THE RELATIONSHIP BETWEEN STUDENTS' ACADEMIC SELF-CONCEPT, MOTIVATION AND ACADEMIC ACHIEVEMENT AT THE UNIVERSITY OF THE FREE STATE

by

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DEDICATION

This work is dedicated to my kind and wonderful husband, Rudi Coetzee, who never, even for a moment, stopped supporting me. Your unconditional love and devotion to me is what gives me strength and hope.

La vie nous a enseigné que l'amour ne consiste pas en regardant fixement à l'un l'autre mais en regardant à l'extérieur ensemble en même direction.

Life has taught us that love does not consist of gazing at each other but in looking outward together in the same direction.
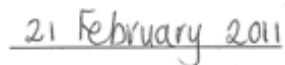
Antoine de Saint-Exupéry

DECLARATION

Student number: **4191-238-1**

I declare that **THE RELATIONSHIP BETWEEN STUDENTS' ACADEMIC SELF-CONCEPT, MOTIVATION AND ACADEMIC ACHIEVEMENT AT THE UNIVERSITY OF THE FREE STATE** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____   21 February 2011

SIGNED   DATE

Ms LR Coetzee

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The purpose of this study was to investigate the relationship that exists between academic self-concept, motivation and academic achievement at the University of the Free State. The primary aim of this study was to determine if academic self-concept and motivation of quantity surveying students at the University of the Free State could predict their level of academic achievement. The sample was selected by means of convenience sampling. Relevant literature indicated that there are contrasting findings about whether a relationship exists between students' academic self-concepts and motivation, and academic achievement. The empirical investigation revealed that there are only significant correlations between academic self-concept, motivation and academic achievement in some of the study year levels and not in all of them.

Key terms:

- Self-concept
- Academic self-concept
- Motivation
- Intrinsic motivation
- Extrinsic motivation
- Amotivation
- Academic achievement
- Students / learners
- Lecturers / teachers / educators

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CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

Academic achievement is an important factor in national education because it can be seen as an indicator of whether the education in a country is successful or not. Dambudzo (2009:1) states that over the past couple of decades society has placed infinitely more emphasis on the academic achievement of its citizens.

The academic achievement of students is an important indicator of academic success at university level. Students with higher levels of achievement at university are more likely to obtain good employment and salaries. Test scores predict success in the job market in terms of higher wages (Joppke & Morawska 2003). In short, academic achievement is important because it promotes success later in life (Areepattamannil & Freeman 2008:703) and in current life.

Large numbers of students start university every year with different marks obtained at Grade 12 level. In order for students to attend a university there are minimum criteria they have to comply with. One will find that, after several semesters at university, some students are successful whilst others drop out (Sikhwari 2004:1). It may be assumed that this is as a result of a low intelligence quotient or an inability to work hard, but this is not always the case. An intelligence quotient is score that is obtained by assessing the intelligence of an individual by means of a standarized test that is specifically designed to measure intelligence. A low IQ would thus imply that an individual is less intelligent than someone with a high IQ. Yoon, Eccles and Wigfield (1996:2) state that one of the most persistent puzzles confronting parents and teachers is uneven academic achievement among equally able students. Brody (as quoted by McCoach 2002:66) agrees with this statement when he says, "Why some students achieve in school and others do not remains a mystery".

There are many variables that may have an influence on a student's ability to achieve academically, including non-cognitive factors such as, motivation, the lecturers,

family circumstances, background, previous academic performances, study skills, and many more. In addition to the aforementioned, there are cognitive factors, such as IQ and standardized test scores, which have traditionally been associated with academic achievement. It is also important to examine the non-cognitive factors associated with academic performance (Cokley, Bernard, Cunnigham & Motoike 2001:109). Although academic achievement is often viewed only as a cognitive behaviour, according to Piaget (in Reed, Turiel & Brown 1996:142) purely cognitive or purely affective behaviours are non-existent. Piaget further states that all behaviour includes both cognitive and affective aspects. Bloom (1976:170) views the affective factors as important in the individual's learning history, which have consequences for each new learning situation.

Most research that has been done on factors that influence academic achievement concentrate more on the cognitive factors, while the affective factors are ignored (Sikhwari 2004). The affective aspect of the students should receive as much attention as the cognitive aspect in academic investigation and endeavours (Sikhwari 2004:22-30). Variance in academic achievement can be related to affective variables, of which self-concept and motivation are the most important (Van der Lith 1991:74-81). Areepattamannil and Freeman (2008:703-704) concur with Van der Lith (1991) when they state that academic self-concept and academic motivation have the most potential of being directly influenced by the regular classroom teacher, and should therefore be of primary concern.

Academic self-concept and motivation have been selected by the researcher to be the two affective variables that this study will focus on.

Much research has contributed to our understanding of the curricula, instructional strategies and student performance, as documented by grades and standardized test scores (McEachron-Hirsh 1993). McEachron-Hirsh believes that little is known about the students' perceptions of their academic experience and the kind of self-concepts they construct, based upon these experiences, as well as the extent to which they are motivated to do their best in academic work. Therefore, more investigation is needed on the self-concepts and motivation of the individuals, and how these two affective variables influence their academic work and their performance. Further

studies of factors influencing academic achievement are necessary to enable educators to plan wisely for the achievement of the learners (Dambudzo 2009:3).

This study will provide information on the relationship between academic self-concept and motivation and academic achievement to both the teacher and the learner.

Combs (1982:496) emphasizes the need for a study in this respect when he states that student feelings, attitudes, and beliefs are powerful sources of motivation in learning situations. Empathetic teachers, sensitive to the feelings and beliefs of students, are far more likely to create productive learning situations than those teachers who pay no attention to the affective aspects of learning.

Green, Nelson, Martin and Marsh (2006:534) indicate that various studies have attempted to explain whether academic self-concept and motivation lead to an increase in academic achievement. According to them, a number of studies have examined the causal relations between academic self-concept and academic achievement, as well as academic motivation and academic achievement. Green et al. (2006) furthermore mention that less integral to research, however, has been the investigation into the relationship between both academic self-concept and academic motivation, and their combined effect on academic achievement. Although the literature suggests that motivation and self-concept are related to each other, only a small number of studies have examined the effects of both of these factors in order to assess the relative salience of each of them to academic achievement (Green et al. 2006:534).

This investigation is aimed at providing information on the possible relationships between the independent variables, academic self-concept and motivation, and the dependent variable, academic achievement. The variables may vary in the hypotheses, in terms of which variables are dependent on each other.

1.2   RESEARCH PROBLEM

At the Department of Quantity Surveying at the University of the Free State, where the research will be conducted, students are selected according to certain academic criteria. Although the selection criteria are not as strict as the criteria for some of the

other university degrees, it will still be required from the student to have achieved specific marks in the Grade 12 final examination in order to be selected.

Despite these standards and the selection process, in 2009 on average, 15% of all the residential students from first to fourth year study level, registered for the BSc. Quantity Surveying degree, failed their main subject, Descriptive Quantification. This is not a troubling number of failures, but it highlights the question, "What factors beyond intelligence, are responsible for the variance in the academic achievement of students?"

What causes an intelligent student to either succeed or to fail at university? This is a question of great concern for many prospective and current students. It is also a concern for the lecturers who feel responsible for the students, and for the parents who have to pay the tuition fees. Myburgh, Grobler and Niehaus (1999) state that there is an increasing awareness that individual differences in intelligence alone cannot account for all, or even for the majority, of differences in academic achievement.

One can conclude that besides intellectual ability, there have to be other factors that play a role in the learning and the academic achievement of students. Other important factors include the students' interests and their involvement in various academic tasks, how they perceive their interactions with their lecturers, and what they feel and think about themselves with regard to the execution of academic tasks (Sikhwari 2004:13). Also included here are the students' attitude, their self-concept and motivation (Sikhwari 2004), self-determination (Mnyandu 2001), motivation, self-efficacy and perceived value (Nilsen 2009), stress and anxiety (Bester 2003), their socio-economic resources, parental involvement and family obligations (Areepattamannil & Freeman 2008), and learning strategies (Rodriguez 2009).

This study will focus on academic self-concept and motivation as factors that could influence and cause a variance in academic achievement.

Research by McCoach and Siegle (2003) suggest that self-concept helps to predict academic achievement. They state that as much as one third of the variance in achievement can be accounted for by academic self-concept. Findings seem to lend

support to the theory that consistent success or failure has an effect on self-concept, and that the level of academic achievement is influenced by an individual's self-concept of ability (Dambudzo 2009:6). The following highlights the importance of self-concept in academic achievement, when Mostert (1995:6) contends that a positive self-concept is one of the most vital elements for success, and because self-concept is both a personal and motivational variable, its overall contribution to the variance of academic achievement should be quite high; individuals seem to be motivated to perform in a manner consistent with their self-concept.

Mwamwenda (in Dambudzo 2009:6) states that educators generally believe that an understanding of self-concept and what it involves is essential if education is to achieve its ultimate goal of developing the individual's highest possible potential. In addition, an awareness of the role self-concept plays in human behaviour and development will enable educators to deliberately introduce ways of maximizing self-concept as an integral part of whatever they do in their interactions with learners. Marsh (in Areepattamannil & Freeman 2008:7.5) declares that a higher self-concept is associated with greater academic achievement among students. There is also evidence to the contrary, namely that humble self-assessments are more conducive to academic achievement, according to Ocshe (2003:67), Yoon, Eccles and Wigfield (1996) and Trusty, Watts and House (1996). Despite much research, there are no conclusive studies that clearly indicate the link that joins academic self-concept and academic achievement (Sanchez & Roda 2003).

Existing theory and research of Deci and Ryan (in Mnyandu 2001:1) have shown that self-determination (intrinsic motivation, extrinsic motivation and amotivation) plays a prominent role in the academic performance of learners. Kushmand, Sieber and Harold (in Broussard 2002) declare that a high level of motivation and engagement in learning has consistently been linked to a reduction in the number of drop-outs, and to increased levels of student success. In any academic setting, whether it be elementary, secondary or higher education, a student's motivation for learning is generally regarded as one of the most important determinants, if not the premier determinant, of the success and quality of the learning outcome (Mitchell in Broussard 2001:7). However, the relationship between motivation and academic achievement remains complex (McCoach & Siegle 2001:73). Mnyandu (2001:11)

declares that both intrinsic and extrinsic motivation, are prerequisites for academic achievement. Mnyandu (2001:11) considers it imperative that educators acquire a broad understanding of these different forms of motivation in order to help the learner to make use of the specific type of motivation that will facilitate his/her success in achieving the set goals.

In the light of the above, the research question can be indicated as follows:

Can academic self-concept and motivation predict the level of academic achievement of students in all four of the study years at the Department of Quantity Surveying?

1.3   AIMS OF THE RESEARCH

The following are the main and secondary aims of this research study that the researcher hopes to achieve:

The main aim of the research:

To determine whether the academic self–concept and the motivation of quantity surveying students can predict the level of academic achievement in all four of the study years.

The secondary aim of the research:

To determine whether there is a difference in the academic self-concepts and motivation of the quantity surveying students who perform above average academically, and of those students who perform below average academically.

1.4   THEORETICAL FRAMEWORK

A theoretical framework indicates the researcher's assumptions and beliefs. Sekaran (in Radhakrishna, Yoder & Ewing 2007:692) mentions that a theoretical framework is a conceptual model of how one theorizes or makes logical sense of the relationships among several factors that have been identified as important to the problem. A theoretical framework determines which questions are to be answered by the research, and how empirical procedures are to be used as tools to answer these

questions (De Vos, Strydom, Fouche & Delport 2005:35). Radhakrishna et al. (2007:692) indicate that, in essence, a theoretical framework attempts to integrate key pieces of information, especially variables, in a logical manner, and thereby conceptualises a problem that can be tested.

The theoretical framework clarifies the important concepts in this study. It will enable the reader to understand the concepts and the assumptions of the researcher. The three concepts that will be discussed and placed into context in this study are academic self-concept, motivation and academic achievement.

1.4.1 ACADEMIC SELF-CONCEPT

A number of definitions exist for self-concept. It is often used as a synonym for other terms such as self-regard, self-esteem and self-efficacy (Ahmed & Bruinsma 2006:554). Byrne (in Du Plessis 2005:58) declares that despite all the research, there still are several disparate conceptual models of self-concept, and there are so many so-called synonyms such as, self-identity, self-esteem, self-regard and self-perception. In order to avoid confusion the researcher concurs with the self-concept model of Shavelson, Hubner and Stanton (1976). Shavelson, Hubner and Stanton (1976) were the first to develop an empirically testable hierarchical self-concept model.

Areepattamannil and Freeman (2008:705) declare that self-concept has been viewed as a one-dimensional construct, until Shavelson et al. (1976) propounded a multi-dimensional, hierarchical model of self-concept. The Shavelson Model suggests that self-concept consists of a global self-concept, which is comprised of an academic and a non-academic self-concept. This model separates the academic and the non-academic components of self-concept. This notion has been supported by subsequent research in this area (Miller 2002:2).

Ahmed and Bruinsma (2006:554-555) are of the opinion that although global self-concept is important in an academic context, various studies have found academic self-concept to be a better predictor of achievement in an academic context. Kumar (2001:133) says that further research studies on self-concept conducted with students indicated that the general or global self-concept was weakly correlated with

academic achievement and Kumar confirmed a higher correlation between academic self-concept and academic achievement.

Based on these findings this study will focus only on the academic self-concept of the students. This aspect will be elaborated on in Chapter 2, section 2.2.2.

An academic self-concept refers to the overall self-perception of the individual in an academic context. In this study it is conceptualized as the students' self-evaluations in the university academic context. Academic self-concept is thus comprised of a set of attitudes, beliefs and perceptions held by the students about their academic skills and performance (Lent, Brown & Gore 1997). Academic self-concept and academic achievement are often linked together. A higher academic self-concept has been associated with better academic achievement (Marsh 1990). Burns (in Sikhwari 2004:40) concludes that, "…not only is self-concept present in all learning but is also a major outcome of all learning situations, though its presence might pass unnoticed by teachers intent on the inculcation of academic knowledge and skills".

Purkey (in Berg 1990:4) emphasises the need for educators to understand and appreciate the importance of self-concept in education in the following statement:

> "An overwhelming body of contemporary research points instantly to the relationship between self-concept and academic achievement and suggests strongly that self-concept can no longer be ignored by parents and teachers".

1.4.2 MOTIVATION

A Self-determination Theory Perspective

Human learning is a complex phenomenon, and motivation is an essential part of it (Sikhwari 2004:54). Various theoretical approaches have been used to define and operationalise motivation. Areepattamanil and Freeman (2008:707) declare that researchers have used a variation of motivational approaches, such as the expectancy-value theory (Berndt & Miller 1990), the goal theory (Meece & Holt 1993), and the self-efficacy theory (Zimmerman, Bandura & Martinez-Pons 1992) to examine the relationship between academic motivation and academic achievement. Other motivation theories include the cognitive dissonance theory, the attribution

theory, the evaluation theory and Maslow's self-actualising theory (Crous, Roets, Dicker & Sonnekus 2000:182-187).

In this study, academic motivation will be viewed within the context of the self-determination theory of Deci and Ryan (1985). This theoretical perspective has been used in a considerable number of research studies recently in the field of education (Deci, Vallerand, Pelletier & Ryan 1991). The self-determination theory indicates that there exist three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation.

The self-determination theory will be elaborated on in Chapter 2, section 2.3.2.

Intrinsic motivation refers to actions performed because people want to perform them, and for which they do not need external incentives (Crous et al. 2000:174). Deci (in Crous et al. 2000:175) declares that intrinsic motivation entails a drive to experience a sense of competence and self-actualization.

Extrinsic motivation refers to actions that are performed for the external rewards that these actions will bring. These rewards may include praise, approval or remuneration. Persons who are extrinsically motivated are not intrinsically motivated, but in some cases extrinsic motivation can lead to intrinsic motivation (Crous et al. 2000:176-177).

Amotivation can best be described as having no motivation. It is a feeling of helplessness and incompetence. Ahmed and Bruinsma (2006:556) state that amotivation occurs when an individual does not perceive contingencies between their action and its outcome. This type of motivation is the opposite of self-determined behaviour.

Sikhwari (2004:54) states that motivation is an essential part of the complex process of human learning and yet, despite its importance, there is much that remains unknown about it.

1.4.3 ACADEMIC ACHIEVEMENT

Academic achievement consists of two broad groups of definitions that are employed when assessing academic achievement. The first group is defined by Gbati (1988), who states that academic achievement refers to the numerical scores of a student's knowledge, which measure the degree of a student's adaptation to academic work and to the educational system.

The second group of definitions is more subjective, and suggests that academic success is reliant upon the student's attitudes towards his or her academic achievement, and depends on himself or herself (Khadivi-Zand 1982). Consequently, academic achievement could be defined as the self-perception and self-evaluation of one's objective academic success (Klobal & Musek 2001: 889).

In this study the definition used for academic achievement will be the more objective one, as used by Gbati (1988) and Howcroft (1991). Howcroft (1991:111) describes academic achievement in terms of the actual mark or score obtained in an examination. To be more specific, academic achievement in this study refers to performance, in the form of a numerical score as obtained in an examination or test.

1.5   RESEARCH DESIGN AND METHOD

1.5.1 RESEARCH DESIGN

A quantitative approach is to be implemented in this study. Quantitative research designs maximise objectivity by using numbers, statistics, structure, and control (McMillan & Schumacher 2006:23). These designs make use of methods that are distinct from those used in qualitative designs. Qualitative designs emphasize gathering data on naturally occurring phenomena, and most of this data are in the form of words rather than numbers (McMillan & Schumacher 2006:26). In quantitative research, it is important for a researcher to distinguish between experimental and non-experimental research.

In this study a non-experimental research design will be used. This implies that there will be no direct manipulation of the variables by the researcher.

A descriptive survey research design will be implemented. A descriptive design is a study that focuses on and describes phenomena. The purpose of most descriptive research is limited to characterize things as they are (McMillan & Schumacher 2006:24). The research design of this study will be elaborated on in Chapter 3 section 3.5.

In this study the researcher will aim to characterize the relationship that exists between academic self-concept, motivation and academic achievement.

1.5.2 SAMPLE

The researcher will employ non-probability convenience sampling. In this type of sampling, each member of the chosen population does not have the same chance of being selected as part of the sample. McMillan and Schumacher (2006:125) state that non-probability sampling is the most common type of sampling that is employed in educational research.

Convenience sampling will be used because it is convenient for the researcher to use the residential students at the Department of Quantity Surveying at the University of the Free State. All the residential students in their first to fourth years of study and who were, in 2010, registered for the module, Descriptive Quantification, at the Department of Quantity Surveying, will be included in the sample of this study.

1.5.3 DATA COLLECTION METHODS AND DATA PROCESSING

Questionnaires will be used to collect the necessary data. Questionnaires are preferred for this study because it is a means of supplying the researcher with quantifiable data that are readily available for statistical analyses (Dambudzo 2009:73).

In order to collect the data on the variable, academic self-concept, the Self-Description Questionnaire (lll) will be used in an adapted version, which will be explained in more detail in Chapter 3, section 3.6.1. The data on the motivation of the students will be collected by means of the Academic Motivation Scale (College Version), which will be elaborated on in Chapter 3, section 3.6.2. These

questionnaires are to be administered to the sample of students in September 2010 during their academic test week.

The data needed to represent the variable academic achievement, will be obtained from the examination marks of November 2010 for the module, Descriptive Quantification.

The data will be processed by means of statistical analysis. According to Brink (1999) the aim of data analysis is to reduce and to synthesize information to make sense, and to allow an inference about the population. The statistical procedures that will be employed are the Pearson Product Moment correlations, hierarchical regression, the Mann Whitney U-test, and the level of statistical significance.

The statistical procedures and the analysis of the study are discussed in more detail in Chapter 3, section 3.9 and Chapter 4, section 4.5.

1.5.4 ETHICAL CONSIDERATIONS

For this study the researcher had to ensure that all the respondents included in the sample gave their informed consent to participate. The researcher assured the participants of the confidentiality of all the sensitive information that was used, by not revealing the identities of the respondents. The researcher also undertook to release the findings obtained from this study.

1.6   A DEFINITION OF THE TERMS, WITHIN THE CONTEXT OF THIS STUDY

1.6.1 SELF-CONCEPT

Self-concept is defined by Shavelson et al. (1976:411) as "…a person's perception of himself formed through his experience with his environment". Self-concept is described by Klobal and Musek (in Baadjies 2008:2) as an individual's perceptions of him/herself; it is a psychological entity and includes one's feelings, evaluations and attitudes, as well as descriptive categories. Thus, self-concept is a cognitive generalization about the 'self', which mostly includes self-descriptions of neutral values. By way of a formal definition, self-concept refers to the person's total

appraisal of his appearance, background and origin, abilities and resources, attitudes and feelings, which culminate as a directing force in behaviour (Labenne & Greene in Baadjies 2008). In order to reach a common definition of self-concept, the researcher will make use of the definition by Shavelson et al. (1976) of the self-concept. They indicate that self-concept is the perception that each person has of him or herself, formed from experiences and relationships with the environment, as well as with significant others.

1.6.2 ACADEMIC SELF-CONCEPT

Lent, Brown and Gore (in Areepattamannil & Freeman 2008:704) define academic self-concept as a set of attitudes, beliefs, and perceptions held by the students about their academic skill-sets and performance. Academic self-concept is described by Byrne (in McCoach and Siegle 2003:61) as involving a description and an evaluation of one's perceived academic abilities, and it encompasses the global beliefs of self-worth associated with one's perceived academic competence.

1.6.3 MOTIVATION

To be motivated means to be moved to do something (Mnyandu 2001:4). Woodbridge and Manamela (in Mnyandu 2001:4) define motivation in the learning context as "…the willingness to engage in meaningful tasks". A person who feels no inspiration to act is viewed as a person who is unmotivated, whereas someone who is energised or activated towards an end is considered to be motivated (Deci & Ryan in Mnyandu 2001:5). Hurlock (in Crous et al. 2000:169) emphasises the goal-oriented component, by saying that motivation provides people with the drive necessary for channelling and directing their energy or enthusiasm so that it will lead to the realization of self-imposed objectives.

1.6.4 INTRINSIC MOTIVATION

Deci (in Areepattamannil and Freeman 2008:708) defines intrinsic motivation as the drive to pursue an activity simply for the pleasure or satisfaction derived from it. Intrinsic motivation is a drive to experience a sense of competence and self-actualization (Deci in Crous et al. 2000:175). The learner who considers learning as a

personal tool to increase knowledge is intrinsically motivated (Corno and Rohrkemper in Mnyandu 2001:7).

1.6.5 EXTRINSIC MOTIVATION

Vallerand and Ratelle (in Areepattamannil & Freeman 2008:709) mention that extrinsic motivation is a broad array of behaviours having in common the fact that activities are engaged in, not for reasons inherent in them, but for instrumental reasons. Extrinsically motivated behaviours are performed for the sake of the external rewards offered for the participation in or for the completion of a task (Mnyandu 2001:11). Learners who lack the internal drive to accomplish tasks and who rely on external incentives for motivation are said to be extrinsically motivated (Mnyandu 2001:11).

