group	188	30.111	5.95287			
SCSF2	Designated Group	107	15.093	3.36332	1.274	0.204	0.151
	White Group	188	14.611	2.97822			

Table 4.2 provides evidence of that the designated group differs significantly more from the white group in terms of both an optimistic explanatory style for good and bad events (medium effect). The designated group also differs significantly more from the white group in terms of self-esteem (medium effect).

In the following section results of the testing for differences between those candidates that did their training with the “Big Four” (i.e. Ernst & Young, Deloitte & Touche, PriceWaterhouseCoopers, and KPMG) and those who did it at other smaller accounting organisations are shown.

Table 4.3 T-test results comparing Candidates with "Big Four" training contracts versus Candidates without "Big Four" training contracts

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Yes	125	90.9600	12.1783	-0.782	0.435	0.092
	No	169	92.0828	12.1760			
HOPETOT	Yes	125	30.5840	5.95437	-1.575	0.116	0.185
	No	169	31.6509	5.57973			
CTSTOT	Yes	125	36.9680	6.61613	-0.027	0.979	0.003
	No	169	36.9882	6.26687			
PERSIST	Yes	125	60.1200	9.14807	-0.701	0.484	0.082
	No	169	60.8935	9.49250			
ASQG	Yes	125	97.0080	11.8406	-2.981	0.003	0.350
	No	169	101.0710	11.3371			
ASQB	Yes	125	51.752	10.9003	-2.214	0.028	0.269
	No	169	54.6746	11.3999			
SLSC	Yes	125	80.7360	13.2361	-0.626	0.532	0.074
	No	169	81.8047	15.3220			
LOCE	Yes	125	55.5920	13.5474	3.603	0.000	0.426
	No	169	49.6805	14.1700			
LOCINT	Yes	125	27.6960	3.41067	-0.727	0.468	0.086
	No	169	28.0237	4.09842			

Table 4.3 T-test results comparing Candidates with "Big Four" training contracts versus Candidates without "Big Four" training contracts (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
GSETOT	Yes	125	89.0400	10.4830	-0.681	0.496	0.081
	No	169	89.9645	12.2074			
SCSF1	Yes	125	30.4080	6.15013	1.290	0.198	0.152
	No	169	29.4734	6.13447			
SCSF2	Yes	125	14.2400	2.80092	-2.550	0.011	0.304
	No	169	15.1716	3.29865			

Table 4.3 shows that candidates that did not complete their training contract with one of the "Big Four" companies differ significantly more from those candidates that did complete their training contracts at a "Big Four" company in terms of the following variables: Optimistic explanatory style for good events (small effect), optimistic explanatory style for bad events (small effect), external locus of control (medium effect), and the emotional component of persistence (small effect).

Those candidates that did complete their training contracts with one of the "Big Four" differed significantly more from those candidates that did not complete their training at on of the "Big Four" in terms of external locus of control (medium effect).

In the following section the results of the testing for differences between individuals who took 3 years to complete their undergraduate programmes and those individuals that took more than 3 years are shown.

Table 4.4 T-test results comparing Candidates who took up to 3 years to complete their undergraduate studies versus Candidates who took more than 3 years to complete their undergraduate studies

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Up to 3 years	141	91.4113	12.0694	-0.264	0 .792	0.030
	More than 3 years	154	91.7857	12.2565			
HOPETOT	Up to 3 years	141	31.2908	5.55561	0.201	0.841	0.023
	More than 3 years	154	31.1558	5.95860			
CTSTOT	Up to 3 years	141	37.1915	6.46520	0.473	0.637	0.055
	More than 3 years	154	36.8377	6.38060			
PERSIST	Up to 3 years	141	60.6099	8.83481	0 .089	0.929	0.010
	More than 3 years	154	60.5130	9.77942			
ASQG	Up to 3 years	141	98.8014	11.9941	-0.802	0.423	0.093
	More than 3 years	154	99.8961	11.4361			
ASQB	Up to 3 years	141	51.3121	10.7005	0.981	0.328	0.114
	More than 3 years	154	50.0195	11.8384			
SLSC	Up to 3 years	141	81.0496	13.7520	-0.341	0.734	0.039
	More than 3 years	154	81.6234	15.0698			

Table 4.4 T-test results comparing Candidates who took up to 3 years to complete their undergraduate studies versus Candidates who took more than 3 years to complete their undergraduate studies (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
LOCE	Up to 3 years	141	53.4043	13.6397	1.442	0.150	0.168
	More than 3 years	154	51.0260	14.6023			
LOCINT	Up to 3 years	141	27.3333	3.99225	-2.464	0.014	0.286
	More than 3 years	154	28.4221	3.59699			
GSETOT	Up to 3 years	141	89.0000	11.1246	-0.825	0.410	0.096
	More than 3 years	154	90.1039	11.8018			
SCSF1	Up to 3 years	141	30.2908	5.98157	1.142	0.254	0.133
	More than 3 years	154	29.4740	6.27288			
SCSF2	Up to 3 years	141	14.6738	3.01069	-0.592	0.555	0.069
	More than 3 years	154	14.8896	3.23494			

According to Table 4.4 candidates that took more than 3 years to complete their undergraduate studies differed significantly more in terms of internal locus of control (small effect).

In the following section the results of analyses to determine whether the responses of individuals that took 1 year to complete their CTA training and those who took more than 1 year differed are shown.

Table 4.5 T-test results comparing Candidates who took 1 year to complete their CTA training versus Candidates who took more than 1 year to complete their CTA training

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	1 year	141	90.3546	12.0125	-1.699	0.090	0.198
	More than 1 year	154	92.7532	12.1973			
HOPETOT	1 year	141	31.1560	5.68241	-0.183	0.855	0.021
	More than 1 year	154	31.2792	5.84830			
CTSTOT	1 year	141	36.8227	6.30791	-0.471	0.638	0.054
	More than 1 year	154	37.1753	6.52309			
PERSIST	1 year	141	60.9007	9.58370	0.601	0.548	0.069
	More than 1 year	154	60.2468	9.10025			
ASQG	1 year	141	98.0355	11.1748	-1.887	0.060	0.220
	More than 1 year	154	100.5974	12.0654			
ASQB	1 year	141	51.1773	10.7206	0.784	0.433	0.091
	More than 1 year	154	50.1429	11.8340			
SLSC	1 year	141	79.5957	14.1052	-2.007	0.046	0.234
	More than 1 year	154	82.9545	14.5886			

Table 4.5 T-test results comparing Candidates who took 1 year to complete their CTA training versus Candidates who took more than 1 year to complete their CTA training (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
LOCE	1 year	141	53.7943	13.5985	0.364	0.058	0.222
	More than 1 year	154	50.6688	14.5696			
LOCINT	1 year	141	27.7376	3.44890	-0.705	0.482	0.082
	More than 1 year	154	28.0519	4.14255			
GSETOT	1 year	141	88.8511	11.6416	-1.039	0.300	0.121
	More than 1 year	154	90.2403	11.3212			
SCSF1	1 year	141	30.8440	6.34967	2.649	0.009	0.308
	More than 1 year	154	28.9675	5.81571			
SCSF2	1 year	141	14.5248	3.09742	-1.377	0.169	0.160
	More than 1 year	154	15.0260	3.14351			

Table 4.5 shows that candidates who took more than 1 year to complete their CTA training differed significantly more from those candidates that did complete it in 1 year in terms of the following variables: self-esteem (small effect). They also differed significantly less from those candidates that did complete their CTA training in 1 year in terms of the behavioural component of persistence (small effect).

Table 4.6 Correlations for the Total Group (n=295)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.514(**)	.490(**)	.447(**)	.315(**)	.199(**)	.652(**)	-.460(**)	.388(**)	.544(**)
	Sig. (2-tailed)		.000	.000	.000	.000	.001	.000	.000	.000	.000
HOPETOT	Pearson Correlation	.514(**)	1	.567(**)	.448(**)	.394(**)	.137(*)	.566(**)	-.325(**)	.395(**)	.526(**)
	Sig. (2-tailed)	.000		.000	.000	.000	.019	.000	.000	.000	.000
CTSTOT	Pearson Correlation	.490(**)	.567(**)	1	.474(**)	.362(**)	.141(*)	.666(**)	-.349(**)	.396(**)	.575(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.015	.000	.000	.000	.000
PERSIST	Pearson Correlation	.447(**)	.448(**)	.474(**)	1	.269(**)	.106	.582(**)	-.289(**)	.339(**)	.774(**)
	Sig. (2-tailed)	.000	.000	.000		.000	.070	.000	.000	.000	.000
ASQG	Pearson Correlation	.315(**)	.394(**)	.362(**)	.269(**)	1	.038	.433(**)	-.243(**)	.377(**)	.376(**)
	Sig. (2-tailed)	.000	.000	.000	.000		.510	.000	.000	.000	.000
ASQB	Pearson Correlation	-.199(**)	.137(*)	.141(*)	.106	.038	1	.244(**)	-.207(**)	.174(**)	.183(**)
	Sig. (2-tailed)	.001	.019	.015	.070	.510		.000	.000	.003	.002
SLSC	Pearson Correlation	.652(**)	.566(**)	.666(**)	.582(**)	.433(**)	.244(**)	1	-.414(**)	.432(**)	.687(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
LOCE	Pearson Correlation	-.460(**)	-.325(**)	-.349(**)	-.289(**)	-.243(**)	-.207(**)	-.414(**)	1	-.314(**)	-.393(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
LOCINT	Pearson Correlation	.388(**)	.395(**)	.396(**)	.339(**)	.377(**)	.174(**)	.432(**)	-.314(**)	1	.486(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.003	.000	.000		.000
GSETOT	Pearson Correlation	.544(**)	.526(**)	.575(**)	.774(**)	.376(**)	.183(**)	.687(**)	-.393(**)	.486(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.002	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

In the previous section the correlations between the various fortigenic variables and persistence were shown.

4.2.1.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 (Total Group)

The following research proposition guided the reporting of the correlation coefficients.

- Proposition 3a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients.

Table 4.6 provided statistical evidence that all of the correlations are significant between the various fortigenic variables and persistence. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

On the basis of these results, it is therefore possible to continue reporting statistical evidence of the measurement and structural models used in explaining the process of persistence, as provided in the following section.

4.2.2. Results focusing on explaining the sequence of the fortigenic variables that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 (Total Group)

In evaluating the results related to the explanation of the process of persistence, the following research propositions guides the reporting of the results:

- Proposition 4: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence.

In the following section the goodness-of-fit indexes of the measurement model to be used in the evaluation of the structural model are reported. (Only if the measurement

model provides acceptable levels of fit, then the study can proceed in determining the validity of the structural model.)

4.2.2.1. Theoretical model depicting the process of persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 (Total Group)

In Table 4.7 a summary of the fit statistics for the measurement model to be used in determining the validity of the structural model depicting the process of persistence are shown.

Table 4.7 Summary of goodness of fit statistics for the measurement model (Total Group)

χ^2	249.77
df	114
χ^2 ***/df***	2.19
RMSEA	0.064
SRMR	0.052
GFI	0.90
CFI	0.98
NFI	0.96

Table 4.7 shows acceptable levels of fit for the measurement model for the total group, as evident from the values of RMSEA, SRMR, GFI, and CFI.

On the basis of acceptable fit statistics for the measurement model, the structural model for the total group can be evaluated. The following table shows a summary of the fit statistics for the structural model depicting the process of persistence.

Table 4.8 Summary of the goodness of fit statistics for structural model (Total Group)

χ^2	432.53
df	126
χ^2 ***/df***	3.43
RMSEA	0.091
SRMR	0.069
GFI	0.84
CFI	0.95
NFI	0.93

In Figure 4.1, the gamma and beta coefficients needed to interpret the various path coefficients are shown. The *t*-values are shown in brackets. A *t*-value of 1.96 and above is indicative of a significant path coefficient.

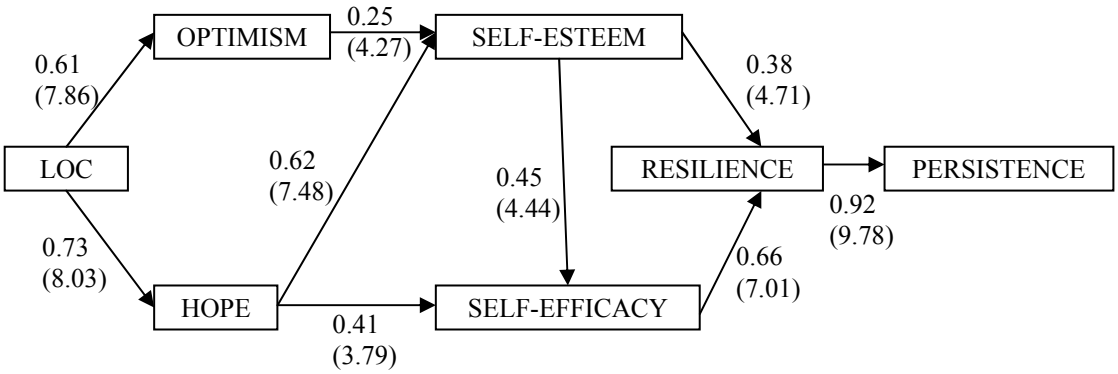

Figure 4.1 Path coefficients of structural model for individuals that wrote the Qualifying Exam during 2005

Based on information shown in Table 4.8 and Figure 4.1, the structural model depicting the sequential order for the process of persistence do provide acceptable levels of fit, as evident from the values of RMSEA, SRMR, GFI, and CFI. All the paths were significant as reported in Figure 4.1.

In the following section the results of analyses done to determine which of the fortigenic variables are significant predictors of persistence are shown.

4.2.3. Results focusing on predicting persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005

The following research proposition guides the reporting of results in this section:

- Proposition 5: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence

This section shows the results of analyses done to determine significant predictors of persistence for the following groups:

a) Candidates who wrote Part 1 of the Qualifying Exam during 2005
b) Female candidates
c) Male candidates
d) White Group candidates
e) Designated Group candidates

In the following those fortigenic variables that contributed significantly to the persistence of individuals who wrote Part 1 of the Qualifying Exam during 2005 are shown.

4.2.3.1. Predicting persistence of the Total Group of candidates who wrote Part 1 of the Qualifying Exam during 2005

Standard multiple regression was used to determine how well the level of persistence could be predicted by the fortigenic variables.

Table 4.9 Model Summary for Candidates writing Part 1 of QE1 during 2005.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.612(a)	.374	.356	7.48018

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, CTSTOT, SOCTOT, HOPETOT, SLSC

Table 4.10 ANOVA results for Candidates writing Part 1 of QE1 during 2005.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	9558.139	8	1194.767	21.353	.000(a)
Residual	16002.572	286	55.953		
Total	25560.712	294			

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, CTSTOT, SOCTOT, HOPETOT, SLSC; b Dependent Variable: PERSIST

Table 4.11 Beta Coefficients for Candidates writing Part 1 of QE1 during 2005

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	20.346	6.554		3.104	.002
SOCTOT	.049	.051	.064	.973	.331
HOPETOT	.199	.101	.123	1.972	.050
CTSTOT	.136	.097	.093	1.403	.162
ASQG	-.028	.043	-.035	-.640	.523
ASQB	.041	.040	.049	1.002	.317
SLSC	.256	.049	.396	5.191	.000
LOCE	-.012	.036	-.018	-.335	.738
LOCINT	.179	.135	.073	1.327	.186

From Table 4.9, Table 4.10, and Table 4.11 it is evident that the both self-esteem and hope are significant predictors of persistence of candidates who wrote Part 1 of the Qualifying Exam during 2005. It is clear that this model is significant and the latter accounts for 37.4% of the variance in persistence.

In the following those fortigenic variables that contributed significantly to the persistence of females who wrote Part 1 of the Qualifying Exam during 2005 are shown.

4.2.3.2. Predicting persistence of Female Group candidates who wrote Part 1 of the Qualifying Exam

Standard multiple regression was used to determine how well the level of persistence for female candidates could be predicted by the fortigenic variables.

Table 4.12 Model Summary for Female Group candidates writing Part 1 of QE1 during 2005

R	R Square	Adjusted R Square	Std. Error of the Estimate
.594(a)	.353	.319	7.88966

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, HOPETOT, CTSTOT, SOCTOT, SLSC

Table 4.13 ANOVA results for Female Group candidates writing Part 1 of QE1 during 2005

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5168.045	8	646.006	10.378	.000(a)
Residual	9461.508	152	62.247		
Total	14629.553	160			

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, HOPETOT, CTSTOT, SOCTOT, SLSC; b Dependent Variable: PERSIST

Table 4.14 Beta Coefficients for Female Group candidates writing Part 1 of QE1 during 2005

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	22.840	10.006		2.283	.024
SOCTOT	-.018	.075	-.022	-.245	.807
HOPETOT	.218	.143	.127	1.530	.128
CTSTOT	.234	.136	.151	1.717	.088
ASQG	-.062	.062	-.074	-1.005	.317
ASQB	.080	.064	.089	1.266	.207
SLSC	.283	.069	.419	4.109	.000
LOCE	-.033	.050	-.049	-.647	.518
LOCINT	.139	.171	.059	.814	.417

From Table 4.12, Table 4.13, and Table 4.14 it is evident that self-esteem is the only significant predictor of persistence of female candidates who wrote Part 1 of the Qualifying Exam during 2005. This model is significant and it accounts for 35.3% of the variance in persistence.

In the following section the results of analyses done to determine which of the fortigenic variables, for males, are significant predictors of persistence are shown.

4.2.3.3. Predicting persistence of Male Group candidates who wrote Part 1 of the Qualifying Exam

Standard multiple regression was used to determine how well the level of persistence for male candidates could be predicted by the fortigenic variables.

Table 4.15 Model Summary for Male Group candidates writing Part 1 of QE1 during 2005

R	R Square	Adjusted R Square	Std. Error of the Estimate
.664(a)	.441	.406	6.89981

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, CTSTOT, SOCTOT, HOPETOT, SLSC

Table 4.16 ANOVA results for Male Group candidates writing Part 1 of QE1 during 2005

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4700.428	8	587.553	12.342	.000(a)
Residual	5950.915	125	47.607		
Total	10651.343	133			

a Predictors: (Constant), LOCINT, ASQB, LOCE, ASQG, CTSTOT, SOCTOT, HOPETOT, SLSC; b Dependent Variable: PERSIST

Table 4.17 Beta Coefficients for Male Group candidates Passing Part 1 of QE1 during 2005

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	14.730	8.626		1.708	.090
SOCTOT	.157	.069	.223	2.268	.025
HOPETOT	.103	.145	.069	.713	.477
CTSTOT	-.002	.139	-.001	-.014	.989
ASQG	.001	.061	.001	.010	.992
ASQB	.021	.053	.028	.401	.689
SLSC	.243	.072	.403	3.390	.001
LOCE	.022	.051	.035	.438	.662
LOCINT	.260	.225	.103	1.156	.250

Both self-esteem and sense of coherence (resilience) are significant predictors of persistence in the male group that wrote part 1 of the qualifying exam during 2005, as evident from Table 4.15, Table 4.16, and Table 4.17. It is clear that this model is significant and accounts for 44.1% of variance in persistence.

In the following section the results of analyses done to determine which of the fortigenic variables, for the White Group, are significant predictors of persistence are shown.

4.2.3.4. Predicting persistence of White Group candidates who wrote Part 1 of the Qualifying Exam

Standard multiple regression was used to determine how well the level of persistence for the White Group could be predicted by the fortigenic variables.

Table 4.18 Model Summary for White Group candidates writing Part 1 of QE1 during 2005

R	R Square	Adjusted R Square	Std. Error of the Estimate
.589(a)	.347	.318	7.39464

a Predictors: (Constant), LOCINT, ASQB, LOCE, HOPETOT, ASQG, CTSTOT, SOCTOT, SLSC

Table 4.19 ANOVA results for White Group candidates writing Part 1 of QE1 during 2005

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5210.033	8	651.254	11.910	.000(a)
Residual	9787.855	179	54.681		
Total	14997.888	187			

a Predictors: (Constant), LOCINT, ASQB, LOCE, HOPETOT, ASQG, CTSTOT, SOCTOT, SLSC; b Dependent Variable: PERSIST

Table 4.20 Beta Coefficients for White Group candidates Passing Part 1 of QE1 during 2005

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	26.151	8.548		3.059	.003
SOCTOT	.073	.066	.098	1.100	.273
HOPETOT	.101	.130	.062	.780	.437
CTSTOT	.130	.124	.091	1.045	.297
ASQG	.012	.058	.015	.209	.835
ASQB	-.004	.054	-.005	-.072	.943
SLSC	.248	.063	.390	3.953	.000
LOCE	-.023	.045	-.035	-.502	.616
LOCINT	.002	.172	.001	.012	.991

Table 4.20 provides evidence that self-esteem is the only significant predictor of persistence of the white group that wrote Part1 of the Qualifying Exam during 2005. This model is significant and accounts for 34.7% of the variance in persistence, as reported in Table 4.18 and Table 4.19.

The following section provides statistical evidence of those fortigenic variables that contributed significantly to the persistence of Designated Group individuals.

4.2.3.5. Predicting persistence of Designated Group candidates who wrote Part 1 of the Qualifying Exam

Standard multiple regression was used to determine how well the level of persistence for the Designated Group candidates could be predicted by the fortigenic variables.

Table 4.21 Model Summary for Designated Group candidates writing Part 1 of QE1 during 2005

R	R Square	Adjusted R Square	Std. Error of the Estimate
.670(a)	.448	.403	7.70139

a Predictors: (Constant), LOCINT, ASQG, LOCE, ASQB, CTSTOT, SOCTOT, HOPETOT, SLSC

Table 4.22 ANOVA results for Designated Group candidates writing Part 1 of QE1 during 2005

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4724.242	8	590.530	9.956	.000(a)
Residual	5812.524	98	59.311		
Total	10536.766	106			

a Predictors: (Constant), LOCINT, ASQG, LOCE, ASQB, CTSTOT, SOCTOT, HOPETOT, SLSC; b Dependent Variable: PERSIST

Table 4.23 Beta Coefficients for Designated Group candidates writing Part 1 of QE1 during 2005

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	10.885	10.568		1.030	.306
SOCTOT	.002	.082	.002	.022	.982
HOPETOT	.287	.167	.181	1.720	.089
CTSTOT	.164	.157	.108	1.042	.300
ASQG	-.065	.071	-.081	-.921	.359
ASQB	.124	.069	.152	1.783	.078
SLSC	.254	.083	.375	3.047	.003
LOCE	-.008	.062	-.012	-.130	.897
LOCINT	.515	.239	.214	2.157	.033

From Table 4.23 it is evident that both self-esteem and internal locus of control are significant predictors of the levels of persistence for Designated Group candidates that wrote part 1 of the qualifying exam during 2005. This model is significant and accounts for 44.8% of the variance in persistence, as evident from Table 4.21 and Table 4.22.

With an overview of which factors are related to persistence of aspiring chartered accountants, the following section focuses on those individuals that persisted and passed Part 1 of the Qualifying Exam during 2005.

4.3. Results of the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005

The second research question was formulated as follows in Chapter 1: "Which fortigenic factors influence the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005?" In answering this research question, statistical evidence is reported related to the descriptive, explanatory and predictive aims of the current study. Each of the following sections will restate the appropriate research proposition associated with the particular aim of the current study, using the group that passed for analyses.

4.3.1. Describing the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 (Group That Passed)

The following sections show the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.3.1.1. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 (Group That Passed)

The following research proposition guides the reporting of the correlation coefficients.

- Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

It is evident from Table 4.24 that most of the fortigenic variables are significantly related to persistence, except an optimistic explanatory style for bad events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

On the basis of these results, it is therefore possible to continue reporting statistical evidence of the measurement and structural models used in explaining the process of persistence. However, before exploring these models, the differences between individuals that have passed or failed Part 1 of the Qualifying Exam during 2005 on all the fortigenic variables are shown in the following section.

4.3.1.2. Group comparisons on fortigenic variables that are related to the persistence of aspiring chartered accountants who passed or failed Part 1 of the Qualifying Exam during 2005

The following two research propositions will guide the reporting of this section's results:

- Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Table 4.24 Correlations for the Passed Group (n=139)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.482(**)	.453(**)	.469(**)	.263(**)	.205(*)	.635(**)	-.419(**)	.410(**)	.591(**)
	Sig. (2-tailed)		.000	.000	.000	.002	.016	.000	.000	.000	.000
HOPETOT	Pearson Correlation	.482(**)	1	.547(**)	.440(**)	.383(**)	.054	.524(**)	-.318(**)	.413(**)	.553(**)
	Sig. (2-tailed)	.000		.000	.000	.000	.525	.000	.000	.000	.000
CTSTOT	Pearson Correlation	.453(**)	.547(**)	1	.506(**)	.463(**)	.059	.723(**)	-.430(**)	.463(**)	.637(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.491	.000	.000	.000	.000
PERSIST	Pearson Correlation	.469(**)	.440(**)	.506(**)	1	.367(**)	.007	.621(**)	-.374(**)	.373(**)	.798(**)
	Sig. (2-tailed)	.000	.000	.000		.000	.933	.000	.000	.000	.000
ASQG	Pearson Correlation	.263(**)	.383(**)	.463(**)	.367(**)	1	.011	.496(**)	-.336(**)	.447(**)	.490(**)
	Sig. (2-tailed)	.002	.000	.000	.000		.900	.000	.000	.000	.000
ASQB	Pearson Correlation	.205(*)	.054	.059	.007	.011	1	.197(*)	-.166	.086	.149
	Sig. (2-tailed)	.016	.525	.491	.933	.900		.020	.050	.312	.080
SLSC	Pearson Correlation	.635(**)	.524(**)	.723(**)	.621(**)	.496(**)	.197(*)	1	-.458(**)	.445(**)	.744(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.020		.000	.000	.000
LOCE	Pearson Correlation	-.419(**)	-.318(**)	-.430(**)	-.374(**)	-.336(**)	-.166	-.458(**)	1	-.338(**)	-.477(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.050	.000		.000	.000
LOCINT	Pearson Correlation	.410(**)	.413(**)	.463(**)	.373(**)	.447(**)	.086	.445(**)	-.338(**)	1	.500(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.312	.000	.000		.000
GSETOT	Pearson Correlation	.591(**)	.553(**)	.637(**)	.798(**)	.490(**)	.149	.744(**)	-.477(**)	.500(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.080	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

All the results related to Propositions 6b and 9b are shown in the following section to avoid duplication of results in those sections dealing specifically with candidates that failed and passed separately.

The following section shows the analyses done to determine differences between those individuals that passed or failed Part 1 of the Qualifying Exam during 2005 in relation to all the fortigenic variables.

Table 4.25 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during 2005 versus Candidates who failed Part 1 of the Qualifying Exam during 2005

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Yes	139	91.4460	11.3636	-0.214	0.831	0.025
	No	156	91.7500	12.8417			
HOPETOT	Yes	139	32.3165	5.39731	3.131	0.002	0.366
	No	156	30.2436	5.91267			
CTSTOT	Yes	139	38.5468	6.14466	3.991	0.000	0.466
	No	156	35.6346	6.35314			
PERSIST	Yes	139	61.3381	9.26232	1.356	0.176	0.158
	No	156	59.8654	9.35403			
ASQG	Yes	139	97.3885	10.9785	-2.781	0.006	0.325
	No	156	101.141	12.0672			
ASQB	Yes	139	51.9424	11.1879	-2.047	0.042	0.238
	No	156	54.6282	11.3001			

Table 4.25 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during 2005 versus Candidates who failed Part 1 of the Qualifying Exam during 2005 (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SLSC	Yes	139	81.6259	14.7595	0.310	0.756	0.036
	No	156	81.1026	14.1795			
LOCE	Yes	139	53.0504	12.8358	1.015	0.311	0.119
	No	156	51.3718	15.2701			
LOCINT	Yes	139	27.8129	3.47781	-0.376	0.707	0.044
	No	156	27.9808	4.11680			
GSETOT	Yes	139	90.2734	11.1516	0.985	0.326	0.115
	No	156	88.9551	11.7601			
SCSF1	Yes	139	30.5971	5.99845	1.944	0.053	0.227
	No	156	29.2115	6.20719			
SCSF2	Yes	139	14.6906	3.09944	-0.496	0.620	0.057
	No	156	14.8718	3.15762			

According to Table 4.25 those candidates that did not pass Part 1 of the Qualifying Exam during 2005 differed significantly less from those that did pass in terms of the following variables: performance self-esteem (small effect) and hope (medium effect). However, those individuals that did not pass differed significantly more from those that did pass in terms of the following variables: optimistic explanatory style for good events (small effect) and an optimistic explanatory style for bad events (medium effect).

In order to further investigate whether these identified variables (hope, performance self-esteem, and optimistic explanatory style) can classify individuals into the groups of either passing or failing, the discriminant analysis results are shown in the following section.

