

**SIGNIFICANT PREDICTORS OF SUCCESS AND NON-COMPLETION IN FIRST YEAR ACCOUNTING AT A SOUTH-AFRICAN UNIVERSITY**

by

J.A. Joubert

Thesis submitted in fulfilment of the requirements for the degree  
Philosophiae Doctor

in the

FACULTY OF EDUCATION

School of Higher Education Studies

at the

UNIVERSITY OF THE FREE STATE

NOVEMBER 2010

Promoter:

Dr M.C. Viljoen

## **DECLARATION**

I declare that the thesis hereby submitted by me for the Philosophiae Doctor degree in Higher Education Studies at the University of the Free State is my own independent work and has not previously been submitted by me at any other university/faculty. I furthermore cede copyright of the thesis to the University of the Free State.

---

**J.A. Joubert**

---

**Date**

## *Dedicated to my parents*

*You taught me what life is all about,  
You inspire me,  
You believe in me,  
But most of all,  
You have never stopped praying for me.*

## ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to the following:

- ❖ My promoter, Dr M.C. Viljoen, for her unending encouragement and her excellent guidance, support and advice during the study.
- ❖ Elmarie Viljoen for editing the thesis.
- ❖ The students who participated in the study and without whom this research would not have been possible.
- ❖ My husband, Francois, for believing in me and for your encouragement and support.
- ❖ My children, Joalette and Johan, for your affection and the sacrifices you have made during my studies.
- ❖ My friends for their encouragement.
- ❖ God, my creator, who has taken care of me throughout my life and who has placed all the above-mentioned people in my life.

*Soli Deo Gloria*

# TABLE OF CONTENTS

|                  |     |
|------------------|-----|
| DECLARATION      | i   |
| DEDICATION       | ii  |
| ACKNOWLEDGEMENTS | iii |
| LIST OF TABLES   | xi  |
| LIST OF FIGURES  | xii |

---

## CHAPTER 1

### ORIENTATION TO THE STUDY

---

|           |   |    |
|-----------|---|----|
| 1.1       | INTRODUCTION  | 1  |
| 1.2       | STATEMENT OF THE RESEARCH QUESTION                    | 8  |
| 1.3       | HYPOTHESES  | 9  |
| 1.4       | AIM OF THE STUDY                                      | 11 |
| 1.5       | RESEARCH DESIGN AND METHODOLOGY                       | 12 |
| 1.5.1     | Identifying the variables                             | 12 |
| 1.5.1.1   | The dependent variable                                | 13 |
| 1.5.1.2   | The independent variables                             | 13 |
| 1.5.1.3   | The confounding variables                             | 13 |
| 1.5.2     | Research design                                       | 14 |
| 1.5.2.1   | Population and sampling                               | 14 |
| 1.5.2.2   | Data collection                                       | 15 |
| 1.5.2.3   | Measuring instruments                                 | 15 |
| 1.5.2.3.1 | <i>Biographical questionnaire</i>                     | 16 |
| 1.5.2.3.2 | <i>Psycho-Social Questionnaire (PSQ)</i>              | 16 |
| 1.5.2.3.3 | <i>Factor B of the 16PF Questionnaire</i>             | 16 |
| 1.5.2.3.4 | <i>The Zimbardo Time Perspective Inventory (ZTPI)</i> | 17 |
| 1.5.2.4   | Data analysis and reporting                           | 17 |
| 1.6       | DEMARICATION OF THE STUDY                             | 18 |
| 1.7       | SIGNIFICANCE OF THE RESEARCH                          | 18 |
| 1.8       | CONCEPT CLARIFICATION                                 | 19 |
| 1.9       | OUTLINE OF THE STUDY                                  | 27 |
| 1.10      | CONCLUSION  | 28 |