1.6.6 AMOTIVATION

Individuals who are neither intrinsically nor extrinsically motivated are amotivated (Cokley, Bernard, Cunninghum & Motoike 2001:110). Amotivation denotes the state when individuals do not perceive any contingency between their actions and the outcomes thereof. Thus, amotivated individuals experience feelings of incompetence and a lack of personal control over the outcomes that are thought to motivate human behaviour (Ahmed & Bruinsma 2006:556). Consequently, amotivated learners are learners who have no motivation.

1.6.7 ACADEMIC ACHIEVEMENT

Academic achievement indicates the numerical score of a student's knowledge. It measures the degree of a student's adaptation to schoolwork and to the educational system (Klobal & Musek in Baadjies 2008:3). Howcroft (1991:111) describes academic achievement in terms of the actual mark or score obtained in an examination or a test.

1.6.8 STUDENTS / LEARNERS

The terms students and learners are used interchangeably by the researcher, and are seen as synonyms with regards to this study. These words refer to any person who is learning or who is receiving education in a learning situation.

1.6.9 LECTURERS / TEACHERS / EDUCATORS

The terms lecturers, teachers and educators are all used in this study, and they all refer to the same concept, and are considered as synonyms by the researcher. These terms include any person who provides schooling to others, who teaches and/or educates people.

1.7   DIVISION OF CHAPTERS

Chapter 1: Introduction and overview

This chapter serves as an introductory orientation to the study. It briefly explained the research problem. The aims of the research and the researcher's theoretical framework were stated and briefly discussed. Terms relevant to this study were defined in the context of this study. The research methodology was briefly dealt with.

Chapter 2: The literature review

This chapter will elaborate on the relationship between academic self-concept, motivation and academic achievement. These three variables will be discussed in great detail with reference to the relevant literature. The interrelatedness and the effects of academic self-concept and motivation on academic achievement will be discussed in accordance with the latest and relevant data. This chapter will also focus on research that has been done in this field.

Chapter 3: The research methodology

This chapter will serve as an orientation and explanation of the research methodology of the study. It will explain the research design that will be implemented in the study. The sample and the selection procedure for the sample will be discussed. The researcher will introduce the data gathering methods for the study, as well as the validity and reliability thereof. The administration procedure of the data

gathering methods will likewise be discussed. This chapter will also focus on the statistical analysis procedures of the data that will be implemented in this study. Lastly, the ethical considerations of the study will be explored.

Chapter 4: The findings and a discussion of the findings

Chapter 4 will discuss the statistical procedures that were used to analyse the hypotheses in detail. The researcher will also discuss the findings of the analyses of the various hypotheses. Conclusions will be drawn, based on the findings of the study.

Chapter 5: Conclusions, recommendations and the limitations of the study

In Chapter 5 the researcher will summarize the findings from both the literature review and the empirical investigation. The researcher will present the conclusions emanating from the findings of the hypotheses, and will determine whether the research question of this study was answered. Recommendations will be made based on the findings of the study. The limitations of the study will also be indicated and briefly discussed.

1.8   CONCLUSION

Chapter 1 served as an introduction and orientation to the study. It discussed the research problem and the aims of this study. The theoretical framework was dealt with and the important concepts of the study were defined. The research methodology was briefly dealt with. In Chapter 2 the relationship between academic self-concept, motivation and academic achievement will be discussed in detail according to relevant literature.

CHAPTER 2

THE ROLE OF ACADEMIC SELF-CONCEPT AND MOTIVATION IN ACADEMIC ACHIEVEMENT

2.1 INTRODUCTION

In Chapter 1 the study was introduced and it served as an orientation. The researcher discussed the research problem and the aims of the research. The theoretical framework was indicated and definitions were provided for the important concepts in this study. The researcher also briefly discussed the research methodology to be implemented in this study.

In this chapter the focus will be on the relationship between academic self-concept, motivation and academic achievement. The researcher will elaborate on the three variables of this study and will focus on the interrelatedness and the effects of academic self-concept and motivation on academic achievement. These aspects will be discussed, and will highlight the possible relationships that exist between these variables. It will also emphasize the function of this study. The information that will be discussed in Chapter 2 is based on literature that was explored and studied by the researcher.

We live in a competitive society where excellence is often defined in terms of an individual's achievement in relation to other persons' achievement (Harackiewicz, Barron & Elliot 1998:1). Harackiewicz et al. (1998:1-2) state that it is possible that an exclusive focus on "winning" the contest for grades and academic advancement may interfere with involvement and learning in university classes, the deep processing of study materials and continued interest in an academic discipline. On the other hand, Harackiewicz et al. (1998:1) argue that if success does depend on outperforming others, a focus on winning might actually prove adaptive in a university context.

Academic achievement is very important in any educational setting, as it indicates the level of the student's competence in respect of the academic content. Indeed,

academic achievement does create competition between students, and it may remove the focus from the academic content of a course, but it a prerequisite in order to obtain success at university, and equally important in life after university. The academic achievement of a student determines whether he or she is considered to be successful or not, and as a result, academic achievement is very important in education.

Because of this reason, it is crucial to know and to understand which factors are responsible for determining, predicting or for causing variance in academic achievement. Over the years, researchers have sought to discover factors that determine students' performance (Ahmed & Bruinsma 2006:553). Dambudzo (2009:2) states that education has become concerned with the physical, social and emotional development of the individual, with much attention being given to factors contributing to the academic achievement of learners, other than intellectual ability.

McCoach and Siegle (2001) conducted a study in South Africa on 244, Grade 9 to 12 students, and they found statistically significant differences between high achievers and low achievers on the following five factors: attitudes toward school, attitudes toward teachers, goal-valuation, motivation, and general academic self-perceptions. However, two factors, namely academic self-perceptions and motivation or self-regulation, predicted students' achievement, as well as the five-factor model (McCoach & Siegle 2001:71). In this study it was found that academic self-perceptions and motivation are the two factors that predict academic achievement the best. Green et al. (2006:538) support this finding when they declare that motivation and self-concept are closely tied to students' economic success and long-term health and wellbeing. Thus, academic self-concept and motivation are two important variables in academic achievement, and can predict academic achievement, as well as cause variance in academic achievement.

McCoach and Siegle (2001:71) state that high and low achievers differ in both their motivational patterns and in their academic self-perceptions. This implies that motivational patterns and academic self-perceptions separate high and low achievers from one another. It can be concluded that variances in students' motivation and academic self-perceptions lead to variances in achievement. Reis and McCoach (in McCoach and Siegle 2001:71) state that most of the literature on under-achievement

suggests that underachievers demonstrate lower academic self-perceptions, lower self-motivation and self-regulation, and less goal-directed behaviour, and consequently more negative attitudes toward school.

Academic achievement, it would seem, is to a degree determined by the academic self-concept and motivation of the students. However, very few large-scale quantitative investigations have examined the legitimacy of these hypotheses (McCoach & Siegle 2001:71). It is for this reason that the researcher aims to provide more clarity on the relationships that exist between academic self-concept and motivation on academic achievement.

2.2 ACADEMIC SELF-CONCEPT

2.2.1 CONTEXTUALIZATION

Despite the profusion of studies devoted to self-concept, it is difficult to find a unanimously accepted definition of the term, self-concept, given that it has been approached from different theoretical perspectives (Sanchez & Roda 2003:97).

According to Morgan et al. and Burns (in Gabriel, Cheboswony, Kodero & Misigo 2009:107), one's self-concept is an indication of how you feel about yourself, and a self-view is important in determining how you learn and behave. Burns (in Gabriel et al. 2009:107) continues by stating that success or failure in schoolwork or life appears to depend as much on how a person feels about the qualities and attributes he or she possesses as on these qualities themselves. It therefore seems that achievement depends as much on the ability as on the self-concept of the ability of the student. This statement emphasizes the importance of self-concept of ability in an individual. According to Lyon (in McCoach and Siegle 2001:71), research suggests that as much as one third of the variance in achievement can be accounted for by academic self-perceptions. This highlights the importance of self-concept in both education and academic achievement.

In support of deeming self-concept as an important educational factor, research has shown that higher levels of self-concept are linked to various educational outcomes, such as academic effort, coursework selections, educational aspirations and

academic achievement (Green et al. 2006:534). Self-concept is therefore regarded as an important factor in various areas of education.

Mwamwenda (1995:365) states that self-concept in education, as well as in academic achievement, is important for the following reasons:

1.   Educators generally believe that an understanding of self-concept and of what it entails is essential, if education is to achieve its ultimate goal of developing the human's fullest potential.

2.   An awareness of the role that self-concept plays in human behavior and development will enable educators to deliberately introduce means of improving self-concept as an integral part of whatever they do in their interactions with the learners.

Dambudzo (2009:7) declares that it is important to investigate the relationship between self-concept and academic achievement in order to rescue those students who may be victims of their own negative beliefs about themselves. This statement is emphasized by Hamachek (1995:419) when he states that academic achievement may not simply be an expression of the students' abilities but also of their perceptions of their abilities, which may help them to feel confident and able, but when negative cause them to feel hesitant and uncertain.

In conclusion, it can be deduced from the above that self-concept of abilities is an important variable in education.

In the following section the researcher will attempt to define the concept and the structure of self-concept more clearly, specifically in respect of this study, elaborating on section 1.4.1 of Chapter 1.

2.2.2 THE STRUCTURE OF SELF-CONCEPT

Strein (in Bester 2003:59) states that the one-dimensional model of viewing self-concept is the oldest and most traditional way. According to the one-dimensional model, self-concept does not consist of different dimensions, such as an academic or

social self-concept, but of overlapping content areas, such as academic achievement or appearance, and each of these content areas is equally important.

Research and literature, however, indicate that self-concept is not a one-dimensional, but rather a multi-dimensional construct. Byrne (1986:173) conducted a study on 929 high school students and found that self-concept is multi-dimensional, hierarchically structured, and stable. This finding by Byrne (1986) is supported by Sanchez and Roda (2003:97), when they state that it is agreed that self-concept has a multi-dimensional nature. Sanchez and Roda (2003:97) furthermore state that self-concept is considered to comprise of various dimensions, areas or facets, some of which are more related to certain personality aspects (physical, social, emotional), while others appear to be more linked to academic achievement.

As mentioned in Chapter 1, section 1.4.1, Shavelson et al. (1976) created a multi-dimensional, hierarchical model of self-concept, called the Shavelson Model. This model maintains that self-concept consists of a global self-concept, which is comprised of both an academic and a non-academic self-concept. The researcher concurs with this view of the self-concept. Byrne (1986:173) states that how self-concept is viewed theoretically is a fundamental issue, because it frames both the dimensionality of the construct and its relation to other variables.

Shavelson et al. (1976) also identified a number of distinctive features of self-concept, such as it being organized, multi-faceted, hierarchical, stable or unstable, developmental, descriptive and evaluative, and differentiable from other constructs. In the above model self-concept is defined as a person's perceptions of himself, formed through environmental experiences, and by significant others (Ahmed & Bruinsma 2006:554). According to the Shavelson Model, individuals' perceptions of the self are developed in response to their perceptions of others' reactions towards them (Areepattamannil & Freeman 2008:705).

The model that Shavelson, Hubner and Staton created is in the form of a pyramid, with global self-concept at the top of the pyramid. Global self-concept is followed by academic and non-academic self-concepts. They are again divided into more specific self-concepts. The self-concepts are increasingly differentiated from the top to the

bottom of the model; the dimensions are related to one another, but can be identified and studied as separate constructs (Du Plessis 2005:62).

Global self-concept can be described as the general evaluative attitudes and feelings you have about yourself (Ahmed & Bruinsma 2006:554). Academic self-concept is related to feelings or attitudes that a person has of his or her own academic abilities.

According to Marsh and Hau (2004), the relationship between academic self-concept domains and academic achievement cannot be fully understood if the researchers investigating this topic rely on global estimates of self-concept. Thus, if you are investigating academic achievement, the focus should not be on global self-concept, but solely on academic self-concept. Hamachek (1995:419) states that a growing body of literature indicates that not only is it easier to differentiate academic self-concept from general self-concept, but academic self-concept is even more highly correlated with academic achievement than general self-concept. Therefore, it has been found that in order to effectively study the relationship between academic achievement and self-concept, the focus should rather be on academic self-concept than global self-concept.

In support of this view, Marsh, Byrne and Shavelson (1988) found that none of the general self-concept scales from three different instruments were significantly correlated with school grades in English, mathematics or all the other school subjects, whereas the academic self-concept scales were substantially correlated with academic achievement, substantiating the fact that academic self-concept is more highly correlated with academic achievement than general self-concept.

Sanchez and Roda (2003) conducted a research study on 245 primary school students in Spain, and found that academic self-concept powerfully and positively predicts both general achievement, as well as achievement in languages, the arts, and in mathematics. They also found that non-academic self-concepts negatively predict school achievement.

Marsh (1990b:646) states that the pattern of relations supports the construct validity of academic self-concept responses. He advocates the necessity for educational researchers to consider academic self-concept, instead of relying on general self-

concept scales. Byrne (1986:174) concurs, and states that the relationship between academic self-concept and academic achievement is stronger than the relation between general self-concept and academic achievement.

As a result of these findings in the literature that declare that academic self-concept is more highly correlated with academic achievement than global self-concept, the researcher is of opinion that to focus only on academic self-concept is more beneficial for this study. This study focuses on the academic achievement of students, and should thus concentrates on academic self-concepts rather than on global self-concepts of the students.

Cokley (2000:149) defines academic self-concept as "…the attitudes, feelings and perceptions relative to one's intellectual or academic skills". Byrne and Hattie (in McCoach & Siegle 2003:61) explain academic self-concept as an evaluation of one's perceived academic abilities. Byrne and Hattie (in McCoach and Siegle 2003:61) also state that academic self-concept encompasses the global beliefs of self-worth associated with one's perceived academic competence. Byrne (in Du Plessis 2005:80) mentions that academic self-concept, the ability of the self-concept and the self-concept of ability are used as synonyms in the literature.

It is important for lecturers to understand that they themselves, together with the classroom situation, play an important role in the affectivity of students. It is not unusual to hear students say that they would prefer not attend a class because of the lecturer and his/her negative disposition towards them. This attitude of the lecturer or the negativity that is experienced in the classroom may affect a student's academic self-concept. As indicated previously, the Shavelson Model defines self-concept as a person's perceptions of himself, formed by environmental experiences, and by significant others (Ahmed & Bruinsma 2006:554).

A lecturer can be considered as a "significant other" in an academic context, and the classroom situation may be defined as an "environmental experience", and both of them may have an influence on the academic self-concept of a student. Learners' self-perceptions of ability are related to the feedback that they receive from their educators. Each educator has a pattern of interaction by means of which he or she gives an indication, verbally or non-verbally, of what his or her opinions of the

learners are (Bester 2003:84). It is for this reason that it is important for the lecturers to understand how they may influence and affect students' self-concepts.

Botes (in Du Plessis 2005) states that given the role that the expectation and experience of success has on the formation of academic self-concept, educators can do much to make their learners feel successful. There is a popular belief that under-achieving students will perform better academically if their self-concept is targeted for improvement (Vialle, Heaven & Ciarrochi 2005:41). In many cases lecturers fail to do this, and an unfortunate consequence of such a situation is that the students end up being the suffering party (Sikhwari 2004:16).

In the next section the researcher will elaborate on the role of academic self-concept in academic achievement.

2.2.3 THE ROLE OF ACADEMIC SELF-CONCEPT IN ACADEMIC ACHIEVEMENT

More than 45 years ago, Prescott Lecky (1945) was one of the first to point out that the students' level of achievement may be related to the perceptions they have of themselves as learners (Hamachek 1995:419). Studies on the relationship between self-concept and students' academic achievement in educational settings have been a major focus of research for many years (Hamachek 1995). Studies in respect of the self-concept have awakened interest in the topic in the recent years (Sanchez & Roda 2003). Mostert (1995:6) also states that the development of self-concept has become a central theme in education. Vialle et al. (2005:40) agree when they declare that there has been a marked increase in research on self-concept and self-esteem during the previous two decades. Most of this research support the belief that there is a persistent and significant relationship between self-concept and academic achievement, and that a change in the one seems to be associated with a change in the other (Olatunde 2010:128).

The first wave of studies on self-concept in the 1950s by Benjamin, Reeder, Buckley and Scalan (in Hamachek 1995:420-421) found a significant correlation between self-concept and academic achievement. Ever since then several studies came to the conclusion of a significant correlation between self-concept and academic

achievement. In a review of early research on the concept, Brogan (1998:1) reported that the learners' level of achievement may be related to the perceptions they have of themselves as learners. Brogan (1998) also pointed out that how learners feel about their abilities may, for better or for worse, consciously or unconsciously, influence their academic achievement.

In a study done by House (1993), he examined the relationship among five areas of academic self-concepts and the academic achievement of the students at the start of their studies at an American university, and followed their enrolment status at the university for four years. He found that the students' self-concept of their overall academic ability was the single most significant predictor of subsequent school withdrawal. House (1993), therefore, found that students' academic self-concepts were the most important factors that determined whether they continued in school or not. When their academic self-concepts were negative, the students were more likely to drop out of school; thus the indication of the importance of academic self-concept in an academic setting.

Barker, Dowson and McInery (2005) also pronounce that studies have repeatedly shown moderate to strong correlations between academic achievement and academic self-concept. Damrongpanit (2009:10) found, in a study done on 820 Grade 9 students, an extremely strong relationship between self-concept and academic achievement. In a quantitative study done by Sikhwari (2004) on 200 randomly selected second year students at the University of Venda, it was found that there was a significant correlation between academic achievement and self-concept. Kumar (2001) indicated in a study on 318 distance learners that there exists a moderate positive and significant correlation between academic performance and academic self-concept.

From the above it is clear that research indicates a relationship between academic self-concept and academic achievement. However, there has also been evidence to the contrary; various studies have found no or a very small correlation between academic self-concept and academic achievement. These findings will be discussed below.

According to Trusty et al. (1996:29), in a study on 563 African American elementary learners, school-related self-concepts did not account for a significant amount of variability in achievement test scores. In another study by Areepattamannil and Freeman (2008) on 573 Grade 11 and 12 students from two public secondary schools in the Greater Toronto area, they found only small to moderate correlations between academic self-concept and academic achievement variables for both the non-immigrant and immigrant groups. Similarly, in a local study done in South Africa by Baadjies (2008) on 44 Grade 9 learners attending St Barnabas College, it was found that there existed no significant correlation between self-concept and academic achievement.

Vialle et al. (2005) did a study on 65 high-ability secondary school students. The sample was drawn from a longitudinal study of more than 900 students. The research demonstrated that there was no correlation between self-esteem and academic achievement in the gifted group. There were no differences in the measured self-esteem between the gifted and non-gifted students. Although the study by Vialle et al. (2005:39) focused on self-esteem and not on self-concept, both these constructs are very closely related and are often used as synonyms. Vialle et al. (2005:39-40) declared in their study that the terms, self-esteem and self-concept, are frequently used interchangeably in everyday contexts – and sometimes in the research literature.

It can be deduced from the above that although it is readily assumed by most educators that a correlation exists between academic self-concept and academic achievement, there exist contrasting findings in this respect. In this study the researcher will attempt to determine whether a relationship exists between academic self-concept and academic achievement in students.

In the next section the researcher will elaborate on the influence of a positive and a negative academic self-concept, as well as the influence of a realistic academic self-concept on the academic achievement of students.

2.2.3.1 THE INFLUENCE OF A POSTIVE AND A NEGATIVE ACADEMIC SELF-CONCEPT ON ACADEMIC ACHIEVEMENT

It has long been a theme in education indicating that a student needs a good academic self-concept in order to be successful academically (Olatunde 2010:129). Goss (in Vialle et al. 2005:41) argues that "the bigger, the better" prevails. There is a popular belief that a positive self-concept is synonymous with all things desirable for students in school, while a negative self-concept equates to undesirable outcomes. Marsh (1990b:646) echoes this when he states that a positive self-concept is valued as a desirable outcome in many educational settings, and is frequently posited as a mediating variable that facilitates the attainment of other desired outcomes, such as academic achievement.

There are multiple sources of research data suggesting that beginning with a positive self-concept is an important prerequisite to doing well academically (Hamachek 1995:420). Students with positive self-concepts tend to reflect behaviors that are usually more upbeat than self-disparaging (Hamachek 1995:421). Data in the available literature support the notion that a positive academic self-concept equates to academic achievement.

Some of these findings will now be discussed.

In a study done by Ahmed and Bruinsma (2006:566) on a sample of 181 Asian and European graduate students, they found a significant relationship between academic self-concept and academic performance. The results from this study confirm that the more a student feels positive about his or her ability, the higher would his or her achievement be.

Michie, Glachan and Bray (2001) did research on 112 undergraduate psychology students at a university in London and they found that the students with the most positive academic self-concepts entered university citing cognitive interest as the reason for entering university. These students experienced more congruence in the amount invested in coursework and the grades they received. They were also more confident than their peers in their evaluation of their abilities, and they expressed a

greater satisfaction with college life. It can be concluded from this study that it is beneficial for a student to have a positive academic self-concept, as it is associated with a variety of positive academic behaviors and attitudes.

Dambudzo (2009:3-4) uses an example by Mudra of Illinois University to demonstrate how a negative belief of the self can lead to failure:

> What a boy believes about himself is really important. We had a student at Greenly who scored in the 98-percentile test, and he thought he had a 98 IQ. Because he thought he was an average kid, he knew and assumed college would be hard for him. He almost failed in his first term. He went home and told his parents that he did not believe that he was college caliber, and the parents took him to school and talked with the college counselor. When he found out that a 98 percentile score meant that he had a 140 IQ, he was able to obtain A-grades before the end of the year was over.

In a study done by Chapman and Boersma (1979) on the learning of disabled children, they found that these children had significantly more negative self-perceptions of their abilities. Chapman and Boersma (1979) stated that negative self-perceptions are associated with less confidence in school, and a more negative attitude towards school.

Lui (2009) did a study that focused on 126 first year college students. The students were placed into groups according to their ability in English. Students in the lower ability-level had a significantly lower perceived academic self-concept than their average and above average counterparts. Lui's study indicated (2009) that a low academic self-concept results in less self-confidence, and students with low self-concepts are less motivated to put in an effort to learn, and therefore achieve less satisfying results. Olatunde (2010:129) states that individuals with a low academic self-concept have shown low commitment to school.

In a study by Lau and Chan (2001), they found that students with low or negative self-concepts were under-achievers. These students had a low attainment value in learning and had deficiencies in using effective learning strategies. The most consistent finding in literature indicates to the poor self-concept of under-achievers (Lau & Chan 2001:418). Lau and Chan (2001) state that in general, as under achievers do not believe that they have the ability to achieve, they will spend little

effort in studying, and will easily give up when facing difficulties. Due to the failures in academic achievement, under achievers lose their self-confidence in respect of learning, and as a result demonstrate a poor self-concept. This negative relationship between academic self-concept and academic achievement becomes a vicious cycle (Lau & Chan 2001:418).