Table 4.26 Discriminant functions used for Classifying individuals into Passed group and Failed group

Variable	**Passed**	**Failed**
Resilience	0.3863	0.4267
Performance Self-Esteem	0.1338	-0.0088
Optimistic Explanatory Style for Good Events	0.5784	0.6217
Hope	Left out	
Persistence	Left out	
Optimistic Explanatory Style for Bad Events	Left out	
Self-Esteem	Left out	
External Locus of Control	Left out	
Internal Locus of Control	Left out	
General Self-Efficacy	Left out	
Percentage Classified Correctly	*62%*	*70%*

Table 4.26 clearly indicates that only three fortigenic variables (Resilience, Performance Self-Esteem, and Optimistic explanatory style for Good Events) contributed to the classification of individuals into either the Passed or Failed group. The remaining fortigenic variables were excluded from further analyses.

Based on the overall discrimination function, 66.29% of the candidates that wrote Part 1 of the Qualifying Exam during 2005 were classified correctly.

In the following table the scores of those fortigenic variables on which the group that passed Part 1 of the Qualifying Exam during their first attempt and those individuals that failed Part 1 of the Qualifying Exam during 2005 differ, are reported.

Table 4.27 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their first attempt versus Candidates who failed Part 1 of the Qualifying Exam during their first attempt

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Yes	94	91.9362	11.0830	-0.308	0.758	-0.050
	No	57	92.5614	13.5633			
HOPETOT	Yes	94	32.5213	4.86976	2.464	0.015	0.424
	No	57	30.2105	5.97834			
CTSTOT	Yes	94	39.1489	6.12584	3.272	0.001	0.547
	No	57	35.7368	6.35421			
PERSIST	Yes	94	62.3936	8.97454	1.112	0.268	0.186
	No	57	60.7193	8.96373			
ASQG	Yes	94	97.8511	10.9495	-0.197	0.844	0.032
	No	57	98.2456	13.4340			
ASQB	Yes	94	52.8617	11.7121	1.340	0.182	0.226
	No	57	50.2807	11.0562			
SLSC	Yes	94	82.5106	13.3156	0.831	0.407	0.139
	No	57	80.6316	13.7030			
LOCE	Yes	94	52.8191	12.4451	1.976	0.050	0.324
	No	57	48.3509	15.0124			

Table 4.27 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their first attempt versus Candidates who failed Part 1 of the Qualifying Exam during their first attempt (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
LOCINT	Yes	94	27.7553	3.50326	-0.231	0.817	0.038
	No	57	27.8947	3.73537			
GSETOT	Yes	94	91.1170	10.0116	0.007	0.995	0.001
	No	57	91.1053	10.4089			
SCSF1	Yes	94	31.1596	5.98978	1.438	0.153	0.240
	No	57	29.6842	6.30804			
SCSF2	Yes	94	14.9574	3.11747	0.182	0.856	0.030
	No	57	14.8596	3.35644			

Candidates, who failed the Qualifying Exam during 2005 during their first attempt, differed significantly less from those candidates that did pass the qualifying exam during their first attempt on the following variables: hope (medium effect) and performance self-esteem (medium effect). However, those individuals that passed the Qualifying Exam during 2005 during their first attempt were significantly higher in terms of the variable external locus of control (small effect), as reported in Table 4.27.

The following table compares the scores of those individuals who Passed Part 1 of the Qualifying Exam during their second attempt to the individuals that Failed Part 1 of the Qualifying Exam during 2005 on their second attempt.

Table 4.28 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their second attempt versus Candidates who failed Part 1 of the Qualifying Exam during their second attempt

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Yes	22	88.5909	11.4628	-1.365	0.177	0.363
	No	45	93.0444	13.0278			
HOPETOT	Yes	22	32.5909	6.11524	1.610	0.112	0.420
	No	45	29.9778	6.29751			
CTSTOT	Yes	22	36.9091	5.09817	1.116	0.269	0.299
	No	45	35.2222	6.12331			
PERSIST	Yes	22	59.4545	9.50051	0.393	0.696	0.103
	No	45	58.4444	10.0533			
ASQG	Yes	22	96.0909	9.72923	-2.492	0.015	0.669
	No	45	103.311	11.7489			
ASQB	Yes	22	49.4545	9.18450	-0.281	0.780	0.077
	No	45	50.3111	12.7472			
SLSC	Yes	22	78.1364	14.9739	-0.973	0.334	0.253
	No	45	81.9111	14.8932			
LOCE	Yes	22	56.0909	14.1081	0.910	0.366	0.234
	No	45	52.8444	13.5310			
LOCINT	Yes	22	27.7273	3.20983	-0.237	0.813	0.065
	No	45	28.0000	4.89434			

Table 4.28 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their second attempt versus Candidates who failed Part 1 of the Qualifying Exam during their second attempt (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
GSETOT	Yes	22	87.9091	13.6378	0.715	0.477	0.185
	No	45	85.4000	13.4103			
SCSF1	Yes	22	29.8182	6.28404	0.736	0.465	0.193
	No	45	28.5556	6.74387			
SCSF2	Yes	22	13.9091	2.79300	-0.951	0.345	0.253
	No	45	14.6667	3.18377			

Candidates who failed the Qualifying Exam during 2005 during their second attempt, differed significantly more from those candidates that passed the qualifying exam during their second attempt on the optimistic explanatory style for good events (medium effect), as reported in Table 4.28.

The following table compares the scores of those individuals that passed Part 1 of the Qualifying Exam on their third with the scores of those that failed their third attempt at writing Part 1 of the Qualifying Exam during 2005.

Table 4.29 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their third attempt versus Candidates who failed Part 1 of the Qualifying Exam during their third attempt

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SOCTOT	Yes	17	89.0000	12.5698	-0.274	0.785	0.080
	No	32	89.9375	10.7431			

Table 4.29 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their third attempt versus Candidates who failed Part 1 of the Qualifying Exam during their third attempt (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
HOPETOT	Yes	17	29.2941	6.64986	-0.977	0.333	0.284
	No	32	31.0313	5.50943			
CTSTOT	Yes	17	35.2941	6.42033	-0.245	0.807	0.074
	No	32	35.7813	6.70933			
PERSIST	Yes	17	56.0000	8.43356	-0.918	0.363	0.277
	No	32	58.4063	8.88950			
ASQG	Yes	17	94.4118	10.4824	-2.850	0.006	0.843
	No	32	102.875	9.57736			
ASQB	Yes	17	50.1176	10.8390	0.454	0.652	0.136
	No	32	48.6563	10.6819			
SLSC	Yes	17	76.0000	19.1768	-0.563	0.576	0.161
	No	32	78.7500	14.5358			
LOCE	Yes	17	54.7647	12.0857	0.445	0.659	0.140
	No	32	52.6875	17.0850			
LOCINT	Yes	17	26.8235	3.28320	-1.222	0.228	0.373
	No	32	28.1250	3.67862			
GSETOT	Yes	17	85.0000	11.5488	-0.743	0.461	0.223
	No	32	87.5938	11.6698			

Table 4.29 T-test results comparing Candidates who passed Part 1 of the Qualifying Exam during their third attempt versus Candidates who failed Part 1 of the Qualifying Exam during their third attempt (Continued)

Variable	Group	N	Mean	Standard Deviation	t-value	Significance (p-value)	Effect size
SCSF1	Yes	17	27.7059	4.90873	-.479	0.634	0.145
	No	32	28.4375	5.17399			
SCSF2	Yes	17	13.7647	3.21188	-0.836	0.408	0.247
	No	32	14.5313	2.97283			

Candidates who failed the Qualifying Exam during 2005 during their third attempt, differed significantly more from those candidates that passed the Qualifying Exam during their third attempt on the optimistic explanatory style for good events (large effect) as reported in Table 4.29.

With a description of the differences between individuals that passed and failed Part 1 of the Qualifying Exam over different attempts, the following section reports on the evaluation of both the measurement and structural models to be used in the explanation of the process of persistence for individuals that have passed Part 1 of the Qualifying Exam during 2005.

4.3.2. Results focusing on explaining the sequence of the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 (Group That Passed)

In evaluating the results related to the explanation of the process of persistence for those individuals that passed Part 1 of the Qualifying Exam during 2005, the following research proposition guides the reporting of the results:

- Proposition 7: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

In reporting on this research proposition, two steps are followed. Firstly, the results of the measurement model containing all the fortigenic variables are evaluated for their levels of fit. Only if the measurement model, to be used for the individuals that passed Part 1 of the Qualifying Exam during 2005, is valid then the second step can be initiated. This second step involves the evaluation of the validity and accuracy of the structural model depicting the process of persistence for those individuals that failed previous attempts and passed the Qualifying Exam during 2005.

The following section provides a summary on the goodness-of-fit of the measurement model to be used in the evaluation of the structural model for those individuals that passed Part 1 of the Qualifying Exam during 2005.

4.3.2.1. Theoretical model depicting the process of persistence for candidates that have passed Part 1 of the Qualifying Exam during 2005 (Group That Passed)

In Table 4.30 a summary of the fit statistics for the measurement model to be used in determining the validity of the structural model depicting the process of persistence, for the group that passed, are shown.

Table 4.30 Summary of goodness of fit statistics for the measurement model (Group That Passed)

χ^2	172.48
df	114
χ^2 ***/df***	1.51
RMSEA	0.061
SRMR	0.061
GFI	0.86
CFI	0.97
NFI	0.94

Table 4.30 shows acceptable levels of fit for the measurement model for the total group, as evident from the values of RMSEA, SRMR, and CFI. The GFI is below 0.95.

On the basis of acceptable fit statistics for the measurement model, the structural model for the total group that passed could be tested. The following table shows a summary of the fit statistics for the structural model depicting the process of persistence for the group that passed.

Table 4.31 Summary of the goodness of fit statistics for structural model (Group That Passed)

χ^2	226.12
df	126
χ^2 ***/df***	1.79
RMSEA	0.076
SRMR	0.074
GFI	0.82
CFI	0.95
NFI	0.92

In Figure 4.2, the gamma and beta coefficients needed to interpret the various path coefficients are shown. The *t*-values are shown in brackets. A *t*-value of 1.96 and above is indicative of a significant path coefficient.

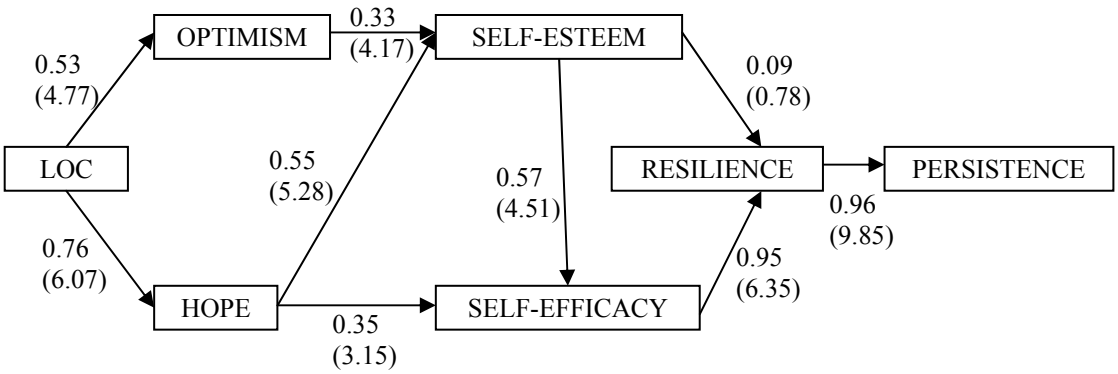

Figure 4.2 Path coefficients of structural model for individuals that passed the Qualifying Exam during 2005

Based on information shown in Table 4.31 and Figure 4.2 the structural model depicting the sequential order for the process of persistence (of those candidates that passed the Qualifying Exam during 2005) provided acceptable levels of fit, as evident from the values of RMSEA, SRMR, and CFI. The value of GFI is below 0.95.

All the paths were significant, except for the path between self-esteem and resilience Optimism ($t = 0.78$), as reported in Figure 4.2.

In the following section the results of analyses done to determine which of the fortigenic variables are significant predictors of persistence, for individuals that passed Part 1 of the Qualifying Exam during 2005, are shown.

Stepwise multiple regression was used to determine how well the level of persistence for candidates who passed could be predicted by the fortigenic variables.

4.3.3. Results focusing on predicting persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who passed Part 1 of the Qualifying Exam during 2005:

- Proposition 8: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine significant predictors of persistence. Stepwise multiple regression was used.

Table 4.32 Model Summary for Candidates passing Part 1 of QE1 during 2005

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.621[a]	.385	.381	7.28909
2	.635[b]	.403	.394	7.20742

a. Predictors: (Constant), SLSC

b. Predictors: (Constant), SLSC, HOPETOT

Table 4.33 ANOVA results for Candidates passing Part 1 of QE1 during 2005

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4560.189	1	4560.189	85.830	.000(a)
	Residual	7278.918	137	53.131		
	Total	11839.108	138			
2	Regression	4774.322	2	2387.161	45.954	.000(b)
	Residual	7064.785	136	51.947		
	Total	11839.108	138			

a Predictors: (Constant), SLSC; b Predictors: (Constant), SLSC, HOPETOT

Table 4.34 Beta Coefficients for Candidates passing Part 1 of QE1 during 2005

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.547	3.487		8.474	.000
	SLSC	.389	.042	.621	9.264	.000
2	(Constant)	25.029	4.104		6.099	.000
	SLSC	.338	.049	.538	6.916	.000
	HOPETOT	.271	.133	.158	2.030	.044

Self-esteem as well as hope are significant predictors of persistence of those candidates who passed Part 1 of the Qualifying Exam during 2005, as evident from Table 4.34. This model is significant and accounts for about 40% of the variance in persistence, as evident from Table 4.32 and Table 4.33.

With an indication as to which fortigenic variables are significant predictors of the persistence of those individuals that passed Part 1 of the Qualifying Exam, additional results can now be reported.

The following section provides a more micro perspective, focusing on those individuals that passed Part 1 of the Qualifying Exam during their first attempt.

4.3.4. Results of the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 1st attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.3.4.1. Describing the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Pass)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their first attempt:

- Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their first attempt and individuals that failed Part 1 of the Qualifying Exam on their first attempt were already reported earlier.

In summary, the following differences were found. Those individuals that failed Part 1 of the Qualifying Exam during 2005 for the first time, seems to be less hopeful as well as less happy with their levels of performance self-esteem than individuals that passed the Qualifying Exam on their first attempt in relation to and performance self-esteem.

The individuals that passed the Qualifying Exam during their first attempt seems to be higher on external locus of control than those individuals that failed the Qualifying Exam during their first attempt.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that passed Part 1 of the Qualifying Exam, on their first attempt, during 2005.

4.3.4.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Pass)

It is reported in Table 4.35 that all the fortigenic variables are significantly correlated with persistence, except optimism/bad events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

With an indication of the correlations between the fortigenic variables and persistence, the following section reports on the predictors of persistence for the group that passed Part 1 of the Qualifying Exam, on their first attempt, during 2005.

4.3.4.3. Predicting persistence of candidates who passed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Pass)

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who passed Part 1 of the Qualifying Exam during 2005 on their first attempt:

- Proposition 8: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

Table 4.35 Correlations for Candidates that Passed First Attempt (n=94)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.401(**)	.367(**)	.380(**)	.166	.238(*)	.554(**)	-.427(**)	.344(**)	.514(**)
	Sig. (2-tailed)		.000	.000	.000	.110	.021	.000	.000	.001	.000
HOPETOT	Pearson Correlation	.401(**)	1	.502(**)	.352(**)	.403(**)	.116	.496(**)	-.323(**)	.389(**)	.501(**)
	Sig. (2-tailed)	.000		.000	.001	.000	.266	.000	.001	.000	.000
CTSTOT	Pearson Correlation	.367(**)	.502(**)	1	.418(**)	.419(**)	.035	.710(**)	-.418(**)	.403(**)	.611(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.737	.000	.000	.000	.000
PERSIST	Pearson Correlation	.380(**)	.352(**)	.418(**)	1	.376(**)	.023	.537(**)	-.347(**)	.308(**)	.738(**)
	Sig. (2-tailed)	.000	.001	.000		.000	.827	.000	.001	.003	.000
ASQG	Pearson Correlation	.166	.403(**)	.419(**)	.376(**)	1	.003	.493(**)	-.329(**)	.425(**)	.533(**)
	Sig. (2-tailed)	.110	.000	.000	.000		.981	.000	.001	.000	.000
ASQB	Pearson Correlation	.238(*)	.116	.035	.023	.003	1	.218(*)	-.252(*)	.101	-.185
	Sig. (2-tailed)	.021	.266	.737	.827	.981		.035	.014	.334	.074
SLSC	Pearson Correlation	.554(**)	.496(**)	.710(**)	.537(**)	.493(**)	.218(*)	1	-.486(**)	.446(**)	.699(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.035		.000	.000	.000
LOCE	Pearson Correlation	-.427(**)	-.323(**)	-.418(**)	-.347(**)	-.329(**)	-.252(*)	-.486(**)	1	-.343(**)	-.554(**)
	Sig. (2-tailed)	.000	.001	.000	.001	.001	.014	.000		.001	.000
LOCINT	Pearson Correlation	.344(**)	.389(**)	.403(**)	.308(**)	.425(**)	.101	.446(**)	-.343(**)	1	.485(**)
	Sig. (2-tailed)	.001	.000	.000	.003	.000	.334	.000	.001		.000
GSETOT	Pearson Correlation	.514(**)	.501(**)	.611(**)	.738(**)	.533(**)	.185	.699(**)	-.554(**)	.485(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.074	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine the significant predictors of persistence for those individuals who passed Part 1 of the Qualifying Exam on their first attempt.

Table 4.36 Model Summary for Candidates Passing Part 1 of QE1 during first attempt

R	R Square	Adjusted R Square	Std. Error of the Estimate
.591(a)	.350	.289	7.57004

a Predictors: (Constant), LOCINT, ASQB, HOPETOT, LOCE, ASQG, SOCTOT, CTSTOT, SLSC

Table 4.37 ANOVA results for Candidates Passing Part 1 of QE1 during first attempt

Sum of Squares	df	Mean Square	F	Sig.	
Regression	2619.474	8	327.434	5.714	.000(a)
Residual	4870.962	85	57.305		
Total	7490.436	93			

a Predictors: (Constant), LOCINT, ASQB, HOPETOT, LOCE, ASQG, SOCTOT, CTSTOT, SLSC; b Dependent Variable: PERSIST

Self-esteem is the only significant predictor of persistence of those candidates who passed part 1 of the qualifying exam during 2005 on their first attempt. This model accounts for 35% of the variance in persistence, as reported in Table 4.36, Table 4.37, and Table 4.38.

Table 4.38 Beta Coefficients for Candidates Passing Part 1 of QE1 during first attempt

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	15.813	13.574		1.165	.247
SOCTOT	.106	.092	.131	1.153	.252
HOPETOT	.105	.202	.057	.519	.605
CTSTOT	-.015	.194	-.010	-.076	.940
ASQG	.096	.090	.117	1.062	.291
ASQB	.128	.072	.167	1.773	.080
SLSC	.249	.102	.369	2.435	.017
LOCE	-.070	.077	-.096	-.904	.369
LOCINT	.038	.268	.015	.141	.888

The following section reports the results related to those individuals that passed Part 1of the Qualifying Exam, on their second attempt, during 2005.

4.3.5. Results of the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.3.5.1. Describing the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Pass)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their second attempt:

- Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

- Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their second attempt and individuals that failed Part 1 of the Qualifying Exam were already reported earlier.

In summary the following differences were found. Individuals who failed the Qualifying Exam on their second attempt seem to be higher on their levels of using an optimistic explanatory style for good events than those who passed Part 1 of the Qualifying Exam during their second attempt

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that passed Part 1 of the Qualifying Exam, on their second attempt, during 2005.

4.3.5.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Pass)

It is reported in Table 4.39 that all the fortigenic variables are significantly correlated with persistence except optimism/good events, optimism/bad events, and external locus of control. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

With an indication of the correlations between the fortigenic variables and persistence, the predictors of persistence for the group that passed Part 1 of the Qualifying Exam, on their third attempt during 2005 are reported in the next section.

Table 4.39 Correlations for Candidates that passed Second Attempt (n=22)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.635(**)	.512(*)	.544(**)	.569(**)	.317	.684(**)	-.392	.621(**)	.572(**)
	Sig. (2-tailed)		.002	.015	.009	.006	.151	.000	.071	.002	.005
HOPETOT	Pearson Correlation	.635(**)	1	.426(*)	.553(**)	.308	.009	.457(*)	-.247	.564(**)	.633(**)
	Sig. (2-tailed)	.002		.048	.008	.163	.967	.033	.268	.006	.002
CTSTOT	Pearson Correlation	.512(*)	.426(*)	1	.492(*)	.491(*)	.217	.601(**)	-.373	.508(*)	.522(*)
	Sig. (2-tailed)	.015	.048		.020	.020	.333	.003	.088	.016	.013
PERSIST	Pearson Correlation	.544(**)	.553(**)	.492(*)	1	.221	.145	.690(**)	-.256	.496(*)	.908(**)
	Sig. (2-tailed)	.009	.008	.020		.323	.520	.000	.250	.019	.000
ASQG	Pearson Correlation	.569(**)	.308	.491(*)	.221	1	.190	.425(*)	-.461(*)	.350	.309
	Sig. (2-tailed)	.006	.163	.020	.323		.398	.049	.031	.110	.161
ASQB	Pearson Correlation	.317	.009	.217	.145	.190	1	.086	-.217	.189	.078
	Sig. (2-tailed)	.151	.967	.333	.520	.398		.704	.332	.398	.730
SLSC	Pearson Correlation	.684(**)	.457(*)	.601(**)	.690(**)	.425(*)	.086	1	-.234	.351	.732(**)
	Sig. (2-tailed)	.000	.033	.003	.000	.049	.704		.294	.110	.000
LOCE	Pearson Correlation	-.392	-.247	-.373	-.256	-.461(*)	-.217	-.234	1	-.239	-.291
	Sig. (2-tailed)	.071	.268	.088	.250	.031	.332	.294		.284	.190
LOCINT	Pearson Correlation	.621(**)	.564(**)	.508(*)	.496(*)	.350	.189	.351	-.239	1	.479(*)
	Sig. (2-tailed)	.002	.006	.016	.019	.110	.398	.110	.284		.024
GSETOT	Pearson Correlation	.572(**)	.633(**)	.522(*)	.908(**)	.309	.078	.732(**)	-.291	.479(*)	1
	Sig. (2-tailed)	.005	.002	.013	.000	.161	.730	.000	.190	.024	

** Correlation is significant at the 0.01 level (2-tailed).

4.3.5.3. Predicting persistence of candidates who passed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Pass)

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who passed Part 1 of the Qualifying Exam during 2005 on their second attempt:

- Proposition 8: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine significant predictors of persistence for those individuals who passed Part 1 of the Qualifying Exam on their second attempt.

Table 4.40 Model Summary for Candidates Passing Part 1 of QE1 during second attempt

R	R Square	Adjusted R Square	Std. Error of the Estimate
.792(a)	.627	.398	7.37201

a Predictors: (Constant), LOCINT, ASQB, LOCE, SLSC, ASQG, HOPETOT, CTSTOT, SOCTOT

Table 4.41 ANOVA results for Candidates Passing Part 1 of QE1 during second attempt

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1188.949	8	148.619	2.735	.052(a)
Residual	706.505	13	54.347		
Total	1895.455	21			

a Predictors: (Constant), LOCINT, ASQB, LOCE, SLSC, ASQG, HOPETOT, CTSTOT, SOCTOT; b Dependent Variable: PERSIST

Table 4.42 Beta Coefficients for Candidates Passing Part 1 of QE1 during second attempt

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	37.339	28.530		1.309	.213
SOCTOT	-.208	.295	-.251	-.704	.494
HOPETOT	.434	.377	.279	1.151	.270
CTSTOT	-.093	.473	-.050	-.196	.847
ASQG	-.172	.221	-.176	-.779	.450
ASQB	-.135	.202	-.130	-.669	.515
SLSC	.444	.176	.699	2.526	.025
LOCE	-.085	.134	-.126	-.630	.539
LOCINT	.832	.722	.281	1.152	.270

From Table 4.40, Table 4.41, and Table 4.42 it is evident that self-esteem is the only significant predictor of persistence for those candidates who passed part 1 of the qualifying exam on their second attempt during 2005. However, this model is not significant and accounts for 62.7% of the variance in persistence.

The following section reports the results related to those individuals that passed Part 1of the Qualifying Exam, on their third attempt, during 2005.

4.3.6. Results of the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.3.6.1. Describing the factors that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt (3rd Attempt Pass)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their third attempt:

- Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their third attempt and individuals that failed Part 1 of the Qualifying Exam on their third attempt were already reported.

In summary the following differences were found. Individuals who failed the Qualifying Exam during their third attempt seem to be higher on their levels of using an optimistic explanatory style for good events than those who passed Part 1 of the Qualifying Exam during their third attempt.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that passed Part 1 of the Qualifying Exam, on their third attempt, during 2005.

Table 4.43 Correlations for Candidates that passed Third Attempt (n=17)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.549(*)	.599(*)	.636(**)	.346	.182	.759(**)	-.183	.347	.789(**)
	Sig. (2-tailed)		.023	.011	.006	.174	.485	.000	.482	.173	.000
HOPETOT	Pearson Correlation	.549(*)	1	.692(**)	.467	.360	.077	.553(*)	-.188	.143	.483(*)
	Sig. (2-tailed)	.023		.002	.059	.155	.769	.021	.470	.585	.050
CTSTOT	Pearson Correlation	.599(*)	.692(**)	1	.699(**)	.562(*)	.477	.796(**)	-.285	.501(*)	.753(**)
	Sig. (2-tailed)	.011	.002		.002	.019	.053	.000	.268	.041	.000
PERSIST	Pearson Correlation	.636(**)	.467	.699(**)	1	.185	.426	.725(**)	-.380	.343	.814(**)
	Sig. (2-tailed)	.006	.059	.002		.478	.088	.001	.132	.178	.000
ASQG	Pearson Correlation	.346	.360	.562(*)	.185	1	.108	.540(*)	.054	.471	.457
	Sig. (2-tailed)	.174	.155	.019	.478		.681	.025	.838	.056	.065
ASQB	Pearson Correlation	.182	.077	.477	.426	.108	1	.510(*)	-.041	.217	.467
	Sig. (2-tailed)	.485	.769	.053	.088	.681		.037	.876	.402	.059
SLSC	Pearson Correlation	.759(**)	.553(*)	.796(**)	.725(**)	.540(*)	.510(*)	1	-.362	.339	.795(**)
	Sig. (2-tailed)	.000	.021	.000	.001	.025	.037		.153	.184	.000
LOCE	Pearson Correlation	-.183	-.188	-.285	-.380	.054	-.041	-.362	1	-.044	-.124
	Sig. (2-tailed)	.482	.470	.268	.132	.838	.876	.153		.868	.634
LOCINT	Pearson Correlation	.347	.143	.501(*)	.343	.471	.217	.339	-.044	1	.424
	Sig. (2-tailed)	.173	.585	.041	.178	.056	.402	.184	.868		.090
GSETOT	Pearson Correlation	.789(**)	.483(*)	.753(**)	.814(**)	.457	.467	.795(**)	-.124	.424	1
	Sig. (2-tailed)	.000	.050	.000	.000	.065	.059	.000	.634	.090	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.3.6.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt (3rd Attempt Pass)

It is reported in Table 4.43 that all the fortigenic variables are significantly correlated with persistence, except hope, optimism/bad events, external locus of control, internal locus of control, and optimism/good events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

Due to the small size of the subsample (n=17), it is not advisable to conduct a multiple regression analysis to determine which fortigenic variables are significant predictors of persistence for the group that passed Part 1 of the Qualifying Exam on their third attempt during 2005.

With an indication of which fortigenic factors influence persistence of those individuals that passed Part 1 of the Qualifying exam on the first, second, or third attempts, the following section reports the results related to those individuals that failed Part 1of the Qualifying Exam, across different attempts, during 2005.

4.4. Results of the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005

The third research question was formulated as follows in Chapter 1: "Which fortigenic factors influence the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005, but still persisted after previous failures?" In answering this research question, statistical evidence is reported related to the descriptive, explanatory and predictive aims of the current study. Each of the following sections will restate the appropriate research proposition associated with the particular aim of the current study, using the total group for analyses.

The following sections provide the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.4.1. Describing the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 (Group That Failed)

The following two research propositions guide the reporting of the statistical results of those individuals that failed Part 1 of the Qualifying Exam on their first attempt:

- Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam and individuals that failed Part 1 of the Qualifying Exam were already reported.