---

## **CHAPTER 2**

### **COGNITIVE DETERMINANTS OF SUCCESS AND NON-COMPLETION AT UNIVERSITY WITH SPECIFIC REFERENCE TO ACCOUNTING**

---

|         |                                  |    |
|---------|----------------------------------|----|
| 2.1     | INTRODUCTION                     | 29 |
| 2.2     | COGNITIVE FACTORS                | 32 |
| 2.2.1   | Cognitive ability (intelligence) | 32 |
| 2.2.2   | Learning styles                  | 34 |
| 2.2.3   | Learning approaches              | 36 |
| 2.2.4   | Language proficiency             | 38 |
| 2.2.5   | Academic achievement             | 41 |
| 2.2.5.1 | Previous academic performance    | 41 |
| 2.2.5.2 | Previous accounting knowledge    | 43 |
| 2.2.5.3 | The influence of mathematics     | 44 |
| 2.2.5.4 | Average of other subjects        | 45 |
| 2.3     | SUMMARY OF LITERATURE FINDINGS   | 46 |
| 2.4     | CONCLUSION                       | 47 |

---

## **CHAPTER 3**

### **NON-COGNITIVE DETERMINANTS OF SUCCESS AND NON- COMPLETION AT UNIVERSITY WITH SPECIFIC REFERENCE TO ACCOUNTING**

---

|         |                       |    |
|---------|-----------------------|----|
| 3.1     | INTRODUCTION          | 49 |
| 3.2     | NON-COGNITIVE FACTORS | 49 |
| 3.2.1   | Biographical factors  | 51 |
| 3.2.1.1 | Age                   | 51 |
| 3.2.1.2 | Gender                | 52 |
| 3.2.1.3 | Ethnicity             | 53 |

|           |                                      |    |
|-----------|--------------------------------------|----|
| 3.2.2     | Socioeconomic factors                | 54 |
| 3.2.2.1   | Insufficient financial resources     | 55 |
| 3.2.2.1.1 | <i>Housing quality</i>               | 57 |
| 3.2.2.1.2 | <i>Transport</i>                     | 58 |
| 3.2.3     | Personal factors                     | 58 |
| 3.2.3.1   | Personality                          | 59 |
| 3.2.3.2   | Self-esteem (self-concept)           | 64 |
| 3.2.3.3   | Self-efficacy                        | 65 |
| 3.2.3.4   | Motivation                           | 66 |
| 3.2.3.5   | Locus of control                     | 69 |
| 3.2.3.6   | Health                               | 70 |
| 3.2.3.6.1 | <i>Physical health and HIV/AIDS</i>  | 71 |
| 3.2.3.6.2 | <i>Emotional health</i>              | 72 |
| 3.2.3.7   | Time management and time perspective | 75 |
| 3.2.4     | Interpersonal relationships          | 77 |
| 3.2.5     | Institutional factors                | 78 |
| 3.2.5.1   | Class size                           | 78 |
| 3.2.5.2   | Teaching methods                     | 79 |
| 3.2.5.3   | Support programmes                   | 81 |
| 3.2.6     | Adjustment to university life        | 84 |
| 3.3       | SUMMARY OF LITERATURE FINDINGS       | 86 |
| 3.4       | STUDY ATTITUDE                       | 88 |
| 3.5       | CONCLUSION                           | 89 |

---

## CHAPTER 4

### ACCOUNTING AND ABSTRACT THINKING SKILLS

---

|         |                                       |    |
|---------|---------------------------------------|----|
| 4.1     | INTRODUCTION                          | 91 |
| 4.1.1   | Theories on cognitive ability         | 92 |
| 4.1.1.1 | Spearman's two-factor theory          | 92 |
| 4.1.1.2 | Thurstone's theory                    | 94 |
| 4.1.1.3 | Other approaches to cognitive ability | 96 |
| 4.1.2   | Cognitive development                 | 98 |

|         |                                      |     |
|---------|--------------------------------------|-----|
| 4.1.3   | Abstract thinking and accounting     | 98  |
| 4.1.3.1 | Critical thinking                    | 101 |
| 4.1.4   | The measurement of abstract thinking | 103 |
| 4.2     | CONCLUSION                           | 105 |