It can be concluded from the above that a positive academic self-concept is associated with academic achievement. It is equally clear from the above that having a low or negative academic self-concept leads to negative academic achievement. It is, consequently, more desirable for students to have higher academic self-concepts.

However, there exist contrasting findings in this respect, which the researcher will discuss in the following section.

2.2.3.2 A HUMBLE OR REALISTIC ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

Ocshe (2003) conducted a study on a sample of 645 Unisa students. The study concentrated on the interrelations between the students' self-perceptions, their expectancies, and academic achievement. The sample was divided into three groups, namely overestimators, realists and underestimators. The data revealed that, compared to underestimators, the overestimators:

(a) expected significantly higher marks;
(b) were significantly more confident about their expectations, and
(c) perceived themselves as having a significantly higher ability.

In this study Ocshe (2003) found that humble self-assessments were more conducive to academic achievement. Ocshe (2003) found that the underestimators achieved significantly higher marks than both the realists and the overestimators. According to this study, students should rather underestimate their abilities, and rather have a more negative or realistic self-concept, in order to achieve academic success. This is clearly in contrast to the findings of the studies discussed in the previous section.

Ocshe's study (2003:68) also revealed that the overestimators expected significantly higher marks than both the realists and the underestimators, although they actually gained lower marks. Ocshe (2003:68) furthermore found that highly under confident students achieved higher grades than those students who were slightly or moderately less confident. A positive self-concept, according to Ocshe, was the least conducive to academic success.

Ocshe (2003: 69) states that in an academic context educators should reconsider the importance of accurate self-perceptions. Students with accurate self-concepts have realistic views of their competence levels (Sze & Valentin 2007). The main challenge, according to Ocshe (2003:69) is to encourage accurate self-concepts rather than positive self-concepts, without destroying the students' self-esteem. Gross (in Vialle et al. 2005:41) declares that it would seem that the notion of a healthy, as opposed to a high self-esteem is more desirable.

In another study done by Yoon et al. (1996), they found that a positive self-concept of ability alone did not always have a positive influence on academic performance over time. They indicated (1996:2) that an unrealistic positive self-concept of ability was often detrimental to performance. Unrealistic positive self-concept can be defined as students with inflated self-concepts that have a positive opinion of their competence, but that are unrealistic (Sze & Valentin 2007). Yoon et al. (1996) found that over-confidence was slightly harmful to the subsequent performance of females. Yoon et al. (1996:10) urge students to rather hold a realistic view of themselves and their academic abilities than unrealistic positive views of themselves. They state (2006:11) that, compared to other societies, the American society seems to laud the motivational effects of positive self-concepts. They state (2006:11) that several cross-cultural researchers found that some societies tend to place the stress more on a realistic view of the self.

Malcolm Knowles' assumption of the adult learner's self-concept is that adults need to be responsible for their own decisions and to be treated as capable of self-direction (Atherton 2010). Self-directing adults can be described as guided by themselves, they are capable of directing their own behavior. In contrast to the dependency of children, adults have a deep psychological need to be self-directing. Adult learners resent and resist situations that do not allow for self-direction (Lee

1998:50). Beyer (1999:279) states that self-perceptions that are out of touch with reality not only reveal a lack of self-knowledge, but may also impede effective self-regulation and goal-setting in academic, professional and interpersonal situations. He advocates (1999) that students should rather possess realistic self-perceptions in order to be able to accurately predict academic achievement. But, Tennant (1998:371) argues that it is for a good reason that adult education has a tradition of empowerment based upon the modern student, especially when it addresses the concerns of those whose sense of 'self' have been dislocated and fragmented. In many of the situations where adult educators work, the pursuit of a coherent, continuous 'self' is indispensable to empowerment (Tennant 1998:372). He furthermore reveals (1998:372) that, "Rather I am concerned with avoiding an 'essential' view of the self, but at the same time developing a concept of the self which is compatible with transformative adult education practice".

It is clear from the discussion above that there are contrasting opinions and findings on what type of academic self-concept is most beneficial to academic achievement. In the next section a discussion will be given of the relationship between academic self-concept and academic achievement.

2.2.4 THE RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

Although it has been argued that students first of all have to do well at school in order to have a positive self-image about their academic abilities, the opposite is also true, namely that a positive self-image is a necessary prerequisite for doing well at school (Hamachek 1995:420). Numerous studies have shown a positive correlation between self-concept and academic achievement (House 1993; Hamachek 1995; Barker, Dowson, McInery 2005; Damrongpanit 2009; Sikhwari 2004; and Kumar 2001). However, correlation does not imply causation. Marsh states (1990:646) that perhaps the most vexing theoretical question in academic self-concept research involves determining the causal ordering of academic self-concept and academic achievement.

There has been much focus on the causal relationship between these two variables. The question is, does academic achievement influence academic self-concept or does academic self-concept influence academic achievement? Based on the available literature, it is plausible to suggest that there are three perspectives about the relationship between students' academic achievement and their academic self-concepts (Green et al. 2006:535; Jen & Chien 2008:1). These are the following, namely the skill development model, the self-enhancement model, and the reciprocal effects model.

The skill development model states that academic achievement exerts a positive effect on academic self-concepts of students (Jen & Chien 2008:1). This model maintains that past achievement, whether successful or unsuccessful, influences the formation of self-concept but that self-concept does not influence achievement (Barker et al. 2008). This model implies that academic self-concept emerges principally as a consequence of academic achievement. In a study done by Helmke and Van Aken (in Vialle et al. 2005), they found that academic achievement has more of an impact on self-concept than the other way around. This is a further support for the skill development model.

The self-enhancement model, on the opposite end of the spectrum, proposes that the improvement of students' academic self-concepts should be a prerequisite to enhance their academic performance. The self-enhancement model postulates that the self-concept variables are primarily causes of academic achievement (Green et al. 2006:536). This model maintains that an improvement of self-concept will lead to improved academic performance, and that achievement does not influence self-concept (Barker et al. 2008).

Marsh (1990b) did a study on 1456 students in Grades 10, 11, 12, and one year after graduation from high school. It was found that the reported grade averages in Grades 11 and 12 were significantly affected by academic self-concept measured the previous year, whereas the prior reported grades had no effect on subsequent measures of academic self-concept. These findings clearly support the self-enhancement model. The results provide one of the few valid demonstrations of a prior academic self-concept influencing subsequent academic achievement. This

study appears to be methodologically stronger than the previous research (Marsh 1990b:646).

Marsh (1990b:654) declares that in reality, both of these extreme positions are probably too simplistic in that the relations between academic self-concept and academic achievement are likely to be reciprocal. The reciprocal model emphasizes the mutual causality between academic self-concept and the academic achievement of a student. This model suggests that academic self-concept and academic achievement have a reciprocal effect on each other.

The reciprocal effects model assumes that self-beliefs predict increases in academic achievement and conversely, higher levels of academic achievement predict improvements in self-beliefs (Barker et al. 2008). According to Green et al. (2006:538-539), the reciprocal effects model has had the most support. The researcher also supports this model. It is the belief of the researcher that academic self-concept and academic achievement influence each other.

Green et al. (2006:537) state that the reciprocal effects model has major implications for the importance placed on academic self-concept as a means of facilitating other desirable educational outcomes, as well as being an important outcome variable. They state that if students' academic self-concepts are enhanced without improving on their academic achievement, then the gains in self-concept are likely to be short-lived.

Research has also supported the view that academic self-concept and academic achievement mutually reinforce each other, to the extent that a positive or a negative change in one facilitates a commensurate change in the other (Olatunde 2010:128). Put simply, improved academic self-concepts will lead to better academic achievement, and improved achievement will lead to better academic self-concepts (Green et al. 2006:543).

The researcher agrees with Hamachek (1995:420) when he states that the debate about which comes first – a positive self-concept or academic achievement – is probably more academic than practical. He continues to suggest (1995:420) that what is important is to appreciate their interactive and reciprocal dynamics, and to

recognize that they mutually reinforce each other to the extent that a positive or negative change in one facilitates a commensurate change in the other.

As discussed previously in this Chapter in section 2.1, motivation is another important variable that may cause variance in academic achievement. Motivation is important in an academic setting where academic achievement is expected from a student.

The researcher will now discuss motivation and its relation to academic achievement.

2.3   MOTIVATION

2.3.1 BACKGROUND

When students arrive at university for the first time, they exhibit newfound freedom. It is at this time that the students' academic motivations largely dictate the choices that they make, and whether or not they meet the different standards and expectations that is required of them (Clark & Schroth 2010:19).

To be motivated means to be moved to do something. A person who feels no impetus or inspiration to act is thus characterized as unmotivated, whereas someone who is energized or activated toward an end is considered motivated (Ryan & Deci 2000:54). A highly motivated person tries to achieve to the best of his or her abilities, and to be consistent in that achievement (Sikhwari 2004:10).

To be motivated is an intentional act that provides meaning, an act that is undertaken by students under their lecturers' guidance, so as to eradicate perceived discrepancies between their self-concepts and their adequate selves; it is observable by the intensity of the learners' involvement in the relevant action (Crous et al. 2000:170). Crous et al. (2000:170) suggest that the above definition has the following implications:

1. The activity should be performed voluntarily and with enthusiasm, energy and dedication.
2. The accompanying by the lecturers indicates the help afforded to students by lecturers in their capacity as sharers in the involvement.

3. The degree of motivation is the intensity of involvement with the activity, implying that motivated people want to be involved in the activity because it leads to the achievement of an objective which they find important and meaningful, and which they want to realize.
4. The will is the mental energy or intentionality that has to be aroused, activated and maintained.
5. When people notice a difference or gap between their self-concept and their adequate selves, they will take action which they hope will resolve the discrepancy.

Motivation is not a unitary phenomenon. People have different amounts or levels of motivation, and they also differ in the orientations of their motivation (Ryan & Deci 2000:54). Ryan and Deci (2000:54) continue by stating that the orientation of the motivation concerns the underlying attitudes and goals that give rise to a particular action. A good example would be whether a student studies for an examination because he or she is curious about the content of his or her academic work and wants to be competent, or because he or she wants the approval of a parent or teacher.

The relationship between motivation and academic achievement is complex (McCoach & Siegle 2001:73). Spinath and Steinmayr (2007:3) declare that perhaps more than anything else, to be well-equipped for life-long learning, individuals need a high, sustainable motivation to learn. There exists a general consensus that a distinct learning motivation promotes academic performance in all students (Schick & Phillipson 2009:16). Therefore, it seems that motivation is an important contributor to variance in academic achievement. It is imperative that educators within the classroom setting have a good understanding of the motivational aspects of their learners (Mnyandu 2001:27). According to Volet and Jarvela (2001:3), our knowledge of motivation is limited because most of the early research on motivation was associated with the consequential behavior of animals; human beings being considered too complex for researchers to study specifically.

Students who are motivated are enthusiastic to learn, and they are willing to get involved in the activities required to learn. In contrast, students who are unmotivated to learn are not as systematic in their learning efforts, they may be inattentive during

the lesson, and not monitor their level of understanding, or ask for help when they do not understand what is being taught (Sikhwari 2004:56).

It would be easy to assume that intelligent students are naturally more motivated to learn and this would help them to perform better academically. This would be an incorrect assumption. Nilsen (2009) found that motivation to learn is independent of intellectual giftedness, since scores in general intelligence play a minor role in predicting learning motivation – especially for achievers. Therefore, one can never assume that intelligent students will be motivated and perform well at university.

The literature supports the notion that high motivation leads to high academic achievement. However, there are some contrasting findings that suggest that motivation and high academic achievement are not related. A few of these findings will be discussed below.

The existing theory and research (Deci & Ryan 1985) have shown that motivation plays an important role in the academic performance of learners. This statement is supported by Sikhwari (2004:54) who states that motivation affects almost all student activities. Lau and Chan (2001) found that motivational variables were important factors in discriminating under achievers from high achievers. This indicates that high motivation is related to high academic achievement. Sikhwari (2004) found a high correlation between academic achievement and motivation. Similarly, in a study done by Ahmed and Bruinsma (2006), they found that academic motivation was positively related to academic achievement. In their study students who reported higher self-determination or an intrinsic form of motivation also reported higher academic achievement (Ahmed & Bruinsma 2006:567).

However, in a study by Areepattamannil and Freeman (2008) on 573 Grade 11 and 12 learners in the Greater Toronto area, they found weak correlations between academic achievement and academic motivation variables in both the non-immigrant and immigrant groups.

These are contrasting findings. In this study the researcher will attempt to determine whether a relationship exists between motivation and academic achievement, and whether high motivation will lead to high academic achievement.

In the next section the researcher will focus on the concept of motivation by discussing the different kinds of motivation, according to the self-determination theory.

2.3.2 THE SELF-DETERMINATION THEORY

The self-determination theory was briefly discussed in Chapter 1, section 1.4.2, and will be elaborated on in this section. (Intrinsic motivation was discussed in Chapter 1, section 1.6.4 and Chapter 2, section 2.3.3.1, extrinsic motivation was discussed in Chapter 1, section 1.6.5 and Chapter 2, section 2.3.3.2).

It is an empirically based theory of human motivation, development and wellness (Deci & Ryan 2008:182). According to Ryan, Kuhl and Deci (in Areepattamannil and Freeman 2008:707), the self-determination theory is an approach to human motivation that highlights the importance of the psychological need for autonomy. Although the initial work leading to the self-determination theory dates back to the 1970s, research on the self-determination theory has truly mushroomed during the past decade (Deci & Ryan 2008:182).

In the self-determination theory, focus is on qualitative, rather than on quantitative differences in motivation. This means that they rather focus on the quality and type of motivation than on the amount of motivation. This finding is reiterated by Deci and Ryan (2008:182) when they reveal that the theory focuses on types, rather than merely on the amount of motivation, paying particular attention to autonomous motivation, controlled motivation and amotivation as predictors of performance and well-being outcomes.

Central to the self-determination theory, is the distinction between autonomous and controlled motivation (Areepattamannil & Freeman 2008:707). Deci and Ryan (in Areepattamannil & Freeman 2008:708) state that only autonomously motivated behaviors are considered fully self-determined, because these motivations are either innate to the person or have been fully assimilated with the core 'self' through the process of integration. This type of motivation is also referred to as intrinsic motivation. Self-determination refers to the experience of freedom in initiating

behavior; this is called autonomous behavior (Mnyandu 2001:6) or intrinsic motivation.

The self-determination theory distinguishes between different types of motivation based on the different reasons or goals that give rise to an action (Ryan & Deci 2000:55). The self-determination theory distinguishes between three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation. Both intrinsic and extrinsic motivation can be valuable to students.

The self-determination theory heavily emphasizes the role of the self-perception of competence as an antecedent of autonomous academic motivation (Ahmed & Bruinsma 2006:560) or intrinsic motivation. This implies that the self-determination theory points out that for intrinsic motivation to be present in a student, the student needs to have a positive academic self-concept.

In the next section the researcher will elaborate on the three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation, as identified in the self-determination theory.

2.3.3 INTRINSIC AND EXTRINSIC MOTIVATION AND AMOTIVATION

As stated previously, the self-determination theory distinguishes between three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation. These three types of motivation are completely different and at opposite ends of a spectrum of self-determined behavior.

These types of motivation will now be defined and discussed in detail.

2.3.3.1 INTRINSIC MOTIVATION

Intrinsic motivation has been defined in Chapter 1 section 1.6.4. The researcher will now elaborate on this concept.

Ryan and Deci (2000) state that intrinsic motivation has been operationally defined in two ways. Firstly, it implies that the activity is done out of the free choice of the individual. No one forces him/her to do a particular activity; and yet he/she does it. It

is then assumed that intrinsic motivation is present. Secondly, intrinsic motivation is the self-report of the individual of the interest in and the enjoyment of the activity. Once more it is assumed that intrinsic motivation exists (Ryan and Deci 2000:57).

Intrinsic motivation is a kind of motivation that comes from within the individual. It does not require any external element in order to be present. Intrinsically motivated students are driven from within. They have the inner need, and they want to be competent and successful. They generally have more curiosity about everything than students without intrinsic motivation. Intrinsic motivation implies doing an activity for the inherent satisfaction that it brings rather than for some separable consequence (Ryan and Deci 2000:56).

It is intrinsic motivation that drives an individual to do something in order to attain certain goals. There is a self-perpetuating energy behind intrinsic motivation that can function in the complete absence of extrinsic motivation (Sikhwari 2004:57) or any external rewards. Three types of intrinsic motivation have been identified, namely intrinsic motivation to know (IMTK), intrinsic motivation to accomplish things (IMTA), and intrinsic motivation to experience stimulation (IMTES) (Cokley et al. 2001:109-110).

White (in Ryan and Deci 2000:56) states that the phenomenon of intrinsic motivation was first acknowledged in experimental studies of animal behavior, where it was discovered that many organisms engage in exploratory, playful, and curiosity-driven behaviors, even in the absence of reinforcement or reward. In one sense intrinsic motivation exists within individuals, in another sense it exists in the relation between individuals and activities. People are intrinsically motivated to do some activities and not others, and not everyone is intrinsically motivated for any particular task (Ryan and Deci 2000:56).

According to Spinath and Steinmayr (2007:4), intrinsic task-values denote the degree of positive affective evaluation of an activity that includes, liking, enjoyment, for reasons that lie within the activity itself, rather than its consequences. They furthermore indicate (2007:4) that although intrinsic task-values are not the only reason for learning, task enjoyment can be considered as the most desirable state for

learners, because learning comes as a by-product of engaging in a pleasurable activity.

Intrinsically motivated behaviors, which are performed out of interest, satisfy the innate psychological needs for competence and autonomy, and are the prototype of self-determined behavior (Ryan and Deci 2000:65). Deci and Ryan (in Mnyandu 2001:6) view the need for self-determined behavior as an important motivator inherent in intrinsic motivation, that is closely intertwined with the need for competence.

Intrinsic motivation in respect of university courses would be reflected in the active involvement in the course, the enjoyment of the lectures, the classes, and the readings, and an intrinsic interest in the course material (Harackiewicz et al. 1998:4). Harackiewicz et al. (1998) also declare that intrinsically motivated students love learning, and their questions to their instructors are more likely to concern the material itself, than what will be covered in the exam.

Students with a profound cognitive need to obtain knowledge and understand their environment, or with a positive sense of respect for themselves and what they are doing, are intrinsically motivated (Crous et al. 2000:175). Crous et al. (2000:176) state that intrinsically motivated students have the following characteristics:

1. a desire for inner enrichment;
2. goal-orientation;
3. anticipation or expectation that an objective will be met;
4. concentration on the learning task;
5. persistence and practice;
6. interest in the object or theme;
7. a desire to undertake independent study;
8. the view that learning is a meaningful activity;
9. intellectual curiosity or inquisitiveness;
10. the determination to perform a task successfully;
11. setting personal standards; and
12. the ability not to perceive unsuccessful first attempts as failures, and the will to make repeated attempts.

In a study done by Clark and Schroth (2010), they examined the relationship between personality and academic motivation in 451 first year college students. They found that those students who were intrinsically motivated to attend college tended to be extroverted, agreeable, conscientious, and open to new experiences.

Intrinsic motivation is particularly important to consider in adult education where students' interests play a major role in determining the extent and direction of their continuing studies. Thus, intrinsic motivation in a particular college course may influence both performance in that course, and continuing motivation beyond that course (Harackiewicz et al. 1998:4-5). Ryan and Deci (2000:55) state that intrinsic motivation results in high-quality learning and creativity; therefore it is especially important to detail the factors and forces that engender it versus undermining it. The literature suggests that it is important for learners to be intrinsically motivated in order to make progress in their academic careers, especially in the face of adversity (Mnyandu 2001:23).

Mnyandu (2001:11) declares that in an academic setting many tasks are not inherently interesting or stimulating; therefore, intrinsic motivation cannot always be relied upon by teachers and lecturers to foster learning. He suggests (2001:11) that it is imperative that educators acquire a broad understanding of the other forms of motivation a learner might possess, in order to help him or her to use that particular kind of motivation towards academic achievement.

In the following section the researcher will discuss another type of motivation that can be important in academic settings, namely extrinsic motivation.

2.3.3.2 EXTRINSIC MOTIVATION

Extrinsic motivation has been defined in the context of this study in Chapter 1, section 1.6.5, and the researcher will now elaborate on this concept.

Although intrinsic motivation is clearly an important type of motivation, most of the activities people do are not, strictly speaking, intrinsically motivated (Ryan and Deci 2000:60). In the literature, extrinsic motivation has typically been characterized as a

'pale and impoverished' (even if powerful) form of motivation that contrasts with intrinsic motivation (Ryan and Deci 2000:55). It is, however, important to note that extrinsically motivated behaviors should be conceptualized as more controlled forms of behavior when compared to intrinsically motivated behavior (Cokley et al. 2001:110).

Extrinsic motivation is a construct that is relevant whenever an activity is done in order to attain some reward. It is thus in contrast to intrinsic motivation, which refers to doing an activity simply for the enjoyment itself, rather than for its instrumental value (Ryan and Deci 2000:60). It is a drive that leads to a behavior that resides outside the individual, a drive to perform in order to receive parents' or teachers' praise and acceptance, to receive high marks, etc. Vallerand and Ratelle (in Areepattamannil & Freeman 2008:709) state that extrinsic motivation refers to a broad array of behaviors having in common the fact that activities are engaged in, not for reasons inherent in them, but for instrumental reasons.

The self-determination theory proposes that there are different kinds of extrinsic motivation. Ryan and Deci (2000:55) describe these different types in the following paragraph:

> "Students can perform extrinsically-motivated actions with resentment, resistance, and disinterest or, alternatively, with an attitude of willingness that reflects an inner acceptance of the value of utility of a task. In the former case – the classic case of extrinsic motivation – one feels externally propelled into action; in the latter case, the extrinsic goal is self-endorsed and thus adopted with a sense of volition".

Thus, extrinsically motivated behavior can vary in the extent to which they represent self-determined behavior (Ryan and Deci 2000:65). Some researchers and theorists maintain that extrinsically motivated behaviors are non-autonomous. This means that the behavior is not self-determined. According to Deci and Ryan (in Crous et al. 2000:177), non-autonomous behavior can lead to autonomous behavior. This would imply that extrinsic motivation could lead to intrinsic motivation. Crous et al. (2000:177), however, warn that an overemphasis on extrinsic motivation denies students the opportunity to take responsibility, and there is a danger that they may become totally dependent on the encouragement and leadership of the lecturers, as well as on other external drives.

Ausubel, Kolensik, Lamprecht and Deci (in Crous et al. 2000:177) pronounce that the following characteristics are typical of people who are extrinsically motivated:

1. They are usually unsure of themselves and their own abilities.
2. They are not creative.
3. Their performance depends largely on external pressure or encouragement.
4. They have no ambition to extend their knowledge beyond the basics.
5. They show a high degree of detachment and do nothing that is not expected of them.
6. They tend to be pessimistic about their chances of success.
7. They concentrate on the realization of short-term objectives.
8. They rely heavily on the help from their lecturers, and on other external factors such as recognition, approval and encouragement.
9. They are often tense and anxious about the possibility of failure.
10. People or things external to themselves determine their standards and the extent to which they will succeed in their learning activities.
11. They strive for the social approval of friends, lecturers, their parents and other significant people in their lives.