In summary the following differences were found. Individuals that passed Part 1 of the Qualifying Exam seem to be more hopeful than those that failed. Those individuals that failed were also lower on levels of performance self-esteem than those that passed.

However, the individuals that failed seem to be using more of an optimistic explanatory style in both good events and bad events in comparison with individuals that passed.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005.

Table 4.44 Correlations for the Failed Group (n=156)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.556(**)	.547(**)	.436(**)	.356(**)	.195(*)	.670(**)	-.487(**)	.374(**)	.514(**)
	Sig. (2-tailed)		.000	.000	.000	.000	.015	.000	.000	.000	.000
HOPETOT	Pearson Correlation	.556(**)	1	.551(**)	.444(**)	.473(**)	.248(**)	.615(**)	-.358(**)	.401(**)	.505(**)
	Sig. (2-tailed)	.000		.000	.000	.000	.002	.000	.000	.000	.000
CTSTOT	Pearson Correlation	.547(**)	.551(**)	1	.439(**)	.377(**)	.272(**)	.642(**)	-.333(**)	.377(**)	.529(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.001	.000	.000	.000	.000
PERSIST	Pearson Correlation	.436(**)	.444(**)	.439(**)	1	.223(**)	.211(**)	.547(**)	-.238(**)	.321(**)	.753(**)
	Sig. (2-tailed)	.000	.000	.000		.005	.008	.000	.003	.000	.000
ASQG	Pearson Correlation	.356(**)	.473(**)	.377(**)	.223(**)	1	.044	.399(**)	-.169(*)	.333(**)	.314(**)
	Sig. (2-tailed)	.000	.000	.000	.005		.582	.000	.035	.000	.000
ASQB	Pearson Correlation	.195(*)	.248(**)	.272(**)	.211(**)	-.044	1	.296(**)	-.230(**)	.238(**)	.227(**)
	Sig. (2-tailed)	.015	.002	.001	.008	.582		.000	.004	.003	.004
SLSC	Pearson Correlation	.670(**)	.615(**)	.642(**)	.547(**)	.399(**)	.296(**)	1	-.388(**)	.427(**)	.638(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
LOCE	Pearson Correlation	-.487(**)	-.358(**)	-.333(**)	-.238(**)	-.169(*)	-.230(**)	-.388(**)	1	-.299(**)	-.342(**)
	Sig. (2-tailed)	.000	.000	.000	.003	.035	.004	.000		.000	.000
LOCINT	Pearson Correlation	.374(**)	.401(**)	.377(**)	.321(**)	.333(**)	.238(**)	.427(**)	-.299(**)	1	.481(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.003	.000	.000		.000
GSETOT	Pearson Correlation	.514(**)	.505(**)	.529(**)	.753(**)	.314(**)	.227(**)	.638(**)	-.342(**)	.481(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.004	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.4.1.1. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 (Group That Failed)

It is reported in Table 4.44 that all the fortigenic variables are significantly correlated with persistence. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

With a description of the differences between individuals that passed and failed Part 1 of the Qualifying Exam, the following section reports on the evaluation of both the measurement and structural models to be used in the evaluation of the process of persistence for individuals that have failed Part 1 of the Qualifying Exam during 2005 but still persisted.

4.4.2. Results focusing on explaining the sequence of the fortigenic variables that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 (Group That Failed)

In evaluating the results related to the explanation of the process of persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005 but still persisted, the following research proposition guides the reporting of the results:

- Proposition 10: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

In reporting on this research proposition, two steps are followed. Firstly, the results of the measurement model containing all the fortigenic variables are evaluated for their levels of fit. Only if the measurement model, to be used in the structural equation model for the individuals that failed Part 1 of the Qualifying Exam during 2005, is valid then the second step can be initiated. This second step involves the evaluation of the validity and accuracy of the structural model depicting the process of persistence for those individuals that failed previous attempts and passed the Qualifying Exam during 2005.

The following section reports on the goodness-of-fit of the measurement model to be used in the evaluation of the structural model for those individuals that failed Part 1 of the Qualifying Exam during 2005.

4.4.2.1. Theoretical model depicting process of persistence for candidates that have failed Part 1 of the Qualifying Exam during 2005 (Group That Failed)

In Table 4.45 a summary of the fit statistics for the measurement model to be used - for the group that failed - in determining the validity of the structural model depicting the process of persistence are shown.

Table 4.45 Summary of goodness of fit statistics for the measurement model (Group That Failed)

χ^2	201.96
df	114
χ^2 ***/df***	1.77
RMSEA	0.071
SRMR	0.063
GFI	0.86
CFI	0.97
NFI	0.94

Table 4.45 shows acceptable levels of fit for the measurement model for the total group, as evident from the values of RMSEA, SRMR, GFI, and CFI. The value of GFI is below 0.95.

On the basis of acceptable fit statistics for the measurement model, the structural model for the group that failed can be evaluated. The following table shows a summary of the fit statistics for the structural model depicting the process of persistence.

Table 4.46 Summary of the goodness of fit statistics for structural model (Group That Failed)

χ^2	311
df	126
χ^2 ***/df***	2.47
RMSEA	0.097
SRMR	0.096
GFI	0.80
CFI	0.94
NFI	0.90

In Figure 4.3, the gamma and beta coefficients needed to interpret the various path coefficients are shown. The *t*-values are shown in brackets. A *t*-value of 1.96 and above is indicative of a significant path coefficient.

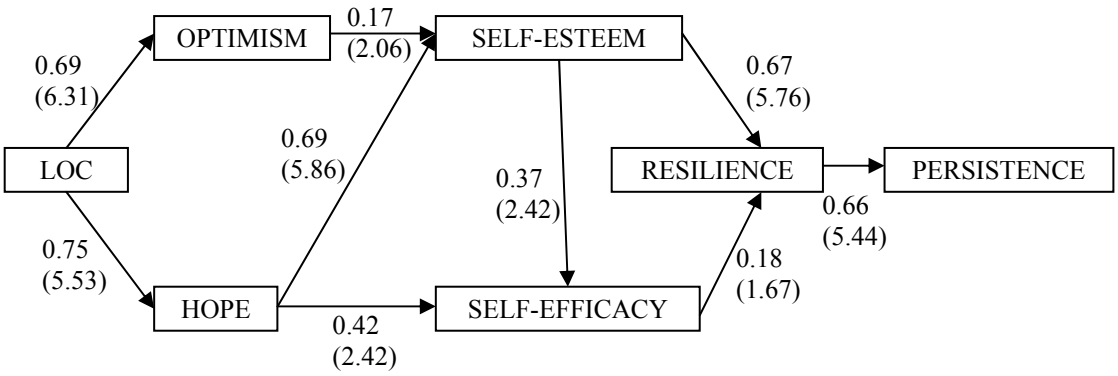

Figure 4.3 Path coefficients of structural model for individuals that failed the Qualifying Exam during 2005

All the paths are significant, except for the path between self-efficacy and resilience (*t* = 1.67) as evident from Figure 4.3.

Based on the information reported in Table 4.46 and Figure 4.3 the structural model depicting the sequential order for the process of persistence (of those candidates that failed the qualifying exam during 2005), provide acceptable levels of fit, as evident from the values of RMSEA, SRMR, and CFI. The value of GFI is below 0.95.

4.4.2.2. Measurement equivalence between the measurement model of the group that passed and the measurement model of the group that failed

When comparing the structural model depicting the process of persistence of those individuals that passed Part 1 of the Qualifying Exam with the structural model depicting the process of persistence of those individuals that failed Part 1 of the Qualifying Exam, the differences in fit statistics are observable. In addition to difference in the fit statistics, there are also two paths (self-esteem and resilience, general self-efficacy and resilience) that are non-significant.

It is therefore advisable to determine if the different measurement models are not responsible for the differences of fit in these two structural models. If the two measurement models are not equivalent, then it is possible that the differences in fit may not be due to real differences experienced by these two groups (one passing, the other failing), but possibly due to the measurement models.

To guide the current study to investigate measurement equivalence of the two measurement models, the following research proposition acts as a guideline.

- Proposition 12: There will be evidence of measurement equivalence of the measurement model used to test the validity of the structural model, between participants who have passed and failed.

The following table represents the results of a χ^2 difference test. The procedure used was discussed in Chapter 3. In short, two hypotheses are tested. The null hypothesis states that measurement model parameters are identical across the two samples. Thus, the null hypothesis uses a constrained model and compares it against the alternative hypothesis (i.e. non-constrained parameters) that states that at least two of the parameters are not identical across the two samples.

Table 4.47 reports the results of the χ^2 difference test with an indication that the measurement models are equivalent across passed and failed groups. This conclusion is based on the non-significant difference between H_0 and H_a when compared against the critical value of 79.0819 associated with 60 degrees of freedom ($p = 0.05$). If the difference between H_0 and H_a was bigger than the reported critical value, then the two measurement models would have been deemed non-equivalent.

Table 4.47 Determining Equivalence of the Measurement Model across Failed Group and Passed Group

	Passed and Failed Groups Simultaneously	
	All Parameters Constrained (H_0)	No Constraints on Parameters (H_a)
χ^2	384.43	307.67
df	285	228
RMSEA	0.049	0.049
NFI	0.93	0.94
CFI	0.97	0.97
Difference in χ^2 Between H_0 and H_a	76.76	
Critical Value $\chi^2_{(60;\ 0.05)}$	79.0819	
Significant	No	

With evidence supporting the differences between the structural models of the group that failed and the group that passed as possibly not due to the measurements used in testing the two different structural models, the following section provides a summary of the goodness-of-fit statistics for both the measurement and structural models for each of the three groups.

4.4.2.3. Summary of the fit statistics across the three models

The following two tables (4.48 and 4.49) provide a summary of the fit statistics for the three models. The first table (4.48) provides a comparison of the fit statistics for the three different measurement models. The second table (4.49) provides a comparison of the goodness-of-fit statistics for the three different structural models.

Table 4.48 Summary of the goodness-of-fit statistics for the three measurement models

	Total Group	**Passed Group**	**Failed Group**
χ^2	249.77	172.48	201.96
df	114	114	114
χ^2/df	2.19	1.51	1.77
RMSEA	0.064	0.061	0.071
SRMR	0.052	0.061	0.063
GFI	0.90	0.86	0.86
CFI	0.98	0.97	0.97
NFI	0.96	0.94	0.94

Table 4.49 Summary of the goodness-of-fit statistics for the three structural models

	Total Group	**Passed Group**	**Failed Group**
χ^2	432.53	226.12	311
df	126	126	126
χ^2/df	3.43	1.79	2.47
RMSEA	0.091	0.076	0.097
SRMR	0.069	0.074	0.096
GFI	0.84	0.82	0.80
CFI	0.95	0.95	0.94
NFI	0.93	0.92	0.90

The following section reports the results that are required to determine which fortigenic variables are significant predictors of persistence for individuals that failed Part 1 of the Qualifying Exam during 2005.

4.4.3. Results focusing on predicting persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who failed Part 1 of the Qualifying Exam during 2005, but still persisted:

- Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

The following section reports the results of a stepwise multiple regression model, using various fortigenic variables, to determine the significant predictors of persistence.

Table 4.50 Model Summary for Candidates failing Part 1 of QE1 during 2005

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.547(a)	.300	.295	7.85308
2	.564(b)	.318	.309	7.77381

a Predictors: (Constant), SLSC

b Predictors: (Constant), SLSC, HOPETOT

Table 4.51 ANOVA results for Candidates failing Part 1 of QE1 during 2005

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4064.851	1	4064.851	65.912	.000(a)
	Residual	9497.322	154	61.671		
	Total	13562.173	155			
2	Regression	4316.062	2	2158.031	35.710	.000(b)
	Residual	9246.111	153	60.432		
	Total	13562.173	155			

a Predictors: (Constant), SLSC; b Predictors: (Constant), SLSC, HOPETOT

Table 4.52 Beta Coefficients for Candidates failing Part 1 of QE1 during 2005

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30.575	3.662		8.349	.000
	SLSC	.361	.044	.547	8.119	.000
2	(Constant)	27.999	3.839		7.293	.000
	SLSC	.291	.056	.441	5.209	.000
	HOPETOT	.273	.134	.173	2.039	.043

From Table 4.52 it is evident that both self-esteem and hope are significant predictors of persistence of those candidates who have failed part 1 of the qualifying exam during 2005. From Table 4.50 and Table 4.51 it is reported that this model is significant and accounts for 31.8% of variance in persistence.

The following section reports the results related to those individuals that failed Part 1of the Qualifying Exam, on their first attempt, during 2005.

4.4.4. Results of the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 1st attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.4.4.1. Describing the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Fail)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their first attempt:

- Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their first attempt and individuals that failed Part 1 of the Qualifying Exam on their first attempt were already reported.

In summary, the following differences were found. Those individuals that failed Part 1 of the Qualifying Exam during 2005 for the first time, seems to be less hopeful as well as less happy with their levels of performance self-esteem than individuals that passed the Qualifying Exam on their first attempt.
The individuals that passed the Qualifying Exam during their first attempt seems to be higher on external locus of control than those individuals that failed the Qualifying Exam during their first attempt.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005 on their first attempt.

4.4.4.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Fail)

It is reported in Table 4.53 that all the fortigenic variables are significantly correlated with persistence except hope, optimistic explanatory style for good events, and optimistic explanatory style for bad events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

Table 4.53 Correlations for Candidates that failed their First Attempt (n=57)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.494(**)	.561(**)	.350(**)	.374(**)	.034	.606(**)	-.470(**)	.404(**)	.540(**)
	Sig. (2-tailed)		.000	.000	.008	.004	.801	.000	.000	.002	.000
HOPETOT	Pearson Correlation	.494(**)	1	.589(**)	.226	.660(**)	.132	.633(**)	-.391(**)	.480(**)	.390(**)
	Sig. (2-tailed)	.000		.000	.091	.000	.329	.000	.003	.000	.003
CTSTOT	Pearson Correlation	.561(**)	.589(**)	1	.413(**)	.534(**)	.124	.632(**)	-.497(**)	.471(**)	.540(**)
	Sig. (2-tailed)	.000	.000		.001	.000	.356	.000	.000	.000	.000
PERSIST	Pearson Correlation	.350(**)	.226	.413(**)	1	.241	.051	.371(**)	-.284(*)	.402(**)	.747(**)
	Sig. (2-tailed)	.008	.091	.001		.071	.706	.004	.032	.002	.000
ASQG	Pearson Correlation	.374(**)	.660(**)	.534(**)	.241	1	.051	.524(**)	-.318(*)	.271(*)	.296(*)
	Sig. (2-tailed)	.004	.000	.000	.071		.705	.000	.016	.041	.025
ASQB	Pearson Correlation	.034	.132	.124	-.051	-.051	1	.070	-.153	.204	.070
	Sig. (2-tailed)	.801	.329	.356	.706	.705		.605	.256	.128	.606
SLSC	Pearson Correlation	.606(**)	.633(**)	.632(**)	.371(**)	.524(**)	-070	1	-.513(**)	.480(**)	.506(**)
	Sig. (2-tailed)	.000	.000	.000	.004	.000	.605		.000	.000	.000
LOCE	Pearson Correlation	-.470(**)	-.391(**)	-.497(**)	-.284(*)	-.318(*)	-.153	-.513(**)	1	-.555(**)	-.362(**)
	Sig. (2-tailed)	.000	.003	.000	.032	.016	.256	.000		.000	.006
LOCINT	Pearson Correlation	.404(**)	.480(**)	.471(**)	.402(**)	.271(*)	.204	.480(**)	-.555(**)	1	.463(**)
	Sig. (2-tailed)	.002	.000	.000	.002	.041	.128	.000	.000		.000
GSETOT	Pearson Correlation	.540(**)	.390(**)	.540(**)	.747(**)	.296(*)	.070	.506(**)	-.362(**)	.463(**)	1
	Sig. (2-tailed)	.000	.003	.000	.000	.025	.606	.000	.006	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The following section reports the results that are required to determine which fortigenic variables are significant predictors of persistence for individuals that failed Part 1 of the Qualifying Exam during 2005 on their first attempt.

4.4.4.3. Predicting persistence of candidates who failed Part 1 of the Qualifying Exam during 2005 on their 1st attempt (1st Attempt Fail)

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who failed Part 1 of the Qualifying Exam during 2005 on their first attempt:

- Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine significant predictors of persistence for those individuals who failed Part 1 of the Qualifying Exam on their first attempt.

Table 4.54 Model Summary for Candidates Failing Part 1 of QE1 during first attempt

R	R Square	Adjusted R Square	Std. Error of the Estimate
.514(a)	.265	.142	8.30253

a Predictors: (Constant), LOCINT, ASQB, ASQG, SOCTOT, LOCE, CTSTOT, SLSC, HOPETOT

Table 4.55 ANOVA results for Candidates Failing Part 1 of QE1 during first attempt

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1190.770	8	148.846	2.159	.048(a)
Residual	3308.739	48	68.932		
Total	4499.509	56			

a Predictors: (Constant), LOCINT, ASQB, ASQG, SOCTOT, LOCE, CTSTOT, SLSC, HOPETOT; b Dependent Variable: PERSIST

Table 4.56 Beta Coefficients for Candidates Failing Part 1 of QE1 during first attempt

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	15.630	18.017		.868	.390
SOCTOT	.083	.110	.125	.753	.455
HOPETOT	-.368	.294	-.245	-1.251	.217
CTSTOT	.342	.257	.243	1.333	.189
ASQG	.063	.116	.095	.546	.588
ASQB	.014	.103	.017	.137	.892
SLSC	.090	.126	.137	.713	.479
LOCE	.039	.098	.065	.400	.691
LOCINT	.727	.392	.303	1.853	.070

None of the fortigenic variables in this model contribute significantly to the prediction of persistence of those candidates who failed part 1 of the qualifying exam during 2005 during their first attempt. However, this model is significant and accounts for 26.5% of the variance in persistence – based on information reported in Table 4.54, Table 4.55, and Table 4.56.

The following section reports the results related to those individuals that failed Part 1of the Qualifying Exam, on their second attempt, during 2005.

4.4.5. Results of the factors that are related to the persistence of aspiring chartered accountants who failed part 1 of the Qualifying Exam during 2005 on their 2nd attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.4.5.1. Describing the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Fail)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their first attempt:

- Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their second attempt and individuals that failed Part 1 of the Qualifying Exam on their second attempt were already reported.

In summary the following differences were found. Individuals who failed the Qualifying Exam on their second attempt seem to be higher on their levels of using an optimistic explanatory style for good events than those who passed Part 1 of the Qualifying Exam during their second attempt.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005 on their second attempt.

Table 4.57 Correlations for Candidates that Failed their Second Attempt (n=45)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.708(**)	.631(**)	.618(**)	.317(*)	.336(*)	.764(**)	-.574(**)	.344(*)	.667(**)
	Sig. (2-tailed)		.000	.000	.000	.034	.024	.000	.000	.021	.000
HOPETOT	Pearson Correlation	.708(**)	1	.568(**)	.728(**)	.278	.373(*)	.683(**)	-.484(**)	.245	.614(**)
	Sig. (2-tailed)	.000		.000	.000	.065	.012	.000	.001	.105	.000
CTSTOT	Pearson Correlation	.631(**)	.568(**)	1	.469(**)	.335(*)	.417(**)	.587(**)	-.230	.274	.491(**)
	Sig. (2-tailed)	.000	.000		.001	.025	.004	.000	.128	.069	.001
PERSIST	Pearson Correlation	.618(**)	.728(**)	.469(**)	1	.190	316(*)	.638(**)	-.345(*)	.352(*)	.803(**)
	Sig. (2-tailed)	.000	.000	.001		.211	.035	.000	.020	.018	.000
ASQG	Pearson Correlation	.317(*)	.278	.335(*)	.190	1	-.040	.263	-.143	.321(*)	.337(*)
	Sig. (2-tailed)	.034	.065	.025	.211		.793	.080	.348	.032	.024
ASQB	Pearson Correlation	.336(*)	.373(*)	.417(**)	.316(*)	-.040	1	.515(**)	-.167	.271	.275
	Sig. (2-tailed)	.024	.012	.004	.035	.793		.000	.273	.072	.067
SLSC	Pearson Correlation	.764(**)	.683(**)	.587(**)	.638(**)	.263	.515(**)	1	-.259	.366(*)	.718(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.080	.000		.086	.013	.000
LOCE	Pearson Correlation	-.574(**)	-.484(**)	-.230	-.345(*)	-.143	-.167	-.259	1	.038	-.316(*)
	Sig. (2-tailed)	.000	.001	.128	.020	.348	.273	.086		.802	.035
LOCINT	Pearson Correlation	.344(*)	.245	.274	.352(*)	.321(*)	.271	.366(*)	.038	1	.479(**)
	Sig. (2-tailed)	.021	.105	.069	.018	.032	.072	.013	.802		.001
GSETOT	Pearson Correlation	.667(**)	.614(**)	.491(**)	.803(**)	.337(*)	.275	.718(**)	-.316(*)	.479(**)	1
	Sig. (2-tailed)	.000	.000	.001	.000	.024	.067	.000	.035	.001	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.4.5.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Fail)

It is reported in Table 4.57 that all the fortigenic variables are significantly correlated with persistence except the optimistic explanatory style associated with good events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

The following section reports the results that are required to determine which fortigenic variables are significant predictors of persistence for individuals that failed Part 1 of the Qualifying Exam during 2005 on their second attempt.

4.4.5.3. Predicting persistence of candidates who failed Part 1 of the Qualifying Exam during 2005 on their 2nd attempt (2nd Attempt Fail)

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who failed Part 1 of the Qualifying Exam during 2005 on their second attempt:

- Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine significant predictors of persistence for those individuals who failed Part 1 of the Qualifying Exam on their second attempt.

Table 4.58 Model Summary for Candidates Failing Part 1 of QE1 during second attempt

R	R Square	Adjusted R Square	Std. Error of the Estimate
.771(a)	.594	.504	7.07815

a Predictors: (Constant), LOCINT, LOCE, ASQB, ASQG, CTSTOT, SLSC, HOPETOT, SOCTOT

Table 4.59 ANOVA results for Candidates Failing Part 1 of QE1 during second attempt

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2643.505	8	330.438	6.596	.000(a)
Residual	1803.606	36	50.100		
Total	4447.111	44			

a Predictors: (Constant), LOCINT, LOCE, ASQB, ASQG, CTSTOT, SLSC, HOPETOT, SOCTOT; b Dependent Variable: PERSIST

Table 4.60 Beta Coefficients for Candidates Failing Part 1 of QE1 during second attempt

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	14.516	16.239		.894	.377
SOCTOT	.010	.183	.013	.054	.957
HOPETOT	.849	.269	.532	3.158	.003
CTSTOT	.042	.252	.026	.167	.869
ASQG	-.086	.105	-.101	-.819	.418
ASQB	.064	.108	.082	.595	.555
SLSC	.163	.140	.241	1.163	.252
LOCE	-.035	.115	-.047	-.300	.766
LOCINT	.365	.259	.178	1.411	.167

Hope is the only significant predictor of persistence of those candidates who failed part 1 of the qualifying exam during 2005 during their second attempt as reported in Table 4.60. This model was significant and accounts for 59.4% of the variance in persistence, as evident in Table 4.58 and Table 4.59.

The following section reports the results related to those individuals that failed Part 1of the Qualifying Exam, on their third attempt, during 2005.

4.4.6. Results of the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.4.6.1. Describing the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt (3rd Attempt Fail)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their third attempt:

- Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Group differences, between individuals that passed Part 1 of the Qualifying Exam on their third attempt and individuals that failed Part 1 of the Qualifying Exam on their third attempt were already reported.

In summary the following differences were found. Individuals who failed the Qualifying Exam during their third attempt seem to be higher on their levels of using an optimistic explanatory style for good events than those who passed Part 1 of the Qualifying Exam during their third attempt.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005 on their third attempt.

4.4.6.2. Correlational analysis of the fortigenic variables that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt (3rd Attempt Fail)

It is reported in Table 4.61 that all the fortigenic variables are significantly correlated with persistence except for optimistic explanatory style for bad events, external locus of control, internal locus of control, and an optimistic explanatory style associated with good events. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

The following section reports the results that are required to determine which fortigenic variables are significant predictors of persistence for individuals that failed Part 1 of the Qualifying Exam during 2005 on their third attempt.

4.4.6.3. Predicting persistence of candidates who failed Part 1 of the Qualifying Exam during 2005 on their 3rd attempt (3rd Attempt Fail)

The following research proposition guides the reporting of the factors that explain a significant proportion of the variance in persistence for those individuals who failed Part 1 of the Qualifying Exam during 2005 on their third attempt:

- Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Table 4.61 Correlations for Candidates that Failed their Third Attempt (n=32)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.342	.420(*)	.486(**)	.396(*)	.521(**)	.602(**)	-.559(**)	.268	.405(*)
	Sig. (2-tailed)		.055	.017	.005	.025	.002	.000	.001	.138	.022
HOPETOT	Pearson Correlation	.342	1	.377(*)	.388(*)	.358(*)	.388(*)	.521(**)	-.261	.560(**)	.607(**)
	Sig. (2-tailed)	.055		.033	.028	.044	.028	.002	.150	.001	.000
CTSTOT	Pearson Correlation	.420(*)	.377(*)	1	.474(**)	.127	.370(*)	.703(**)	-.286	.295	.605(**)
	Sig. (2-tailed)	.017	.033		.006	.490	.037	.000	.113	.101	.000
PERSIST	Pearson Correlation	.486(**)	.388(*)	.474(**)	1	.096	.225	.681(**)	-.220	.151	.643(**)
	Sig. (2-tailed)	.005	.028	.006		.601	.215	.000	.226	.408	.000
ASQG	Pearson Correlation	.396(*)	.358(*)	.127	.096	1	.221	.265	-.196	.455(**)	.348
	Sig. (2-tailed)	.025	.044	.490	.601		.225	.143	.282	.009	.051
ASQB	Pearson Correlation	.521(**)	.388(*)	.370(*)	.225	.221	1	.352(*)	-.500(**)	.201	.359(*)
	Sig. (2-tailed)	.002	.028	.037	.215	.225		.048	.004	.270	.044
SLSC	Pearson Correlation	.602(**)	.521(**)	.703(**)	.681(**)	.265	.352(*)	1	-.473(**)	.385(*)	.737(**)
	Sig. (2-tailed)	.000	.002	.000	.000	.143	.048		.006	.029	.000
LOCE	Pearson Correlation	-.559(**)	-.261	-.286	-.220	-.196	-.500(**)	-.473(**)	1	-.430(*)	-.485(**)
	Sig. (2-tailed)	.001	.150	.113	.226	.282	.004	.006		.014	.005
LOCINT	Pearson Correlation	.268	.560(**)	.295	.151	.455(**)	.201	.385(*)	-.430(*)	1	.578(**)
	Sig. (2-tailed)	.138	.001	.101	.408	.009	.270	.029	.014		.001
GSETOT	Pearson Correlation	.405(*)	.607(**)	.605(**)	.643(**)	.348	.359(*)	.737(**)	-.485(**)	.578(**)	1
	Sig. (2-tailed)	.022	.000	.000	.000	.051	.044	.000	.005	.001	

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The following section reports the results of the multiple regression model, using various fortigenic variables, to determine significant predictors of persistence for those individuals who failed Part 1 of the Qualifying Exam on their third attempt.

Table 4.62 Model Summary for Candidates Failing Part 1 of QE1 during third attempt

R	R Square	Adjusted R Square	Std. Error of the Estimate
.727(a)	.528	.364	7.09147

a Predictors: (Constant), LOCINT, ASQB, CTSTOT, ASQG, LOCE, HOPETOT, SOCTOT, SLSC

Table 4.63 ANOVA results for Candidates Failing Part 1 of QE1 during third attempt

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1293.072	8	161.634	3.214	.013(a)
Residual	1156.647	23	50.289		
Total	2449.719	31			

a Predictors: (Constant), LOCINT, ASQB, CTSTOT, ASQG, LOCE, HOPETOT, SOCTOT, SLSC; b Dependent Variable: PERSIST

Table 4.64 Beta Coefficients for Candidates Failing during third attempt

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	15.294	23.562		.649	.523
SOCTOT	.219	.180	.265	1.219	.235
HOPETOT	.222	.329	.138	.676	.506
CTSTOT	-.035	.281	-.026	-.124	.902
ASQG	-.129	.163	-.139	-.791	.437
ASQB	.039	.161	.047	.245	.809
SLSC	.388	.156	.635	2.485	.021
LOCE	.087	.108	.167	.803	.430
LOCINT	-.215	.499	-.089	-.431	.670

From Table 4.64 it is evident that self-esteem is the only significant predictor of persistence of those candidates who have failed part 1 of the qualifying exam during 2005 on their third attempt. From Table 4.62 and Table 4.63 it is evident that this model is significant and accounts for 52.8% of the variance in persistence.

The following section reports the results related to those individuals that failed Part 1of the Qualifying Exam, on their fourth attempt, during 2005.

4.4.7. Results of the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 4th attempt

The following sections report the results that focus on the descriptive purpose of research, viz: correlations and group comparisons. Before the results are reported, the appropriate research proposition, as developed in Chapter 1, is stated to guide the analysis of the statistical results.

4.4.7.1. Describing the factors that are related to the persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 4th attempt (4th Attempt Fail)

The following two research propositions guide the reporting of the statistical results of those individuals that passed Part 1 of the Qualifying Exam on their third attempt:

- Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
- Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

Table 4.65 Correlations for Candidates that failed their Fourth Attempt (n=17)

		SOCTOT	HOPETOT	CTSTOT	PERSIST	ASQG	ASQB	SLSC	LOCE	LOCINT	GSETOT
SOCTOT	Pearson Correlation	1	.726(**)	.639(**)	.215	.393	-.184	.808(**)	-.484(*)	.549(*)	.401
	Sig. (2-tailed)		.001	.006	.408	.119	.481	.000	.049	.022	.111
HOPETOT	Pearson Correlation	.726(**)	1	.780(**)	.508(*)	.460	.048	.732(**)	-.318	.459	.457
	Sig. (2-tailed)	.001		.000	.037	.063	.855	.001	.213	.064	.065
CTSTOT	Pearson Correlation	.639(**)	.780(**)	1	.432	.419	.235	.728(**)	-.420	.597(*)	.562(*)
	Sig. (2-tailed)	.006	.000		.083	.095	.364	.001	.094	.011	.019
PERSIST	Pearson Correlation	.215	.508(*)	.432	1	.558(*)	.198	.577(*)	-.247	.251	.752(**)
	Sig. (2-tailed)	.408	.037	.083		.020	.446	.015	.339	.331	.000
ASQG	Pearson Correlation	.393	.460	.419	.558(*)	1	-.158	.604(*)	-.045	.452	.692(**)
	Sig. (2-tailed)	.119	.063	.095	.020		.544	.010	.864	.069	.002
ASQB	Pearson Correlation	-.184	.048	.235	.198	-.158	1	.108	-.447	.291	.238
	Sig. (2-tailed)	.481	.855	.364	.446	.544		.679	.072	.257	.357
SLSC	Pearson Correlation	.808(**)	.732(**)	.728(**)	.577(*)	.604(*)	.108	1	-.528(*)	.611(**)	.772(**)
	Sig. (2-tailed)	.000	.001	.001	.015	.010	.679		.029	.009	.000
LOCE	Pearson Correlation	-.484(*)	-.318	-.420	-.247	-.045	-.447	-.528(*)	1	-.513(*)	-.334
	Sig. (2-tailed)	.049	.213	.094	.339	.864	.072	.029		.035	.190
LOCINT	Pearson Correlation	.549(*)	.459	.597(*)	.251	.452	.291	.611(**)	-.513(*)	1	.543(*)
	Sig. (2-tailed)	.022	.064	.011	.331	.069	.257	.009	.035		.024
GSETOT	Pearson Correlation	.401	.457	.562(*)	.752(**)	.692(**)	.238	.772(**)	-.334	.543(*)	1
	Sig. (2-tailed)	.111	.065	.019	.000	.002	.357	.000	.190	.024	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Due to the relative skewed and small sample, the group that passed the Qualifying Exam on their fourth attempt (n=5) and the group that failed the Qualifying Exam on their fourth attempt (n=17) were not evaluated for difference between the various fortigenic variables.

The following section highlights the correlations between the various fortigenic variables and persistence for those individuals that failed Part 1 of the Qualifying Exam during 2005 on their fourth attempt.

4.4.7.2. Correlational analysis of the fortigenic variables that influence persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005 on their 4th attempt (4th Attempt Fail)

It was reported in Table 4.65 that all the fortigenic variables are significantly correlated with persistence except resilience, performance self-esteem, and optimistic explanatory style for bad events, external locus of control, and internal locus of control. In addition, the highlighted correlations also provide statistical evidence of the bivariate relationships suggested in the theoretical model depicting the process of persistence.

Due to the small size of the subsample (n=17), it is not advisable to conduct a multiple regression analysis to determine which fortigenic variables are significant predictors of persistence for the group that failed Part 1 of the Qualifying Exam on their fourth attempt during 2005.

To assist in comparing all the correlational analyses results, the following section provides a comparative summary.

4.5. Comparing correlations of the fortigenic variables with persistence across multiple groups that failed and passed Part 1 of the Qualifying Exam

The purpose of Table 4.66 is to provide an overview of the correlations over different attempts at passing and failing with respect to the fortigenic variables.

Table 4.66 Comparison of correlational coefficients

Pass 1st attempt (n=94)	**Pass 2nd attempt (n=22)**	**Pass 3rd attempt (n=17)**	**Fail 1st attempt (n=57)**	**Fail 2nd attempt (n=45)**	**Fail 3rd attempt (n=32)**
GSE (0.738)	GSE (0.908)	GSE (0.814)	GSE (0.747)	GSE (0.803)	SE (0.681)
SE (0.537)	SE (0.690)	SE (0.725)	PS (0.413)	H (0.728)	GSE (0.643)
PS (0.418)	H (0.553)	PS (0.699)	IL (0.402)	SE (0.638)	RES (0.486)
RES (0.380)	RES (0.544)	RES (0.636)	SE (0.371)	RES (0.618)	PS (0.474)
OG (0.376)	IL (0.496)	H (0.467)	RES (0.360)	PS (0.469)	H (0.388)
H (0.352)	PS (0.492)	OB (0.426)	EL (-0.284)	IL (0.352)	OB (0.225)
EL (-0.347)	EL (-0.256)	EL (-0.380)	H (0.226)	EL (-0.345)	EL (-0.220)
IL (0.308)	OG (0.221)	IL (0.343)	OG (0.241)	OB (0.318)	IL (0.151)
OB (0.023)	OB (0.145)	OG (0.185)	OB (0.051)	OG (0.19)	OG (0.09)

Note. GSE = General self-efficacy; SE = Self-esteem; PS = Performance self-esteem; RES = Resilience; OG = Optimism/good events; OB = Optimism/bad events; H = Hope; EL = External locus of control; IL = Internal locus of control. Shaded cell = significant correlation coefficient.

It is important to note that it was not possible for example to track those individuals that failed the Qualifying Exam the second time into their third attempt. Therefore, the results reported in Table 4.66 are only to be used for comparisons. There are, however, two clearly observable patterns. Firstly, there seems to be a decline in the strength of the correlations with each attempt at writing Part 1 of the Qualifying Exam. Secondly, there seems to be in most attempts at writing the Qualifying Exam, an increase in the number of non-significant correlations. The possible reasons for these results are to be discussed in Chapter 5.

4.6. Summary

Chapter 4 reported all the results obtained from the sample of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005. The results reported focused on three different cohorts, viz: a) the total group, b) the group that

passed, and c) the group that failed. For each of these groups their descriptive, explanatory, and predictive results were reported. Of importance is that statistical results suggested that the theoretical model depicting the process of persistence had acceptable levels of fit, with significant path coefficients between all fortigenic variables in the sequential model. In addition, the theoretical model depicting the process of persistence for individuals that passed also provided better fit statistics than the overall model, with significant path coefficients between the various fortigenic variables, except between self-esteem and resilience. In addition, the third model, depicting the process of persistence for the group that failed, also provided acceptable levels of fit, with significant path coefficients between all the fortigenic variables except between self-efficacy and resilience. Chapter 4 also reported significant differences between various biographical variables and the fortigenic factors. Of importance was that those individuals that failed had lower levels of hope and performance self-esteem, when compared against the group that passed.

Chapter 5, the following chapter, will interpret and discuss the implications of these findings together with recommendations to improve future research in the field of Positive Organisational Behaviour.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The current chapter has as its major objective the interpretation of both theoretical and statistical information, drawing conclusions based on theory, and making both practical and scientific recommendations for future research in the area of persistence and its antecedents (i.e. to intervene). To facilitate this aim, the current chapter has four areas of focus. Firstly, conclusions are drawn about the interpretability, reliability, and validity of the factor structures (as applicable to the current sample) of the various measuring instruments used in the current study. The factor structures determine the extent to which the evaluation and conclusions of the remaining results can be interpreted.

The second focus of Chapter 5 is to evaluate which factors are related to the persistence of aspiring chartered accountants – emphasising three different groups, viz: (a) the total, general group – providing evidence and support of a general persistence process; (b) the group that passed, some of which failed previous attempts of Part 1 of the Qualifying Exam but still persisted; and (c) the group that failed previous attempts at passing Part 1 of the Qualifying Exam but still persist in writing this exam. By comparing the latter two models of persistence against the general model of persistence, conclusions can be drawn as to the extent to which the general model of persistence can be applied to a group that persisted and passed, and to a group that currently persists but are failing.

As no study is without limitations, the third focus of Chapter 5 is to evaluate the shortcomings of the current study, emphasising (a) paradigmatic limitations, and (b) methodological limitations. The fourth and final focus of Chapter 5 is to provide (a) practical recommendations for an outline of a persistence enhancing workshop that can be suggested to enhance persistence, thus acting as an intervention, as well as (b) scholarly recommendations to improve the future research on persistence and its antecedents.

As stated earlier, the first aim of this study, as is the case with science, is to *describe* the fortigenic variables that are related to persistent behaviour emphasising statistical

description. The latter are elaborated on in terms of factor structures, reliability, and structural equivalence – all of which are discussed in the following section.

5.2. Describing the factorial structures of the fortigenic variables used in the current study

The following proposition guides the current study in exploring and confirming the most valid and reliable factor structures of the measuring instruments to be used in subsequent analyses.

1. Proposition 1: There will be interpretable and understandable factor structures for each of the identified fortigenic measures.

The evaluation of the factor structures of each of the fortigenic variables used in subsequent analyses firstly evaluates the criterion measure (i.e. persistence). Secondly, subsequent evaluations and conclusions focus on the various cognitive fortigenic variables, and finally the emotional fortigenic variables.

It is important to note that all the revalidated fortigenic variables, based on the exploratory factor analysis of the current sample provided better levels of fit than the original measuring instruments and their associated items and structures, as highlighted in Chapter 3. In addition, each of the fortigenic variables, and their associated factors structures, are structurally equivalent for the major groups in the current study, including males and females, passed and failed candidates, and designated and white group candidates. Based on Tucker's phi being above 0.9 (i.e. indicative of good factorial similarity) in all these groups, it can tentatively be stated that these groups have similar interpretations of the fortigenic variables used in the analyses of the current study.

Conclusions about the criterion measure, persistence, are provided in the next section.

5.2.1. Persistence as measured by the Self-Control Scale

The Self-Control Scale (SCS), developed by Tangney and colleagues (2004), has a persistence dimension consisting of 9 items. On the basis of the exploratory factor analysis, using the current sample, the persistence component consisted of two dimensions, viz: (a) behavioural with $\alpha = 0.712$ and (b) emotional with $\alpha = 0.681$. The confirmatory factor analysis confirmed this two-dimensional structure with acceptable

levels of fit (χ^2 /*df* = 2.61; RMSEA = 0.074; SRMR = 0.093; GFI = 0.98; and CFI = 0.94). Unfortunately Tangney and colleagues did not calculate separate reliabilities for separate dimensions. However, their overall reliability for the SCS is 0.95 (2004, p. 21). It can be concluded that the Self-Control Scale is a valid representation of the construct persistence, and its associated two-dimensional structure, with an acceptable reliability. The results based on this instrument can be viewed as accurate for the current sample as defined by the content of Tangney and colleagues' Self-Control Scale.

5.2.2. Persistence (Criterion measure)

With acceptable levels of fit of the Persistence dimension of the State Self-control Scale, the study continued in developing a combined criterion measure of persistence. The combined criterion measure of persistence consisted of the persistence components of both the Self-Control Scale of Tangney and colleagues (2004) and the General Self-Efficacy Scale of Sherer and colleagues (1996). The exploratory factor analysis suggested a one-dimensional factor for the combined persistence measure. The latter factor structure was supported by the confirmatory factor analysis with acceptable levels of fit (χ^2 /*df* = 6.31; RMSEA = 0.13; SRMR = 0.05; GFI = 0.98; and CFI = 0.95), with both the χ^2 /*df*-ratio and RMSEA slightly above the recommended levels. This combined criterion measure of persistence has a reliability of 0.737. This seems to be acceptable in comparison with a reliability of 0.64 for the persistence component of the General Self-Efficacy Scale (Bosscher & Smit, 1998, p. 342). It is important to note that a one-dimensional structure for persistence is preferable, in order to facilitate the prediction of persistence. It is thus clear that only persistence has to be predicted, and not sub-components of persistence. Although the SCS identified two dimensions of persistence, their usefulness is in the form of understanding persistence and researching antecedents to persistence from both an emotional and cognitive/behavioural perspective. The latter provides support for the initial inclusion of both emotional and cognitive fortigenic variables to be studied. It can be concluded that the combined criterion measure of persistence, used in the current study, provides a valid representation of the construct persistence. The results based on persistence can be viewed as accurate for the current sample.

5.2.3. Locus of control (Cognitive fortigenic variable)

The first cognitive fortigenic measure is locus of control and forms part of the personal control concept. The personal control construct's second component is self-efficacy, which is elaborated on in the following section. The current study used the Internality, Powerful others, and Chance Scales (Levenson, 1981). This measuring instrument conceptualises that locus of control consists of two components, viz: (a) internal locus of control, and (b) external locus of control. More specifically, the external locus of control component can be further distinguished in terms of powerful others and chance factors that may influence external locus of control perceptions and cognitions. On the basis of the exploratory factor analysis, and confirmed by the confirmatory factor analysis, the revalidated instrument measuring locus of control, identified two clear components, viz: (a) internal locus of control with a reliability of 0.631 and (b) external locus of control with a reliability of 0.846. Levenson (1981) reports an alpha of 0.64 for internal locus of control and alpha's of 0.77 and 0.78 for the powerful others and chance factors of the external locus of control dimension. These reliabilities found in the current study seem to be slightly better than those reported by Levenson (1981). Overall, the two-dimensional structure of locus of control, used in the current study has the following acceptable levels of fit (χ^2 /*df* = 2.644; RMSEA = 0.075; SRMR = 0.056; GFI = 0.95; and CFI = 0.94).

In conclusion, the construct locus of control, with its two-dimensional structure, provides a valid representation of the construct with an acceptable reliability. The results based on internal and external locus of control can be viewed as accurate for the given sample.

5.2.4. Self-efficacy (Cognitive fortigenic variable)

The second cognitive fortigenic variable, self-efficacy, was operationalised using Sherer and colleagues' General Self-Efficacy Scale (1982). The 12-item instrument consists of three subscales, viz: (a) initiative, (b) effort, and (c) persistence (Bosscher & Smit, 1998). The original 17-item scale had an alpha of 0.86. The 12-item scale had an alpha of 0.69 for the whole scale. The subscales had the following alphas: (a) 0.64, (b) 0.63, and (c) 0.64.

In contrast with the above findings, the exploratory factor analysis of the responses to the General Self-Efficacy Scale only produced a single factor, that was confirmed by the confirmatory factor analysis suggesting acceptable levels of fit (χ^2 /*df* = 5.612;

RMSEA = 0.13; SRMR = 0.038; GFI = 0.96; and CFI = 0.97),), with both the χ^2 /*df*-ratio and RMSEA slightly above the recommended levels. In comparison, a confirmatory factor analysis, conducted by Bosscher and Smit (1998, p. 341) suggest that the three factor structure of the original scale has the following fit statistics (GFI = 0.95; SRMR = 0.1; and CFI = 0.83). The latter levels of fit are not as good as the current levels of fit for the current sample, using a revalidated instrument. Thus, the revalidated measuring instrument, using the current sample, has a reliability of 0.854 and better levels of fit. The reliability is comparative to the reliability of the original GSES of 0.86 (Bosscher & Smit, 1998, p. 341).

On the basis of the above information, it can be concluded that general self-efficacy is viewed as a one-dimensional construct by the current sample and subsequent interpretations using general self-efficacy is accurate and reliable.

5.2.5. Hope (Cognitive fortigenic variable)

The State Hope Scale was used to operationalise the third cognitive fortigenic variable hope (Snyder et al., 1996). Reliability coefficients ranged from 0.74 to 0.95 for the overall scale, and 0.90 and higher for the agency and pathway factors on the State Hope Scale (Snyder, 1995). Based on the exploratory factor analysis, using the current sample, the State Hope Scale produced a one-dimensional structure with a reliability of 0.821 and with acceptable levels of fit (χ^2 /*df* = 6.823; RMSEA = 0.14; SRMR = 0.12; GFI = 0.98; and CFI = 0.95), with both the χ^2 /*df*-ratio and RMSEA slightly above the recommended levels. The unidimensionality of the hope in the current study is supported by previous studies of hope that view the construct as unidimensional in nature involving the perception that goals can be met (Menninger, and Stotland as cited by Snyder, Ilardi, Cheavens, Michael, Yamhure, and Sympson, 2000, p. 748). The current study, using this scale, has a reliability that falls within the acceptable range reported by Snyder (1995, p. 357).

It can therefore be concluded that hope, as operationalised by the State Hope Scale, is an accurate and reliable representation of the construct hope within the current sample. Subsequent interpretations related to hope are thus valid and reliable in the current context of hope influencing persistence of aspiring chartered accountants.

5.2.6. Optimism (Cognitive fortigenic variable)

Optimism was operationalised in the current study using The Attributional Style Questionnaire (ASQ) (Petersen, Semmel, et al., 1982). This instrument was used to measure an individual's attributional style regarding positive experiences (i.e. good outcomes) and negative experiences (i.e. goal blockages). Higher scores on the good outcomes are indicative of an optimistic explanatory style. However, of major importance is the explanatory style used by an individual when facing negative outcomes. In the latter case, after reverse scoring, higher scores are indicative of an optimistic explanatory style (i.e. external, temporary, and specific). Peterson and Seligman (as cited by Tennen et al., 1986, p. 22) report reliability coefficients ranging from 0.44 to 0.69.

Exploratory factor analysis, using the current sample, also identified a two-dimensional factor structure, consisting of both good events and bad events. The reliability coefficients, using the current sample, were 0.838 and 0.794 respectively for good events and bad events. The latter shows an improvement in reliability using a revalidated instrument. The two-dimensional nature of the ASQ is supported by acceptable levels of fit based on the current sample (χ^2 /*df* = 1.90; RMSEA = 0.055; SRMR = 0.068; GFI = 0.95; and CFI = 0.97). In comparison, a confirmatory factor analysis done by Hewitt, Foxcroft, and MacDonald (2004, p. 1483), using a sample of 2748 undergraduate students, resulted in the following levels of fit (χ^2 = 236.89; *df* = 113; RMSEA = 0.02; NFI = 0.97; and CFI = 0.97). The levels of fit for the current study seem to be comparable to the results of Hewitt and her colleagues (2004) with the RMSEA slightly lower.

It can thus be concluded that the optimistic explanatory style, as measured by the ASQ, is valid and reliable instrument based on the above mentioned results. Interpreting the explanatory style of aspiring chartered accountants based on both good and bad events are thus an accurate representation of the construct in the current study.

5.2.7. Self-esteem (Emotional fortigenic variable)

The Self-Liking/Self-competence Scale (SCLSR) was used to operationalise self-esteem for the current study (Tafarodi et al, 1995). There are 8 items that measure self-linking (Alpha = 0.92) and 8 items that measure self-competence (Alpha = 0.89). In contrast to the original two-dimensional structure, the current sample viewed self-

esteem as a unidimensional factor with a reliability of 0.893 with acceptable levels of fit (χ^2 /*df* = 10.83; RMSEA = 0.18; SRMR = 0.058; GFI = 0.90; and CFI = 0.94), with both the χ^2 /*df*-ratio and RMSEA above the recommended levels. Tafarodi and Swann (2001, p. 662) also conducted a confirmatory factor analysis for a unidimensional model of the SLSCSR with the following fit statistics (χ^2 = 920; *df* = 104; RMSEA = 0.08; and CFI = 0.89). In addition, their analysis of the original two-dimensional model of SLSC (Tafarodi & Swann, 2001, p. 662) revealed the following levels of fit (χ^2 = 656; *df* = 103; RMSEA = 0.06; and CFI = 0.92).

It can be concluded that the current sample's fit statistics are comparable, and even in some cases better, than the original two-dimensional and unidimensional fit statistics reported by Tafarodi and Swann (2001).

In conclusion, the construct of self-esteem, as a unidimensional structure, provides a valid representation of self-esteem with an acceptable reliability. The results based on self-esteem can be viewed as accurate for the given sample.

5.2.8. Performance self-esteem (Emotional fortigenic variable)

Using the Current Thoughts Scale (Heatherton, & Polivy, 1991) performance self-esteem was operationalised for use in the current study. On the basis of the current sample, a unidimensional structure emerged with a reliability of 0.791 with acceptable levels of fit (χ^2 /*df* = 3.39; RMSEA = 0.09; SRMR = 0.089; GFI = 0.98; and CFI = 0.95). In comparison, the psychometric properties that Heatherton and Polivy (1991, p. 898) reported seem to be valuable only if the whole CTS is used. They reported a reliability of 0.92 for the total scale. Given the fact that the CTS consists of 20 items, the reliability of 0.791 (based on 7 items used in the current study) is more than acceptable.

It is therefore concluded that performance self-esteem, as measured by the Current Thoughts Scale, is valid and reliable based on the above mentioned results. Interpreting the evaluation of performance in relation to self-esteem of aspiring chartered accountants is thus an accurate representation of the construct in the current study.

5.2.9. Resilience (Emotional fortigenic variable)

The final emotional fortigenic variable used in the current study was resilience. Resilience was operationalised using Antonovsky's Sense of Coherence Scale (SOCS)

(1987). The SOCS has a reported reliability of 0.82 and higher (Gana & Garnier, 2001). The SOCS consists of three subscales, viz: (a) manageability, (c) comprehensibility, and (c) meaningfulness.

On the basis of exploratory factor analysis, using the current sample, the SOCS had a unidimensional structure, and the latter provided acceptable levels of fit ($\chi^2/df = 2.01$; RMSEA = 0.059; SRMR = 0.041; GFI = 0.96; and CFI = 0.98) with a reliability of 0.891. The reliability of the current instrument is in line with a range of 0.82 and higher previously mentioned. In contrast to the original SOCS, the revalidated measure of resilience is unidimensional. However, Antonovsky (1987) insists that the SOCS must be viewed as a single unit. Later Antonovksy (as cited by Strümpfer & Mlonzi, 2001, p. 31) concluded that factor analysing the SOCS is likely to produce a single factor solution, giving support to the unidimensional structure in the current study.

Resilience, as operationalised by the Sense of Coherence Scale, can therefore be viewed as an accurate and reliable representation of the resilience within the current sample. Subsequent interpretations related to resilience are thus valid and reliable in the current context of resilience and its relationship with the persistence of aspiring chartered accountants.

On the basis of acceptable levels of fit and interpretable factor structures for each of the fortigenic variables used in the current study, it is now possible to continue evaluating the factors that influence persistence of aspiring chartered accountants, the emphasis of the following section.

5.3. Conclusions based on the descriptive purpose of science

The current study is in unique position to have three groups that can be evaluated, viz: a total group (n=295) of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005, secondly, a subsample of the total group comprising of aspiring chartered accountants who passed Part 1 of the Qualifying Exam in 2005 (n=139), some of whom failed previous attempts but persisted, and finally another subsample of aspiring chartered accountants (n=156) who failed Part 1 of the Qualifying Exam during 2005, including previous attempts, but are still persistent in writing.

In fulfilling the first aim of the current study, the following sections provide conclusions based on the description of those fortigenic factors that are related to the persistence of aspiring chartered accountants using the above-mentioned three groups, starting with the total group.

5.3.1. Describing the general characteristics of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005

The following research propositions guide additional comparisons using the various biographical variables and the fortigenic variables:

1. Proposition 3b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership.
2. Proposition 5: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence.

These two propositions use the total sample (n=295) with specific biographical variables (race, gender, "Big Four" training contract, number of years to complete undergraduate studies as well as Certificate in the Theory of Accountancy) as reference.

On micro level, males seemed to be more adapt at using the behavioural component of persistence than do females. For males both self-esteem and resilience were significant predictors of their persistence. In contrasts, only self-esteem was a significant predictor of female individuals' levels of persistence. It can therefore be concluded that it is possible that males are more capable of identifying the behavioural requirements of persisting at writing the Qualifying Exam than females. It may also be concluded that given the male candidates' ability to focus on the behavioural aspects of implementing persistence, they may also be more resilient. The latter is supported by males using both resilience (the ability to bounce back after a setback) and positive self-evaluations about their ability (i.e. behaviour) to persist. In contrast, females seemed to focus more on the emotional side of persistence as evidence of them using their self-esteem (an emotional focused fortigenic variable) to enhance their levels of persistence. Thus, they may be able to focus on their positive emotions about their abilities and themselves in order to persist.

Dealing with the biographical variable race, the designated group seemed to be using a more optimistic explanatory style for good events as well as for bad events in comparison with white candidates. In addition, the designated group seemed to be experiencing higher levels of self-esteem than the white group. These results are in line with the designated group's levels of persistence being significantly predicted by an internal locus of control and self-esteem. In contrast, white candidates' levels of persistence seemed to be predicted only by self-esteem. It can be concluded that designated group individuals who wrote the Qualifying Exam during 2005 may have more positive self-evaluations about themselves than do white individuals. One possible explanation is that high levels of self-esteem are related to help-seeking (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). It is therefore possible that designated group individuals may perceive more support and help-seeking abilities when they write the Qualifying Exam than white candidates. In addition, designated group individuals may feel that they have more control (possibly due to support, etc) over the Qualifying Exam. It is also possible that cultural orientation may impact positive self-evaluations in terms of helping one another to successfully complete tasks and helping when failures are experienced. It may also be possible that more support opportunities are available for designated group individuals to develop in becoming chartered accountants – such as SIACA's Thuthuka project aimed at designated group aspiring chartered accountants.

Individuals without "Big Four" training contracts were also using a more optimistic explanatory style when dealing with both good experiences and bad experience in comparison with individuals with "Big Four" training contracts. In addition, individuals with "Big Four" training contracts had higher levels of external locus of control than individuals who were not doing their training contract at on of the "Big Four" accounting organisations. The individuals who were not doing their training contract with one of the "Big Four" accounting organisations had higher levels of the emotional component to persistence than those individuals with "Big Four" training contracts. The following conclusions can be drawn about the possible impact of doing one's training contract with one of the "Big Four". It is possible to suggest that those individuals who do their training within one of the "Big Four" organisations do have more resources and support at their disposal to prepare for the Qualifying Exam. They may also have more time to study and prepare, the latter not being an option in small

organisations where everyone must deal with clients and increase business. Thus, "Big Four" organisations may have more resources, both time and technical accounting support, than smaller accounting organisations. With these support measures in place, it may therefore be not that difficult to explain that individuals doing their training at a smaller accounting firm will be responsible for their own performance and preparation (internal locus of control) than those individuals getting support from "Big Four" firms, hence the external locus of control – the firm may assist and determine if the individual will pass the Qualifying Exam. Thus, individuals doing their training at smaller accounting firms must therefore be more optimistic about them passing the Qualifying Exam as a possible coping technique, and can therefore focus more on "emotional persistence" and not so much on behavioural persistence – emphasising their emotions and feelings about persisting at the Qualifying Exam without the support provided to persist behaviourally as probably evident by "Big Four" accounting firms and the support that they give.

Individuals who took more than 3 years to complete their undergraduate training had higher levels of internal locus of control than those individuals completing their undergraduate training within 3 years. It can therefore be concluded that individuals who persisted until they completed their undergraduate qualification, viewed the achievement of this goal as completely under their control and only possible if they took charge of circumstances that may facilitate the achievement of their goals. Thus, they possibly viewed their circumstances as controllable and could therefore initiate problem-solving strategies to achieve their goals of obtaining the undergraduate qualification. This seems to be in line with theory that states that individuals with an internal locus of control are more persistent (James & Rotter, 1954; Starnes & Zinser, 1983).

Finally, individuals who took more than 1 year to complete their Certificate in the Theory of Accounting (CTA) seemed to have higher levels of self-esteem than those individuals who took only 1 year to complete their CTA training. However, those individuals who took more than 1 year to complete their CTA training seemed also to be lower on their levels of the behavioural component of persistence than those who did complete their CTA training in 1 year. It is possible to conclude that individuals that had to persist in obtaining their CTA-qualification (taking longer than 1 year)

possibly focused on self-affirming self-evaluations that enabled them to focus on achieving that goal – and not that much on the behaviours required to persist. This is in line with theory that suggests that individuals who are higher on self-esteem are more persistent due to them focusing on positive emotions and not creating self-defeating statements and self-doubt (Karabenick & Knapp, 1991; Perez, 1973; Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997) after failing. It is therefore also possible to conclude that taking longer to complete the CTA training may have depleted the behavioural component of persistence through prolonged studying and additional responsibilities. It may be possible that the behavioural "inadequacies" may have been cancelled out by positive self-evaluations.