In a study done by Clark and Schroth (2010), they examined the relationship between personality and academic motivation, using 451 first year college students. They found that those students who were extrinsically motivated tended to be extroverted, agreeable, conscientious and neurotic. Extrinsic motivation can be useful in certain academic situations, and it is therefore important that lecturers take note of this kind of motivation.

Amotivation is the third kind of motivation identified in the self-determination theory, and will now be discussed.

2.3.3.3 AMOTIVATION

Amotivation is the third kind of motivation identified in the self-determination theory. This motivation has been defined in Chapter 1, section 1.6.6 and will now be elaborated upon.

Amotivation is discussed as it provides a more in-depth understanding of the self-determination theory. This kind of motivation exists in some students, and is thus relevant to this study. A student who is amotivated is not motivated at all.

Boggiano and Pittman (in Mnyandu 2001:23) researched various factors that led to amotivation in an academic setting. They examined the motivational tendencies that ultimately caused learners to view themselves as helpless, lacking in both intrinsic and extrinsic motivation. Boggiano and Pittman (in Mnyandu 2001:23) found that frequent and repeated exposure to controlling strategies, for example, inducing learners to learn by promising punishment if they did not, had dramatic and far-reaching effects on the formation of maladaptive achievement patterns in learners. Boggiano and Pittman (in Mnyandu 2001:23) assert that the use of controlling techniques not only decreases the learner's perceptions of autonomy and encourages extrinsic motivation, but with time also renders learners susceptible to the full range of amotivational patterns of behavior. It is therefore important that lecturers refrain from using controlling strategies such as threatening students with punishment if they do not learn or perform well, in order to prevent amotivation from developing.

Amotivation is found on the lowest level of autonomy on the self-determination continuum (Mnyandu 2001:15). It is on the opposite side of the continuum, in comparison to intrinsic motivation. It refers to the state of lacking an intention to act. When a person is amotivated, his/her behavior lacks intentionality (Ryan and Deci 2000:61). Amotivation cannot co-exist with intrinsic or extrinsic motivation (Mnyandu 2001:55).

Amotivated learners also seem to make use of ineffective learning strategies that do not promote academic achievement. These learners do not believe that they control the factors that cause and influence the outcomes of their behavior. For example, if an individual fails an examination, the amotivated learner will ascribe the failure to a lack of ability over which he or she has no control, rather than to factors that he or she has control over. Thus these learners accept the situation and believe that there is nothing that they can do to change, improve or to rectify it. This pronunciation is reiterated by Ahmed and Bruinsma (2006:556) when they declare that amotivation occurs when individuals do not perceive contingencies between their actions and its

outcomes; these individuals experience feelings of incompetence, and a lack of personal control over the outcome.

Clark and Schroth (2010) examined the relationship between personality and academic motivation in a study, and they found that those individuals who lacked motivation tended to be disagreeable and careless. Deci and Ryan (1985) state that amotivated learners lack the confidence in their ability to exert an influence over their behavior after they have failed. The amotivated learner possesses a negative academic self-concept that tends to worsen as the failures continue. Students who are thus amotivated possess a range of characteristics that are not conducive to academic achievement. According to Mnyandu (2001:15), the performance of the amotivated learner also deteriorates in the face of failure. It can thus be assumed that amotivation is not beneficial to academic achievement, and is not a desirable form of motivation.

In the next section the researcher will discuss the relationship between intrinsic and extrinsic motivation and academic achievement.

2.3.4 THE RELATIONSHIP BETWEEN INTRINSIC AND EXTRINSIC MOTIVATION AND ACADEMIC ACHIEVEMENT

Intrinsic and extrinsic motivation are both essential in academic settings, as has been seen in the above discussion of these two forms of motivation. Mnyandu (2001:11) reaffirms this by stating that both intrinsic and extrinsic motivation are often required in academic achievement, because intrinsic motivation can not always be relied upon, because not all academic tasks are interesting. Mnyandu (2001:11) states that it is imperative that educators acquire a broad understanding of both of these forms of motivation in order to help the learner use a particular type of motivation that is best suited to a particular learning situation and that will facilitate success.

As discussed in Chapter 2, section 2.3.3, intrinsic motivation is a kind of motivation that is present within an individual without any external stimulus needed for it to be present. Extrinsic motivation, on the other hand, is only present together with an external incentive. It would therefore be correct to assume that intrinsic motivation is

more desirable than extrinsic motivation. Extrinsic motivation is, however, necessary in certain learning situations.

Deci and Ryan's (1985) studies have indicated that there exists a positive relationship between intrinsic motivation and academic achievement. They state that even if an academic task is difficult, a learner's intrinsic motivation will cause him/her to persist with the task. Ryan and Stiller (in Ryan and Deci 2000:55) indicate that intrinsic motivation has emerged as an important phenomenon for educators, a natural developer of learning and achievement that can be systematically catalyzed or undermined by parent and teacher practices.

Mnyandu (2001:18) declares that indicators of intrinsic motivation include enthusiasm and persistence with an assigned task, the time devoted to tackling the task, and the associated feelings of self-efficacy. Elaborating on the advantages of intrinsic motivation, Harackiewicz et al. (1998) also suggest that intrinsically motivated students are more likely to concentrate in class to ensure that they acquire adequate knowledge for what they have to do. If learners are interested in a specific topic they are likely to devote their time and energy to the task. It is clear that all these behaviors will contribute towards academic achievement.

In a study conducted by Vallerand and Bissonenette (in Cokley et al. 2001), they found that intrinsic motivation is conducive to academic achievement. They investigated the role of intrinsic, extrinsic and amotivational styles as predictors of behavioral persistence in academic settings. The participants included 388 male and 674 female French Canadian students from Montreal. The results indicated that students who persisted and finished their courses had higher initial levels of intrinsic motivation toward the academic activities than students who dropped out of the class.

It is clear from the above that intrinsic motivation is associated with a range of behaviors that are beneficial and conducive to the academic achievement of students. However, in contrast to most theorists who believe that intrinsic motivation is positively related to academic achievement, Mnyandu (2001), in a local study on 120 learners from three primary schools in Shoshanguve in South Africa, found that intrinsic motivation was not positively related to academic achievement.

As a result of the contrasting findings, the current study will aim to provide clarity on the relationship that may exist between intrinsic motivation and academic achievement. The information that will be provided by this study will enable the lecturers in the Department of Quantity Surveying at the University of the Free State to motivate the students in a way that will optimize their academic achievement. Since academic achievement is important in any academic setting, this study will provide information on how to optimize the academic achievement in students.

Extrinsic motivation is important in education and it contributes to academic achievement. Ryan and Deci (2000:55) emphasized this when they supported the point of view of Mnyandu (2001), who states that understanding extrinsic motivation is an important issue for educators who cannot always rely on intrinsic motivation to foster learning and achievement. Ryan and Deci (2000) declare that many of the tasks that educators want their students to perform are not inherently interesting or enjoyable. Educators should be skilled enough to be able to use cues in the classroom to encourage intrinsic motivation, and they must also help their learners to develop extrinsic motivation so as to prompt them to engage in uninteresting tasks (Mnyandu 2001:27). In a study done by Mnyandu (2001:54), it was found that learners are capable of being both intrinsically and extrinsically motivated. It is therefore possible for a learner to possess both intrinsic and extrinsic motivation.

Extrinsic motivation is present when the student receives external encouragement to learn and achieve academically. Bar-Tal and Bar-Zorah (in Mnyandu 2001:26) state that extrinsically motivated learners do not usually show any determination to improve on their academic performance and have little reason to exert more effort on their academic tasks, unless they are persuaded by the offer of extrinsic rewards. Deci and Ryan (in Areepattamannil and Freeman 2008:711) insist that students who are more extrinsically motivated experience greater anxiety and a poorer ability to cope with failures. Despite these behaviors that are associated with extrinsic motivation, extrinsic motivation is important in educational settings.

Lecturers should, however, be careful when encouraging extrinsic motivation in students, because if a student is intrinsically motivated, exposure to too much extrinsic motivation can be detrimental to the initial intrinsic motivation. Boggiano and

Pittman (in Mnyandu 2001:20) found that the intrinsic motivation of students who had initially been doing well on their own, decreased after being exposed to extrinsic rewards. Their intrinsic motivation may reduce when they perceive their behavior as extrinsically controlled (Harackiewicz et al. 1998:5).

Crous et al. (2000:177) state that lecturers should attempt to strike a balance between intrinsic and extrinsic motivation. The specific situation will determine which kind of motivation will be more important. Crous et al. (2000) declare that the ideal and eventual objective must always be for people to move away from extrinsic motivation and to become intrinsically motivated, because this is the most desirable form of motivation.

Nilsen (2009:546) suggests that it seems that the initial motivation disappears in many students. He says (2009:546) that some researchers suggest that something or someone is decreasing high levels of motivation. Bowman and Sirota, Mischkind and Meltzer (in Nilsen 2009:546) state that instead of asking how we can motivate students we should rather ask how educators can be deterred from causing student-motivation and morale to diminish - and even be destroyed - through their policies and practices.

It is therefore important that the lecturer should possess the necessary skills and knowledge to create a positive atmosphere in the learning situation. It is also important that the lecturer understands the different kinds of motivation that exists, and how to foster these types of motivation in order for students to be motivated and to achieve academically.

In the next section the researcher will elaborate on the concept of academic achievement and its meaning in the context of the present study.

2.4   ACADEMIC ACHIEVEMENT

Academic achievement has been briefly defined in Chapter 1, section 1.6.7 and will be elaborated on in this section.

According to Baadjies (2008:31), the main aim of every teacher is to obtain maximum achievement from each student. Brennen (in Baadjies 2008:31) states that in the

academic domain, achievement is regarded as a performance that leads to 'something', the something referring to the progress of the students at school.

Academic achievement is represented by the actual mark obtained by the participants in an examination. Success is typically defined in terms of performance, and grades represent the most obvious and universally accepted indicator of academic performance in educational contexts (Harackiewicz et al. 1998:1).

It is in respect of this explication of the term academic achievement that the researcher decided to use the final examination mark in the November 2010 exams of the module, Descriptive Quantification, to represent the students' academic achievement in this study. Descriptive Quantification is the main module that the quantity surveyor students have to pass in order to advance to the next study year. There are four levels of this particular module that needs to be completed and each is a year module. The students need to pass all four levels of Descriptive Quantification in order to obtain the degree from the Department of Quantity Surveying. This is the reason why the researcher decided to use the examination mark of this module to represent academic achievement.

Academic under-achievement can be defined as the academic performance of a student that is below his or her capabilities. Reis and McCoach (in McCoach & Siegle 2001:71) state that under-achievement is most commonly defined as a discrepancy between potential (or ability) and performance (or achievement). Therefore, a student who seems capable of succeeding in school but is nonetheless struggling, is often referred to as an under-achiever (McCoach & Siegle 2001:71).

2.5 THE RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT, MOTIVATION AND ACADEMIC ACHIEVEMENT

The aim of this study is to determine if academic self-concept and motivation of quantity surveying students can predict the level of academic achievement in all four of the study year levels.

The researcher will now elaborate on and discuss the relationship between academic self-concept and motivation and academic achievement, according to the relevant literature.

Educators have long recognized that students' beliefs about their academic capabilities play an essential role in their motivation to achieve (Zimmerman 2000:82). This would imply that a student's academic self-concept could determine the motivation that is present in the student. Rodriguez (2009:534) echoes this when he states that academic self-concept regulates learning and determines students' motivational orientation. This indicates to the existence of a relationship between academic self-concept and motivation. Cokley (in Areepattamannil & Freeman 2008:704) confirms this when stating that research on academic self-concept is considered an important component of research on academic motivation.

It would seem that there exists a relationship between academic self-concept and motivation, and that the type and level of academic self-concept that is present in an individual determines the motivation that exists within him or her. This is confirmed in the statement by Lau and Chan (2001:418), "…academic self-concept has an important impact on students' expectancy of success and that directly affects their motivation".

In a study on 181 Asian and European graduate students, Ahmed and Bruinsma (2006) found that the positive relationship between academic self-concept and intrinsic motivation was significant. Therefore, the more the students felt positive about themselves and their academic abilities, the more intrinsically motivated they were in academic tasks (Ahmed & Bruinsma 2006:567). These findings by Ahmed and Bruinsma (2006) suggest that learners who possess a high academic self-concept are more likely to be highly motivated and intrinsically motivated.

House (in Rodriguez 2009:524) reveals that academic self-concept is a predictor of students' academic achievement. Therefore it could be assumed that a high academic self-concept leads to high academic achievement. Rodriguez (2009:524) states that this causality is due to the intrinsic motivational properties linked to the academic self-concept. It may be concluded from the above that students with positive academic self-concepts are more likely to be intrinsically motivated and more

likely to achieve academically. Ahmed and Bruinsma (2006:557) declare that self-concept impacts on both performance and motivation.

Michie, Glachan and Bray (in Rodriguez 2009:524) pronounce that students who portray high levels of academic self-concept show an intrinsic motivation to participate in higher education. The assumption that intrinsic motivation for learning and the perceptions of one's competences are related is derived from both empirical observations and motivational theories (Spinath & Steinmayr 2007:25). Theorists emphasize the central role of perceived competence in intrinsic motivation (Harackiewicz et al. 1998:5).

The opposite also seems to be true, when Mnyanda (2001:5) states that learners who are motivated tend to develop an inner confidence, and they expect to succeed. This would imply that learners who are motivated to do well in their academic work seem to develop an inner confidence or a more positive belief about their academic abilities, which could be translated as a positive academic self-concept. It thus seems that motivation and the academic self-concept influence each other.

Cokley et al. (2001:116) suggest that academic self-concept should be positively and significantly correlated with intrinsic motivation. Conversely, academic self-concept should be negatively and significantly correlated with extrinsic motivation. In a study done by Cokley et al. (2001) with a United States student sample, they found that academic self-concept was significantly and positively correlated with the intrinsic motivation sub-scales of the Academic Motivation Scale. This indicates the relationship that exists between academic self-concept, motivation and academic achievement.

Spinath and Steinmayr (2007:27) suggest that the reason why intrinsic motivation and competence beliefs are found to be so highly correlated might lie in the fact that certain experiences, like receiving unfavorable feedback, often impact on both competence beliefs and intrinsic values (or motivation) at the same time.

High-achieving students exhibit more positive academic self-perceptions and motivation than low-achieving students (McCoach & Siegle 2001:74). These results of McCoach and Siegle (2001:75) suggest that high achievers and low achievers

differ in both their motivational patterns and their academic self-perceptions. Yaworski, Weber and Ibrahim (2000:216-217) confirm this when they state that high achievers are usually those who describe themselves as being 'good' students. Yaworski et al. (2000) state that low achieving students described many instances in which they felt powerless in motivating themselves to regulate their academic behaviour.

This study will aim to determine whether high achieving students do possess significantly higher academic self-concepts and motivation than the low achieving students.

The literature and empirical investigations mentioned above suggest that there do exist some relations between these three constructs. Ahmed and Bruinsma (2006:557) declare that studies are largely lacking that focus on the relationships between academic self-concept, autonomous motivation (or similar constructs, like intrinsic motivation) and academic performance. This study aims at making a contribution in this regard.

2.6 SUMMARY

In this chapter it has been found that both academic self-concept and motivation are very important variables in education and in academic achievement.

It has also been established that self-concept is a multi-dimensional construct. Academic self-concept proved to be more highly correlated with academic achievement than any other form of self-concept. It was established that various studies found a correlation between academic self-concept and academic achievement (House 1993; Barker, Dowson & McInery 2005; Damrongpanit 2009; Sikhwari 2004; Kumar 2001). There was also evidence to the contrary, when studies found none or weak correlations between academic self-concept and academic achievement.

Various studies (Marsh 1990b; Ahmed & Bruinsma 2006) proved that a positive academic self-concept leads to academic achievement. This would seem to prove that the opposite is also true, namely that a negative academic self-concept leads to

poor academic achievement. Proof also exists that humble or more realistic self-concepts are more conducive to academic achievement (Ocshe 2003; Yoon et al. 1996; Beyer 1999).

The relationship and causal ordering of the academic self-concept and academic achievement was discussed. One may come to the conclusion that the reciprocal effects model has the most support, where it states that the academic self-concept and academic achievement mutually influence each other.

It was indicated that motivation plays an important role in education and academic achievement. There also exists a positive correlation between motivation and academic achievement (Sikhwari 2004; Ahmed & Bruinsma 2006). However, there is also evidence to the contrary, namely that there is no or only a weak correlation between motivation and academic achievement (Areepattamannil & Freeman 2008).

The self-determination theory of motivation was discussed and three types of motivation were identified, namely intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation seems to be the most desirable form of motivation, and extrinsic motivation also proved to be important in some educational settings. Amotivation is undesirable for academic achievement, and not conducive to academic achievement at all.

In the next chapter, Chapter 3, the research methodology will be discussed. This chapter will deal with the research design of the study. The data-gathering methods and the validity and reliability of these methods will be discussed. The chapter will include a discussion of the sample, and the hypotheses to be tested. Statistical techniques will be focused on, as well as the ethical considerations of this study.

CHAPTER 3

THE RESEARCH METHODOLOGY

3.1   INTRODUCTION

In Chapter 2 the researcher discussed the relationships that exist between academic self-concept, motivation and academic achievement in respect of the relevant literature. The interrelatedness and the effects of academic self-concept and motivation on academic achievement were also discussed in detail, according to previous research findings. The researcher indicated the contribution of the study by revealing the contrasts that exist in relevant literature.

The research design used to investigate the relationship between the academic self-concept, motivation and academic achievement, will be discussed in this chapter. The research aims, hypotheses and the selection of the sample will be elaborated on. The researcher will also discuss the data collection methods, ethical considerations and statistical analyses.

3.2   THE RESEARCH PROBLEM AND RESEARCH QUESTIONS

It has been mentioned in Chapter 1, section 1.2 that students who intend to register for a BSc. degree in Quantity Surveying at the University of the Free State are required to meet certain selection criteria. It can thus be assumed that once you are selected to study towards this degree, you possess the intellectual ability to succeed. It was also established that despite these selection criteria, 15% of the residential students from the first to the fourth year failed their main subject in 2009.

As stated previously, this figure does not present a cause for great concern. However, it is necessary to determine what these failures can be ascribed to in order to prevent students from failing. Academic self-concept and motivation, have been identified, as variables that could be responsible for the variance in these students' academic achievement, and these will be investigated in this study.

Academic self-concept and motivation are two variables that can be influenced and enhanced by the lecturers in this Department at the University of the Free State. The study focuses on the residential students in this Department, which means there is daily contact between the lecturers and the students. Therefore, there are sufficient opportunities for the lecturers to influence the academic self-concepts and motivation of their students. The ability of lecturers to influence their students' academic self-concepts and motivation is emphasized by Areepattamannil and Freeman (2008:703-704) when they state that academic self-concept and academic motivation have the most potential of direct influence by the regular classroom teacher.

In current literature available on the topic, there are contrasting findings on the relationship between academic self-concept and motivation, and their influence on academic achievement. It is thus the aim of the researcher to clarify these relationships in order to be able to optimize the academic achievement of the students.

The research question of this study is:

Can academic self-concept, as well as motivation predict the level of academic achievement of students in all four of the study years in the Department of Quantity Surveying?

3.3   THE RESEARCH AIMS

The main aim of the research:

To determine whether the academic self–concept and the motivation of quantity surveying students can predict the level of academic achievement in all four of the study years.

The secondary aim of the research:

To determine whether there is a difference in the academic self-concepts and motivation of the quantity surveying students who perform above average academically, and of those students who perform below average academically.

3.4   THE HYPOTHESES

A research hypothesis can be described as a tentative statement of the expected relationship between two or more variables (McMillan & Schumacher 2006:59). In this study the variables are academic self-concept, motivation and academic achievement. Research hypotheses are declarative statements; they can clearly be tested and are indicative of the expected results (McMillan & Schumacher 2006:59).

According to McMillan and Schumacher (2006:59-60), a hypothesis should state the direction of the relationship; it should be testable; it should offer a tentative explanation based on the theory or previous research; and it should be concise and lucid. Research hypotheses are derived from the literature study that supplies the researcher with knowledge as to what relationships and results could be obtained from the study. Contrary to the research hypotheses, the null hypotheses state that there exists no statistically significant relationship between the variables (McMillan & Schumacher 2006:291).

For the purposes of statistical analysis, the significance of the relationships between academic self-concept, motivation and academic achievement was tested on the 1%- or 5%- significance levels. The level of significance is used to indicate the probability that the researcher is wrong, by rejecting the null hypotheses (McMillan & Schumacher 2006:292).

The statistical and null hypotheses for this study are stated below. Two hypotheses will be tested in this study:

Hypothesis 1:

> Academic self-concept and motivation can be used to predict a significant percentage of the variance in academic achievement.

Null hypothesis 1:

> Academic self-concept and motivation cannot be used to predict a significant percentage of the variance in academic achievement.

Hypothesis 2:

> There are significant differences in the averages of academic self-concept and motivation of students who achieve above average academically and those students who achieve below average.

Null hypothesis 2:

> There are no significant differences in the averages of academic self-concept and motivation of students who achieve above average academically and those students who achieve below average.

3.5 RESEARCH DESIGN AND METHOD

3.5.1 INTRODUCTION

The research question and the aims of the research influence the selection of the research design (Brink 1999). Cormack (1996) declares that the research design represents the major thrust of the study, being the distinctive scientific approach that is best suited to answer the research question.

McMillan and Schumacher (2006:22) indicate that the research design describes how the study is conducted; it indicates the general plan, namely how the research is set up, what happens to the subjects, and which methods of data collection are used. They continue (2006:22) by stating that the purpose of a research design is to specify a plan for generating empirical evidence that will be used to answer the research questions.

The main aim of this study is to determine if the academic self-concept and motivation of quantity surveying students can predict the level of academic achievement in all four of the study years. Thus, the aim of the study is to measure and determine the relationships between the variables. Bless and Higson-Smith (in De Vos et al. 2005:107) explain that correlational research is often conducted to detect the existence of a relationship between two variables, and allows for an estimation of the type and strength of the non-causal relationship. Thus, the best way to determine relationships in research is by means of statistical correlations. It is possible to obtain the data needed for statistical correlations by means of a

quantitative approach to research. The researcher accordingly decided that the traditional quantitative method of measuring relationships by means of statistical procedures would be most relevant to the study, as mentioned in Chapter 1, section 1.5.1.

The quantitative research design will be elaborated on in the next section.

3.5.2 QUANTATIVE RESEARCH DESIGN

In this study a quantitative approach was implemented. McMillan and Schumacher (2006:10) highlight some of the characteristics of quantitative research:

1. Data collection and data analysis procedures are explicitly explained.
2. Precision is important in this type of research because of the measurement and statistical methods that are used.
3. The results can be verified. It is possible to replicate a study in order for researchers to verify initial results.
4. Parsimonious explanation is present in the quantitative approach. This means that the least complicated explanation is preferred by the researcher.
5. Empirical data is obtained.
6. There is logical, deductive reasoning and conditional conclusions are made, therefore, statements of statistical probability are deducted form the results of the study.