More specific descriptions of those fortigenic variables that are related to persistence are discussed in the following section.

5.3.2. Describing the fortigenic variables that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005

In order to describe the factors that are related to the persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005, the following two propositions are tested:

1. Proposition 3a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients.

Taking a macro perspective of the results of this study, the total group showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Self-esteem, Performance self-esteem, Hope, Resilience, Internal locus of control, External locus of control, and Optimistic explanatory style for Good events). A non-significant relationship was observed between persistence and an Optimistic explanatory style for Bad events.

These results were comparative to previous results reported in scientific studies. A correlation of 0.19 is reported by the Khan and Nauta (2001, p. 644) between persistence and self-efficacy, which is lower than the current study's correlation. A study conducted by Lufi and Cohen (1987, p. 182), stated that persistence is

significantly correlated with locus of control, with a correlation of 0.41, which is slightly higher than the relationship in the current study. A meta-analytic study reported (Multon, Brown, & Lent, 1991, p. 34) a significant correlation of 0.34 between persistence and self-efficacy. The current study provided a stronger correlation of 0.774. In addition to these specific results, the correlation coefficients in the current study were in line with the theoretical direction and relationship between persistence and each of the fortigenic variables.

It can therefore be concluded that an individual with an internal locus of control persist more than an individual with an external locus of control (James & Rotter, 1954; Starnes & Zinser, 1983). Individuals that use an optimistic explanatory style also persist more than individuals with a pessimistic explanatory style (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990; Seligman & Schulman, 1986). In support of theory (Onwuegbuzie & Snyder, 2000), the current study supports the conclusion that individuals who are more hopeful persist more on goals that they have to achieve. The higher an individual's perceptions of self-efficacy, the more persistent the individual will be (Multon, Brown, & Lent, 1991; Sexton & Tuckman, 1991). Support is also provided that the more positive an individual's self-esteem and self-evaluations, the more persistent the behaviour (Perez, 1973; Shrauger & Rosenburg, 1970; Shrauger & Sorman, 1977; McFarlin, Baumeister, & Blascovich, 1984). Finally, the more resilient the individual, the more persistence will be exhibited Kemp, 2002; London, 1983; 1997).

With both theoretical and statistical support for significant relationships between the fortigenic variables and persistence, it is possible to continue the evaluation and interpretation of the results of the current study. The next section discusses the conclusions based on the two subsamples of individuals that passed or failed the Qualifying Exam during 2005.

5.3.3. Describing the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed or failed Part 1 of the Qualifying Exam during 2005

From the total sample, it is also possible to identify a group of individuals that passed Part 1 of the Qualifying Exam during 2005. To describe the factors that are related to

the persistence of individuals that passed the Qualifying Exam, two propositions act as guidelines to evaluate these factors:

1. Proposition 6a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
2. Proposition 6b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

The third subsample in the current study is used to describe which factors are related to the persistence of individuals that failed Part 1 of the Qualifying Exam during 2005. To describe these factors, two propositions are identified:

1. Proposition 9a: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of correlation coefficients for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
2. Proposition 9b: Their will be significant relationships between the identified fortigenic variables and persistence as expressed in terms of group membership for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.

The individuals that passed Part 1 of the Qualifying Exam during 2005 showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Self-esteem, Performance Self-esteem, Resilience, Hope, External locus of control, Internal locus of control, and an Optimistic explanatory style for Good events). A non-significant relationship was observed between persistence and an Optimistic explanatory style for Bad events.

In comparing these results with that of the total group the following conclusions can be drawn about them. The total group consisted of individuals that have passed or failed the Qualifying Exam during 2005. In general, all of the correlations were slightly larger than that of the total group. This makes sense as to the fact that individuals that were persistent and successful will have higher levels of

psychological strength due to them being successful and competent, thus having more psychological strengths at their disposal and in greater volumes – as being suggested by the theory. The higher the individual's levels of self-efficacy the more persistent the individual. The same argument holds for the remaining fortigenic variables (James & Rotter, 1954; Lufi & Cohen, 1987; London, 1983; 1997; McFarlin, Baumeister, & Blascovich, 1984; Multon, Brown, & Lent, 1991; Perez, 1973; Onwuegbuzie & Snyder, 2000; Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990; Seligman & Schulman, 1986; Shrauger & Rosenburg, 1970; and Shrauger & Sorman, 1977). In addition, the difference between the rank order of the strength of relationship between persistence and each of the fortigenic variables are relatively similar. For example, both the total group and the passed group view general self-efficacy as having the strongest relationships with persistence, secondly self-esteem, and thirdly performance self-esteem. The group that passed perceived resilience and hope as the fourth strongest and fifth strongest psychological strengths to be used to persist in achieving their goals. In contrast the total group viewed hope and resilience as the fourth and fifth strongest psychological strength to enhance persistence. In conjuction with these results, discriminant analysis suggests that hope, resilience, and an optimistic explanatory style for good events are the major factors that distinguish between those individuals that passed or failed. One possible explanation is that the group that passed makes use of numerous psychological strengths, especially resilience and hope, to persist. Support for this conclusion is found in the structural model of the passed group – to be discussed later in this chapter.

Those individuals that failed Part 1 of the Qualifying Exam during 2005 showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Self-esteem, Hope, Performance self-esteem, Resilience, Internal locus of control, External locus of control, Optimistic explanatory style for Good events, and an Optimistic explanatory style for Bad event).

A comparison of the correlations between the group that passed and the group that failed the Qualifying Exam during 2005 is warranted. In general, all of the correlations were lower than that of the group that passed. This makes sense as to the fact that individuals that have failed are negatively impacted by their failure and thus a lowering in their psychological resources is expected – both emotional and cognitive (Snyder, LaPointe, Crowson, & Early, 1998, p. 809).

This was specifically true for hope and performance self-esteem, as evident from t-test differences as well as for resilience as was evident from the discriminant analysis to be discussed later in this section. Thus, although the individuals were persistent even though they have failed, it is possible that they had fewer resources at their disposal and less strengths in the remaining resources. However, the relationship between the fortigenic variables and persistence were still in line with theory. The higher the individual's levels of self-efficacy the more persistent the individual and *vice versa*. The same argument holds for the remaining fortigenic variables (James & Rotter, 1954; Lufi & Cohen, 1987; London, 1983; 1997; McFarlin, Baumeister, & Blascovich, 1984; Multon, Brown, & Lent, 1991; Perez, 1973; Onwuegbuzie & Snyder, 2000; Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990; Seligman & Schulman, 1986; Shrauger & Rosenburg, 1970; and Shrauger & Sorman, 1977). In addition, the difference between the rank order of the strength of relationship between persistence and each of the fortigenic variables were relatively similar. For example, both the group that passed and the group that failed viewed general self-efficacy as having the strongest relationships with persistence, and secondly self-esteem. However hope, performance self-esteem, and resilience were the third, fourth, and fifth strongest psychological strengths to be used to persist, by individuals that failed, in achieving their goals.

In contrast, the group that passed perceives performance self-esteem, resilience, and hope as the third, fourth, and fifth strongest psychological strengths to be used to persist in achieving their goals.

One possible explanation is that the group that failed made less use of resilience than the group that passed in persisting. Support for this conclusion is based on the fact that resilience was a significant discriminating function when classifying individuals into either passing or failing. In addition, the relationship between resilience and persistence has a higher beta value (0.96) in comparison with group that failed (0.66). Support for this conclusion is found in the structural model of the group that failed – to be discussed later in this chapter.

Individuals that passed Part 1 of the Qualifying Exam seemed to be more hopeful than those that failed. Those individuals that failed were also lower on levels of performance self-esteem than those that passed. This is in line with theory that individuals that were experiencing a goal blockage were likely to experience a drop in

their levels of hope (Snyder, LaPointe, Crowson, & Early, 1998). It suggested that these individuals were likely to have lower levels of hope due to the unsuccessfulness of their strategy to pass the Qualifying Exam or to their lack of alternative plans to be used if they fail the Qualifying Exam (Snyder, 1994, 1996). By not achieving a given goal it is understandable that an individual will not favourably evaluate his/her levels of performance. The latter was mainly negative due to the lack of performance to achieve the goal – to pass the Qualifying Exam. Thus, they may have thought that they were capable at passing the Qualifying Exam, but the performance did not match their abilities and preparations.

However, the individuals that failed were using more of an optimistic explanatory style in both good and bad events in comparison with individuals that passed. It is concluded that these individuals can use this psychological strength of an optimistic explanatory style to interpret their low levels of performance as temporary in nature (they can try and practice to improve their chances for the next Qualifying Exam), external (the reasons for not passing may also be attributable to high standards of SAICA – and not just their own abilities), and specific (the low levels of performance self-esteem and hope are specific to writing a passing the Qualifying Exam – the reason for failing is not an omnipresent factor in their entire lives, there are other areas within which they are successful). However, this optimism must be tested with reality, specifically in relation to their accounting abilities.

The above conclusions are related to individuals that have either passed or failed Part 1 of the Qualifying Exam. The following section focuses on the micro level of individuals that have passed or failed Part 1 of the Qualifying Exam on their first attempt. This is important to explore due to the possible links with persistent behaviour of those individuals that have failed the Qualifying Exam during their first attempt.

5.3.3.1. Describing the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed or failed Part 1 of the Qualifying Exam during their first attempt

The individuals that passed Part 1 of the Qualifying Exam during 2005 during their first attempt showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Self-, Performance self-esteem, Resilience,

Optimistic explanatory style for Good events, Hope, External locus of control, and Internal locus of control). A non-significant correlation was obtained between persistence and an Optimistic explanatory style for Bad events.
In comparison, those individuals that failed Part 1 of the Qualifying Exam during 2005 during their first attempt showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Performance Self-esteem, Internal locus of control, Self-esteem, Resilience, and External locus of control). Non-significant correlations were obtained between persistence and the following three fortigenic variables: hope and an optimistic explanatory style for both good and bad events.

The following conclusions can be drawn by comparing the group that passed with the group that failed their first attempt at Part 1 of the Qualifying Exam. In general the correlation coefficients were lower for the group that failed during the first attempt in comparison with the group that passed during their first attempt. In addition, three of the psychological strengths (hope and optimism related to good and bad experiences) were non-significant for the group that failed the Qualifying Exam during their first attempt. This could be expected due to the fact that failure may cause a lowering of positive thoughts and emotions (Snyder, LaPointe, Jeffrey, Crowson, & Shannon, 1998, p. 809). Support for this conclusion is provided by the fact that individuals that failed the Qualifying Exam on their first attempt were significantly less hopeful as well as less comfortable with their performance self-esteem than those individuals that passed on their first attempt (see results in the following section). Thus, it is possible that hope, as a psychological strength could not be used by individuals to persist that failed their first attempt at the Qualifying Exam (therefore the non-significant correlation). As reported in Chapter 4, those individuals that failed Part 1 of the Qualifying Exam during 2005 for the first time seemed to be less hopeful as well as less happy with their levels of performance self-esteem than individuals that passed the Qualifying Exam on their first attempt. Thus, the individuals that failed for the first time may have been less likely to use hopeful thinking to enhance their chances of persistence because they were less hopeful than the group that passed during their first attempt – therefore the possible non-significant correlations with persistence. It is important to note that they were not hopeless, just less hopeful. Although the individuals that failed the Qualifying Exam during their first attempt were less happy

with their lower levels of performance self-esteem, the latter is the second strongest psychological strength that was related to their levels of persistence. However, in the light of a significantly lower level of performance self-esteem, if the latter are not replenished, it may negatively influence future persistence. Thus, a decrease in performance self-esteem and hope may be related to lowered persistence.

Another possible explanation for this may be that persistent individuals, like the group that failed their first attempt that were still persistent, may be suggested by the characteristics associated with persistent individuals after failure, viz: they may have maintained a positive affect (no significant difference in terms of self-esteem, as well as a significant correlation with between self-esteem and persistent) , they may have predicted that success would be forthcoming with greater effort (no significant differences in terms of their self-efficacy but an increase in their levels of performance self-esteem may assist in their persistence), and use a variety of problem-solving strategies (which is linked to the high correlation between internal locus of control and persistence) (Dweck, 2000; Dweck & Leggett, 1998). It is important to note that individuals who viewed their environment as controllable (i.e. internal locus of control) will initiate problem-solving strategies and attention to possible solutions (Thompson, 2005, p. 203). This possibly allowed the individuals to evaluate the situation and determine what could be done to alleviate the situation. It seems as this is what is being done by individuals that have failed Part 1 of the Qualifying Exam during their first attempt. Given this situation, the experience of failure on the first attempt may not be that devastating in order to use hope and optimism as psychological resources to improve future success. Thus, the individuals that failed the Qualifying Exam during their first attempt still viewed the passing of the Qualifying Exam as under their control, due to their lower levels of external control and the higher correlation between internal locus of control and persistence.

In summary, it seems possible that those individuals that failed fort the first time seemed to be more likely to use their perceptions of internal locus of control, self-esteem, and resilience (over and above self-efficacy) to enhance their levels of persistence. It is possible that the non-significant correlations between persistence and hope and optimism may be due to the interpretation of their levels of control over the outcome of the Qualifying Exam if they use their levels of efficacy to perform better

the next time around. This seems plausible, due to the general "perception" amongst aspiring chartered accountants that there is a good chance of failing Part 1 of the Qualifying Exam during the first attempt – almost a 50/50 chance. Given this situation, the experience of failure on the first attempt may not have been that devastating in order to use hope and optimism as psychological resources to improve future success. Support for these results is found in the significant differences between individuals that passed and individuals that failed the Qualifying Exam during their first attempt.

In addition, the individuals that passed Part 1 of the Qualifying Exam during their first attempt may have ascribed the reason for them passing proportionally to chance factors– which are theoretically linked with external locus of control (Levenson, 1981). The individuals that passed the Qualifying Exam during their first attempt seemed to be higher on external locus of control than those individuals that failed. One possible explanation is that there is a general "perception" amongst aspiring chartered accountants that there is almost a 50/50 chance of passing the Qualifying Exam. Thus, those that passed may, in addition to ascribing their success to their self-efficacy; also ascribe their success to chance factors (Levenson, 1981).

With a description as to the factors that may be related to the persistence of individuals that have failed or passed Part 1 of the Qualifying Exam during their first attempt, it is possible to focus more on the description of the antecedents of persistence in individuals that have persisted and passed their second attempt or persisted and failed their second attempt of the Qualifying Exam. The latter are discussed in the following section.

5.3.3.2. Describing the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed or failed Part 1 of the Qualifying Exam during their second attempt

The individuals that passed Part 1 of the Qualifying Exam during 2005 during their second attempt showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Self-esteem, Hope, Resilience, Internal locus of control, and Performance self-esteem). Non-significant correlations between persistence and the following three fortigenic variables were obtained:

external locus of control, and an Optimistic explanatory style for both Good and Bad events.

In contrast, those individuals that failed Part 1 of the Qualifying Exam during 2005 during their second attempt showed significant relationships between the various fortigenic variables and persistence (General Self-efficacy, Hope, Self-esteem, Resilience, Performance self-esteem, Internal locus of control, External locus of control, and an Optimistic explanatory style for Bad events). A non-significant correlation was obtained between persistence and an Optimistic explanatory style for Good events.

In comparing these two groups, the following conclusions can be drawn. As evident from previous comparisons, the correlations are slightly lower between persistence and the fortigenic variables for the group that failed their second attempt at writing the Qualifying Exam in comparisons with the group that passed the Qualifying Exam during their second attempt. However, there were some differences – the correlation between persistence and hope was higher for the group that failed the second attempt (0.728) than the group that passed (0.553). Thus, individuals that failed the second attempt at passing the Qualifying Exam may be less prone to use hopeful thinking (hope were lower, although not significantly lower, when compared against the candidates that passed the Qualifying Exam during their second attempt), thus not possibly being able to develop alternative strategies in passing the following Qualifying Exam or having experienced efficacy in these pathways' effectiveness (Snyder 1994, 1996). This conclusion was supported by the fact that hope was the only significant predictor of persistence. Thus, although levels of hope may have been lower after failing the first attempt, it is possible that hope may have continued dropping during the second attempt and failing – see the downward spiral of average scores reported in Chapter 4. In addition, the correlation between persistence and internal locus of control was lower than that of the individuals that passed the Qualifying Exam during their second attempt. It is possible to conclude that individuals that failed the Qualifying Exam during their second attempt may have experienced less personal control about the outcomes of the Qualifying Exam and their perceptions of self-efficacy – illustrated by a lower correlation between persistence and self-efficacy for these two groups (0.803 vs 0.908). Thus, they may have started to view their general ability at passing the Qualifying Exam as becoming

less positive. However, the individuals that failed the Qualifying Exam during their second attempt seemed to be using a more optimistic explanatory style for these negative experiences, given the correlation between persistence and an optimistic explanatory style to bad events (0.316). This latter conclusion was supported by the fact that they seem to be higher (but not significantly) on their levels of using an optimistic explanatory style for bad events than those who passed Part 1 of the Qualifying Exam during their second attempt. This is important because optimism is more indicative of how an individual explains negative events (Peterson, 1991; Peterson, Semmel, von Bayer, Abramson, Metalsky, & Seligman, 1991; Reivich & Gillham, 2003). However, it is cautiously noted that the pattern of failing two attempts at passing the Qualifying Exam must be evaluated realistically. Flexible optimism (Schulman, 1999, p. 36) must be explored by these individuals – it may be possible that unrealistic and an overly optimistic explanatory style to negative events may hinder the individual to successfully evaluate his/her abilities to pass the Qualifying Exam as well as identifying and implementing alternative strategies to pass. Thus, an overly optimistic view of passing the Qualifying Exam must be evaluated realistically to objectively determine the consequences and risks associated with persistent behaviour, given these aspiring chartered accountants' levels of control (Schulman, 1991).

In contrast, the group that passed the Qualifying Exam during their second attempt seems to be very confident about their abilities, hence the significant correlation with persistence. They also seem to be more positive about themselves (i.e. self-esteem) and their performances as these two fortigenic variables have the second and third strongest correlation with persistence. Thus, the individuals that have passed the Qualifying Exam during their second attempt may be more prone to use their self-evaluations as a psychological strength to persist. This is in fact confirmed by the fact that self-esteem is the only significant predictor of persistence for individuals that passed the Qualifying Exam on their second attempt. Unfortunately the latter model was not statistically significant.

It is clear that individuals that passed or failed the Qualifying Exam during their second attempt differ in terms of both psychological strengths and their possible use of them. With this in mind, the following section focuses on the next level of persistence – those individuals that attempted the Qualifying Exam for the third time.

5.3.3.3. Describing the fortigenic variables that are related to the persistence of aspiring chartered accountants who passed or failed Part 1 of the Qualifying Exam during their third attempt

Those individuals that passed Part 1 of the Qualifying Exam during 2005 during their third attempt had significant correlations between the following fortigenic variables and persistence (General Self-efficacy, Self-esteem, Performance self-esteem, and Resilience). Non-significant correlations were obtained between the following fortigenic variables and persistence: hope, Optimistic explanatory style for Bad events, external locus of control, internal locus of control, and an optimistic explanatory style for Good events.

Comparing the above with individuals that failed Part 1 of the Qualifying Exam during their third attempt, the following fortigenic variables had significant correlations with persistence (Self-esteem, General Self-efficacy, Resilience, Performance self-esteem, and Hope). Non-significant correlations were obtained between persistence and the following fortigenic variables: Optimistic explanatory style for Bad events, external locus of control, internal locus of control, and an Optimistic explanatory style for Good events.

Based on the above comparisons, the following conclusions can be drawn. It is clear that the correlations between persistence and the fortigenic variables were noticeably lower for the group that failed their third attempt at passing the Qualifying Exam than the group that passed on their third attempt. In addition, both the group that passed and the group that failed their third attempt at the Qualifying Exam seemed to be using less psychological strength – indicated by the fewer number of statistically significant correlations. Interestingly, in relation to the latter, both groups have similar non-significant correlations between Optimistic explanatory style for Good events, external locus of control, internal locus of control, Optimistic explanatory style for Bad events and persistence. The group that passed their third attempt at writing the Qualifying Exam also had a non-significant correlation between hope and persistence. It is also important to note that both these two groups' correlations were also lower than the group that failed or passed the Qualifying Exam during their second attempt. This pattern may be suggestive of a downward trend in terms of the availability of psychological strengths to enhance persistent behaviour.

One possible explanation for this pattern mentioned above is ego/resource depletion (Baumesiter, 2002; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Schmeichel,

Vohs, & Baumeister, 2003). It is suggested that an individual has a limited supply of resources, which resembles strength, whenever different tasks are to be completed. These same resources are used for example to control emotions, regulating thoughts, and persist in the face of failure (Schmeichel, Vohs, & Baumeister, 2003). Based on research evidence, individuals who use these resources during a prior task experience a depletion of these resources, and their accompanying strengths, when future tasks of the same magnitude and character are to be performed (Baumeister, Twenge, & Nuss, 2000). The performance will decline during consecutive or continuous efforts. Thus, the individual may consume some quantity of this resource (i.e. psychological strength) and will face the subsequent task (i.e. writing the Qualifying Exam again) with a diminished capacity in that psychological resource (Baumeister, 2002, p. 131). It is important to note that although these resources may be depleted, with proper interventions, they may be replenished to be used by the individual in consecutive attempts at writing the Qualifying Exam (Baumeister, 2002, p. 134).

However, as with the group that failed their second attempt at passing the Qualifying Exam, the group that failed this Exam during their third attempt was also significantly more optimistic regarding this negative event than those who passed Part 1 of the Qualifying Exam during their third attempt. As stated before, although an optimistic outlook about the possibility of passing the Qualifying Exam may be useful, flexible optimism (Schulman, 1999, p. 36) may also be applicable to these individuals. Without actually developing and replenishing depleted psychological strengths, together with the practice of accounting skills, optimism alone may not be able to enhance persistence.

With a general description of those fortigenic variables that influence persistence, it is possible to explain the process of persistence using these fortigenic variables. Explanations about this process are provided in the following section.

5.4. Conclusions based on the explanatory and predictive purposes of science

The following three sections provide conclusions related to the three models of persistence, as applied to the total group, the group that passed, as well as the group that failed the Qualifying Exam during 2005. These conclusions are aimed at describing the process of persistence, using both theory and statistical results.

5.4.1. Explaining the process of persistence and predicting persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005 using fortigenic variables

In order to explain the process of persistence as well as the factors that predict persistence of aspiring chartered accountants who wrote Part 1 of the Qualifying Exam during 2005, the following propositions are tested:

1. Proposition 4: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence.
2. Proposition 5: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence.

On the basis of the acceptable levels of fit of the measurement model used in the evaluation of the structural model, the study continued with the evaluation of the structural model depicting the theoretical process of persistence. The theoretical model depicting the process of persistence provides acceptable levels of fit with the empirical data. All the paths were significant.

Both Hope and Self-esteem were significant predictors of the levels of persistence of individuals who wrote Part 1 of the Qualifying Exam during 2005.

Figure 5.1 below shows the path coefficients of the theoretical model depicting the process of persistence.

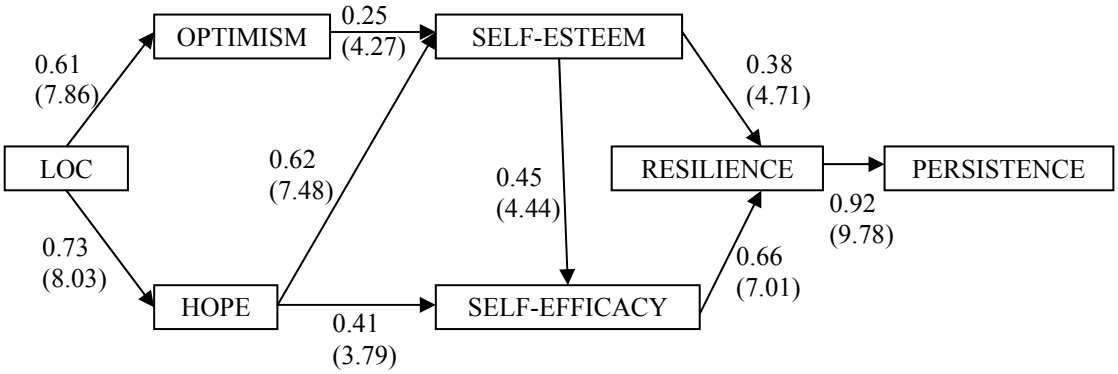

Figure 5.1 Path coefficients of structural model for individuals that wrote the Qualifying Exam during 2005

Each of these paths is explained in the following sections below.

5.4.1.1. Relationship between Locus of Control and Optimism

The value of $\gamma = 0.61$ is in line with, but bigger, than a correlation of 0.31, between locus of control and optimism, reported by a meta-analytical study (Weinstein as cited by Klein & Helweg-Larsen, 2002, p. 438). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between internal locus of control and optimistic explanatory style for good (0.377) and bad events (0.174), as reported in Chapter 4.

In conclusion, these individuals seem to have higher levels of optimism when they believe that certain events are controllable and *vice versa*. An optimistic individual is also likely to view the stressful situation (i.e. the Qualifying Exam) as manageable (i.e. controllable) and will engage in problem-focused strategies to resolve the situation (Peacock & Wong, 1996, pp.206-207; Reker as cited by Peacocock & Wong, 1996, p. 207). Thus, individuals that persist view it as controllable due to them implementing problem-focused strategies to pass it and are therefore more optimistic. They are thus more optimistic due to them perceiving personal control over the process of preparing, writing, and passing the Qualifying Exam. They are optimistic because of having internal locus of control, they view previous setbacks at passing the Qualifying Exam as temporary (they have appropriate strategies to alleviate stress and prepare for the Qualifying Exam), external (because they have control, the reason for previous failures may not be totally due to them), and specific (the previous failures are not indicative of their overall ability to deal with stressful situations or accounting ability) (Schulman, 1999; Scheier & Carver, 1985; Scheier, Weintraub, & Carver, 1986; Peacock & Wong, 1996; Stajkovic & Luthans, 2003; Peterson & Seligman, 1984; Seligman, 1991).

The theoretical model depicting the process of persistence also suggested a path between locus of control and hope, which is elaborated on in the following section.

5.4.1.2. Relationship between Locus of Control and Hope

It seems as if individuals with high personal control and internal locus of control will activate problem-solving activities and focus on possible solutions. The latter seems to imply that these individuals are in control, thus being able to develop alternative

pathways (i.e. possible solutions) to overcome goal blockages ($\gamma = 0.73$). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlation between internal locus of control and hope (0.395) as reported in Chapter 4.

To develop such alternative solutions, these individuals must be flexible in their thinking style. The latter are all indicative of hopeful thinking. Thus individuals are likely to experience more hopeful thinking, in terms of developing alternative pathways, because they have personal control over the Qualifying Exam that allows them to generate different problem-solving solutions when they have experienced setbacks (Lopez et al., 2003, p. 94; Snyder et al., 2005; Snyder, 2002, p. 251; Thompson, 2005, p. 203).

The theoretical model depicting the process of persistence also suggested a path between optimism and self-esteem, which is elaborated on in the following section.

5.4.1.3. Relations between Optimism and Self-esteem

Optimists attribute the causes of the events in their lives to temporary, external, and specific causes. These individuals do not overgeneralise the attributions of their previous failures. Thus, an optimistic explanatory style helps these individuals to maintain a positive self-image (Snyder, 1991, p. 37). They view the setbacks as temporary in nature. The latter is particularly relevant to the theoretical link with self-esteem. Pessimist overgeneralise the attributions of their failure to all areas of their lives. They do not attribute failure to a specific cause – they claim that the reasons for failure are present in all aspects of their lives. The fact that low self-esteem individuals overgeneralise their failure is supported by the fact that scores on the Life Orientation Test (LOT) (a measure of optimism) was positively related with self-esteem scores (Carifio et al., 2002). Thus, the current conclusion is supported by theory that states that individuals who used an optimistic explanatory style to deal with setbacks are likely to have higher levels of self-esteem because they do not overgeneralise their past failures. The more optimistic these individuals are to persist; the higher will be their levels of self-esteem and self-worth ($\beta = 0.25$). The latter is supported by a statistically significant correlation ($r = 0.40$) in a previous study between the Attributional Style Questionnaire and self-esteem (Cheng & Furnam (2003, p. 127). In addition, support for the standardised path coefficient is provided by

statistically significant bivariate correlations between an Optimistic explanatory style for Good events and Self-esteem (0.433) and Performance Self-esteem (0.362), as reported in Chapter 4. Significant correlations were also reported in Chapter 4 between an Optimistic explanatory style for Bad events and Self-esteem (0.244) and Performance Self-esteem (0.141). The relatively low correlations between optimism, as measured by the ASQ, and these fortigenic variables are in line with reported correlation coefficients ranging between 0.20 and 0.30 (Peterson, 1991, p. 7).

The theoretical model depicting the process of persistence also suggested a path between hope and self-esteem, which is elaborated on in the following section.

5.4.1.4. Relationship between Hope and Self-esteem

There is support for the assumption that hope possibly effects self-esteem and not *vice versa* (Snyder, Cheavens, & Michael, 1999; Snyder, 2002, p. 258). One explanation is that high-hope individuals focus more on positive self-statement than low-hope individuals that focus on negative self-statement (Snyder, LaPointe, Crowson, and Early, 1998, p. 809). One possible explanation is the assumption that high-hope individuals exhibit less negative emotions after initial setback due to the use of this feedback for improvement purposes. However, low-hope individuals use feedback from goal non-attainment to produce self-doubt – the self-liking component of self-esteem (Snyder, 1999; Michael, 2000). According to hope theory, hope-related thoughts cause emotions (Snyder, Ilardi, Cheavens, et al., 2000, p. 750). It can thus be concluded that high-hope individuals may have used positive emotions and thoughts to focus on the identification of alternative pathways, which enabled them to use feedback to build their levels of self-esteem which may be positively influenced by positive self-statements generated by hopeful thinking. Their feelings of self-worth may be further enhanced through the development of alternative pathways to still achieve their goals, which in term may influence their feelings of self-worth to persist (β = 0.62). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between hope and self-esteem (0.566) and performance self-esteem (0.567), as reported in Chapter 4.

The theoretical model depicting the process of persistence also suggested a path between hope and self-efficacy, which is elaborated on in the following section.

5.4.1.5. Relationship between Hope and Self-efficacy

Snyder (as cited by Carifio et al., 2002, p. 126) is of the opinion that low self-efficacy may be the result of low levels of hope and/or the inadequate number of alternative strategies for solving problems. The statistical results of the current study seem to support this statement (β = 0.41). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between hope and self-efficacy (0.526), as reported in Chapter 4. This result is in line with a study conducted by Carifio and Rhodes (2002, p. 134), that reported that hope was significantly related to self-efficacy, with a correlation of 0.49 for agency thinking and 0.45 for pathways thinking. Another study reported a similar statistically significant correlation of 0.592 between hope and self-efficacy (Magaletta & Oliver, 1999, p. 545). These findings may be explained as follows. Hope may be related to self-efficacy through the high-hope individuals' perceived ability to formulate alternative routes to identified goals (Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000, p. 749). Thus, self-efficacy may be influenced by the individuals' previous self-efficacy beliefs based on the ability to develop alternative pathways when being confronted with goal blockages. The ability to develop alternative pathways may thus strengthen self-efficacy beliefs in general. There is evidence to support the fact that high-hope individuals actually produce more pathways when compared to low-hope individuals (Snyder, Ilardi, Cheavens, et al., 2000, p. 749).

The theoretical model depicting the process of persistence also suggested a path between self-esteem and self-efficacy, which is elaborated on in the following section.

5.4.1.6. Relationship between Self-esteem and Self-efficacy

The current study has a significant path coefficient (β = 0.45) between self-esteem and self-efficacy. This seems to be lower than the correlations of 0.67 (Chen, Gully, and Eden (2004, p. 386) and 0.74 (Judge, Erez, Bono, & Thoresen, 2002, p. 698) reported previously. In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between self-esteem and general self-efficacy (0.687). A statistically significant correlation was also reported in Chapter 4 between performance self-esteem and general self-efficacy (0.575).

In explaining the impact of self-esteem on self-efficacy, the concept of self-regulation requires attention. Self-regulation depends on three interacting components, viz: a)

goals and standards of individual performance, b) self-evaluating statements about performance, and c) self-efficacy beliefs (Bandura, 1986, 1997). Of importance for the explanation for the relationship between self-esteem and self-efficacy, only self-evaluating statements and self-efficacy beliefs are discussed. During the evaluation of individuals' progress towards the goal of passing the Qualifying Exam, they are likely to develop certain beliefs about their progress and efficacy. Thus, these individuals may have engaged in self-evaluative thinking (i.e. self-esteem). These self-evaluative reactions manifested themselves in certain types of emotions (e.g. anxiety). The latter negatively impacts the cognitive and behavioural evaluations of individuals (i.e. self-efficacy) that are likely to hinder their progress towards the passing of the Qualifying Exam. In limiting these emotions on an individual's ability to pass the Qualifying Exam, they may temporary disengage from the negative evaluation being received, thereby protecting feelings of self-worth from a possibly devaluing situation. This enables these individuals to distance themselves from the negative effects to the ego (of previously failing the Qualifying Exam) from the specific situation temporarily in order to remain committed to the larger domain and goal (of persisting and passing the Qualifying Exam) (Nussbaum & Steele, 2006, in press). The result is that during this time of temporary disengagement, these individuals are able to focus their attention to improve on their accounting skills and other related skills in order to improve their chances of passing the qualifying exam (Nussbaum & Steele, 2006, in press).

The theoretical model depicting the process of persistence also suggested a path between self-esteem and resilience, which is elaborated on in the following section.

5.4.1.7. Relationship between Self-esteem and Resilience

In the current study, it is theorised that self-esteem is indirectly related to persistence (through resilience, which is the persistence component of motivation). In addition, Benard (as cited by Kemp, 2002, p. 66) suggests that self-esteem is a resilience skill. A path coefficient of $\beta = 0.38$ between self-esteem and resilience (the persistence component of motivation) was found. This result is in line with previous studies. For example a statistically significant relationship ($\gamma = 0.329$) between persistence and positive affect (e.g. self-esteem) (Seo, Barrett, et al., 2004, p. 5) and $r = 0.34$ (Koestner & Zuckerman, 1994, p. 341) are reported, which are both relatively similar

to the current value of β = 0.38. In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between self-esteem and resilience (0.652), as well as between performance self-esteem and resilience (0.490), as reported in Chapter 4.

This can be explained through the conceptualisation of self-esteem in terms of self-liking (Tafarodi & Swann, 1995; Tafarodi & Swann, 2001; Tafarodi & Vu, 1997). Individuals with high levels of self-esteem (and thus self-liking) are less likely to engage in punitive self-reflection and overgeneralise their past failures. As was stated before, it is possible for these individuals to maintain positive self-evaluations of themselves, even after previous failures, through temporary disengagement. Thus, by temporary focusing on the bigger goal of passing the Qualifying Exam, rather than on the past failures, they generate protecting feelings of self-worth from a possibly devaluing situation and persist with their goal (Nussbaum & Steele, 2006; in press).

The theoretical model depicting the process of persistence also suggested a path between self-efficacy and resilience, which is elaborated on in the following section.

5.4.1.8. Relationship between Self-efficacy and Resilience

It is theorised that self-efficacy is indirectly related to persistence (through resilience, which is the persistence component of motivation). Bandura was of the opinion that self-efficacy beliefs influenced resilience to adversity and the presence of helpful or hindering cognitions (O'Brien, 2003, p. 110).

In line with this statement, the current study reported a path coefficient of β = 0.66 between self-efficacy and resilience (the persistence component of motivation). This path coefficient is larger than the correlation coefficient of 0.34, reported in a meta-analytical study exploring the relationship between self-efficacy and persistence (Multon, Brown, & Lent, 1991, p. 34). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between self-efficacy and resilience (0.544), as reported in Chapter 4. This finding can be interpreted as follows. General self-efficacy is strongly related to an individual's motivational processes. During task performance, the motivational state (e.g. general self-efficacy) improves the allocation and persistence of on-task performance (Kanfer et al, 1997). Thus, it is possible that these individuals are both a) confident in their overall abilities to write and pass the Qualifying Exam, as well as b) focusing on the

skills that they have to acquire and practice in order to be successful. Continued experience with the task (i.e. preparing for the Qualifying Exam and persisting until they pass) suggests that consequences of previous responses are the best predictor of persistence. Thus, they believe that they are competent because they do have the minimum skills levels to become chartered accountants. They have had positive experiences of demonstrating their skills before. They also perceive a relationship between their skills and the behavioural outcomes. In conjunction with their levels of self-esteem, they may focus their attention on skills that are required to become competent instead of focusing on negative experiences.

The theoretical model depicting the process of persistence also suggested a path between resilience and persistence, which is elaborated on in the following section.

5.4.1.9. Relationship between Resilience and Persistence

Resilience was previously defined as a *pattern of psychological activity which consists of a motive to be strong in the face of inordinate demands, which energizes goal-directed behaviour to cope and rebound (or resile), as well as accompanying emotions and cognitions* (Strümpfer, 2001b, p. 36). Resilience (and career resilience) is the persistence component of motivation (London, 1983, 1993, 1997). Factors that contribute to an individual's ability to successfully manage stressors due to not achieving goals include specific skills and psychological resources (Lustig et al, 2002, p. 2). It is therefore assumed that individuals, who have more skills and psychological resources at their disposal to be more resilient and in turn, should also be more persistent. A path coefficient of $\beta = 0.92$ was reported, in the current study, between resilience and persistence. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between resilience and persistence (0.447), as reported in Chapter 4. The current results are higher when compared against the significant correlation of 0.16 reported by Kemp (2002). It can therefore be concluded that individuals who are resilient (emphasising the three theoretical components of resilience, viz: meaningfulness, manageability, and comprehensible) may be more persistent. Thus, individuals who found meaning in their past negative but still persisted due to their time investment to become chartered accountants, who interpreted the Qualifying Exam as comprehensible – as a task that can be understood as a requirement to become a chartered accountant, as well as

having available resources at their disposal – in the form of various psychological strengths and social support, are more likely to be resilient and therefore persistent (Antonovsky, 1978). Resilience is therefore important because of personal characteristics that may a) compensate for the loss of competence during stress, b) protect the individual against perceptions of harm to the self-esteem, and c) interpret stressful situations as challenging (London, 1998, p. 77). The following can also be concluded about the availability of psychological and social resources. Antonovsky (1979) proposed the concept of generalised resistance resources (GRR) to describe individuals' characteristics that facilitates avoiding or dealing with stress. Examples of these resources include cognitive (knowledge and intelligence), interpersonal relationships, and social support. Antonovsky (1979) proposed that the availability of these resources helps these individuals to develop resilience, which in turn mobilises the resources to avoid or deal with stress. It is thus possible to conclude that the psychological strengths used in the current study to explain persistence, may be viewed as generalised resistance resources. Each of these psychological resources assists aspiring chartered accountants to become more resilient, with an impact on their persistence. It was also suggested in Chapter 2, that the protective factors (Masten et al., 2005, p. 83) that can be developed in aspiring chartered accountants are all related to psychological strengths investigated in the current study. In conclusion, it is therefore possible to state that locus of control, general self-efficacy, optimism, hope, and self-esteem are all generalised resistance resources that aspiring chartered accountants can use in dealing with negative feedback from not passing the Qualifying Exam to become more resilient, in order to be more persistent.

By describing the process of persistence for individuals that wrote the Qualifying Exam during 2005, it is possible to evaluate the accuracy of predictions using fortigenic variables in the next section.

5.4.1.10. Predicting persistence of individuals who wrote Part 1 of the Qualifying Exam during 2005

Both Hope (β = 0.123) and Self-esteem (β = 0.396) were significant predictors of persistence (R^2 = 0.374) of individuals who wrote Part 1 of the Qualifying Exam during 2005.

The above results can be interpreted as follows. Self-esteem was conceptualised as consisting of two components, viz: self-liking and self-competence, including performance self-esteem (Tafardodi & Vu, 1997). Thus, these authors reported that individuals high on the self-liking component of self-esteem persisted longer than those individuals low on self-liking. Although the current study used a unidimensional model of the SLSCS, the theory is still applicable. These results are in line with the current results. Thus, individuals with higher levels of self-esteem, that wrote the Qualifying Exam, may persist longer and *vice versa*.

In addition, these individuals also found hope was a significant predictor of their persistence. It can therefore be concluded that high-hope individuals may have been more hopeful due to their multiple pathways (i.e. strategies to pass the Qualifying Exam) as well as having had efficacy in the effectiveness of these pathways and *vice versa* (Snyder, 1994, 1996).

However, by just focusing on the significant predictors of persistence, and intervening just to increase hope and self-esteem may be short-sighted. These results must be evaluated against the backdrop of the model depicting persistence. It is therefore advisable that before self-esteem can be developed, to enhance persistence, the following three psychological strengths must be developed because they precede self-esteem, viz: locus of control, optimism, and hope – the latter being the second significant predictor of persistence of individuals that wrote the Qualifying Exam during 2005. Thus, before enhancing self-esteem, individuals must be evaluated in terms of their levels of locus of control, hope, and optimism. The results of the structural model provided support for the sequence of these psychological strengths. Thus, locus of control is related to both hope and optimism. Both hope and optimism are related to self-esteem. It is therefore suggested to take a holistic view of predicting persistence, and not just focusing on significant predictors based on multiple regression results.

With a clear picture as to the general model of persistence, it is advisable to evaluate whether the same factors are also related to the persistence of aspiring chartered accountants that *passed* Part 1 of the Qualifying Exam during 2005. The latter are discussed in detail in the next section.

5.4.2. Explaining the process of persistence and predicting persistence of candidates that passed Part 1 of the Qualifying Exam during 2005 using fortigenic variables

The previous section provided information on the general, theoretical model of persistence. Empirical evidence seems to suggest that the theoretical model depicting the process of persistence fits the empirical data relatively well. However, it may also be important to focus on a subsample of this total sample, namely individuals who have passed Part 1 of the Qualifying Exam during 2005 – including individuals who have failed previous attempts at passing the Qualifying Exam but persisted and passed (n=139). This may be useful in determining if the general model of persistence can be applied to a sample that may have failed previous attempts at passing, persisted, and eventually passed. It is possible to suggest that this subsample of individuals who have persisted and passed can be used to validate the general model depicting persistence.

To explain the process of persistence, using fortigenic variables, that predict the persistence of individuals that passed the Qualifying Exam, two propositions act as guidelines to evaluate these factors:

1. Proposition 7: The proposed theoretical model of the relationships among the variables studied will produce a good fit of the structural model depicting the process of persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.
2. Proposition 8: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who passed Part 1 of the Qualifying Exam of SAICA during 2005.

The measurement model provided acceptable levels of fit and allowed the study to continue with the evaluation of the structural model depicting the theoretical process of persistence for individuals that passed Part 1 of the Qualifying Exam. The theoretical model depicting the process of persistence, of individuals that passed the Qualifying Exam, provided acceptable levels of fit with the empirical data. All the paths were significant except between self-esteem and resilience.

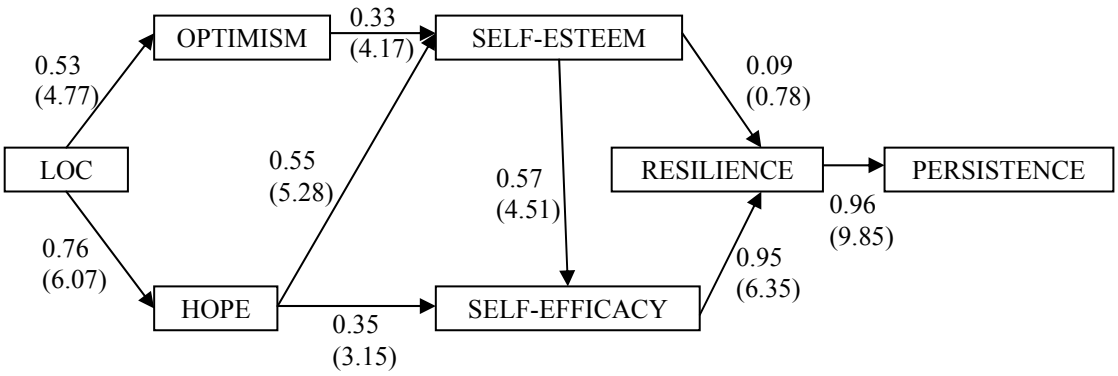

Figure 5.2 Path coefficients of structural model for individuals that passed the Qualifying Exam during 2005

Each of those paths is discussed and explained in detail in the following sections below.

5.4.2.1. Explaining the relationship between Locus of Control and Optimism for individuals that passed Part 1 of the Qualifying Exam during 2005

For the group that passed the Qualifying Exam, it is reported that the path coefficient ($\gamma = 0.53$) between locus of control and optimism is significant. This is slightly lower than the path coefficient reported ($\gamma = 0.61$) in the overall model of persistence (see 5.4.1.1). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between internal locus of control and an Optimistic explanatory style for Good events (0.447) and a non-significant correlation with an Optimistic explanatory style for Bad events (0.086), as reported in Chapter 4.

One possible explanation of this result is that those individuals that passed differed significantly (small effect size) in their optimistic explanatory style of negative events (see 5.3.3). They were lower on their optimistic explanatory style of negative outcomes. This makes sense because they did not experience failure (i.e. a negative event – they passed the Qualifying Exam), and could therefore focus on attributing their success at passing the Qualifying Exam to internal, stable, and global factors (Peterson, 1991; Peterson, Schwartz, & Seligman, 1981; Peterson & Seligman, 1985). It may therefore be possible that, in general, individuals that passed were still optimistic about persisting and passing the Qualifying Exam, but that the eventual passing of the Qualifying Exam requires them to be more optimistic about good

outcomes (and emphasise less the negative outcomes) because they have achieved their goal – passing the Qualifying Exam which is a good event. Thus, because they have controlled the environment by passing the Qualifying Exam, they do not have to be that optimistic about negative events – having achieved personal control may be more important to them than being optimistic.

Thus, these individuals that passed were optimistic because they interpreted the stressful situation (i.e. the Qualifying Exam) as manageable (i.e. controllable) and perhaps engaged in problem-focused strategies to resolve the situation (Peacock & Wong, 1996, pp.206-207; Reker as cited by Peacocock & Wong, 1996, p. 207). Thus, individuals that persisted and passed the Qualifying Exam viewed it as controllable due to them implementing problem-focused strategies to pass it and are therefore being more optimistic. They are thus more optimistic, in terms of good events and outcomes, due to them perceiving personal control over the process of preparing, writing, and passing the Qualifying Exam. They are optimistic because of having internal locus of control, and therefore viewed previous setbacks at passing the Qualifying Exam as temporary (they have appropriate strategies to alleviate stress and prepare for the Qualifying Exam), external (because they have control, the reason for previous failures may not be totally due to them), and specific (the previous failures are not indicative of their overall ability to deal with stressful situations or accounting ability) (Schulman, 1999; Scheier & Carver, 1985; Scheier, Weintraub, & Carver, 1986; Peacock & Wong, 1996; Stajkovic & Luthans, 2003; Peterson & Seligman, 1984; Seligman, 1991).

The theoretical model depicting the process of persistence also suggested a path between locus of control and hope, which is elaborated on in the following section.

5.4.2.2. Explaining the relationship between Locus of Control and Hope for individuals that passed Part 1 of the Qualifying Exam during 2005

It seems as if individuals with high personal control and internal locus of control will activate problem-solving activities and focus on possible solutions. This is supported by a significant path coefficient (γ = 0.76) between locus of control and hope for individuals that passed the Qualifying Exam. This is slightly higher than the path coefficient (γ = 0.73) based on the overall model of persistence. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate

correlation between internal locus of control and hope (0.413) as reported in Chapter 4.

The latter seems to imply that these individuals are in control, thus being able to develop alternative pathways (i.e. possible solutions) to overcome goal blockages (i.e. previous attempts at passing the Qualifying Exam) and pass. Thus individuals that passed are more likely to experience more hopeful thinking, in terms of developing alternative pathways, because they have personal control over the Qualifying Exam that allows them to generate different problem-solving solutions when they have experienced setbacks. These problem-solving strategies, in the form of alternative pathways at passing the Qualifying Exam, seem to have been successfully implemented due to these individuals passing the Qualifying Exam during 2005 (Lopez et al., 2003, p. 94; Snyder et al., 2005; Snyder, 2002, p. 251; Thompson, 2005, p. 203). Thus, these individuals seem to have taken control over those aspects that could be controlled in preparing for the qualifying exam, developed alternative pathways, and successfully implemented these pathways to pass the Qualifying Exam during 2005.

The theoretical model depicting the process of persistence also suggested a path between optimism and self-esteem, which is elaborated on in the following section.

5.4.2.3. Explaining the relationship between Optimism and Self-esteem for individuals that passed Part 1 of the Qualifying Exam during 2005

Optimists attribute the causes of negative events in their lives to temporary, external, and specific causes. In addition, optimists attribute the cause of positive outcomes (such as passing the Qualifying Exam) to stable, internal, and global causes. Thus, those individuals that passed the Qualifying Exam were still optimistic about good outcomes – however, not as much as those that failed. In addition, these individuals that passed probably did not overgeneralise the attributions of their previous failures. Thus, an optimistic explanatory style helps these individuals to maintain a positive self-image (Snyder, 1991, p. 37). Thus, the current conclusion is supported by theory that states that individuals who used an optimistic explanatory style to deal with setbacks as well as positive outcomes are likely to be positively influenced in terms of their self-esteem because they do not overgeneralise their past failures. Their levels of self-esteem were positively influenced by them passing the Qualifying Exam. The

more optimistic these individuals are to persist; the higher will be their levels of self-esteem and self-worth (β = 0.33), which is slightly lower than that reported in the overall model of persistence (β = 0.41). The former is also supported by a statistically significant correlation (r = 0.40) in a previous study between the Attributional Style Questionnaire and self-esteem (Cheng & Furnam, 2003, p. 127). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between an Optimistic explanatory style for Good events and self-esteem (0.496) and performance self-esteem (0.463). A significant correlation was also reported in Chapter 4 between an Optimistic explanatory style for Bad events and self-esteem (0.197) and a non-significant correlation with performance self-esteem (0.059). The relatively low correlations between optimism, as measured by the ASQ, and these fortigenic variables are in line with reported correlation coefficients ranging between 0.20 and 0.30 (Peterson, 1991, p. 7).

The theoretical model depicting the process of persistence also suggested a path between hope and self-esteem, which is elaborated on in the following section.

5.4.2.4. Explaining the relationship between Hope and Self-esteem for individuals that passed Part 1 of the Qualifying Exam during 2005

Previously it was stated that hope affects self-esteem and not vice versa (Snyder, Cheavens, & Michael, 1999; Snyder, 2002, p. 258). In the overall model of persistence, this assumption was supported by a path coefficient of β = 0.62. Support for this link is also found for the group that passed the Qualifying Exam (β = 0.55). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between hope and self-esteem (0.524) and performance self-esteem (0.547), as reported in Chapter 4.

Thus, it can be concluded that it is possible that hopeful individuals, that passed the Qualifying Exam, focused more on positive self-statements (Snyder, LaPointe, Crowson, and Early, 1998, p. 809). One possible explanation is the assumption that hopeful individuals exhibit less negative emotions after initial setback due to the use of this feedback for improvement purposes and possibly positively influencing their levels of self-liking and self-competence (both components of self-esteem) (Snyder, 1999; Michael, 2000). This is supported by the fact that individuals that passed the Qualifying Exam during 2005 were significantly more hopeful than those individuals

that failed (see 5.3.3.) (small to medium effect size). According to hope theory, hope-related thoughts cause emotions (Snyder, Ilardi, Cheavens, et al., 2000, p. 750). It can thus be concluded that after experiencing successful goal attainment (passing the Qualifying Exam) after not passing previous attempts, hopeful individuals used positive emotions and thoughts to focus on the identification of alternative pathways, which enabled them to use feedback from failure to build their levels of self-esteem which may be positively influenced by positive self-statements generated by hopeful thinking. Their feelings of self-worth may have been positively influenced through the development and successful execution of alternative pathways to pass the Qualifying Exam, which in turn may have influenced their feelings of self-worth to be persistent.

The theoretical model depicting the process of persistence also suggested a path between hope and self-efficacy, which is elaborated on in the following section.

5.4.2.5. Explaining the relationship between Hope and Self-efficacy for individuals that passed Part 1 of the Qualifying Exam during 2005

Snyder (as cited by Carifio et al., 2002, p. 126) is of the opinion that low self-efficacy may be the result of low levels of hope and/or the inadequate number of alternative strategies for solving problems. The statistical results of the current study seem to support this statement (β = 0.35), which is slightly lower than the overall model of persistence (β = 0.41). This result is lower in comparison with a study conducted by Carifio and Rhodes (2002, p. 134), that reported that hope is significantly related to self-efficacy, with a correlation of 0.49 for agency thinking and 0.45 for pathways thinking. Another study reported a similar statistically significant correlation of 0.592 between hope and self-efficacy (Magaletta & Oliver, 1999, p. 545). However, a significant correlation coefficient (r = 0.553) reported in Chapter 4, is more in line with previously reported results and are indicative of a relationship between hope and self-efficacy. These results are also supported by the fact that individuals that passed the Qualifying Exam during 2005 were significantly more hopeful than those individuals that failed (see 5.3.3.) (small to medium effect size).

These findings may be explained as follows. Hope may have influenced self-efficacy through the high-hope individuals' perceived ability to formulate alternative routes to identified goals (Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000, p. 749). Thus, self-efficacy may be influenced by these individuals' previous self-

efficacy beliefs based on the ability to develop alternative pathways when being confronted with goal blockages. The ability to develop alternative pathways may thus strengthen self-efficacy beliefs in general. There is evidence to support the fact that high-hope individuals actually produce more pathways when compared to low-hope individuals (Snyder, Ilardi, Cheavens, et al., 2000, p. 749). This seems to be plausible, due to the fact that there are several individuals that failed previous attempts at passing the Qualifying Exam, but persisted and passed it during 2005. Thus, these individuals are more hopeful because they probably developed and successfully implemented alternative pathways to pass the Qualifying Exam. By successfully implementing these alternative pathways, these individuals may have developed their confidence (i.e. self-efficacy) in accounting to pass the Qualifying Exam.

The theoretical model depicting the process of persistence also suggested a path between self-esteem and self-efficacy, which is elaborated on in the following section.

5.4.2.6. Explaining the relationship between Self-esteem and Self-efficacy for individuals that passed Part 1 of the Qualifying Exam during 2005

The current study has a significant path coefficient ($\beta = 0.57$) between self-esteem and self-efficacy, higher than that reported in overall model of persistence ($\beta = 0.45$). The current reported result seems to be lower than the correlations of 0.67 (Chen, Gully, and Eden (2004, p. 386) and 0.74 (Judge, Erez, Bono, & Thoresen, 2002, p. 698) reported previously. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between self-esteem and general self-efficacy (0.744). A statistically significant correlation was also reported in Chapter 4 between performance self-esteem and general self-efficacy (0.637).

In explaining the impact of self-esteem on self-efficacy, the concept of self-regulation requires attention. Self-regulation depends on three interacting components, viz: a) goals and standards of individual performance, b) self-evaluating statements about performance, and c) self-efficacy beliefs (Bandura, 1986, 1997). Thus, because individuals have passed the Qualifying Exam, and thus achieved a major goal in their careers, they may have been positively influenced in terms of their perceptions of themselves and their self-evaluative statements about their self-worth. It seems plausible that by being successful, these individuals that passed may have evaluated their self-worth more positively in terms of their current levels of performance and

goal-attainment. This conclusion is supported by the fact that individuals who passed the qualifying Exam were significantly more positive about their performance self-esteem, than those individuals that failed (see 5.3.3) (medium effect size). Thus, due to their positive evaluations of their performance in accounting and passing the Qualifying Exam, the latter may have positively influenced their perceptions of self-confidence. In fact, this is to be expected if individuals pass the Qualifying Exam – one of the ultimate indicators of competence and confidence in accounting skills and becoming a chartered accountant.

The theoretical model depicting the process of persistence also suggested a path between self-esteem and resilience, which is elaborated on in the following section.