McMillan and Schumacher (2006:23) further state that a very important sub-classification of quantitative design is to decide whether the study will be experimental or non-experimental. In this study a non-experimental and descriptive survey design will be employed. A non-experimental design ensures that a credible answer is obtained from a research question. In non-experimental research there is no direct manipulation of the variables by the researcher. The purpose of the research is solely to examine relationships. As stated by McMillan and Schumacher (2006:24), non-experimental research designs describe things that have occurred, and they examine relationships between things without any direct manipulation of conditions that are experienced.

A descriptive design is a study that describes phenomena. The purpose of most descriptive research is limited to characterize something as it is (McMillan & Schumacher 2006:24). McMillan and Schumacher (1997:32) indicate that apart from being the most commonly used method in educational research, the descriptive design is preferred, because it is objective in data collection at a point in time, it quantifies variables, and it describes the phenomena using numbers to characterize them.

In the next section, the researcher will focus on a discussion of the method used to select the research sample. The research sample itself will also be elaborated on.

3.5.3 THE RESEARCH SAMPLE

Sampling is described as "…taking a portion of a population or universe and considering it representative of that population or universe" (De Vos et al. 2005:203). In this study the researcher employed non-experimental convenience sampling, as was indicated in Chapter 1, section 1.5.2.

Non-experimental or non-probability sampling is the most commonly used type of sampling method in educational research (McMillan & Schumacher 2006:125). Non-probability sampling implies that not all the subjects in a population have an equal chance to be included in the sample. In convenience sampling a group of subjects is selected, based on the fact that they are accessible. It is convenient for the researcher to use a particular group as subjects. McMillan and Schumacher (2006:125) state that in convenience sampling, the generalizability of the findings is limited to the characteristics of the subjects, but they state that it does not mean that the findings are not useful; it simply means that caution is needed when generalizing.

This study will focus on the Department of Quantity Surveying at the University of the Free State in South Africa. The sample in this study is the residential students who are registered in the Department of Quantity Surveying at the University of the Free State for the degree of Bachelor of Science in Quantity Surveying. Their main module is Descriptive Quantification. All the residential students who are registered for this module, from the first to the fourth year will be included in the sample. This will enable the researcher to determine if the results from the study are consistent for

students across all the study year levels, and to determine if there are differences in the findings between the different year levels. This specific Department and these students were selected to be participants in the study because they are readily available to the researcher.

All these students had to be selected by the Department of Quantity Surveying in order to be allowed to register for this degree. Apart from the general regulations for admission to the University, the following requirements in order to be selected to study towards the degree of Bachelor of Science in Quantity Surveying were also applicable:

1. The student has to be in possession of a certificate of full matriculation exemption.
2. The student must have a M-score of 28 or AP-score of 34 or higher.
3. The student must have passed grade 12 Mathematics on a higher grade, or have obtained at least 50% a standard grade.
4. The student must have passed Mathematics on achievement level 5, alternatively a pass mark in WTW164.
5. The prospective student must also have passed Physical Science, Economics, Business Economics or Accounting in Grade 12 with at least 50% or on achievement level 4.

Admission to the degree of Bachelor of Science in Quantity Surveying is limited and compliance with the minimum requirements does not necessarily secure selection. The final selection is based strictly on merit, and a M-score or AP-score of 34 or higher is required. It can therefore be assumed that all these students have a certain intellectual ability that allows them to study towards this degree. As a result of the selection criteria there are about seventy students per year level, with the exception of the fourth year, where there were approximately fifty students. The initial sample size was thus more or less 260 students. As a result of being absent or not completing the questionnaires correctly or completely, the actual number of the participants was 190. The first year students represented 47 of the total sample, the second year students represented 51, and the third and fourth year students 56 and 36 respectively.

In the following section the method of data collection, namely the questionnaire, will be discussed, followed by an explication of the questionnaires to be used in this study.

3.5.4 THE QUESTIONNAIRE

In order to collect the data for this study which seeks to determine the relationship between academic self-concept, motivation and academic achievement, the researcher will make use of questionnaires, as was indicated in Chapter 1, section 1.5.3. The questionnaire is preferred for this study because it supplies the researcher with quantifiable data that is available for statistical analyses (Dambudzo 2009:73). Additionally, the questionnaire is the most widely used technique for obtaining information from subjects (McMillan & Schumacher 2006:194).

Babbie and Mouton (in De Vos et al. 2005:166) mention the fact that although the concept questionnaire suggests a collection of questions, a typical questionnaire will probably contain as many statements as questions, especially if the researcher is interested in determining the extent to which the respondents hold a particular attitude or perspective. The basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed on that particular issue (De Vos et al. 2005:166). The researcher wanted to determine academic self-concepts and motivations of the sample, and the questionnaire as a method of data-collection was thus most appropriate for this study.

There are different kinds of questionnaires. In this study a group-administered questionnaire will be used. This allows each respondent to receive the same stimulus. Questionnaires allow each respondent to read and answer identical questions, thereby ensuring consistency in the demands of what respondents had to give as answers (Dambudzo 2009:73). In this study the researcher required information and data from the respondents themselves. The questionnaire was the easiest and most valid and reliable source to obtain this data.

In the next section the questionnaires used to measure both academic self-concept and motivation will be discussed in more detail.

3.6 MEASUREMENT INSTRUMENTS

3.6.1 ACADEMIC SELF-CONCEPT

The questionnaire that was employed in order to measure the academic self-concepts of the sample is the Self-Description Questionnaire (lll), in an adapted version, as mentioned in Chapter 1, section 1.5.3. Marsh and his colleagues developed this questionnaire in 1992. The SDQ (lll) is one of a series of three instruments designed to measure the self-concepts of pre-adolescents (SDQ-I), young adolescents (SDQ-ll), and late-adolescents and young adults (SDQ-lll) (Marsh 2010:5).

The Shavelson, Hubner and Stanton (1976) multi-faceted, hierarchical model of self-concept served as the basis for all three Self-Description Questionnaires (Marsh 2010:5). This model, created by Shavelson, Hubner and Stanton in order to define and explain the structure of self-concept, is also the model that will be implemented by the researcher in this study to describe and define the construct academic self-concept.

The SDQ (lll) measures self-concept in global and specific areas for late-adolescents and young adults. It was originally intended for use by late-adolescents, generally within the age range of 16 to 25 years (Marsh 2010:5). This age range is also suitable for the age range of the sample. The SDQ (III) is a 136-item self-report questionnaire that measures self-concept, using thirteen scales (Ryan 2004:388). It assesses four areas of academic self-concept, eight areas of the non-academic self-concept and a general self-concept, derived from the Rosenberg (1965; 1979) self-esteem scale (Ryan 2004:388).

The thirteen scales that are used in this questionnaire are the following, namely mathematics, verbal, academic, problem solving, physical ability, physical appearance, same-sex peer relations, opposite-sex peer relations, parent-relations, spiritual values/religion, honesty/trustworthiness, emotional stability and general esteem (Marsh 2010:5). Academic self-concept is measured on the following four scales, namely mathematics, verbal, academic and problem solving. The measuring instrument for academic self-concept is comprised of these four scales.

The Self-Description Questionnaire (lll) to measure self-concept is preferred because it generates quantifiable data ready for statistical analysis (Dambudzo 2009:73), as mentioned previously. The validity of the original Self-Description Questionnaires has been strongly supported and accredited in the recent literature (Lau, Yeung & Jin 1998:2). The Self-Description Questionnaires in its original forms have been tested and supported extensively in Western and non-Western cultures, and have been found to be the best multi-dimensional self-concept instruments available (Lau, Yeung & Jin 1998:2; Marsh & Roche 1996:464).

The Self-Description Questionnaire (lll) was adapted in the following ways in order to suit the needs of this study:

1. Only the 4 scales that measure academic self-concept were included and used in the questionnaire. These four scales are: mathematics, verbal, academic and problem solving. This was done because of the focus of the study being only on academic self-concept, and not on general self-concept.

   It is very appropriate for this study that one of the scales that measure academic self-concept is mathematics. The module, Descriptive Quantification, that the sample's academic achievement was measured on, is based on mathematics. It includes complex mathematical problems, and involves all three forms of school mathematics, namely algebra, geometry and trigonometry.

2. The scale used to respond to the questions or statements in the questionnaire was changed to a scale consisting only of 6 responses, instead of 8 options for responses. Only responses 1 and 6 were marked definitely false and definitely true, respectively. The students were required to make their own judgments about what their responses are including and between these two extremes, as the remaining possible responses between 1 and 6 were not marked with a description.

After the adaptation of the Self-Description Questionnaire (lll) to measure only academic self-concept, the questionnaire comprised of 40 items. The questionnaire provided the researcher with information of the academic self-concepts of the sample.

3.6.2 MOTIVATION

The Academic Motivation Scale (Vallerand, Pelletier, Briere, Seneca & Vallieres 1992) was used to assess the academic motivation orientation of the sample, as stated in Chapter 1, section 1.5.3. This measure of motivation in respect of education was originally developed in French, namely the Echelle de Motivation de Education (EME). The EME is based on the tenets of the self-determination theory of Ryan and Deci. This is the same theory that the researcher based the definition and explanation of motivation and the different types of motivation on, and that are applicable to this study. The EME was translated into English through appropriate methodological procedures. The results of studies show that the English version of the scale, named the Academic Motivation Scale (AMS), has satisfactory levels of internal consistency and temporal stability (Vallerand et al. 1992).

The Academic Motivation Scale is a questionnaire developed to assess the various dimensions of motivation (Cokley et al. 2001:111). It is used to determine the reasons why students attend college (Clark and Schroth 2010:21). It assesses three motivational orientations, namely intrinsic motivation, extrinsic motivation and amotivation.

The AMS was developed for use with college students (Cokley et al. 2001:111). The only adaptation that the researcher made to the questionnaire was to replace the word college in the original, with university. This was done in order to make the questionnaire more appropriate and applicable to the respondents who attend a university, and not a college.

The Academic Motivation Scale has been found to be a highly dependable measure (Ahmed & Bruinsma 2006:561). It has 28 items anchored to a seven-point Likert-type scale (1 = does not correspond at all, and 7 = corresponds exactly). The items

include responses to the question, "Why did you go to college?", and in this study "Why did you go to university?".

In an initial study of the Academic Motivation Scale, Vallerand, Pelletier, Blais, Briere, Seneca and Vallieres (1992) collected the responses of 745 Canadian college students to examine the factor structure and the reliability of the AMS scores (Fairchild, Horst, Finney & Barron 2005b:7). Vallerand et al. (1992) found that there is adequate support for the factorial validity and reliability of the questionnaire that support its use in educational research. They reported internal consistency levels (mean alpha of 0.81) and temporal stability (mean test-retest correlation of 0.75). In a study done by Fairchild et al. (2005) this questionnaire was found to have construct validity as well as adequate internal consistency.

In the next section, academic achievement and the measurement thereof will be discussed.

3.6.3 ACADEMIC ACHIEVEMENT

As discussed in Chapter 1, sections 1.4.3 and 1.6.7, and Chapter 2, section 2.4, the definition of academic achievement that is used in this study is the same as the one used by Howcroft (1991:111), namely the actual mark or score obtained by the students in the examination. The data that are used to represent the academic achievement of the sample are the results of the respondents' final examination in November 2010 in their main subject, Descriptive Quantification. Permission was obtained from the Head of the Department to use this data. The researcher assured the Head of the Department of the confidential treatment of this data.

In this study the respondents' marks in Descriptive Quantification were selected as a measure of academic achievement, as this is the core subject that they have to pass in order to be promoted to the next academic year. The students have to pass four one year modules in Descriptive Quantification in order for them to qualify for the degree in quantity surveying. Because this is a module that all students in the Department of Quantity Surveying are obligated to take, it is considered to be the most appropriate way to obtain the data in respect of academic achievement.

The validity and reliability of the instruments used in this study will be focused and elaborated on in the next section.

3.7 THE VALIDITY AND RELIABILITY OF THE DATA GATHERING METHODS

3.7.1 INTRODUCTION

Denscombe (in Dambudzo 2009:79) suggests that the idea of validity hinges on the extent to which research data and the methods of obtaining the data are deemed accurate, honest and on target. Validity is a situation-specific concept: it is dependent on the purpose, the population and the situation where the measurement takes place (McMillan & Schumacher 2006:130). Practically speaking, however, the validity of an instrument is assessed in relation to the extent to which evidence can be generated in support of the claim that the instrument measures the attributes targeted in the proposed research (Dambudzo 2009:79).

De Vos et al. (2005:160) mention that a definition of validity includes two aspects, namely that the instrument actually measures the concept in question, and that the concept is measured accurately. They refer to four types of validity, namely content validity, face validity, criterion-related validity and construct validity. In this study the focus will specifically be on content validity, face validity and construct validity.

Reliability refers to the consistency of the measurement – the extent to which the results will be similar over different forms of the same instrument or occasions of data collection (McMillan & Schumacher 2006:183).

The definitions of the above-mentioned kinds of validity and reliability will now be discussed, as well as the validity and reliability of the Self-Description Questionnaire (lll) and the Academic Motivation Scale.

3.7.2 THE MEASUREMENT OF ACADEMIC SELF-CONCEPT AND OF MOTIVATON

3.7.2.1 CONTENT VALIDITY AND FACE VALIDITY

Content validity is concerned with the representativeness or sampling adequacy of the content of an instrument (De Vos et al. 2005:160-161). In other words, a valid measuring device would provide an adequate or representative sample of all the content, elements, or instances of the phenomenon being measured.

To determine content validity we ask two questions:

1. Is the instrument really measuring the concept we assume it is?
2. Does the instrument provide an adequate sample of items that represent the concept?

Rubin and Babbie (in De Vos et al. 2005:161) mention that content validity is established on the basis of judgments, which means that the researchers or other experts make judgments about whether the measure covers the universe of facets that make up the concept.

Face validity is the degree to which an instrument appears to be measuring what it is supposed to measure. Gravetter and Forzano (in De Vos et al. 2005:161) state that face validity is the simplest and least scientific definition of validity; it concerns the superficial appearance or face value of a measurement procedure. De Vos et al. (2005:161) state that the relevant question in this regard is: Does the measuring instrument seem as if it measures the variable that it claims to measure? De Vos et al. (2005:161) continue by saying that it is important to structure an instrument so that it not only accurately measures the attributes under consideration, but also appears to be a relevant measure of those attributes.

The terms face validity and content validity are often used interchangeably in the research literature (De Vos et al. 2005:161). As a result, the researcher decided to discuss these two types of validity together.

In the case of this study, the questionnaires were given to the researcher's supervisor and other experts to check the content validity and face validity. These persons found that the questionnaires appeared to measure the appropriate constructs.

The next section will focus on construct validity.

3.7.2.2 CONSTRUCT VALIDITY

De Vos et al. (2005:162) state that construct validity is the most difficult approach to validation, as it involves determining the degree to which an instrument successfully measures a theoretical construct. The difficulty in measuring construct validity lies in the highly abstract nature of constructs. Construct validity is concerned with the meaning of an instrument, construct validity attempts to determine what it is measuring and how and why it operates the way that it does (De Vos et al. 2005:162).

In a study done by Marsh and O'Neil (2005) that examined the validity of self-concept-interpretations of scores from the original form of the Self-Description Questionnaire (lll) for use with university-age respondents. Marsh and O'Neil (2005) found that there is strong support for the construct validity of both the self-concept and interpretations based upon the Self-Description Questionnaire (lll).

In a study done by Fairchild et al. (2005) on 1406 American college students to test the construct validity of the Academic Motivation Scale, they found that the AMS provided construct validity evidence in the form of a well-fitting seven-factor model. In another study done by Vallerand et al. (in Cokley et al. 2001:113) support for construct validity was found as assessed by means of the examination of correlations of the sub-scales and correlations between the sub-scales and motivational antecedents and consequences.

The construct validity of scores from the Academic Motivation Scale for intrinsic and extrinsic motivation was supported by the pattern of correlations with perceived competence, optimism in education, self-actualization, concentration in class, and academic performance (Cokley et al. 2001:113). Cokley et al. (2001) conducted a study with a United States student sample and found proof of the construct validity of

the Academic Motivation Scale. These results are consistent with those by Vallerand et al. (1992).

Three separate studies have thus found the construct validity of the Academic Motivation Scale to be adequate.

3.7.2.3 RELIABILITY

Strydom, Fouche, Poggenpel and Schurink (in Dambudzo 2009:81) declare that an instrument such as a questionnaire is said to be reliable to the extent that independent administrations of it, or a comparable instrument, consistently yields the same or similar results. Therefore, the more consistent the results obtained by the measurement instrument, the more reliable the instrument.

Internal consistency is the most common kind of reliability, since it can be estimated from giving one form of a test only once (McMillan & Schumacher 2006:185). There are three general types of internal consistency measures, namely the split-half-method, the Kuder-Richardson-method, and the Cronbach alpha method. In this study the focus will be on the Cronbach alpha method.

The Cronbach alpha method of determining internal consistency assumes the equivalence of all the items in the questionnaire. It is a much more general form of internal consistency and is used for items that are not scored right or wrong (McMillan and Schumacher 2006:186). In this study the items in both the questionnaires are not scored right or wrong. The Cronbach alpha is, generally speaking, the most appropriate kind of reliability in the case of survey research, as well as for other questionnaires where there is a range of possible answers for each item (McMillan & Schumacher 2006:186). As was mentioned before, this study is a descriptive survey research design and there is a range of possible answers for each item in the questionnaires. Therefore the Cronbach alpha method is the most appropriate measure of reliability for this study.

The researcher investigated the internal consistency of the items from the different sub-scales for both of the questionnaires for academic self-concept and motivation respectively. The internal consistency was determined by calculating the Cronbach alpha's α-coefficients with the help of the SPSS computer software program (SPSS

Incorporated 2009). The α-coefficients appear in Table 1. According to McMillan and Schumacher (2006) an acceptable range of reliability coefficients for most instruments is between .70 and .90.

Table 1: The alpha-coefficients for the questionnaire sub-scales.

Sub-scales for questionnaires	Minimum	Maximum	α-coefficient
SDQ: Mathematics	10	60	0,892
Verbal	10	60	0,835
Academic	10	60	0,805
Problem solving	10	60	0,775
AMS: Intrinsic motivation total	12	84	0,908
Extrinsic motivation total	12	84	0,846
Amotivation	4	28	0,831
Total score (intrinsic and extrinsic)	24	168	0,912

From Table 1 it is clear that for all the sub-scales for both the questionnaires used in this study, high to acceptable alpha-coefficients were obtained. The internal consistency was also obtained for the total scores of the intrinsic and extrinsic motivation sub-scales. Both these sub-scales proved to have high to acceptable alpha-coefficients. The information that will be obtained in this study by the measurement instruments in order to analyze the data and to investigate the hypothesis can thus be used with confidence, and can be considered to be reliable.

Marsh and Roche (1996:464) found that the coefficient alpha estimates of reliability of the original Self-Description Questionnaire (III) range between .80 and .90. As per the Self-Description Questionnaire Manual, the coefficient alphas of the 13 factors that are measured vary from .76 to .95. In a study done by Fairchild et al. (2005) on a sample of 1406 students, the Cronbach's coefficient alpha values indicated that the sub-scales of the Academic Motivation Scale demonstrate adequate internal consistency.

It can thus be concluded that both the Self-Description Questionnaire (III) and the Academic Motivation Scale are valid and reliable in their measurements of academic self-concept and motivation respectively.

3.8   PROCEDURE FOR ADMINISTERING THE QUESTIONNAIRES

Permission to conduct the study and to administer the questionnaires was obtained from the Head of the Department of Quantity Surveying, Professor Basie Verster. (see Appendix B).

The respondents were asked to complete the questionnaires after a Descriptive Quantification term test in September 2010. The reason that the questionnaires were administered in September 2010 and not earlier or later in 2010 is that it was the appropriate time in the development of the research of the researcher. The questionnaires were administered to the different study year levels separately. All of the students in each study year received the same stimulus and were exposed to the same instructions and input. The questionnaires were delivered to the students on the day of their term test in Descriptive Quantification because researcher was informed that it would be the easiest and best way to ensure optimum cooperation, participation and student response.

The respondents were asked to write their names and study years on the questionnaire. This was required in order to correspond the academic achievement scores to the appropriate student. The respondents were assured that their identities and the results would be treated confidentially.

The questionnaires (see Appendix A) were handed out to the students. They were asked to indicate their response to each question by writing down or encircling the appropriate corresponding number in the spaces provided. The respondents were informed that there were no right or wrong answers, and that only their opinion was required. They were advised that the questions related to how they felt about the learning activities. They were also requested to respond to each question.

The questionnaires took approximately fifteen to twenty minutes to complete. All questionnaires were collected after completion, and the respondents were thanked for their cooperation and participation.

The statistical techniques that were used for the data analysis will be discussed in the next section.

3.9   STATISTICAL TECHNIQUES FOR THE ANALYSIS OF THE DATA

3.9.1 INTRODUCTION

According to Brink (1999) the aim with the analysis of the data is to reduce and to synthesize information in order to make sense out of it, and to allow inference about a population. De Vos et al. (2005:218) agree with this statement when they state that the purpose is to reduce the raw data to an intelligible and interpretable form, so that the relations of the research problems and hypothesis can be studied and tested, so that conclusions may be drawn.

Mertens (in Dambudzo 2009:82) suggests that the statistical procedure chosen for any study depends on the research question or the hypothesis, the types of groups one is dealing with, the number of the variables, and the scale of the measurement. De Vos et al. (2005:218) state that the data analysis does not in itself provide the answers to the research questions; the answers are found by way of the interpretation of the data and the results. It is not possible to interpret or understand raw data, it is therefore essential that data be statically analyzed.

In accordance with the stated aims and the hypotheses of the study, the following statistical analysis techniques will be used in this study. These statistical methods will be defined and explained briefly, but will be discussed in more detail in Chapter 4.

3.9.2 THE PEARSON PRODUCT MOMENT CORRELATION

The Pearson Product Moment correlation determines the direction of a relationship between variables. Ferguson (in De Vos et al. 2005:240) indicates that correlation is concerned with describing the degree of relation between variables. In addition, correlation involves direction that is not only weak or strong, but the correlation can also be positive or negative (De Vos et al. 2005:240). The Pearson Product Moment correlation coefficient is the most widely used measure of relationship (McMillan & Schumacher 2006:485). The Pearson Product Moment correlation coefficient varies between -1 (negative correlation) through 0 (no correlation) to +1 (positive correlation) (De Vos et al. 2005:244).

3.9.3 HIERARCHICAL REGRESSION

Hierarchical regression is when the researcher and not the computer determines the order of the entry of the variables (Garson 2010). In the analysis of hierarchical regression the researcher has the experience or knowledge that leads him or her to believe that certain variables should be included in the model and in what order (Rowell, Nesee & Dennison). Predictor variables are entered into the regression equation simultaneously (Areepattamannil & Freeman (2008:724). F-tests are used to compute the significance of each added variable or set of variables to the explanation reflected in R-squared (Garson 2010). Cohen et al. (in Areepattamannil and Freeman 2008:724) state that this approach allows the researcher to identify the unique contribution of each predictor to the outcome variable.