5.4.2.7. Explaining the relationship between Self-esteem and Resilience for individuals that passed Part 1 of the Qualifying Exam during 2005

In the current study, it was theorised that self-esteem is indirectly related to persistence (through resilience, which is the persistence component of motivation). A non-significant path coefficient of β = 0.09 between self-esteem and resilience (the persistence component of motivation) was found. This result is not supported by previous studies. For example a statistically significant relationship (γ = 0.329) between persistence and positive affect (e.g. self-esteem) (Seo, Barrett, et al., 2004, p. 5) and r = 0.34 (Koestner & Zuckerman, 1994, p. 341) are reported. In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between self-esteem and resilience (0.635), as well as between performance self-esteem and resilience (0.453), as reported in Chapter 4. In addition, self-esteem and hope were both significant predictors of persistence for those individuals that passed the Qualifying Exam during 2005. In determining the possible reasons for these conflicting results, it is important to look at the sequential process of persistence as depicted in the theoretical model. It was theorised that self-esteem is related to both resilience (the persistence component of motivation) as well as self-efficacy. It can be concluded that individuals that passed the Qualifying Exam were positively influenced by their perceptions of self-worth and performance self-esteem in relation to their levels of self-efficacy (i.e. confidence) (β = 0.57). Thus, it seems as if self-esteem is more significant in influencing those individuals' levels of self-efficacy, than directly influencing their resilience and persistence. Support for this

conclusion is reported in section 5.4.2.8 where there is a significant path coefficient (β = 0.95) between self-efficacy and resilience, that latter being related to persistence (β = 0.96) (see section 5.4.2.9). It can therefore be concluded that self-esteem seems to be a key psychological resource used by individuals that persisted and passed the Qualifying Exam. However self-esteem may be related to self-efficacy and not directly to resilience and persistence. Thus, it is possible that self-esteem in conjunction with self-efficacy may have influenced the levels of resilience of individuals that passed the Qualifying Exam in 2005. Support for this conclusion is provided in the following section.

The theoretical model depicting the process of persistence also suggested a path between self-efficacy and resilience, which is elaborated on in the following section.

5.4.2.8. Explaining the relationship between Self-efficacy and Resilience for individuals that passed Part 1 of the Qualifying Exam during 2005

It was theorised that self-efficacy is indirectly related to persistence (through resilience, which is the persistence component of motivation). Bandura was of the opinion that self-efficacy beliefs influenced resilience to adversity and the presence of helpful or hindering cognitions (O'Brien, 2003, p. 110).

In line with this statement, the current study reported a significant path coefficient of β = 0.96 between self-efficacy and resilience (the persistence component of motivation). This path coefficient is larger than the correlation coefficient of 0.34, reported in a meta-analytical study exploring the relationship between self-efficacy and persistence (Multon, Brown, & Lent, 1991, p. 34). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between self-efficacy and resilience (0.591), as reported in Chapter 4.

This finding can be interpreted as follows. General self-efficacy is strongly related to an individual's motivational processes. During task performance, the motivational state (e.g. general self-efficacy) improves the allocation and persistence of on-task performance (Kanfer et al, 1997). Thus, it is possible that these individuals are both a) confident in their overall abilities to write and pass the Qualifying Exam, as well as b) focusing on the skills that they have to acquire and practice in order to be successful. In addition, being confident in their overall abilities (as indicated by them passing the Qualifying Exam), they may perceive that they have a larger component of protective

factors that influence resilience. Thus, they believe that they are competent and can therefore bounce back successfully, using several psychological strengths, after previous failures at passing the Qualifying Exam, and pass the latter successfully during 2005.

The theoretical model depicting the process of persistence also suggested a path between resilience and persistence, which is elaborated on in the following section.

5.4.2.9. Explaining the relationship between Resilience and Persistence for individuals that passed Part 1 of the Qualifying Exam during 2005

It was previously stated that resilience emphasises individuals' abilities to bounce back (i.e. resile) from adversity. In order to be resilient, individuals must have access to various skills and psychological resources (known as generalised resistance resources) to be more resilient and persistent (London, 1983, 1993, 1997; Lustig et al, 2002, p. 2; Strümpfer, 2001b, p. 36). Antonovsky (1979) proposed that the availability of these resources helps these individuals to develop resilience, which in turn mobilises the resources to avoid or deal with stress and persist.

It is therefore expected that individuals, who have more skills and psychological resources at their disposal to be more resilient, and in turn should also, be more persistent. A significant path coefficient of $\beta = 0.96$ was reported, in the current study, between resilience and persistence for individuals that passed the Qualifying Exam during 2005. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between resilience and persistence (0.469), as reported in Chapter 4. These correlations are supported by Kemp (2002) that reported a significant correlation ($r = 0.16$) between resilience and persistence.

It can therefore be concluded that individuals who are resilient (emphasising the three theoretical components of resilience, viz: meaningfulness, manageability, and comprehensible) may be more persistent. Thus, individuals who found meaning in their past negative experiences of not passing the Qualifying Exam but still persisted and passed due to their time investment to become chartered accountants, who interpreted the Qualifying Exam as comprehensible – as a task that can be understood as a requirement to become a chartered accountant, that was successfully mastered by passing, as well as having available resources at their disposal – in the form of various psychological strengths and social support, are more likely to be resilient and

therefore persistent (Antonovsky, 1978). Support for this conclusion is also provided by the discriminant function reported in Chapter 4. The discriminant function suggested that resilience, performance self-esteem, and an optimistic explanatory style for good events could correctly classified 62% of the individuals into the passing group. Therefore it is suggested that resilience is influenced when the individual has more resources available to use to be more resilient, and therefore be more persistent.
It is thus possible to conclude that individuals that persisted and passed the Qualifying Exam during 2005 seemed to have used a number of these resources successfully – as evident by conclusions drawn in the previous sections. Each of these psychological resources assisted those aspiring chartered accountants who passed to become more resilient, with an impact on their persistence. It was also suggested in Chapter 2, that the protective factors (Masten et al., 2005, p. 83) that can be developed in aspiring chartered accountants are all related to psychological strengths investigated in the current study. In conclusion, it is therefore possible to state that locus of control, general self-efficacy, optimism, hope, and self-esteem are all generalised resistance resources that aspiring chartered accountants that passed in 2005 used in dealing with negative feedback from not passing the Qualifying Exam to become more resilient, in order to be more persistent. It seems as if those individuals that passed the Qualifying Exam during 2005 successfully implemented a combination of psychological strengths, which enhanced their generalized resilience resources, which enabled them to be persistent and successfully passing.

By describing the process of persistence for individuals that have passed the Qualifying Exam during 2005, it is possible to evaluate the accuracy of predictions using fortigenic variables in the next section.

5.4.2.10. Predicting persistence of individuals that have passed Part 1 of the Qualifying Exam during 2005

Both Hope and Self-esteem were significant predictors of persistence of individuals who passed Part 1 of the Qualifying Exam during 2005. Self-esteem was the only significant predictor of persistence for individuals that passed Part 1 of the Qualifying Exam during their first attempt. Self-esteem was again the only significant predictor of persistence for individuals that passed Part 1 of the Qualifying Exam during 2005 on their second attempt. The latter model was not significant.

The above results can be interpreted as follows. It makes sense that self-esteem (β = 0.538) was a significant predictor for individuals that passed the Qualifying Exam during 2005. Self-esteem was conceptualised as consisting of two components, viz: self-liking and self-competence, including performance self-esteem (Tafardodi & Vu, 1997). Thus, these authors reported that individuals high on the self-liking component of self-esteem persisted longer than those individuals low on self-liking. Although the current study used a unidimensional model of the SLSCS, the theory is still applicable. These results are in line with the current results. Thus, individuals that passed the Qualifying Exam experienced the successful achievement of a goal. By passing the Qualifying Exam they felt good about themselves. In addition, these experiences of success may have also influence their perceptions of social worth ("I have passed this Qualifying Exam and are now viewed with respect by my peers and other important people") as well as self-acceptance ("I am worthy").

In addition, individuals that passed also found hope to be a significant predictor of their persistence. It can therefore be concluded that individuals that passed, may have been more hopeful after passing the Qualifying Exam due to their successful implementation of pathways (i.e. strategies to pass the Qualifying Exam) as well as having had efficacy in the effectiveness of these pathways to lead to a successful outcome (Snyder, 1994, 1996). This conclusion is supported results previously reported (5.3.3) that individuals that passed were more hopeful than individuals that failed.

However, by just focusing on the significant predictors of persistence, and intervening just to increase hope and self-esteem may be short-sighted. These results must be evaluated against the backdrop of the model depicting persistence. It is therefore advisable that before self-esteem can be developed to enhance persistence, the following three psychological strengths must be developed because they precede self-esteem, viz: locus of control, optimism, and hope – the latter being the second significant predictor of persistence of individuals that passed the Qualifying Exam during 2005. Thus, before enhancing self-esteem, individuals must be evaluated in terms of their levels of locus of control, hope, and optimism. The results of the structural model provided support for the sequence of these psychological strengths. Thus, locus of control is related to both hope and optimism. Both hope and optimism are related to self-esteem. It is therefore suggested to take a holistic view of predicting

persistence, and not just focusing on significant predictors based on multiple regression results.

With an understanding of the factors that are related to the persistence of individuals that passed Part 1 of the Qualifying Exam during 2005, it is advisable to explain which factors can hinder persistence of those individuals that have failed the Qualifying Exam. These factors are explained in the following section.

5.4.3. Explaining the process of persistence and predicting persistence of aspiring chartered accountants that failed Part 1 of the Qualifying Exam during 2005 using fortigenic variables

Dealing with the emotional and cognitive impact of failing and not achieving a specific goal does have an impact on an individual's levels of persistence. Effectively dealing with setbacks requires the individual to use a variety of psychological resources (i.e. psychological strengths) to persist. Finding support for the general model of persistence, it was important to evaluate whether the same factors are also related to the persistence of aspiring chartered accountants that *failed* Part 1 of the Qualifying Exam during 2005. The latter are discussed in detail in the next section.

To explain the process of persistence using several fortigenic variables, that also predict persistence of aspiring chartered accountants who failed Part 1 of the Qualifying Exam during 2005, two propositions were identified:

1. Proposition 10: The proposed theoretical model of the relationship among the variables studied will produce a good fit of the structural model depicting the process of persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
2. Proposition 11: Each of the identified fortigenic variables will contribute separately to a significant proportion of variance in persistence for individuals who failed Part 1 of the Qualifying Exam of SAICA during 2005.
3. Proposition 12: There will be evidence of measurement equivalence of the measurement model used to test the validity of the structural model, between participants who have passed and failed.

Focusing on the group that failed Part 1 of the Qualifying Exam, but that are still persisting, the measurement model provided acceptable levels of fit and allowed the

study to continue with the evaluation of the structural model depicting the theoretical process of persistence for individuals that failed Part 1 of the Qualifying Exam. The theoretical model depicting the process of persistence, of individuals that failed the Qualifying Exam, provided acceptable levels of fit with the empirical data and theory. All the paths were significant except between self-efficacy and resilience. In addition, the two measurement models used in testing the two model of persistence for the group that passed and failed was non-significant. The latter indicates that the two measurement models were equivalent. Therefore, the differences in fit between the two models cannot be attributed to differences in the measures used.

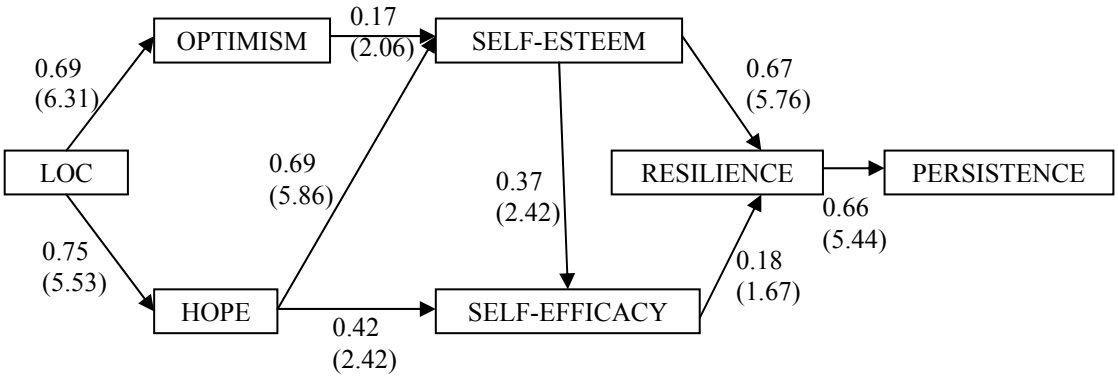

Figure 5.3 Path coefficients of structural model for individuals that failed the Qualifying Exam during 2005

Each of these paths is discussed in detail, as they relate to the group that failed the Qualifying Exam during 2005, in the sections below.

5.4.3.1. Explaining the relationship between Locus of Control and Optimism for individuals that failed Part 1 of the Qualifying Exam during 2005

These individuals seem to have higher levels of optimism when they believe that certain events are controllable. An optimistic individual is also likely to view the stressful situation (i.e. the Qualifying Exam) as manageable (i.e. controllable) and will engage in problem-focused strategies to resolve the situation (Peacock & Wong, 1996, pp.206-207; Reker as cited by Peacocock & Wong, 1996, p. 207). Maybe more important is the fact that locus of control focuses on the individual's perception that his/her outcomes are influenced by personal action (Thompson, 2005, p.205). Locus of control also refers to *individuals' beliefs about the causes of events in their lives*

(Judge & Bono, 2002, p. 97). If an individual believes that the outcome of an event is the result of his/her efforts, then that individual has an internal locus of control.

This statement is supported a significant path coefficient ($\gamma = 0.69$) between locus of control and optimism. This value is slightly bigger than that reported in the general model of persistence ($\gamma = 0.61$) and that of the model depicting persistence of individuals that passed ($\gamma = 0.53$). The value of $\gamma = 0.69$ is in line with, but bigger, than a correlation of 0.31, between locus of control and optimism, reported by a meta-analytical study (Weinstein as cited by Klein & Helweg-Larsen, 2002, p. 438). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between internal locus of control and an Optimistic explanatory style for Good events (0.333) and Bad events (0.238), as reported in Chapter 4.

Thus, the current result is in line with the theoretical model depicting the process of persistence. Thus, individuals that persisted in writing the Qualifying Exam viewed it as controllable due to them implementing problem-focused strategies to prepare and possibly pass it, and are therefore being more optimistic. However, it may also be possible that those individuals that have failed viewed the reasons for preparing and probably passing the Qualifying Exam as under their control. However, optimism is broader than personal control and locus of control. The optimist may believe that any number of factors, which can include personal control, can lead to positive future outcomes regarding the Qualifying Exam. Thus, the optimist may expect the best but also understand that he/she must play a part to influence the outcome (i.e. persisting and passing Part 1 of the Qualifying Exam) (Bryant & Cvengros, 2004, p. 298).

Thus, it is possible that these individuals view failing the Qualifying Exam as a possible result of their behaviours and the resulting outcomes. This is supported by the result, reported earlier (5.3.3) that they have lower levels of external locus of control than those individuals that passed the Qualifying Exam.

Those individuals that failed the Qualifying Exam were also more optimistic due to them perceiving personal control over the process of preparing, writing, and passing the Qualifying Exam. It is interesting to note that individuals that failed the Qualifying Exam were more optimistic when explaining negative events (see 5.3.3). This is in line with theory that states that dealing with negative events and goals blockages are indicative of an optimistic explanatory style (Peterson, 1991; Peterson, Semmel, von Bayer, Abramson, Metalsky, & Seligman, 1991; Reivich & Gillham,

2003). Thus, the individuals that have failed the Qualifying Exam are more optimistic because they view previous setbacks at passing the Qualifying Exam as temporary (they may have appropriate strategies to alleviate stress and prepare for the Qualifying Exam), external (because they have some control, the reason for previous failures may not be totally due to them or they can put in more effort and develop their accounting skills), and specific (the previous failures are not indicative of their overall ability to deal with stressful situations or accounting ability) (Schulman, 1999; Scheier & Carver, 1985; Scheier, Weintraub, & Carver, 1986; Peacock & Wong, 1996; Stajkovic & Luthans, 2003; Peterson & Seligman, 1984; Seligman, 1991). However, these conclusions must be tempered by the concept of flexible optimism (Schulman, 1991, p. 36). It may be possible that unrealistic and an overly optimistic explanatory style to negative events may hinder these individuals to successfully evaluate their abilities to pass the Qualifying Exam as well as identifying and implementing alternative strategies to pass. Thus, an overly optimistic view of passing the Qualifying Exam must be evaluated realistically to objectively determine the consequences and risks associated with persistent behaviour, given these failing aspiring chartered accountants' levels of control (Schulman, 1991). Previously it was reported (see 5.3.3) that the individuals that have failed the Qualifying Exam consistently used a more optimistic explanatory style for negative outcomes. Using an optimistic explanatory style for the first two failed attempts may be appropriate, however, after the third failed attempt optimism may cloud the objectivity of these aspiring chartered accountants regarding the objective and tangible reasons for failing (e.g. poor preparation, keeping up with changes in legislation and accounting standards, and insufficient skills). It seems difficult to suggest that just by being optimistic, after numerous failed attempts at the Qualifying Exam, is ethical practice. It is therefore concluded that an optimistic explanatory style alone may not be enough to enhance persistence, without the development of other psychological strengths. Thus, the overreliance of an optimistic explanatory style after numerous failures may be detrimental to the psychological health of these aspiring chartered accountants.

The theoretical model depicting the process of persistence also suggested a path between locus of control and hope, which is elaborated on in the following section.

5.4.3.2. Explaining the relationship between Locus of Control and Hope for individuals that failed Part 1 of the Qualifying Exam during 2005

It seems as if individuals with an internal locus of control have a perception that there is a relationship between their actions and may therefore activate problem-solving activities and focus on possible solutions. It is also important to not that there were no significant differences between individuals that failed and passed the Qualifying Exam in terms of internal locus of control. The latter seems to imply that these individuals have some levels of control, thus being able to develop some alternative pathways (i.e. possible solutions) to overcome goal blockages ($\gamma = 0.75$) - however the agency component related to hope may not be effective. It can be suggested that the different strategies used in preparing and trying to pass the Qualifying Exam may not be perceived as being effective by those individuals that have failed. The reported result is comparable to that in the general model of persistence ($\gamma = 0.73$) as well as the model depicting persistence of those individuals that passed ($\gamma = 0.76$). To develop such alternative solutions and have agency regarding those pathways requires these individuals to be flexible in their thinking style. The latter are all indicative of hopeful thinking. Thus individuals are likely to experience more hopeful thinking, in terms of developing alternative pathways, because they have personal control over the Qualifying Exam that allows them to generate different problem-solving solutions when they have experienced setbacks (Lopez et al., 2003, p. 94; Snyder et al., 2005; Snyder, 2002, p. 251; Thompson, 2005, p. 203). However, those individuals that have failed the Qualifying Exam were significantly less hopeful than those individuals that passed the qualifying Exam (see 5.3.3). It is therefore cautioned that although levels of hope may initially be high enough (during the first and second attempts), subsequent hope levels may be dropping – as reported in Chapter 4. Using hope theory (Snyder, 1994, 1996) it may be possible to speculate that these individuals may be able to develop alternative strategies to prepare and write the Qualifying Exam, but that very few of these alternative plans may have been effective in helping them pass. Individuals can only develop so many alternative pathways before lowered agency in the effectiveness of these pathways become less. Thus, although hope is a psychological strength that is important in the process of persistence, continued goals-blockages may result in a lowering of levels of hope (Snyder, LaPointe, Jeffrey, Crowson, & Shannon, 1998, p. 809). Without the enhancement of hope, it may

become depleted and eventually not feasible for the failing individuals to use to enhance their levels of persistence (Wallace & Baumeister, 2002).

The theoretical model depicting the process of persistence also suggested a path between optimism and self-esteem, which is elaborated on in the following section.

5.4.3.3. Explaining the relationship between Optimism and Self-esteem for individuals that failed Part 1 of the Qualifying Exam during 2005

Optimists attribute the causes of negative events in their lives to temporary, external, and specific causes. These individuals do not overgeneralise the attributions of their previous failures. Thus, an optimistic explanatory style helps these individuals to maintain a positive self-image (Snyder, 1991, p. 37). They view the setbacks as temporary in nature. The latter is particularly relevant to the theoretical link with self-esteem. They attribute failure to a specific cause, they claim that the reasons for failure are not present in all aspects of their lives. The fact that low self-esteem individuals overgeneralise their failure is supported by the fact that scores on the Life Orientation Test (LOT) (a measure of optimism) was positively related with self-esteem scores (Carifio & Rhodes, 2002).

A significant path coefficient (β = 0.17) between optimism and self-esteem was reported for the group that failed the Qualifying Exam. In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between an Optimistic explanatory style for Good events and self-esteem (0.399) and performance self-esteem (0.377). Significant correlations were also reported in Chapter 4 between an Optimistic explanatory style for Bad events and self-esteem (0.296) and performance self-esteem (0.272). The relatively low correlations between optimism, as measured by the ASQ, and these fortigenic variables are in line with reported correlation coefficients ranging between 0.20 and 0.30 (Peterson, 1991, p. 7). However, the latter are lower than the statistically significant correlation (r = 0.40) reported in a previous study between the Attributional Style Questionnaire and self-esteem (Cheng & Furnam, 2003, p. 127). This result is also lower than that reported previously for the overall model of persistence (β = 0.25) as well as the model depicting the process of persistence for those individuals that passed the Qualifying Exam (β = 0.33).

The reason for the lower result can be explained as follows. Although individuals that have failed the Qualifying Exam use an optimistic explanatory style to attribute reasons to their failure, continuous goal blockage may negatively influence their levels of self-esteem. Thus, by failing the Qualifying Exam, these individuals may have lower levels of self-worth, self-liking, and self-competence. In fact, this conclusion is supported by results previously reported (see 5.3.3) that individuals that failed the Qualifying Exam were significantly lower in terms of their levels of performance self-esteem, than those that did pass. Thus, although they may be optimistic, their self-esteem (specifically performance self-esteem) has been negatively impacted by past and current failures. Thus, optimism may not be a sufficient buffer for continuous failure and subsequent lower performance self-esteem. Without the enhancement of self-esteem in general, and performance self-esteem in particular, it may become depleted and eventually not feasible for the failing individuals to use to enhance their levels of persistence (Wallace & Baumeister, 2002).

The theoretical model depicting the process of persistence also suggested a path between hope and self-esteem, which is elaborated on in the following section.

5.4.3.4. Explaining the relationship between Hope and Self-esteem for individuals that failed Part 1 of the Qualifying Exam during 2005

There was a significant path coefficient ($\beta = 0.69$) between hope and self-esteem. This value is bigger than that reported for the general model of persistence ($\beta = 0.62$) and the model depicting persistence of those individuals that passed the Qualifying Exam ($\beta = 0.55$). The result of $\beta = 0.69$ seems to be supported by the assumption that hope effects self-esteem and not vice versa (Snyder, Cheavens, & Michael, 1999; Snyder, 2002, p. 258). In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between hope and self-esteem (0.615) and performance self-esteem (0.551), as reported in Chapter 4.

The interpretation of this seemingly contradictory result requires a creative and theoretically based approach.

One explanation is that hopeful individuals focus more on positive self-statement than hopeless individuals that focus on negative self-statement (Snyder, LaPointe, Crowson, and Early, 1998, p. 809). It is however important to note that individuals

that failed the Qualifying Exam were significantly less hopeful (small to medium effect size) as well as having significantly less performance self-esteem (i.e. positive self-evaluation of performance) (small to medium effect size) than those individuals that passed. A similar result was also reported in terms of comparing individuals that failed the Qualifying Exam during their first attempt with the candidates that passed the Qualifying Exam on their first attempt. Those individuals that failed the Qualifying Exam for the first time were significantly less hopeful (small to medium effect size) as well as having significantly less performance self-esteem (i.e. positive self-evaluation of performance) (small to medium effect size) than those individuals that passed the Qualifying Exam on their first attempt. One possible explanation is the assumption that when individuals experience goal blockages, their levels of hope decrease, with an associated decrease in their positive emotions (Snyder, LaPointe, Crowson, & Early, 1998). According to hope theory, hope-related thoughts cause emotions (Snyder, Ilardi, Cheavens, et al., 2000, p. 750). Thus, the result is that these individuals possibly started self-doubting by not passing the Qualifying Exam, with a decrease in their performance self-esteem (Snyder, 1999; Michael, 2000).

It can thus be concluded that after experiencing goal non-attainment (i.e. not passing the Qualifying Exam), these individuals may have started to doubt their ability of developing alternative pathways as well as the efficacy of these pathways to assist them in passing the Qualifying Exam, resulting in negative emotions about their self-worth in relation to performing successfully in the Qualifying Exam. This conclusion is further supported by a significant correlation between hope and performance self-esteem ($r = 0.551$).

Based on the conclusions thus far, it seems plausible that resource depletion (Wallace & Baumeister, 2002) may be evident in those individuals that have failed the Qualifying Exam after numerous attempts. Without the enhancement of both self-esteem in general, and performance self-esteem in particular, and hope it may become depleted and eventually not feasible for the failing individuals to use to enhance their levels of persistence (Wallace & Baumeister, 2002).

The theoretical model depicting the process of persistence also suggested a path between hope and self-efficacy, which is elaborated on in the following section.

5.4.3.5. Explaining the relationship between Hope and Self-efficacy for individuals that failed Part 1 of the Qualifying Exam during 2005

For those individuals that failed the Qualifying Exam during 2005, a significant path coefficient was reported ($\beta = 0.42$). The latter is slightly bigger than that of the overall model of persistence ($\beta = 0.41$) as well as the model depicting persistence of those individuals that passed ($\beta = 0.35$). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between hope and self-efficacy (0.505), as reported in Chapter 4.

This result of $\beta = 0.42$, seems to be supported by Snyder (as cited by Carifio et al., 2002, p. 126) that is of the opinion that low self-efficacy may be the result of low levels of hope and/or the inadequate number of alternative strategies for solving problems. This seems indeed possible due to the significantly lower levels of hope of individuals that failed the Qualifying Exam (see 5.3.3). This result is in line with a study conducted by Carifio and Rhodes (2002, p. 134), that reported that hope is significantly related to self-efficacy, with a correlation of 0.49 for agency thinking and 0.45 for pathways thinking. Another study reported a similar statistically significant correlation of 0.592 between hope and self-efficacy (Magaletta & Oliver, 1999, p. 545).

These findings may be explained as follows. Hope may have influenced self-efficacy through the low-hope individuals' perceived inability to formulate alternative routes to identified goals and in their effectiveness of achieving those goals (Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000, p. 749). Thus, self-efficacy may be influenced by the individuals' previous self-efficacy beliefs based on the ability to develop alternative pathways when being confronted with goal blockages. Although there were no significant differences between individuals that failed or passed in terms of their self-efficacy, a comparison of the *t*-test averages (reported in Chapter 4) seems to suggest that self-efficacy may be decreasing, after each failed attempt, until the third attempt. The latter then slightly increase from the fourth attempt onwards. Again, these differences were not significant.

Thus, the inability to develop alternative pathways that are effective may thus deplete self-efficacy beliefs in general. There is evidence to support the fact that low-hope individuals actually produce fewer pathways when compared to high-hope individuals (Snyder, Ilardi, Cheavens, et al., 2000, p. 749). The latter was suggested as a possible

explanation for the low levels of hope in individuals that failed the Qualifying Exam (see 5.4.3.3. and 5.4.3.4).

The theoretical model depicting the process of persistence also suggested a path between self-esteem and self-efficacy, which is elaborated on in the following section.

5.4.3.6. Explaining the relationship between Self-esteem and Self-efficacy for individuals that failed Part 1 of the Qualifying Exam during 2005

The current study had a significant path coefficient (β = 0.37) between self-esteem and self-efficacy. This seems to be lower than the correlations of 0.67 (Chen, Gully, and Eden (2004, p. 386) and 0.74 (Judge, Erez, Bono, & Thoresen, 2002, p. 698) reported previously. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between self-esteem and self-efficacy (0.638). A statistically significant correlation was also reported in Chapter 4 between performance self-esteem and self-efficacy (0.529).

In addition, this value (β = 0.37) is lower when compared against the path coefficient between self-esteem and self-efficacy of the overall model of persistence (β = 0.45) and the model depicting the process of persistence of individuals that passed the Qualifying Exam (β = 0.57).

In explaining the impact of self-esteem on self-efficacy, the concept of self-regulation requires attention. Self-regulation depends on three interacting components, viz: a) goals and standards of individual performance, b) self-evaluating statements about performance, and c) self-efficacy beliefs (Bandura, 1986, 1997). Of importance for the explanation for the relationship between self-esteem and self-efficacy, only self-evaluating statements and self-efficacy beliefs are used. During the evaluation of individuals' progress towards the goal of passing the Qualifying Exam, they are likely to develop certain beliefs about their progress and efficacy. Individuals that have failed the Qualifying Exam on numerous attempts may have engaged in negative self-evaluative thinking (i.e. lower performance self-esteem). These self-evaluative reactions may have manifested themselves in certain types of emotions (e.g. anxiety). The latter may have negatively impacted the cognitive and behavioural evaluations of individuals (i.e. self-efficacy) that were likely to hinder their progress towards the passing of the Qualifying Exam.