3.9.4 THE MANN WHITNEY U-TEST

The Mann Whitney U-test is a non-parametric test that can be used in the place of an unpaired t-test (Shier 2004:1). It is an alternative test to the t-test (Statistics Solutions 2009). The Mann Whitney U-test was developed by, Wilcoxon in 1945. It is used to compare two population means that come from the same population, and to test whether the two population means are equal or not (Statistics Solutions 2009).

3.9.5 LEVEL OF STATISTICAL SIGNIFICANCE

The level of significance is used to indicate the probability that the researcher is wrong in rejecting the null hypotheses (McMillan & Schumacher 2006:292). The level of statistical significance tells us the chance-probability of finding differences between the means (McMillan & Schumacher 2006:292-293). The level of statistical significance will be employed in order for the researcher to determine whether or not it is correct to reject the null hypotheses in this study.

In the next section the ethical principles to be taken into consideration in this study will be defined and discussed. The researcher will also provide an account of how these considerations will be ensured.

3.10 ETHICAL CONSIDERATIONS

3.10.1 INTRODUCTION

Ethics can be defined as a set of moral principles that is proposed by an individual or group and that is subsequently widely accepted, and that offers rules and behavioral expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, other researchers, assistants and students (De Vos et al. 2005:57). Generally speaking, ethics is considered to deal with beliefs about what is right or wrong, proper or improper, good or bad (McMillan & Schumacher 2006:142).

In most educational research the focus is on human beings. It is for this reason that the ethical conduct of the researcher is very important. The fact that human beings are the objects of study in the social sciences brings unique ethical problems to the fore that would not be relevant in the clinical laboratory settings of the natural sciences (De Vos et al. 2005:56). Gravetter and Forzano (in De Vos et al. 2005:56) state that researchers have two basic categories of ethical responsibilities, namely a responsibility towards those, both human and non-human, who participate in a project, and a responsibility towards the discipline of science.

It is important that a researcher who conducts a study is aware and fully informed of what is considered to be ethical in research. A researcher has to act ethically at all times. Different researchers focus on different aspects of ethics. In this study the researcher will focus on informed consent, the violation of confidentiality and the release or the publication of the findings.

These ethical issues will be discussed below.

3.10.2 INFORMED CONSENT

McMillan and Schumacher (2006:144) state that in the case of research conducted at an institution, such as a university, a school or a school system, approval for conducting the research should be obtained from the institution before any data may be collected.

This researcher sought the permission of the Head of the Department of Quantity Surveying and Construction Management, Professor Basie Verster, to conduct the research (See Appendix B).

McMillan and Schumacher (2006:143) explain that informed consent is achieved by providing the subjects with an explanation of the research, with the opportunity to terminate their participation at any time with no penalty, and the full disclosure of any risks associated with the study. The researcher's assistant, who distributed and collected the questionnaires, stressed the fact that the respondents were free to refuse participation in the research. On the questionnaire the aim of the research was stated, so that the respondents may be aware of it.

The respondents were informed that they could refuse to participate in the research, if they so wished. Informed consent implies that the subjects have a choice about whether or not to participate (McMillan & Schumacher 2006:143). Anybody willing to participate after this explanation was presumed to have given his or her informed consent to be involved in the investigation (Dambudzo 2009:95).

3.10.3 VIOLATION OF CONFIDENTIALITY

Confidentiality means that the privacy of the individuals is protected, namely by ensuring that the data provided are handled and reported in such a way that no individual identities are disclosed, and that no one, except the researcher, would have access to the data or the names of the participants (Dambudzo 2009:97). Anonymity implies the guarantee that no one will be able to identify any respondent after the study has been conducted.

In this study it was not possible to collect the data anonymously, the reason being that the data had to be linked to the marks obtained by the students for the subject Descriptive Quantification in the examination. The researcher therefore had to be able to identify the respondents in order to incorporate the relevant data. The respondents were consequently asked to include their names on the questionnaires. They were, however, assured of confidentiality in the treatment of this information.

In order to protect the students' identities, the researcher would only report on the results of the group and not on the individual results of the participants. McMillan and

Schumacher (2006:144) state that one of the means of ensuring confidentiality is to report only group results.

3.10.4 RELEASE OR PUBLICATION OF THE FINDINGS

According to Strydom et al. (in Dambudzo 2009:98), research findings have to be published, otherwise the whole exercise becomes useless. The researchers have to compile a report of the findings as accurately and as objectively as possible (De Vos et al. 2005:65). The shortcomings of the study and errors have to be admitted, and also be disclosed.

This researcher acknowledged the shortcomings and limitations of this study (See Chapter 5, section 5.5).

The results of the research study would be released to the Department of Quantity Surveying in an accurate and objective manner, taking confidentiality, as well as the anonymity of the participants into consideration.

3.11 SUMMARY

In this chapter the research problem and the aims of the study were discussed. The researcher stated the research hypotheses and the null hypotheses. The research design was explained, and the choice of a quantitative, non-experimental, descriptive research design was justified.

The sample and the sampling method were indicated. The questionnaire as method of data collection was explained and validated. The two questionnaires to be implemented in this study and their validity and reliability were elaborated on.

The procedure of administering the questionnaires was explained in detail. The researcher also explained the statistical analysis of the data and the various procedures that would be used. Lastly, the ethical considerations applicable to this study were explained.

In the next chapter the researcher will report on the findings from the study, and provide a discussion of the findings.

CHAPTER 4

THE FINDINGS AND A DISCUSSION OF THE FINDINGS

4.1 INTRODUCTION

The main aim of the research:

To determine whether the academic self-concept and the motivation of quantity surveying students can predict the level of academic achievement in all four of the study years.

The secondary aim of the research:

> To determine whether there is a difference in the academic self-concepts and motivation of the quantity surveying students who perform above average academically, and of those students who perform below average academically.

In order to investigate the primary aim, a prospective research design will be used, while a criterion group design will be used to investigate the secondary aim.

4.2 COLLECTION OF THE DATA

In this study non-probability convenience sampling was used to select the research sample. This type of sampling is used when a sample is chosen based on the participants being accessible.

All the residential students from the first year to the fourth year studying Quantity Surveying at the University of the Free State and whose main subject is Descriptive Quantification were included in the sample. Using students from four different study levels enabled the researcher to compare the results of the findings between the different year levels. The researcher experienced no problems in the composition of the research sample.

The distribution of the research sample group in terms of study year is presented in Table 2.

Table 2: The distribution of the students across the four study years.

Year group	N	%
First	47	24,7
Second	51	26,8
Third	56	29,5
Fourth	36	19,0
Total	190	100,0

The fourth year group is slightly less than the other three study year groups in this sample.

The data for academic self-concept and motivation was collected by means of a questionnaire that was completed by the research sample, as discussed in Chapter 3, sections 3.6.1 and 3.6.2. The questionnaires that were used for the data collection for both academic self-concept and motivation were existing questionnaires, namely the Self-Description Questionnaire (III) and the Academic Motivation Scale (College Version) that were adapted by the researcher to be more relevant and applicable to this study.

The data that were used to represent the academic achievement of the research sample were their November 2010 examination marks for their main subject, Descriptive Quantification.

4.3   MEASUREMENT INSTRUMENTS

4.3.1 ACADEMIC SELF-CONCEPT

The Self-Description Questionnaire (III) was discussed in detail in Chapter 3, section 3.6.1, and will only be briefly discussed here.

The Self-Description Questionnaire is designed to measure multiple dimensions of self-concept of college students and other adults (Marsh 1992).

The Self-Description Questionnaire comprises a multi-dimensional structure that is firmly rooted in the Shavelson et al. (1976) theoretical model of self-concept. The Self-Description Questionnaire is designed to measure self-concept in relation to eight non-academic areas, namely physical ability, physical appearance, peer

relations – same-sex, opposite sex, relations with parents, emotional stability, honesty or trustworthiness and spiritual values or religion; four academic areas, namely verbal, mathematics, problem-solving and general academic; and a single global perception of the 'self', namely general – 'self'.

In this study the researcher only made use of the 4 sub-scales that are used to measure academic self-concept, the reason being that this study only focuses on academic self-concept, and it is thus more appropriate and relevant to use only the scales pertaining to academic self-concept. As stated above, these four sub-scales are verbal, mathematics, problem solving and general - academic, each containing ten items. The questionnaire that was used in this study thus consisted of a total of 40 items.

The scale that was used in order for the students to respond to the statements in the questionnaire was changed from a scale originally consisting of an option between 8 responses to a scale consisting of only 6 options. Only options 1 and 6 were marked definitely false and definitely true, respectively. The students were required to make their own judgments about what their responses are on the scale provided, including and between these two extremes.

On each of the sub-scales, five of the ten items needed to be reversed when scoring the questionnaire, as they are asked in a negative form. The highest score that can be obtained per sub-scale is 60 and the minimum is 10. A high score on the different sub-scales indicates that the student has a high self-concept on the construct that is being measured by that particular sub-scale. For example, if a student scores 60 points on the mathematics sub-scale, it means that the student has a high mathematics self-concept.

The highest score that a student could obtain on the Self-Description Questionnaire is 240, and the lowest score is 40. If the total score of the four sub-scales is high, it indicates that the student has a high academic self-concept. The researcher worked with raw scores and not with standardized scores.

4.3.2 MOTIVATION

The Academic Motivation Scale was also discussed in detail in Chapter 3, section 3.6.2, and as a result is discussed only briefly here.

It is a measure of motivation toward education, and was originally developed in French, namely the Echelle de Motivation en Education (EME) (Vallerand et al. 1992). The Academic Motivation Scale is a questionnaire developed to assess the various dimensions of motivation (Cokley et al. 2001:111). It is used to investigate the reasons why students attend college (Clark and Schroth 2010:21). The Academic Motivation Scale assesses three motivational orientations, namely intrinsic, extrinsic and amotivation.

The Academic Motivation Scale consists of 28 items that students respond to on a 7-point Likert-type scale, 1 representing, 'Does not correspond at all' and 7 'Corresponds exactly'. The researcher worked with raw scores and not with the standardized scores.

Twelve items in the questionnaire measure intrinsic motivation. These twelve items represent the score for intrinsic motivation. Another twelve items in the questionnaire measure extrinsic motivation, and the total score of these twelve items represent the score for extrinsic motivation. The highest score that a student can obtain for the items on intrinsic and extrinsic motivation respectively is 84. The lowest score is 12. A high score for intrinsic motivation indicates that a student has high intrinsic motivation. The same is true for extrinsic motivation

A total score that includes both the items of intrinsic and extrinsic motivation represents the score for the construct motivation. The highest score that a student can obtain on intrinsic motivation and extrinsic motivation combined is 168, and the lowest is 24.

The remaining 4 items in the questionnaire measures the amotivation of the students. The highest score that a student can obtain for amotivation is 28, and the lowest score is 4. Thus, if a student scores high on amotivation, it means that the student is amotivated, which indicates that the student is not motivated at all.

4.3.3 ACADEMIC ACHIEVEMENT

The data used to represent the academic achievement of the respondents, are the results of the students' final examination in November 2010 in their main subject, Descriptive Quantification (see Chapter 2, section 2.4; Chapter 3, section 3.6.3).

In this study the respondents' marks in Descriptive Quantification were selected as a measure of academic achievement, as this is the core subject that enables them to pass to the next academic year, if their marks are adequate. This is a module that all the students studying Quantity Surveying have to pass. Thus, all the students across the four study year levels are registered for Descriptive Quantification; it is therefore the most appropriate way of obtaining the necessary data to represent academic achievement.

Descriptive Quantification is a year module, which means that the students are registered for the module for one entire academic year. In November of each year the students have to write an examination on the whole year's work. This examination mark constitutes the biggest percentage of their year mark for this module. It is thus the most reliable source of data to represent academic achievement.

4.4   RESEARCH HYPOTHESES

In respect of the research aims that were stated in this study, two research hypotheses were formulated, as stated in Chapter 3, section 3.4, namely

Research hypothesis 1:

> **Academic self-concept and motivation can be used to predict a significant percentage of variance in academic achievement.**

This research hypothesis will be investigated for each study year group (first, second, third and fourth year) separately, as their level of academic achievement is determined by different examination papers.

Research hypothesis 2:

> **There are significant differences in the averages of the academic self-concept and motivation of students who perform below average academically and of those students who perform above average.**

This research hypothesis will also be investigated separately for the four different year groups.

The researcher will now discuss the statistical procedures that will be used.

4.5   STATISTICAL PROCEDURES

Hypothesis 1:

In order to investigate research hypothesis 1, a hierarchical regression analysis will be done (see Chapter 3, section 3.9.3). In hypothesis 1, academic self-concept and motivation are the independent variables, and the dependent variable is represented by academic achievement. The process that will be followed is to first determine the total variance that is declared by the predictor variables collectively (full model) in respect of the criterion variable (academic achievement). The contribution of the set of variables, namely academic self-concept and motivation, will then be investigated. The unique contribution of each of the individual predictor variables will also be investigated. Both of these will be investigated in order to determine whether they contribute to the explanation of variance in academic achievement. The percentage of variance in a specific variable or variables is declared by R^2 (squared multiple correlation coefficient).

In order to determine if the contribution of a specific variable or set of variables to the R^2 - value, are statistically significant or not, the hierarchical F-test will be used for investigation. When the significance of an increase in the R^2 is investigated, it is also necessary to calculate the effect size of the contribution of a certain variable or variables. The effect size gives an indication of the contribution of R^2 in terms of the proportion of unexplained variance of the full model. According to Cohen (in Steyn 1999), the following guideline values (f^2) can be used with regression analysis, namely 0.01 = small effect; 0.15 = medium effect and 0.35 = large effect.

Hypothesis 2:

In order to investigate research hypothesis 2, the respondents in the respective study year groups will be divided into above average and below average achievers. In order to determine this, the average and standard deviation per year group of the total group will be calculated. Then a half of a standard deviation above and below the average will be determined as cut-off points for the two groups. As a result of the 'middle' group being left out, the remaining number of students will be very small.

In such a case it is desirable to work with a non-parametric test. The seven scales are all measured on the interval scale and as a result, according to Howell (2002) the Mann Whitney U-test should be considered, as it is a non-parametric test that compares the central tendency of two independent groups (see Chapter 3, section 3.9.4). In this case the following guideline-values (r) can be used, namely 0.1 = small effect, 0.3 = medium effect and 0.5 = large effect.

As stated in Chapter 3, section 3.9.5, both the 1% and 5% level of significance is used in this study. The results that follow are calculated, using the SPSS computer software program (SPSS Incorporated 2009). Only with statistically significant results will the effect sizes be calculated.

4.6 RESULTS AND A DISCUSSION OF THE RESULTS OF HYPOTHESIS 1

As the researcher has already indicated, hypothesis 1 was investigated separately for the four study year groups, and the results will be presented accordingly. The reason for investigating the four study year levels separately is that the respondents in the different year levels wrote different exam papers for the subject, Descriptive Quantification. It will also enable the researcher to differentiate the findings for the different year groups and to report the differences in the findings among them.

Before the formulated research hypothesis 1 is investigated, the relationship between the predictor variables, namely academic self-concept and motivation and the criterion variable, academic achievement is investigated. For this purpose the Pearson Product Moment correlation coefficients are calculated. These coefficients are presented separately in Table 3 below.

Table 3: Correlations between the predictor variables and the criterion variable for the four study years.

Variables	First year (n=47)							
	MS	VB	AC	PS	MI	ME	MA	MT
Academic performance	0,06	0,09	-0,06	0,21	-0,06	0,06	0,07	-0,01
SDQ – Maths (MS)	-	-0,10	0,11	0,23	0,26	0,26	-0,11	0,29
SDQ – Verbal (VB)		-	0,56**	0,58**	0,15	-0,02	-0,31*	0,09
SDQ – Academic (AC)			-	0,62**	0,45**	0,19	-0,35*	0,38**
SDQ– Problem solving (PS)				-	0,21	0,02	-0,04	0,15
Intrinsic motivation (MI)					-	0,60**	-0,16	0,93**
Extrinsic motivation (ME)						-	-0,43**	0,86**
Amotivation (MA)							-	-0,31*
Motivation total (MT)								-
Variables	Second year (n=51)							
	MS	VB	AC	PS	MI	ME	MA	MT
Academic performance	0,23	-0,01	0,33*	0,03	0,18	-0,10	-0,12	0,05
SDQ – Maths (MS)	-	0,07	0,27	0,38**	0,22	0,08	-0,33*	0,17
SDQ – Verbal (VB)		-	0,53**	0,60**	0,25	0,08	-0,33*	0,19
SDQ – Academic (AC)			-	0,49**	0,61**	0,28*	-0,40**	0,51**
SDQ –Problem solving (PS)				-	0,30	0,14	-0,46**	0,25
Intrinsic motivation (MI)					-	0,55**	-0,22	0,89**
Extrinsic motivation (ME)						-	-0,32*	0,87**
Amotivation (MA)							-	-0,30*
Motivation total (MT)								-
Variables	Third year (n=56)							
	MS	VB	AC	PS	MI	ME	MA	MT
Academic performance	0,07	-0,23	0,27*	-0,01	0,10	-0,12	-0,39**	-0,01
SDQ – Maths (MS)	-	0,05	0,28*	0,26	0,33*	0,03	0,02	0,22
SDQ – Verbal (VB)		-	0,19	0,44**	0,10	-0,29*	0,04	-0,11
SDQ – Academic (AC)			-	0,05	0,36**	0,01	-0,52**	0,23
SDQ –Problem solving (PS)				-	0,21	-0,13	0,16	0,06
Intrinsic motivation (MI)					-	0,45**	-0,25	0,87**
Extrinsic motivation (ME)						-	-0.03	0,84**
Amotivation (MA)							-	-0,17
Motivation total (MT)								-
Variables	Fourth year (n = 36)							
	MS	VB	AC	PS	MI	ME	MA	MT
Academic performance	0,14	-0,10	0,19	-0,14	-0,06	-0,05	-0,23	-0,06
SDQ – Maths (MS)	-	-0,07	0,34*	0,41*	0,31	-0,01	-0,07	0,19
SDQ – Verbal (VB)		-	0,08	0,19	0,13	0,02	-0,20	0,09
SDQ – Academic (AC)			-	0,03	0,40*	-0,01	-0,15	0,25
SDQ –Problem solving (PS)				-	0,07	-0,07	0,08	0,01
Intrinsic motivation (MI)					-	0,58**	-0,09	0,92**
Extrinsic motivation (ME)						-	-0,22	0,86**
Amotivation (MA)							-	-0,16
Motivation total (MT)								-

** $p \leq 0,01$
* $p \leq 0,05$

From Table 3 it seems that:

a) For the first year group neither of the predictor variables shows a significant relationship with the criterion variable, academic achievement. It would thus seem that there is not a significant relationship between academic self-

concept and academic achievement and motivation and academic achievement in the first year students.

b) For the second year group the predictor variable, academic self-concept does have a significant relationship with the criterion variable, academic achievement on the 5% level of significance. A positive correlation exists between academic self-concept and the academic achievement of second year students. This means that the higher a second year student's academic self-concept is, the higher is his or her academic achievement.

For the second year group, there is not a significant relationship between motivation and academic achievement.

c) For the third year group, the predictor variables, academic self-concept and amotivation do have a significant relationship with the criterion variable, academic achievement on the 5% level of significance. A positive correlation exists between academic self-concept and the academic achievement of third year students. This means that the higher a third year student's academic self-concept is, the higher is his or her academic achievement.

With respect to amotivation, there exists a higher negative relationship. In this instance it indicates that the higher the amotivation of the third year student, the less likely he or she is to achieve academically. Thus, the more a third-year student is not motivated at all, the less likely he or she is to perform academically. This seems to be an obvious conclusion, however this is not the case with students in the previous two study years. It would be useful to investigate the possible reasons. This will be discussed in Chapter 5.

For the third year group, there is not a significant relationship between motivation and academic achievement.

d) For the fourth year group, neither of the predictor variables namely, academic self-concept nor motivation indicates a significant correlation with the criterion variable, academic achievement. There is thus no significant relationship

between academic self-concept and academic achievement and motivation and academic achievement in the fourth year students.

From Table 3 it also seems that there is no significant relationship between the total score of motivation and the academic achievement of any of the four study year groups. The relationships between motivation and the academic achievement of the four study year groups are actually very small (ranging between -0.01 and -0.06). This indicates that there is no significant relationship between motivation and academic achievement for all four of the study year levels combined. It would therefore seem that motivation does not affect the academic achievement of residential quantity surveying students at the University of the Free State. Motivation thus does not have an influence on the academic achievement of the students of all the study year levels in the Department of Quantity Surveying.

Because the sub-scale amotivation of the Academic Motivation Scale did show a significant relationship with the academic achievement of the third year students, it was decided to work with the sub-scales of the Academic Motivation Scale, rather than with the total score of motivation in the analyses that follow.

The hierarchical regression analysis

Hierarchical regression analyses were done in order to determine if the contributions of the different predictor variables, namely academic self-concept and motivation to the variance in the academic achievement of students are significant or not. Hierarchical regression analyses were done for the four study year groups separately, and the results are indicated in Table 4.

Table 4: An explanation of variance by a complete model per study year group.

Group	R	R²	Sum of squares	p
First year	0,353	0,125	520,8	0,597
Second year	0,528	0,278	3444,3	0,039
Third year	0,543	0,295	1891,2	0,014
Fourth year	0,393	0,154	470,5	0,649

From Table 4 it is clear that in the first year students (12,5%) and in the fourth year students (15,4%) the complete model does not succeed in explaining a significant variance in academic achievement.

In terms of the second year students (27,8%) and the third year students (29,5%) the complete model does indeed succeed to explain a significant proportion of the variance in academic achievement on the 5% level of significance.

For the second year and third year groups, the contributions of the specific set of predictor variables and the individual predictor variables' contribution to the explanation of the variance in the academic achievement was examined by the hierarchical regression analysis. For the second year group, the information is provided in Table 5.

Table 5: The contribution of the different variables to the R^2 for the second year students.

Variables in analysis	R^2	Contribution of R^2: full minus reduced model	F	f^2
1. [self-concept]+[motivation]	0,278	1-5=0,095	2,886*	0,13
2. [self-concept]+intrinsic motivation	0,187	2-5=0,004	0,221	
3. [self-concept]+extrinsic motivation	0,227	3-5=0,044	2,561	
4. [self-concept]+amotivation	0,259	4-5=0,076	4,615*	0,11
5. [self-concept]	0,183			
6. [motivation]+[self-concept]	0,278	6-11=0,182	2,709*	0,25
7. [motivation]+mathematics	0,152	7-11=0,056	3,038*	0,07
8. [motivation]+verbal	0,098	8-11=0,002	0,102	
9. [motivation]+academic	0,201	9-11=0,105	6,045*	0,13
10. [motivation]+problem solving	0,097	10-11=0,001	0,051	
11. [motivation]	0,096			

[ ] = shows set predictors
** $p \leq 0,01$
* $p <= 0,05$

The results in Table 5 indicate, that all the predictor variables together account for 27,8% ($R^2 = 0,278$) of the variance in the academic achievement of the second year students. The calculated R^2-value is significant on the 5% level of significance [$F_{7;43} = 2,369$; $p < 0,05$]. Therefore, academic self-concept and motivation account for 27.8% of the variance in the academic achievement of the second year students.

The motivation scale (intrinsic motivation, extrinsic motivation and amotivation combined) delivers a significant contribution to the explanation of variance in the academic achievement of second year students on the 5% level of significance. Motivation explains 9,5% of the variance in the academic achievement of second year students. The corresponding f-value (0.13) is denotative of a result with powerful practical value.

When looking at the motivation scales separately, Table 5 indicates that amotivation does deliver a significant contribution to the variance in academic achievement on the 5% level of significance. The corresponding effect size is denotative of a small to medium effect, and the result is thus of minor importance. The negative link between amotivation and academic achievement indicates that students with high scores in amotivation are inclined to indicate low academic achievement.

The academic self-concept scale (mathematics, verbal, academic and problem solving combined) delivers a significant contribution to the explanation of the variance in the academic achievement of second year students on the 5% level of significance [$F_{(3;43)}$ = 2,886]. Academic self-concept explains 18,2% of the variance in academic achievement of the second year students. The corresponding f-value (0.25) is denotative of a result with powerful to big practical value.

When judging the academic self-concept scales individually, Table 5 indicates that both the mathematics and academic scales deliver a significant contribution to variance in the academic achievement of the second year students on the 5% level of significance. Both the mathematics and academic sub-scales of the academic self-concept scale explain respectively 5,6% and 10,5% of the variance in academic achievement. The corresponding effect sizes, however, show that only the findings in respect of the academic self-concept (0,13) are of average practical value. In Table 3 it was already shown that there is a positive relationship between academic self-concept and academic achievement in second year students that is significant on the 5% level of significance.

In Table 6 the results of the hierarchical regression of the third year students are indicated.

Table 6: The contribution of the different variables to the R² for the third year students.

Variables in analysis	R²	Contribution of R²: full minus reduced model	F	f²
1. [self-concept]+[motivation]	0,295	1-5=0,121	2,746*	0,17
2. [self-concept]+intrinsic motivation	0,174	2-5=0,000	0,000	
3. [self-concept]+extrinsic motivation	0,222	3-5=0,048	3,084	
4. [self-concept]+amotivation	0,245	4-5=0,071	4,702*	0,09
5. [self-concept]	0,174			
6. [motivation]+[self-concept]	0,295	6-11=0,120	2,042*	0,17
7. [motivation]+mathematics	0,178	7-11=0,003	0,186	
8. [motivation]+verbal	0,263	8-11=0,088	6,089*	0,12
9. [motivation]+academic	0,178	9-11=0,003	0,186	
10. [motivation]+problem solving	0,175	10-11=0,000	0,000	
11. [motivation]	0,175			

[ ] = shows set predictors
** p$\leq$ 0,01
*   p <= 0,05

The results in Table 6, indicate that together all the predictor variables explain 29,5% (R^2 = 0,295) of the variance in the academic achievement of the third year students. This calculated R^2-value is significant on the 5% level of significance [$F_{7;43}$ = 2,369; p <0,05]. Therefore, academic self-concept and motivation combined explain 29.5% of the variance in the academic achievement of the third year students.

The motivation scale (intrinsic motivation, extrinsic motivation and amotivation combined) delivers a significant contribution to the variance in the academic achievement of the third year students on the 5% level of significance [$F_{(3;48)}$ = 2,746]. Motivation explains 12,1% of the variance in the academic achievement of the third year students. The corresponding f-value (0.17) is denotative of a result with powerful practical value.

When looking at the separate motivation sub-scales, namely intrinsic motivation, extrinsic motivation and amotivation, Table 6 indicates that amotivation is also in this case significant on the 5% level of significance in explaining the variance in the academic achievement of third year students. The corresponding effect size is, however, denotative of a small effect, and the result is thus of minor importance. The negative relationship between amotivation and academic achievement shows that

students with a high score on the amotivation sub-scale are more inclined to indicate poor academic achievement.

The academic self-concept scale (mathematics, verbal, academic and problem-solving combined) delivers a significant contribution to the explanation of the variance in the academic achievement of the third-year students on the 5% level of significance [$F_{(3;48)}$ = 2,746]. The academic self-concept explains 12% of the variance in academic achievement. The corresponding f-value (0.17) is denotative of a result with powerful practical value.

When judging the academic self-concept scale's sub-scales separately, Table 6 shows that the verbal self-concept sub-scale is significant on the 5% level of significance in its contribution to the explanation of variance in the academic achievement of the third-year students. The verbal self-concept, on its own, declares about 9% of the variance in the academic achievement of the third-year students. The corresponding effect sizes, however, indicate that the result tends to be of average practical value.

In Table 3 it was already shown that a negative relationship exists between the verbal self-concept and academic achievement that is significant on the 5% level of significance. This indicates that the higher a student's verbal self-concept, the lower is his or her academic achievement.

The researcher will now report on the findings for hypothesis 2 of this study, and briefly discuss the findings.

4.7 RESULTS AND A DISCUSSION OF THE RESULTS OF HYPOTHESIS 2

In order to examine hypothesis 2, the two groups' (above average and below average achievers) averages on the seven scales were investigated with the help of the Mann Whitney U-test. The results for the first year students appear in Table 7 below.

Table 7: A comparison of the above average and below average first year academic achievers' averages on the seven sub-scales.

Variables	Below-average (n=13)		Above-average (n=16)		U	p
	$\overline{X}$	s	$\overline{X}$	s		
SDQ: Mathematics	41.77	12.74	42.63	9.30	102,5	0,948
Verbal	44.08	6.83	43.94	8.73	101,5	0,913
Academic	44.15	8.05	42.19	8.33	95,0	0,693
Problem solving	42.46	8.86	45.44	5.22	76,5	0,227
AMS: Intrinsic total	59.00	13.17	56.19	16.17	87,0	0,455
Extrinsic total	66.15	9.78	68.13	11.63	91,0	0,568
Amotivation	6.69	4.69	7.63	5.89	93,5	0,614

** p≤ 0,01
*   p ≤ 0,05

From Table 7 it is clear that there are no significant differences in the averages of any of the seven scales between the above average and below average achieving first year students. This shows that the first year students who perform above average academically do not indicate significantly higher academic self-concepts or significantly higher motivation than the first year students who perform below average academically. Table 7 indicates that there are no significant differences in the academic self-concepts and the motivation of students who achieve above average academically and those who achieve below average academically.

In Table 8 the averages of the academic self-concepts and the motivation of the second year students who achieve above average and below average academically are compared.

Table 8: A comparison of the above average and below average second year academic achievers' averages on the seven sub-scales.

Variables	Below average (n=17)		Above average (n=16)		U	P	
	$\overline{X}$	s	$\overline{X}$	s			
SDQ: Mathematics	45.94	6.685	52.31	7.162	63,5**	0,009	0,46
Verbal	43.82	6.692	41.63	8.891	107,5	0,303	
Academic	39.41	5.455	43.50	8.892	100,5	0,199	
Problem solving	43.47	6.226	43.06	9.299	132,0	0,885	

AMS: Intrinsic Total	54.47	11.187	55.94	11.840	132,5	0,900	
Extrinsic Total	66.59	10.834	62.87	10.607	95,0	0,139	
Amotivation	5.82	2.921	7.44	4.531	117,5	0,472	

** p≤ 0,01

*　p ≤ 0,05

From Table 8 it is clear that on the 1% level of significance there is a significant difference in the averages of the academic self-concepts on the mathematics sub-scale between the above average and below average achieving second year students. The above average academic achievers in their second year show a significantly higher academic self-concept on the mathematics self-concept sub-scale.

The data for the academic achievement of this study were collected from the final examination for the students' main subject, Descriptive Quantification. Descriptive Quantification is a subject that is based on mathematics. It requires the students to solve complex mathematical problems relating to quantity surveying. It is thus important that students are strong, mathematically, in order to be successful in this subject. This could be a possible explanation as to why the students who performed above average academically in this study have higher mathematics self-concepts.

However, this is true for the subject, Descriptive Quantification for all four of the study year levels, and it would be useful to investigate and to speculate as to why this is only a significant factor in the second year students in the Department of Quantity Surveying, and not for the other three study year levels as well.

It would thus seem that for second year students there exists a positive relationship between a high mathematics self-concept and high academic achievement. Therefore, the higher the mathematics self-concepts of the second year students, the better their academic achievement.

In Table 9 the averages of the academic self-concepts and the motivation of the third year students who achieve above average and below average academically are compared.

Table 9: A comparison of the above average and below average third year academic achievers' averages on the seven sub-scales.

Variables	Below-average (n=11)		Above-average (n=14)		U	p
	$\overline{X}$	s	$\overline{X}$	s		
SDQ: Mathematics	48.91	7.245	51.71	5.797	55,0	0,227
Verbal	48.36	6.727	43.36	7.909	51,5	0,162
Academic	41.45	10.838	47.00	6.038	57,5	0,284
Problem solving	46.73	5.781	46.07	8.306	74,5	0,891
AMS: Intrinsic total	58.45	13.523	56.50	12.672	64,5	0,494
Extrinsic total	71.36	8.237	64.50	13.927	58,5	0,311
Amotivation	7.18	5.741	4.71	2.400	65,0	0,347

** p≤ 0,01
*   p ≤ 0,05

From Table 9 it is clear that there are no significant differences in the averages on any of the seven sub-scales between the third year students who achieve above average and those who achieve below average academically. This would, the same as for the first year students, imply that students who perform above average do not demonstrate significantly higher academic self-concepts or significantly more motivation than those students who perform below average academically.

In Table 10 the averages of the academic self-concepts and the motivation of the fourth year students who achieve above average and those who perform below average academically are compared.

Table 10: A comparison of the above average and the below average fourth year academic achievers' averages on the seven sub-scales.

Variables	Below-average (n=10)		Above-average (n=12)		U	p
	$\overline{X}$	s	$\overline{X}$	s		
SDQ: Mathematics	43.00	7.874	44.00	7.198	56,0	0,791
Verbal	44.90	10.005	43.25	8.761	52,5	0,621
Academic	37.60	4.671	39.67	6.213	38,0	0,145
Problem solving	43.60	7.168	40.17	6.672	40,5	0,197
AMS: Intrinsic total	53.50	14.797	52.42	11.381	50,0	0,509
Extrinsic total	65.20	13.113	65.83	5.114	53,5	0,668
Amotivation	7.60	5.125	6.00	2.296	55,0	0,732

** p$\leq$ 0,01
*   p $\leq$ 0,05

From Table 10 it is clear that there is no significant differences in the averages of any of the seven sub-scales between the fourth year students who achieve above average or those who perform below average academically. This result for the fourth year students is the same as the results of the first year and the third year students. It is thus only with the second year students where there is a difference in the mathematics self-concepts between the above average and the below average achievers.

4.8   CONCLUSION

The findings of this study lend little support to some of the theories that gained popular acclaim in the twentieth century and spawned a number of programs for empowering people through bolstering their self-perceptions and confidence (Ocshe 2003:70) and motivation.

In this study it was found that:

(a) For the first year students in the Department of Quantity Surveying:

1. There is no significant relationship between academic self-concept and academic achievement.

2. There is no significant relationship between motivation and academic achievement.

3. Academic self-concept and motivation could not explain for the variance in academic achievement.

4. There were no differences in the averages of the academic self-concept and the motivation of the students who achieved above average or below average academically.

(b) For the second year students in the Department of Quantity Surveying:

1. There exists a significant relationship between academic self-concept and academic achievement.

2. Academic self-concept and academic achievement are positively correlated. Therefore, students with a higher academic self-concept tend to achieve better academically.

3. There is no significant relationship between motivation and academic achievement.

4. Academic self-concept and motivation together explain 27,8% of the variance in academic achievement.

5. Motivation explains 9,5% of the variance in academic achievement.

6. Amotivation makes a significant contribution to the explanation of variance in academic achievement.

7. Amotivation and academic achievement are negatively correlated. Therefore, the more amotivated the student is, the less likely will the student perform academically.

8. Academic self-concept explains 18,2% of the variance in academic achievement.

9. There is a significant difference in the averages of the mathematics self-concepts of the students who achieved above average or below average academically. Therefore, students who had a higher mathematics self-concept, achieved above average academically.

(c) For the third year students in the Department of Quantity Surveying:

1. There is a significant relationship between academic self-concept and academic achievement.

2. Their academic self-concepts and academic achievement are positively correlated. This means that the higher a student's academic self-concept is, the higher his/her academic achievement tends to be.

3. There is a significant relationship between amotivation and academic achievement.

4. Amotivation and academic achievement are negatively correlated. This means that the less motivated a student is, the lower his/her academic achievement will be.

5. There is no significant relationship between motivation and academic achievement.

6. Academic self-concept and motivation together explain 29,5% of the variance in academic achievement.

7. Motivation explains 12,1% of the variance in academic achievement.

8. Amotivation makes a significant contribution to the explanation of variance in academic achievement.

9. Amotivation and academic achievement are negatively correlated. Therefore, the more amotivated the student is, the less likely will the student perform academically.

10. Academic self-concept explains 12% of the variance in academic achievement.

11. There were no differences in the averages of the academic self-concept and the motivation of the students who achieved above average or those who achieved below average academically.

(d) For the fourth year students in the Department of Quantity Surveying:

1. There is no significant relationship between academic self-concept and academic achievement.

2. There is no significant relationship between motivation and academic achievement.

3. Academic self-concept and motivation could not explain for the variance in academic achievement.

4. There were no differences in the averages of the academic self-concepts and the motivation of the students who achieved above average or those who achieved below average academically.

In this study it was also found that no significant relationships existed between the motivation and the academic achievement of all four of the year levels.

In Chapter 5 the researcher will summarize the findings from the literature review and the empirical investigation. The researcher will also present the conclusions in respect of the findings. Lastly, recommendations will be made.

CHAPTER 5

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5.1 INTRODUCTION

In the learning situation it is a common occurrence that some students achieve good results while others perform poorly (Sikhwari 2004:81).

This literature study showed that it is often assumed that students' academic self-concepts and their motivation in respect of their studies influence their academic achievement.

It was the aim of this study to determine if academic self-concepts and motivation of the students in quantity surveying at the University of the Free State can predict the level of academic achievement in all four of the study years. The focus was also on the secondary aim of the study, namely to determine if there is a difference in the academic self-concepts and motivation of students who achieve above average academically and those who achieve below average academically. The results of this study are based on the 190 responses to the questionnaires completed by the residential students from all four of the study years at the Department of Quantity Surveying.

The aim in Chapter 5 is to demonstrate how the study addressed the research problem. In this chapter the general conclusions, as indicated in Chapter 4, will be discussed and summarized. Recommendations will also be made, and the limitations of the study will be indicated.

5.2   SUMMARY OF THE STUDY

5.2.1 FINDINGS IN RESPECT OF THE RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

5.2.1.1 LITERATURE REVIEW

Based on the findings from the literature review, academic self-concepts can be defined as "… attitudes, feelings and perceptions relative to one's intellectual or academic skills" (Cokley 2000:149). Academic self-concept is regarded as very important in any learning situation. It is said to have an influence on the academic achievement as well as on the variance of academic achievement of students. According to the literature review, the higher the academic self-concept of a student, the better is his or her academic achievement (see Chapter 2, section 2.2.3). It was also indicated in the literature review that a positive academic self-concept is associated with a number of positive academic behaviors. The opposite is also regarded to be true. If a student possesses a negative academic self-concept, it will negatively affect his/her academic achievement. The literature review also indicated that a negative academic self-concept is associated with a number of negative academic behaviors that lead to a poor academic achievement (see Chapter 2, section 2.2.3).

According to the literature review, there are contrasting findings about whether a positive, a negative or a more realistic academic self-concept is more beneficial to academic achievement. Some theorists believe that in the learning situation a student with a positive self-concept stands a better chance of performing well than a student with a negative self-concept (Sikhwari 2004:83). Others researchers, however, found that humble or more realistic self-concepts have a greater influence on academic achievement (see Chapter 2, section 2.2.3).

The literature review also produced contrasting findings on the relationship between academic self-concept and academic achievement (see Chapter 2, section 2.2.4). Various studies found a strong positive correlation between the academic self-concept and academic achievement, indicating that there is a relationship between these two variables. However, other studies found no or weak correlations between

these two constructs, indicating that there does not exist any, or only a small relationship between academic self-concept and academic achievement.

5.2.1.2 EMPIRICAL INVESTIGATION

Based on the empirical investigation, the following information on the relationship between academic self-concept and academic achievement was found:

- There was no significant relationship between academic self-concept and academic achievement in the first and fourth year students in the Department of Quantity Surveying (see Chapter 4, section 4.6, Table 3).

- There existed no significant correlation between academic self-concept and academic achievement in the first and fourth year students (see Chapter 4, section 4.6).

- There was a significant relationship between academic self-concept and academic achievement of second and third year students (see Chapter 4, section 4.6).

- There was a positive correlation between academic self-concept and academic achievement in the second and third year students (see Chapter 4, section 4.6).

- Academic self-concept could not explain the variance in academic achievement in the first and fourth year students in the Department of Quantity Surveying (see Chapter 4, section 4.6).

- Academic self-concept explained the 18.2% of the variance in the academic achievement of second year students (see Chapter 4, section 4.6, Table 5).

- Academic self-concept explained the 12% of the variance in the academic achievement of third year students (see Chapter 4, section 4.6, Table 6).

- There were no significant differences in the averages of academic self-concepts of the students who performed above average or below average

academically in the first, third and fourth year students (see Chapter 4, section 4.7, Tables 7, 9 and 10).

- There was a significant difference in the averages of the mathematics self-concepts of students who performed below average or above average academically in the second year students. Therefore, students who had higher mathematics self-concepts tended to achieve above average academically (see Chapter 4, section 4.7, Table 8).

5.2.1.3 SUMMARY OF THE FINDINGS OF THE RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

The literature study indicated that a positive academic self-concept was related to higher academic achievement. It also indicated that humble self-assessments could be more conducive to academic achievement. The literature review, however, also yielded inconsistent results in respect of the relationship between the academic self-concept and academic achievement, with some studies indicating positive correlations, while others indicated weak correlations, or none whatsoever.

It can be concluded from both the literature study and the empirical investigation that in some cases there exists a correlation between academic self-concept and academic achievement, and in others not. Thus, the findings are inconsistent. This implies that sometimes a relationship exists between academic self-concept and academic achievement, as were the cases with the second and third year students and other times there was not any or a weak relationship between these two constructs, as can be seen in the cases of the first and fourth year students.

With the second and third year students, a positive correlation was found between academic self-concept and academic achievement. This indicates that the higher the academic self-concept, the better is the academic achievement. Therefore, the second and third year quantity surveying students who have a high or positive academic self-concept, are more likely to demonstrate higher academic achievement.

Thus it can be concluded that in respect of the second and third year students in the Department of Quantity Surveying, it is more beneficial for their academic achievement if they have a positive academic self-concept. A higher academic self-concept should thus be cultivated in these students and encouraged by their lecturers, as a higher academic self-concept proved to be beneficial to their academic achievement.

The empirical investigation also showed that the variance in academic achievement could not be explained by the academic self-concepts of the first and fourth year quantity surveying students. However, academic self-concept explained 18.2% of variance in academic achievement of the second year students and 12% of the variance in the academic achievement of the third years. In both the second and the third year students, these results were found to have powerful practical value.

The empirical investigation also indicated that there were no significant differences in the averages of the academic self-concepts of the first, third and fourth year students, between the students who achieved above average or below average academically. The empirical investigation, however, showed that there was a significant difference in the averages of the mathematics self-concepts of the second year students, between those who achieved above average or below average academically. Thus the students in their second study year, who had achieved above average academically, had higher or more positive mathematics self-concepts.

Both the literature review and the empirical investigation indicated towards a strong positive relationship between academic self-concept and academic achievement in some cases, but not in other cases. It is important to note the differences across the study year groups in the Department of Quantity Surveying, and more research would be needed to explain for these inconsistencies. Possible reasons for the inconsistency, as indicated in the findings, could be attributed to a number of factors, such as their previous years' academic achievement, the influence of different lecturers, poor or good class attendance, study methods, etc. Further research could clarify these probabilities.

In the next section the researcher will summarize the findings from both the literature review and the empirical investigation as regards the relationship between motivation and academic achievement.

5.2.2 FINDINGS IN RESPECT OF THE RELATIONSHIP BETWEEN MOTIVATION AND ACADEMIC ACHIEVEMENT

5.2.2.1 LITERATURE REVIEW

The literature study revealed that motivation could be regarded as "… the driving force or an urge behind what an individual does" (Sikhwari 2004:83). The self-determination theory indicated that there exist three types of motivation, namely intrinsic motivation, extrinsic motivation and amotivation (see Chapter 2, section 2.3.2). In the literature review it was indicated that intrinsic motivation is the most desirable form of motivation; it is an inner drive that stems from the want of the individual to do something. This kind of motivation is said to sustain learning (see Chapter 2, section 2.3.3).

Extrinsic motivation, on the other hand, is described as a kind of motivation that exists as a result of an external stimulus. The individual is extrinsically motivated if an action is performed in order to obtain some or other external reward. Extrinsic motivation also has its place in education and is necessary in order to perform academically, as not all activities are inherently interesting, and not all are readily performed without external stimuli (see Chapter 2, section 2.3.3).

Amotivation denotes a complete lack of motivation. When a person is amotivated, he or she is not motivated at all. According to the literature review, amotivation is negatively correlated to academic achievement. Therefore, the higher the amotivation in an individual, the poorer his or her academic achievement will be (see Chapter 2, section 2.2.3).

The literature review revealed that there are contrasting findings between researchers about whether there exists a relationship between motivation and academic achievement (see Chapter 2, section 2.3.4). Some studies revealed that there is a positive correlation between these two variables, whilst others showed no

or weak correlations. This was also the case with intrinsic motivation. Some studies found strong correlations between intrinsic motivation and academic achievement, whilst others indicated a weak correlation, or no correlation at all.

5.2.2.2 EMPIRICAL INVESTIGATION

Based on the empirical investigation, the following information on the relationship between motivation and academic achievement was found:

- There is no significant relationship between motivation (as a whole) and academic achievement (across all four the study year levels) (see Chapter 4, section 4.6).

- There is no correlation between motivation and academic achievement in the first, second, third and fourth year students (see Chapter 4, section 4.6).

- Motivation could not explain for the variance in the academic achievement of the first year and fourth year students (see Chapter 4, section 4.6, Table 4).

- Motivation explains the 9.5% of variance in the academic achievement of the second year students (see Chapter 4, section 4.6).

- Amotivation makes a significant contribution towards the explanation of the variance in the academic achievement of the second year and third year students (see chapter 4, section 4.6, Tables 5 and 6).

- There exists a negative link between amotivation and the academic achievement of the second and third year students (see Chapter 4, section 4.6, Tables 5 and 6).