Not passing the Qualifying Exam has a definite impact on the confidence levels of individuals who wrote the Qualifying Exam, with the accompanying evaluation of competence in accounting. It was previously stated that individuals that have failed the Qualifying Exam have lower levels of performance self-esteem as well as hope. Combining the impact of not passing the Qualifying Exam, the impact of low hope, as well as low performance self-esteem, the following can be concluded. It may be possible that self-efficacy may have been negatively impacted by both hope and performance self-esteem. Low levels of hope impacted feelings of confidence and competence due to the ineffectiveness of alternative pathways to enable these individuals to pass the Qualifying Exam. Because the low levels of hope may have resulted in negative emotions and creating self-doubt, their impact on performance self-esteem may have been negative. With a negative performance self-esteem (based on the fact that the Qualifying Exam was failed) together with low levels of hope, self-efficacy may be damaged. The latter refers to individuals' levels of confidence in exhibiting the required behaviour to pass the Qualifying Exam. It can therefore be suggested that as these three psychological strengths become depleted, due to goal non-attainment, these individuals will have very few psychological strengths left to use in order to enhance their levels of persistence and pass the Qualifying Exam. By failing the latter, the ultimate indicator of incompetence, may have a debilitating effect on these individuals if these psychological strengths (i.e. performance self-esteem, hope, and self-efficacy) are not enhanced (Wallace & Baumeister, 2002).

The theoretical model depicting the process of persistence also suggested a path between self-esteem and resilience, which is elaborated on in the following section.

5.4.3.7. Explaining the relationship between Self-esteem and Resilience for individuals that failed Part 1 of the Qualifying Exam during 2005

In the current study, it was theorised that self-esteem is indirectly related to persistence (through resilience, which is the persistence component of motivation). A significant path coefficient of β = 0.67 between self-esteem and resilience (the persistence component of motivation) was found. In addition, support for the standardised path coefficient is provided by statistically significant bivariate correlations between self-esteem and resilience (0.670), as well as between performance self-esteem and resilience (0.547), as reported in Chapter 4. This result is

in line with previous studies. For example a statistically significant relationship (γ = 0.329) between persistence and positive affect (e.g. self-esteem) (Seo (2004, p. 5) and r = 0.34 (Koestner & Zuckerman, 1994, p. 341) are reported, which are both relatively similar to the current value of β = 0.67.

Although there were no significant differences amongst individuals that failed the Qualifying Exam during their first, second, third, fourth, and fifth attempts, there is a small, steady decline noticeable in the average scores of each of these groups until the third attempt in terms of their self-esteem (refer to Chapter 4). A similar pattern is observable when looking at the average scores of resilience across number of attempts for individuals that have failed the qualifying Exam (refer to Chapter 4). The decline is consistently downwards across all five attempts. Although not statistically significant, there is a steady decline in the levels of resilience, self-esteem, and performance self-esteem of the individuals that have failed the Qualifying Exam on numerous attempts.

Thus, it can therefore cautiously be concluded that due to the lower levels of hope, self-esteem, and performance self-esteem, a direct and indirect influence on resilience levels of individuals that have failed the Qualifying Exam are to be expected. Due to the lower levels of hope impacting on the self-esteem and performance self-esteem of individuals through the possible inability of alternative pathways to lead to successful completion of the Qualifying Exam, and self-esteem being negatively impacted by not passing the Qualifying Exam in terms of both self-worth and performance self-esteem, resilience may decline. One possible explanation is that the numbers of psychological resources available to individuals that have failed the Qualifying Exam were being depleted. Thus, with lower levels of hope, self-esteem, and performance self-esteem only locus of control, optimism, and self-efficacy may be have been used. However, even self-efficacy may be negatively impacted due to not passing the Qualifying Exam and therefore the possibility of feeling incompetent at qualifying thus not being able to assist individuals to be resilient (β = 0.18, non-significant) Thus, unrealistic optimism (as one of the remaining psychological strengths) may hinder these individuals in understanding and stopping the depletion of their psychological resources (i.e. hope, performance self-esteem, and self-efficacy) that are actually required to become competent, to persist, and to pass the Qualifying Exam.

The theoretical model depicting the process of persistence also suggested a path between self-efficacy and resilience, which is elaborated on in the following section.

5.4.3.8. Explaining the relationship between Self-efficacy and Resilience for individuals that failed Part 1 of the Qualifying Exam during 2005

It was theorised that self-efficacy is indirectly related to persistence (through resilience, which is the persistence component of motivation). Bandura was of the opinion that self-efficacy beliefs influenced resilience to adversity and the presence of helpful or hindering cognitions (O'Brien, 2003, p. 110).

In line with this statement, the current study reported a non-significant path coefficient of β = 0.18 between self-efficacy and resilience (the persistence component of motivation). In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between self-efficacy and resilience (0.514), as reported in Chapter 4.

This path coefficient is smaller than the correlation coefficient of 0.34, reported in a meta-analytical study exploring the relationship between self-efficacy and persistence (Multon, Brown, & Lent, 1991, p. 34). In addition, it is also smaller than that reported in the overall model of persistence (β = 0.66) and the model depicting persistence of individuals that passed the Qualifying Exam (β = 0.95). The discrepancy in the results can be interpreted as follows.

General self-efficacy is strongly related to an individual's motivational processes. During task performance, the motivational state (e.g. general self-efficacy) improves the allocation and persistence of on-task performance (Kanfer et al, 1997). However, due to failing the Qualifying Exam, with lower levels of hope and performance self-esteem these individuals may be a) less confident in their overall abilities to write and pass the Qualifying Exam, as well as b) possibly not focusing on the skills that they have to acquire and practice in order to be successful. Thus, without having confidence in their abilities to develop effective pathways to pass the Qualifying Exam, without positive experiences in terms of performance self-esteem, and ultimately not passing the qualifying exam they may view themselves as having fewer resources at their disposal to be resilient. Support for this conclusion is provided in the following section, emphasising the relationship between resilience and persistence.

5.4.3.9. Explaining the relationship between Resilience and Persistence for individuals that failed Part 1 of the Qualifying Exam during 2005

It was previously stated that resilience emphasises individuals' abilities to bounce back (i.e. resile) from adversity. In order to be resilient, individuals must have access to various skills and psychological resources (known as generalised resistance resources) to be more resilient and persistent (London, 1983, 1993, 1997; Lustig et al, 2002, p. 2; Strümpfer, 2001b, p. 36). Antonovsky (1979) proposed that the availability of these resources helps these individuals to develop resilience, which in turn mobilises the resources to avoid or deal with stress and persist. Resilience is therefore important because of personal characteristics that may a) compensate for the loss of competence during stress, b) protect the individual against perceptions of harm to the self-esteem, and c) interpret stressful situations as challenging (London, 1998, p. 77).

It is therefore expected that individuals, who have more skills and psychological resources at their disposal to be more resilient, and in turn should also, be more persistent. In contrast, those individuals with less psychological resources at their disposal are to be less resilient, and in turn should also be less persistent.

A significant path coefficient of $\beta = 0.66$ was reported, in the current study, between resilience and persistence for individuals that failed the Qualifying Exam during 2005. In addition, support for the standardised path coefficient is provided by a statistically significant bivariate correlation between resilience and persistence (0.436), as reported in Chapter 4. This path coefficient is substantially lower when compared against the overall model of persistence ($\beta = 0.92$) and the model depicting the process of persistence of those individuals that passed ($\beta = 0.96$).

It can therefore be concluded that individuals who are less resilient (emphasising the three theoretical components of resilience, viz: meaningfulness, manageability, and comprehensible) may be less persistent. It was stated earlier that there was a steady decline in the levels of resilience of those individuals that failed the Qualifying Exam during 2005. Thus, individuals who did not find meaning in their past negative experiences of not passing the Qualifying Exam but still persisted due to their time investment to become chartered accountants, who did not interpreted the Qualifying Exam as comprehensible – as a task that cannot be understood as a requirement to become a chartered accountant, and being unsuccessful in mastering the required skills to passing, as well as having fewer available resources at their disposal – in the

form of various psychological strengths and social support, are therefore less likely to be resilient and therefore persistent (Antonovsky, 1979).

It is thus possible to conclude that individuals that persisted and failed the Qualifying Exam during 2005 seemed to have used fewer resources successfully – as evident by conclusions drawn in the previous sections. Each of these psychological resources (hope, self-esteem, performance self-esteem, and self-efficacy) could not be used effectively by those aspiring chartered accountants who failed to become more resilient, with a negative impact on their persistence. Support for this conclusion is also provided by the discriminant function reported in Chapter 4. The discriminant function suggested that resilience, performance self-esteem, and an optimistic explanatory style for good events could correctly classified 70% of the individuals into the failing group. Therefore it is suggested that resilience is influenced when the individual has fewer resources available to use to be more resilient, and therefore be less persistent.

It was also suggested in Chapter 2, that the protective factors (Masten et al., 2005, p. 83) that can be developed in aspiring chartered accountants are all related to psychological strengths investigated in the current study. In conclusion, it is therefore possible to state that general self-efficacy, hope, self-esteem, and performance self-esteem were all generalised resistance resources that aspiring chartered accountants, that failed in 2005, probably could not use (due to resource depletion) in dealing with negative feedback from not passing the Qualifying Exam to become more resilient, in order to be more resilient and persistent. It seems as if those individuals that failed the Qualifying Exam during 2005 could not effectively implement a combination of psychological strengths, which did not enhance their generalised resilience resources, which did not enabled them to be persistent and successfully passing.

With a clear understanding as to the possible impact of resource depletion on aspiring chartered accountants' levels of resilience and persistence, some tentative predictions are made in the following section.

5.4.3.10. Predicting persistence of individuals that have failed Part 1 of the Qualifying Exam during 2005

Both Hope and Self-esteem were significant predictors of persistence of individuals who failed Part 1 of the Qualifying Exam during 2005. There were no significant

predictors of persistence for individuals that failed part 1 of the qualifying exam during their first attempt.
Hope was the only significant predictor of persistence for those individuals that failed their second attempt at Part 1 of the Qualifying Exam. In addition, self-esteem was the only significant predictor of persistence for those individuals that failed their third attempt at Part 1 of the Qualifying Exam.

The above results must be evaluated in terms of the model depicting persistence of those individuals that failed the Qualifying Exam during 2005, as well as the overall model of persistence. In the previous section 5.4, it was concluded that individuals that failed the Qualifying Exam during 2005 had lower levels of hope and performance self-esteem. It should however be noted that these individuals are not hopeless, they just have less hope. It is therefore possible, that they may still be hopeful that things will turn out well for them in eventually passing the Qualifying Exam. It is therefore possible to conclude that if these individuals could enhance their levels of hope and self-esteem (specifically performance self-esteem through intervention programmes), together with other psychological strengths and resources, that they may be more persistent and pass the Qualifying Exam. However, without timely interventions to stop the depletion of psychological resources, these individuals are unlikely to become more resilient and persistent (Antonovsky, 1979; London, 1983, 1993, 1997; Lustig et al, 2002, p. 2; Snyder, 1994, 1996; Strümpfer, 2001b, p. 36; Tafarodi & Vu, 1997; Wallace & Baumeister, 2002). Thus, it can therefore be predicted that individuals with low hope and low self-esteem may have lower levels of persistence, possibly due to the depletion of available resources to be resilient when faced with failure and negative feedback.

The previous sections provided conclusions related to *describing* of the fortigenic variables that influence persistence of aspiring chartered accountants, *explaining* the process of persisting of aspiring chartered accountants using the various fortigenic variables, as well as *predicting* persistence of aspiring chartered accountants. The previous three focus areas are representative of the tree aims of scientific research. The remaining aim of scientific research is to suggest interventions to enhance persistence of aspiring chartered accountants as well as improving future research in

positive organizational behaviour. Due to the self-correcting nature of science, the following section provides both practical and scientific recommendations.

5.5. Recommendations for interventions and future research

One of the characteristics of science is self-correction (Kerlinger & Lee, 2000, p. 7). The latter implies that evidence to support a research proposition must be re-evaluated using alternative approaches and methods to find support for previous findings. Self-correction implies that research must continue in asking questions about the most suitable antecedent variables to be used in understanding persistence. Self-correction also implies that the research process and the research paradigm that influences that process are evaluated and corrections be suggested to improve scientific understanding. On the basis of this self-correcting principle the current study opens up its methodology, results, and conclusions to the scrutiny of the scientific community. In adhering to the self-correcting principle, Chapter 5 identifies the limitations of the current study and makes suggestions for corrective steps to be taken for future research to be conducted in the field of Positive Organisational Behaviour in general, and persistence in particular (Kerling & Lee, 2000, p. 7).

Before making suggestions for future research endeavours within the field of Positive Organisational Behaviour, practical interventions to enhance persistence in aspiring chartered accountants are provided in the following section.

5.5.1. Practical interventions to enhance persistence of aspiring chartered accountants who have failed Part 1 of the Qualifying Exam of SAICA

In the previous sections of this chapter, statistical support was provided for the theoretical model depicting the sequential process of persistence in a group of aspiring chartered accountants. On the basis of that theoretical model, it can be suggested that to intervene to enhance the psychological resources required to be resilient and persistent, a specific order to these interventions are required. Although an individual may be low on self-esteem, the latter are related to locus of control, hope, and optimism. Thus, any intervention aimed at improving self-esteem, as a psychological construct, that can enhance persistence requires additional interventions prior to the enhancement of self-esteem. In addition, it is suggested that the suggested persistence enhancement intervention programme be implemented after failing the first attempt at

passing the Qualifying Exam. It is therefore possible that the consequences of ego/resource depletion come into affect and without the replenishment of the psychological resources may become less useful after numerous failures at passing the Qualifying Exam.

Before providing an outline of a suggested intervention programme to enhance persistence, the following must be taken into consideration. It was not the intention of the current study to evaluate the effectiveness of an intervention programme to enhance persistence. Nor is the current study suggesting that only this intervention programme will be effective. The sequential order suggested by the theoretical model depicting the process of persistence must be followed when developing an intervention programme. All the fortigenic variables are related to one another and therefore require a sequential intervention programme. It must be noted that the aim of this practical intervention programme is to suggest how different psychological strengths can be developed in order to enhance persistence. The following section will only provide an outline of such a persistence enhancing training programme, emphasising the development of psychological strengths. For detailed information on each of the possible interventions to enhance each of the fortigenic variables, the reader is referred to Chapter 2. In addition, it is also possible to develop these psychological strengths using both individual-based and group-based interventions.

Following this logical, step-by-step approach to develop psychological strengths to enhance persistence, the following outline of possible interventions is suggested.

1. Developing personal control and increasing perceptions of internal locus of control

   The aim of the interventions mentioned below are to provide the aspiring chartered accountant with success experiences related to controlling those aspects of Part 1 of the Qualifying Exam (including their thoughts and emotions). Such success experience enhance efficacy in dealing with challenging situations.

   a. Developing stress-reduction and coping skills. Through the enhancement of stress-reduction and coping skills (i.e. cognitive behavioural therapeutic interventions), individuals are being assisted in dealing effectively with challenges. These positive experiences in successfully dealing with the latter enhance their sense of control.

b. Changing individual goals that are more achievable.
c. Developing new areas of personal control.
d. Accepting current circumstances and what can and cannot be changed (Thompson et al., 2000; Rothbaum et al., 1982).

Due to the fact that locus of control is related to an individual's optimistic explanatory style through the identification of controllable events, interventions aimed at dealing with optimism are suggested next.

2. Developing an optimistic explanatory style, taking into account flexible optimism

   The aim of the interventions mentioned below is to provide the aspiring chartered accountant with cognitive skills related to correcting irrational thought patterns and developing more rational explanations for failure.

   a. Rational-Emotive-Therapy using the A-B-C-D-E-F framework (Schulman, 1991; Ellis, 2001).

Since locus of control is also related to an individual's levels of hope trough the initiation of problem-solving activities to deal with a given situation; interventions aimed at enhancing hopeful thinking are suggested next.

3. Developing hopeful thinking, including pathways and agency thinking

   The aims of interventions to enhance hopeful thinking are to assist the aspiring chartered accountant to change his/her way of thinking about identifying goals to pursue, developing strategies to achieve those goals, as well feeling confident in those strategies to achieve the set goals. All these interventions are suggested to be conducted within the cognitive-behavioural therapeutic paradigm.

   a. Hope finding.
   b. Hope bonding.
   c. Hope enhancing.
      i. Enhancing pathways thinking.
      ii. Enhancing agency thinking.
   d. Hope reminding (Lopez, Snyder, Magyar-Moe, Edwards, Pedrotti, Janowski, Turner, & Pressgrove, 2004).

There is the possibility that hope is related to an individual's levels of self-esteem through self-enhancing statements, rather than self-doubt, when experiencing setbacks. Interventions aimed at developing a positive self-concept and self-esteem are suggested next.

4. Developing self-esteem and self-evaluative statements that are conducive to a realistic and positive self-concept

   Enhancing self-esteem of aspiring chartered accountants have as aims the development of positive and realistic self-evaluative thoughts and emotions as well as protecting the ego from negative consequences related to negative self-evaluations and failure.

   a. Using compensatory self-enhancement to confirm verbally to negative feedback, but not behaviourally (McFarlin & Blascovich as cited by McFarlin et al., 1984, p. 139).
   b. Redirecting thoughts (that lead to emotions) to relevant information already within the individual's thought system (McGuire & McGuire, 1996), emphasising the identification of self-affirming thoughts and information already available.
   c. Self-esteem is enhanced when the individual can identify favourable and positive characteristics and not by identifying those favourable characteristics that are lacking (McGuire & McGuire, 1996, p. 1124).
   d. Situational/temporary disengagement (Nussbaum & Steele, 2006, in press).

Due to the fact that both hope and self-esteem possibly are related to an individual's levels of self-efficacy and confidence, interventions aimed at developing self-confidence in abilities are suggested next.

5. Developing self-efficacy in order to increase confidence in abilities

   Self-efficacy interventions are aimed at enhancing the aspiring chartered accountant's levels of confidence in accountancy, stress management, and coping.

   a. Mastery experiences related to coping and accounting.
   b. Verbal persuasion regarding irrational performance and confidence related beliefs related to failure and confidence in abilities.

c. Vicarious learning and vicarious experiences related to accounting performance and dealing with failure.
d. Imaginable experiences related to what are required to pass the Qualifying Exam.
e. Effectively dealing with physiological and emotional states related to performance and failure.
f. Viewing accounting competence as an incremental process using effort and experience.
g. Changing causal attributions – also related to optimism and self-esteem (Dweck, 2000; Fosterling, 1986; Maddux, 1999; Thompson, 1991).

Lacking the necessary psychological resources to deal effectively with failure and to be resilient in the face of adversity, in order to persist, requires interventions aimed at developing resilience are suggested in the following section.

6. Developing sense of coherence and resilience in order to bounce back after failure

Sense of coherence and resilience are protective psychological strengths that aspiring chartered accountants, that have failed, can use to build their psychological strengths. It is suggested that by enhancing all the previous psychological strengths (i.e. locus of control, optimism, hope, self-esteem, and self-efficacy) the individual will have more generalised resistance resources (Antonovsky, 1987).

a. Enhancing manageability, in order to assist the individual in believing that he/she has the personal and social resources to deal with the demands of the world (e.g. preparing, writing, and passing the Qualifying Exam).
b. Enhancing meaningfulness, resulting in the individual to look for order, making use of available resources, and to seek new resources for managing the demands placed on him/her by the Qualifying Exam.
c. To enhance comprehensibility/controllability, with an impact on the individual's levels of understanding that Part 1 of the Qualifying Exam is predictable (i.e. focus is on accounting and other skills, nothing more

and nothing less), ordered, and understandable emphasis must be placed on his/her perceptions of locus of control.

With an indication as to the possible interventions to enhance psychological strengths that are related to persistence, the following section provides suggestions as to how to improve future research in the area of Positive Organisational Behaviour.

5.5.2. Scientific interventions aimed at improving future research in the field of Persistence and Positive Organisational Behaviour

Industrial and Organisational Psychology is a pragmatic science and Psychology. It is pragmatic due to the field's emphasis on predicting behaviour of individuals working in an organisation – in the case of the current study the prediction of persistence. By putting emphasis on the prediction of behaviour, Industrial Psychology may not always use multiple measures of constructs and multiple methods to support and substantiate findings (Miner & Hulin, 2006). The overemphasis on positivistic quantitative research may limit the field of Industrial Psychology to fully comprehend the processes involved in persistent behaviour. The following suggestions are provided to improve future research.

1. The current study explored the dynamic process of persistence, and the factors that influence it over time, from a static, cross-sectional perspective. It is advisable for future research on persistence to collect longitudinal data and track the process of persistence over time. This will enable such future studies to substantiate the current exploratory findings of the current study (Miner & Hulin, 2006).
2. The current study operationalised each of the fortigenic variables by using valid and reliable measuring instruments. In doing so, the current study employed a survey research design where questionnaires were distributed to aspiring chartered accountants to complete. However, in this lies two of the quantitative, positivistic paradigms' limitations as associated with mono-method bias, viz: an overreliance on self-reports and avoiding qualitative methods. Firstly, an overreliance on self-reports *may artificially inflate correlations among variables due to common measurement operations shared by the different response formats* (Miner & Hulin, 2006, p. 430). It is suggested that future research endeavours use, where feasible, multiple and

alternative methods of measuring persistence and the fortigenic variables employed in the current study. Secondly, it is also suggested that a qualitative research approach be employed in future research projects to understand why aspiring chartered accountants, that have failed, used certain psychological strengths to persist. It is suggested that alternative qualitative approaches be used to measure some of the fortigenic variables, such as resilience and optimism. Strümpfer's (2001a) qualitative exercise to measure resilience in adults, as well as Peterson, Luborsky, and Seligman's (1983) Content Analysis of Verbatim Explanations (CAVE) can be used as qualitative measures of these constructs. It is also suggested that the statistical evidence related to the process of persistence be compared against qualitative evidence of the process of persistence.

3. In its attempt to describe and understand the process of persistence, a group of 295 aspiring chartered accountants were sampled. In addition, the current study also compared a group that persisted and passed (n = 139) with a group that persisted but failed (n = 156). Although the goodness-of-fit statistics for all three groups were acceptable, some of the levels of fit were not in line with suggested cut-offs (e.g. SRMR of group that failed, RMSEA values, and GFI). However, depending on the source cited (see 3.6.4.1.4.4) RMSEA values below 0.1 are acceptable with values below 0.05 suggesting very good fit. All the RMSEA values of the three measurement and structural models were within this range. An arbitrary cut-off of between 0.05 and 0.08 are indicative of acceptable fit for SRMR. Again, both the total group and the group that passed had acceptable levels of fit. The group that failed had a slightly higher value of 0.097. Finally, all three the groups had values of 0.92 and above for the CFI. Although modification indexes can be consulted to improve overall model fit, it is important to note the purpose of structural equations modelling is to evaluate theory – and not to improve model fit. Therefore the current study accepts the levels of fit without making any changes on the basis of the modification indexes (without prior consultation of the theory) to the suggested theoretical process of persistence. Suggestions as to additional paths and changes to the theoretical model depicting persistence are suggested under bullet 6 below.

Given these results, it is therefore more important to determine to what extent the findings of the three models can be generalised. Given the challenge that different cut-offs are suggested for evaluating acceptable fit, the current study suggests that the results be cautiously interpreted in relation to *generalisability* and to a lesser extent *goodness of fit*. In addition, the study supports the viewpoint that interpreting levels of fit without the theoretical support for a given model may not be recommendable. Therefore, the current study is of the opinion that both theoretical and statistical support be considered when evaluating fit. Only emphasising good levels of fit may not be appropriate if the theory does not support the model being tested.

Taking into consideration these suggestions, the current study suggests that the findings not be generalised without taking into consideration the samples used together with theoretical support for a fortigenic approach to understanding persistence. To deal with the limitation of generalisability, the following section provides suggestions as to remedy this in future studies.

4. In order to explore which factors are related to persistence, the current study chose a group that had to persist. Various occupations require persistence. The current study found support for a theoretical model depicting the process of persistent behaviour in a sample of aspiring chartered accountants. However, the current study is not stating that the process is universal or applicable to all occupations. It is therefore suggested that future studies on persistence must validate the current process of persistence using a different group that must also persist. It is suggested that individuals in occupations such as actuarial sciences, marketing/sales personnel, and medical doctors be studied to determine if similar psychological strengths are used by them to achieve their career goals and/or organisational targets.
5. In addition to testing the model in other occupational samples that must persist, it is also suggested that future research explores how successful individuals persist. Thus, those individuals that have not failed significant career goals must also persist. However, what do these individuals use to persist? In the current study it was reported that individuals that passed the Qualifying Exam on their first attempt were significantly higher on their levels of the behavioural component of persistence. It can be useful to use a sample

of excellent performers and determine their behavioural characteristics as it relates to persistence – even when they have not failed.

6. On the basis of the correlation coefficients between persistence and the fortigenic variables used in the current study (locus of control, general self-efficacy, hope, optimism, and resilience) it was evident that as individuals fail or pass at a much later attempt, the number of significant relations became less. One possible explanation forwarded was that of ego depletion and resource depletion. However, in both these instances it was evident that hope had a significant relationship with optimism. This is especially observable after passing the Qualifying Exam on the third attempt, as well as failing the Qualifying Exam after the third attempt. Taking this into consideration it is suggested that future research focusing on persistence add additional paths, based on theory, between the fortigenic variables in the current model. Additional paths may help to expand the understanding of the complex interaction of psychological strengths used by individuals to persist.
7. The current study only focused on six fortigenic variables (i.e. locus of control, optimism, hope, self-esteem, self-efficacy, and resilience). However, Positive Psychology, Positive Organisational Behaviour, and fortigenesis all have several other variables that are labelled as strengths. It is thus suggested that future research investigate other variables, such as emotional intelligence (Luthans 2002a, 2002b), flow (Nakamura & Csikzentmihalyi, 2005), and coping styles, e.g. problem-focused versus emotion-focused (Lazarus, 1991). Emotional intelligence may be included in future research on persistence due to the emotional component related to persistence as well as the emotional reactions due to failure. The identification of coping styles may be beneficial in developing interventions to assist those individuals that experience setbacks. Flow (Nakamura & Csikzentmihalyi, 2005) refers to an individual being completely absorbed in what is being done. Individuals that are "in flow" described their experiences as follows *engaging in just-manageable challenges by tackling a series of goals, continuously processing feedback about progress, and adjusting action based on this feedback* (Nakamura et al, 2005, p. 90). It may be worthwhile do determine if individuals "in flow" are more persistent than individuals who are "out of flow". It is therefore suggested that future research identify which personality characteristic(s) may

assist individuals to counteract the impact of ego and resource depletion – variables that may act as a "resource replenishers" mentioned previously.

8. Finally, it is suggested that future research on the enhancement of persistence, as suggested by the interventions in Chapter 2 and Chapter 5, be evaluated using quasi-experimental research designs with control and experimental groups of individuals developing their psychological strengths in various combinations (Rogelberg, 2004). This will allow Positive Organisational Behaviour to demonstrate that suggested interventions do have positive outcomes (Cameron, Dutton, & Quinn, 2003).

With suggestions for both future research and persistence enhancing interventions, the final section provides a brief summary of the conclusions drawn in Chapter 5.

5.6. Summary

The final chapter concluded that the reliability and validity of the fortigenic variables used in the current study were acceptable and could be used for interpreting the results of the current study. Significant differences were obtained amongst the various fortigenic variables and several biographical variables, most notably hope, performance self-esteem, and resilience. It was also found that the theoretical model depicting the process of persistence fitted the data well with acceptable levels of fit and all the paths being significant. It was also concluded that individuals that persisted and passed the Qualifying Exam also provided acceptable levels of fit, supporting the general model of persistence. However, for the individuals that passed, self-esteem indirectly assisted them to be more resilient and persistent through their self-efficacy perceptions. In determining if the theoretical model of persistence could be applied to a group that failed the Qualifying Exam, but persisted, support was again found for the validity of the model. Those individuals that persisted seemed not to be able to use their self-efficacy to become more resilient and persist, due to the assumption that they have failed – therefore no indication of confidence in mastering the accounting skills required to pass. Therefore, it became evident that individuals that failed the Qualifying Exam may have experienced ego/resource depletion. Especially significantly lower levels of hope and performance self-esteem may be psychological resources that may have been depleted by previous attempts at passing the Qualifying Exam without any success. The latter may have negatively impacted these aspiring

chartered accountants' ability to utilise various psychological strengths to become more resilient and persistent. The consequence of ego/resource depletion may be that as the psychological resources become less, fewer and fewer strengths can be used by individuals to persist. The chapter concluded with recommendations for future research and outlined a persistence enhancing intervention programme that included strengths-based interventions related to locus of control, self-efficacy, optimism, hope, self-esteem, and resilience.

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