- A significant relationship exists between amotivation and academic achievement in the third year students.

- A negative correlation exists between amotivation and academic achievement in the third year students. This indicates that the higher amotivation is in third year students, the lower is their academic achievement.

- Motivation explains the 12,1% variance in the academic achievement of the third year students (see Chapter 4, section 4.6, Table 6).

- There were no differences in the averages of the motivation of the students who performed above average or below average academically in the first, second, third and fourth year students (see Chapter 4, section 4.7, Tables 7, 8, 9 and 10).

5.2.2.3 SUMMARY OF THE FINDINGS OF THE RELATIONSHIP BETWEEN MOTIVATION AND ACADEMIC ACHIEVEMENT

The summary of both the literature review and the empirical investigation indicates that in some cases motivation plays a role in the academic achievement of students and in other cases it does not. In the literature review it was shown that some theorists and researchers found a relationship between these two constructs, and others did not.

The empirical investigation found that there is no significant relationship between motivation and academic achievement in the first, second, third and fourth year students. Therefore, no correlation was found between these two variables in the first, second, third and fourth year students. This is consistent with some of the findings in the literature review.

Motivation could also not explain for the variance in the academic achievement of the first and fourth year students. Motivation, however, explained for variance in the academic achievement of second and third year students. Motivation explained 9.5% and 12.1% of the variance in the academic achievement of the second and third year students respectively. The empirical investigation also indicated that these results were of high and powerful practical value.

A relationship between amotivation and academic achievement was found in the third year students. This is consistent with the findings from the literature on the relationship between amotivation and academic achievement (see Chapter 2, section

2.3.3). Amotivation and academic achievement in third year students are negatively correlated. This means that the higher the amotivation is in a student in his/her third year, the weaker his/her academic achievement is likely to be. When a student is amotivated, it means that he or she is not motivated at all. Therefore, if a third year student in the Department of Quantity Surveying is not motivated at all, he or she is more likely to perform poorly academically.

A significant relationship was only found between amotivation and academic achievement in the third year students, and not in the other three study year levels. However, amotivation was found to make a significant contribution to the variance in the academic achievement of both second and third year students. It was indicated in the literature review that amotivation leads to poor academic performance. Thus, in the Department of Quantity Surveying, in respect of the first and fourth year students, if a student is not motivated at all, it does not necessarily imply that he or she will perform poorly academically.

It is worth noting that the empirical investigation did not prove a positive correlation between intrinsic motivation and the academic achievement in any or all of the four study year levels. It was indicated in the literature review that intrinsic motivation is a very desirable form of motivation for a student to possess in a learning situation. It was also indicated from various findings in the literature that if a student is intrinsically motivated, he or she is more likely to achieve academically (see Chapter 2, section 2.3.4). This study, however, could not prove this.

Both the literature review and the empirical investigation delivered inconsistent results. The differences in the results across the four study year groups in the Department of Quantity Surveying are note-worthy. The relationship between motivation and academic achievement is not consistent between these four study year groups. As with the relationship between academic self-concept and academic achievement, more research would be needed to identify and to clarify possible reasons for the inconsistencies in the findings of the relationship between motivation and academic achievement.

5.3 CONCLUSIONS OF THE STUDY

5.3.1 INTRODUCTION

In the next section the researcher will address the research hypotheses and the research questions separately. The researcher will focus on the results of the investigation of the hypotheses, and on how the research question has been addressed.

5.3.2 HYPOTHESIS 1

The first research hypothesis for this study was the following:

> Academic self-concept and motivation can be used to predict a significant percentage of variance in academic achievement.

The null hypothesis for hypothesis 1 was:

> Academic self-concept and motivation cannot be used to predict a significant percentage of variance in academic achievement.

The investigation of research hypothesis 1 delivered different findings for the different study year levels. From the findings of the investigation into hypothesis 1 it seems that:

1. Academic self-concept and motivation cannot be used to predict a significant percentage of the variance in the academic achievement in the first year quantity surveying students in the Department of Quantity Surveying at the University of the Free State.

    The null hypothesis for this study could thus not be discarded on the 1% or the 5% level of significance.

2. Academic self-concept and motivation can be used to predict a significant percentage of the variance in the academic achievement in the second year quantity surveying students in the Department of Quantity Surveying at the University of the Free State.

The null hypothesis could thus be discarded for the second year students.

Academic self-concept and motivation can be used to predict the 27.8% variance in the academic achievement of the second year quantity surveying students.

Academic self-concept can be used to predict the 18.2% variance in the academic achievement of the second year quantity surveying students. Motivation can be used to predict the 9.5% variance in the academic achievement of the second year quantity surveying students.

Amotivation makes a significant contribution to the variance in academic achievement in the second year students.

3.   Academic self-concept and motivation can be used to predict a
significant percentage of the variance in the academic achievement of the third year quantity surveying students in the Department of Quantity Surveying at the University of the Free State.

The null hypothesis could thus be discarded for the third year students.

Academic self-concept and motivation can be used to predict the 29.5% variance in the academic achievement of the third year quantity surveying students.

Academic self-concept can be used to predict the 12% variance in the academic achievement of the third year quantity surveying students. Motivation can be used to predict the 12.1% variance in the academic achievement of the third year quantity surveying students.

Amotivation makes a significant contribution to the variance in academic achievement in the third year students.

4.   Academic self-concept and motivation cannot be used to predict a significant percentage of the variance in the academic achievement of the fourth year

quantity surveying students in the Department of Quantity Surveying at the University of the Free State.

The null hypothesis could thus not be discarded on the 1% or the 5% level of significance.

5.3.3 HYPOTHESIS 2

The second research hypothesis for this study was the following:

There are significant differences in the averages of the academic self-concept and motivation between the students who achieve above average academically and those who achieve below average academically.

The null hypothesis for hypothesis 2 is:

There are no significant differences in the averages of the academic self-concept and motivation between students that achieve above average academically and those who achieve below average academically.

The investigation of research hypothesis 2 delivered different findings for the different study year levels. From the findings of the investigation into hypothesis 2 it seems that:

1. There are no significant differences in the averages of academic self-concept and motivation between students who achieve above average and those who achieve below average academically in the first year students.

    Therefore the null hypothesis could not be rejected on the 1% and 5% level of significance.

2. There is a significant difference in the averages of the mathematics self-concepts between students who achieve above average and below average academically in the second year students.

    The null hypothesis could be rejected on the 1% level of significance. This implies that the researcher is 99% correct in rejecting the null hypothesis for the second year students.

This finding indicates that students who performed above average academically had significantly higher mathematics self-concepts than those second year students who achieved below average academically.

3. There are no significant differences in the averages of the academic self-concept and motivation between students who perform above average and those who perform below average academically in the third year students.

    Therefore the null hypothesis could not be rejected on the 1% and the 5% level of significance.

4. There are no significant differences in the averages of the academic self-concept and motivation between students who achieve above average and those who achieve below average academically in the fourth year students.

    Therefore, the null hypothesis could not be rejected on the 1% and the 5% level of significance.

5.3.4 MAIN RESEARCH QUESTION

The main research question for this study was the following:

> Can academic self-concept and motivation predict the level of the academic achievement of students in all four of the study year levels in the Department of Quantity Surveying?

The main research question was addressed in this empirical investigation by means of the two hypotheses that were developed. The findings of the main research question will be addressed per year group, as the findings differed across the different study year-levels.

(a) The first year students:

It was found, by means of the empirical investigation, that academic self-concept and motivation cannot predict the level of academic achievement of the first year students in the Department of Quantity Surveying.

(b) The second year students:

The empirical investigation provided proof that academic self-concept and motivation can predict the level of the academic achievement of the second year students in the Department of Quantity Surveying. Academic self-concept and motivation predict 27.8% of the variance in the academic achievement. Academic self-concept and motivation predict 18.2% and 9.5% of the variance in the academic achievement of the second year students respectively.

(c) The third year students:

It was proved by means of the empirical investigation that both academic self-concept and the motivation can predict the level of the academic achievement of the third year students in the Department of Quantity Surveying. Academic self-concept and motivation predict 29.5% of the variance in their academic achievement. Academic self-concept and the motivation predict 12% and 12.1% of the variance in the academic achievement of the third year students respectively.

(d) The fourth year students:

Academic self-concept and motivation cannot predict the level of academic achievement of the fourth year students in the Department of Quantity Surveying.

The main research question thus provided different answers for the different study year levels in the Department of Quantity Surveying at the University of the Free State.

5.4 RECOMMENDATIONS

The empirical investigation indicated that for the second and third year students there existed positive correlations between academic self-concept and academic achievement. The empirical investigation also showed that amotivation is negatively correlated to academic achievement in the third year students. Amotivation also made a significant contribution to the variance in the academic achievement of both the second and third year students.

The empirical investigation also showed that motivation and academic self-concept explain 9.5% and 18.2% of variance in academic achievement respectively for the second year quantity surveying students. The statistical analysis indicated that this finding was of powerful practical value.

The empirical investigation also showed that motivation and the academic self-concept explains 12.1% and 12% of variance in the academic achievement in the third year quantity surveying students, respectively. The statistical analysis showed that this finding was of powerful practical value.

Even though the results of the empirical investigation are not consistent across all four of the study year levels, as a result of the findings the researcher recommends that lecturers encourage their students towards positive academic self-concepts. As the findings from both the second and third year students, showed to have powerful practical value. Therefore, more positive academic self-concepts in the case of the second and third year students will influence their academic achievement in a positive manner. It was also found with regards to the second year students that those who achieved above average academically had significantly higher mathematics self-concepts. This once again underlines the importance of self-concept in academic achievement.

Despite the fact that no significant relationship was found between motivation and academic achievement for all four of the study year levels, the researcher also recommends that the lecturers encourage high motivation in their students and that the lecturers at all times discourage amotivation.

It is thus important for lecturers to acquire knowledge about academic self-concept, and also about the different types of motivation and strategies to improve them, because, as can be seen in respect of the second and third year students, they can and they do influence academic achievement. Despite academic self-concept and motivation not being significant factors in the academic achievement of the first and fourth year students, the researcher would like to make these recommendations for all the students in the Department of Quantity Surveying.

The researcher also recommends further research on the relationship between academic self-concept, motivation and academic achievement. Further research is necessary to clarify and present the possible factors that could account for the differences in the findings across the different study year levels. A qualitative approach could provide useful information. Possible variables that could be investigated, and that have been mentioned previously in this study, are the influence of the lecturers, regular or poor class attendance, academic achievement during the previous study years, work prospects, the possibility of scholarships, study methods, to name a few.

Further research could include academic achievement that incorporates an average of all the of the students' study modules, rather than just an exam mark for one module. This could possibly provide more information on the relationship that exists between academic self-concept, motivation and academic achievement.

Further research should also be conducted in other departments, and at different universities, to examine if the findings are consistent with the findings from this study.

The limitations of the study will now be briefly indicated and explained.

5.5   LIMITATIONS OF THE STUDY

This study adds new, useful knowledge about the relationship that exists between academic self-concept, motivation and academic achievement. Despite this, certain limitations of this study should be mentioned.

1. The random selection of the research sample was not implemented. The researcher implemented non-probability convenience sampling (see Chapter 3, section 3.5.3).

2. The sample that was used was from one Department from a University in South Africa. Thus, the findings of this study cannot be generalized to other departments at other universities.

3. The researcher could not establish if the Academic Motivation Scale is supported or relevant to non-Western culture, as could be done with the Self Description Questionnaire (III).

4. The study includes only one tertiary learning institution.

5. The study was limited to a period of 12 months across 2010 and 2011.

Despite these limitations, the study provided useful results and added to the knowledge of the relationship between academic self-concept, motivation and academic achievement.

5.6 SUMMARY

The inconsistent academic achievement of capable students continues to be a cause for concern among students, parents and educators alike. The literature has indicated that academic self-concept and motivation are important variables that could contribute towards the variance in the academic achievement of students (see Chapter 1, section 1.1). This study investigated the relationship between academic self-concept, motivation and academic achievement in the Department of Quantity Surveying at the University of the Free State. The results of this study were based on 190 questionnaire responses by residential students in this department, from the first to the fourth study year level.

Pearson's Product Moment correlation, hierarchical regression, the Mann Whitney U-Test and the level of significance were used to test the hypotheses. Academic self-concept and motivation were found not to be able to predict a significant percentage of the variance in the academic achievement of the first and fourth year students. However, both of these constructs were able to predict a significant percentage of the variance in the academic achievement of the second and third year students. Positive correlations were found between academic self-concept and academic achievement in the second and the third year students. A negative correlation was found between the amotivation and the academic achievement of the third year students. Amotivation made a significant contribution to the variance in the academic achievement of the second and third year students.

There were no significant differences in the averages of academic self-concept and the motivation between the students who achieve above average and below average academically in the first, third and fourth years. However, significant differences were found in the averages of the mathematics self-concept between second year students who achieved above average and below average academically.

From the results of this study and the theoretical framework that was presented by the researcher, it seems that academic self-concept and motivation do play a significant role in the variance of the academic achievement in some cases. This is consistent with the findings from the literature study. Therefore the researcher recommends further research, in order to clarify why academic self-concept and motivation only play a significant role in the variance of the academic achievement in some cases and not in others.

The empirical investigation proved, however, that academic self-concept and motivation did play a significant role in predicting the variance in the academic achievement of the second and third year students. The statistics proved that these results were of high practical value. By means of this study the researcher contends that positive academic self-concepts and high levels of motivation are beneficial to students, and should at all times be encouraged by lecturers and parents. Amotivation should be recognized in students and be discouraged, as it is not conducive to academic achievement and could be harmful to students' academic achievement, as was seen in the case of the third year students.

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APPENDIX A

STUDENT ACADEMIC SELF-CONCEPT AND MOTIVATION QUESTIONNAIRES

Hi, there! My name is Louise Coetzee, a UNISA MEd (Adult Education) student.

I am conducting research on, The relationship between academic self-concept, motivation and academic achievement.

Please note the following:

- This is NOT a test, but a questionnaire for which you have all the answers to every question.

- There are NO right or wrong answers.

- Questions relate to how you feel about the activities in learning. Your opinion is required.

- Please do not write anything else on this questionnaire except your response.

- Please do not write anything in the blocks on the right hand side of the pages; these are for official use only.

- Write all your responses in the spaces provided.

- Please choose ONLY ONE response to every question.

- Provide your choice to each statement TRUTHFULLY.

- Please note that your identity will be treated confidentially and will not be revealed under any circumstances.

- All your responses will be treated confidentially.

- Thank you for your cooperation!!!

NAME and SURNAME: _____

STUDY YEAR LEVEL: _____ ☐ k1

SELF-DESCRIPTION QUESTIONNAIRE (SDQ-III): A MEASURE OF ACADEMIC SELF-CONCEPT (An adapted version)

© *H.W. Marsh. 1999. Self-Concept Enhancement and Learning Facilitation (SELF) Research Centre, University of Oxford.*

This is a chance for you to consider how you think and feel about yourself. This is not a test – there are no right or wrong answers, and everyone will have different responses.

On the following pages are a series of statements that are more or less true (or more or less false) descriptions of you. Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life. In such a case, respond to this item as you would have when it was appropriate. Try at all cost to avoid leaving any items blank.

Answer the following questions by allocating the most appropriate number to yourself, between 1 and 6 on the scale below.

1 Definitely False	2	3	4	5	6 Definitely True

_____ 1. I find many mathematical problems interesting and challenging. ☐ k2

_____ 2. I have trouble expressing myself when trying to write something. ☐ k3

_____ 3. I enjoy doing work for most academic subjects. ☐ k4

_____ 4. I am never able to think up answers to problems that haven't

already been figured out. ☐ k5

_____ 5. I have hesitated to take courses that involve mathematics. ☐ k6

_____ 6. I can write effectively. ☐ k7

_____ 7. I hate studying for many academic subjects. ☐ k8

_____ 8. I am good at combining ideas in ways that others have not tried. ☐ k9

_____ 9. I have generally done better in mathematics courses

than in other courses. ☐ k10

1 Definitely False	2	3	4	5	6 Definitely True

_____ 10. I have a poor vocabulary. ☐k11

_____ 11. I like most academic subjects. ☐k12

_____ 12. I wish I had more imagination and originality. ☐k13

_____ 13. Mathematics makes me feel inadequate. ☐k14

_____ 14. I am an avid reader. ☐k15

_____ 15. I have trouble with most academic subjects. ☐k16

_____ 16. I enjoy working out new ways of solving problems. ☐k17

_____ 17. I am quite good at mathematics. ☐k18

_____ 18. I do not do well on tests that require a lot of verbal reasoning

ability. ☐k19

_____ 19. I am good at most academic subjects. ☐k20

_____ 20. I am not very good at problem solving. ☐k21

_____ 21. I have trouble understanding anything that is based upon

mathematics. ☐k22

_____ 22. Relative to most people, my verbal skills are quite good. ☐k23

_____ 23. I am not particularly interested in most academic subjects. ☐k24

_____ 24. I have a lot of intellectual curiosity. ☐k25

_____ 25. I have always done well in mathematics classes. ☐k26

_____ 26. I often have to read things several times before I understand

them. ☐k27

_____ 27. I learn quickly in most academic subjects. ☐k28

_____ 28. I am not very original in my ideas, thoughts, and actions. ☐k29

_____ 29. I never do well on tests that require mathematical reasoning. ☐k30

_____ 30. I am good at expressing myself. ☐k31

1 Definitely False	2	3	4	5	6 Definitely True

_____ 31. I hate most academic subjects. ☐ k32

_____ 32. I am an imaginative person. ☐ k33

_____ 33. At school, my friends always came to me for help in mathematics. ☐ k34

_____ 34. In school I had more trouble learning to read than most

other students. ☐ k35

_____ 35. I get good marks in most academic subjects. ☐ k36

_____ 36. I would have no interest in being an inventor. ☐ k37

_____ 37. I have never been very excited about mathematics. ☐ k38

_____ 38. I have good reading comprehension. ☐ k39

_____ 39. I could never achieve academic honors, even if I worked harder. ☐ k40

_____ 40. I can often see better ways of doing routine tasks. ☐ k41

ACADEMIC MOTIVATION SCALE: A MEASURE OF MOTIVATION
© *Robert J. Vallerand, Luc G. Pelletier, Marc R. Blais, Nathalie M. Briere, Caroline B. Senecal, Evelyine, F. Vallieres, 1992-1993*

WHY DO YOU GO TO UNIVERSITY?

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to university?

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5	6	7

Please encircle your response on the numbers provided.

WHY DO YOU GO TO UNIVERSITY?

1. Because with only a high-school degree I would not

find a high-paying job later on.   1 2 3 4 5 6 7 ☐ k42

Does not corresponds at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2 3	4	5 6	7

2. Because I experience pleasure and satisfaction

   while learning new things.   1 2 3 4 5 6 7   ☐ k43

3. Because I think that a university education will help

   me better prepare for the career I have chosen.   1 2 3 4 5 6 7   ☐ k44

4. For the intense feelings I experience when I am

   communicating my own ideas to others.   1 2 3 4 5 6 7   ☐ k45

5. Honestly, I don't know; I really feel that I am

   wasting my time at university.   1 2 3 4 5 6 7   ☐ k46

6. For the pleasure I experience while

   surpassing myself in my studies.   1 2 3 4 5 6 7   ☐ k47

7. To prove to myself that I am capable of completing

   my university degree.   1 2 3 4 5 6 7   ☐ k48

8. In order to obtain a more prestigious job later on. 1 2 3 4 5 6 7   ☐ k49

9. For the pleasure I experience when I discover

   new things never seen before.   1 2 3 4 5 6 7   ☐ k50

10. Because eventually it will enable me to enter the

   job market in a field that I like.   1 2 3 4 5 6 7   ☐ k51

11. For the pleasure that I experience when I read

   interesting authors.   1 2 3 4 5 6 7   ☐ k52

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5	6	7

WHY DO YOU GO TO UNIVERSITY?

12. I once had good reasons for going to university

however, now I wonder whether I should continue. 1 2 3 4 5 6 7 ☐ k53

13. For the pleasure that I experience while I am surpassing

myself in one of my personal accomplishments. 1 2 3 4 5 6 7 ☐ k54

14. Because of the fact that when I succeed in university

I feel important. 1 2 3 4 5 6 7 ☐ k55

15. Because I want to have 'the good life' later on. 1 2 3 4 5 6 7 ☐ k56

16. For the pleasure that I experience in broadening my

knowledge about subjects which appeal to me. 1 2 3 4 5 6 7 ☐ k57

17. Because this will help me make a better choice

regarding my career orientation. 1 2 3 4 5 6 7 ☐ k58

18. For the pleasure that I experience when I feel

completely absorbed by what certain authors have

written. 1 2 3 4 5 6 7 ☐ k59

19. I can't see why I go to university and frankly,

I couldn't care less. 1 2 3 4 5 6 7 ☐ k60

20. For the satisfaction I feel when I am in the process of

accomplishing difficult academic activities. 1 2 3 4 5 6 7 ☐ k61

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly

_____

1	2	3	4	5	6	7

WHY DO YOU GO TO UNIVERSITY?

21. To show myself that I am an intelligent person.　　1 2 3 4 5 6 7　☐ k62

22. In order to have a better salary later on.　　1 2 3 4 5 6 7　☐ k63

23. Because my studies allow me to continue to learn about many things that interest me.　　1 2 3 4 5 6 7　☐ k64

24. Because I believe that a few additional years of education will improve my character as a worker.　　1 2 3 4 5 6 7　☐ k65

25. For the 'high' feeling that I experience while reading about various interesting subjects.　　1 2 3 4 5 6 7　☐ k66

26. I don't know; I can't understand what I am doing at university.　　1 2 3 4 5 6 7　☐ k67

27. Because university allows me to experience a personal satisfaction in my quest for excellence in my studies.　　1 2 3 4 5 6 7　☐ k68

28. Because I want to show myself that I can succeed in my studies.　　1 2 3 4 5 6 7　☐ k69

APPENDIX B

LETTER OF PERMISSION

DIE UNIVERSITEIT VAN DIE VRYSTAAT
UNIVERSITY OF THE FREE STATE

Departement Bourekenkunde en Konstruksiebestuur /
Department of Quantity Surveying and Construction Management
Fakulteit Natuur- en Landbouwetenskappe /
Faculty of Natural and Agricultural Sciences
339, Bloemfontein, 9300, RSA (+27(051) 401-2248 +27(051) 401-3324 E-Pos E-Mail: versterj@sci.uovs.ac.za

28 Julie 2010

HEIL DIE LESER

NAVORSING: LOUISE COETZEE

Hiermee ontvangs erkenning van u versoek, om as geregistreerde MEd student aan Universiteit van UNISA, die departement van Bourekenkunde en Konstruksiebestuur se studente te gebruik vir u nagraadse studies.

U versoek om akademieseprestasies te meet dra my goedkeuring weg en ons departement onderneem om die volle ondersteuning te verleen sodat u u doelwitte mag bereik.

Die departement waardeer ook u ooreenkoms om gegewens streng konfidensieel en met diskresie te hanteer.

PROF JJP VERSTER
DEPARTEMENTSHOOF