---

## **CHAPTER 5**

### **TIME PERSPECTIVE**

---

|         |   |     |
|---------|---|-----|
| 5.1     | INTRODUCTION  | 108 |
| 5.2     | DEFINITION OF TIME PERSPECTIVE  | 109 |
| 5.2.1   | The various time perspectives   | 111 |
| 5.2.1.1 | Past-negative time perspective  | 115 |
| 5.2.1.2 | Past-positive time perspective  | 115 |
| 5.2.1.3 | Present-hedonistic time perspective   | 116 |
| 5.2.1.4 | Present-fatalistic time perspective   | 117 |
| 5.2.1.5 | Future time perspective   | 118 |
| 5.2.2   | Direct and indirect influence of time perspective on academic performance:<br>research-based evidence | 119 |
| 5.2.2.1 | Time perspective, motivation and academic performance   | 119 |
| 5.2.2.2 | Time perspective, ethnicity and academic performance  | 123 |
| 5.2.2.3 | Time perspective, health and academic performance   | 123 |
| 5.3     | CONCLUSION  | 126 |

---

## **CHAPTER 6**

### **RESEARCH DESIGN AND METHODOLOGY**

---

|       |                                    |     |
|-------|------------------------------------|-----|
| 6.1   | INTRODUCTION                       | 128 |
| 6.2   | STATEMENT OF THE RESEARCH QUESTION | 129 |
| 6.3   | HYPOTHESES                         | 130 |
| 6.4   | IDENTIFYING THE VARIABLES          | 132 |
| 6.4.1 | The dependent variable             | 133 |
| 6.4.2 | The independent variables          | 133 |



|         |  |     |
|---------|--|-----|
| 6.4.3   | The confounding variables                      | 133 |
| 6.5     | RESEARCH DESIGN AND METHODOLOGY                | 134 |
| 6.5.1   | Population and sampling                        | 136 |
| 6.5.2   | Data collection                                | 137 |
| 6.5.3   | Measuring instruments                          | 139 |
| 6.5.3.1 | Biographical questionnaire                     | 139 |
| 6.5.3.2 | Psycho-Social Questionnaire (PSQ)              | 139 |
| 6.5.3.3 | Factor B of the 16PF Questionnaire             | 141 |
| 6.5.3.4 | The Zimbardo Time Perspective Inventory (ZTPI) | 145 |
| 6.5.4   | Data analyses and reporting                    | 147 |
| 6.5.5   | Ethics   | 148 |
| 6.6     | RELIABILITY AND VALIDITY OF THE RESEARCH       | 149 |
| 6.7     | CONCLUSION                                     | 150 |

---

## CHAPTER 7

### RESULTS AND DISCUSSION OF RESULTS

---

|         |   |     |
|---------|---|-----|
| 7.1     | INTRODUCTION  | 152 |
| 7.2     | DESCRIPTIVE STATISTICS: THE SAMPLE                        | 154 |
| 7.2.1   | Descriptive statistics: Categorical confounding variables | 154 |
| 7.2.1.1 | Gender  | 154 |
| 7.2.1.2 | Ethnicity   | 155 |
| 7.2.2   | Descriptive statistics: Continuous confounding variables  | 155 |
| 7.2.2.1 | Age   | 155 |
| 7.2.2.2 | Psychosocial background                                   | 156 |
| 7.2.3   | Descriptive statistics: Independent variables             | 157 |
| 7.2.3.1 | Performance in OBS134                                     | 157 |
| 7.2.3.2 | Abstract thinking ability                                 | 157 |
| 7.2.3.3 | Time perspectives   | 159 |
| 7.2.4   | Descriptive statistics: Dependent variable                | 160 |

|         |   |     |
|---------|---|-----|
| 7.3     | STATISTICS OF ASSOCIATION   | 161 |
| 7.3.1   | Univariate analysis of confounding variables (ANOVA and regression analyses)  | 161 |
| 7.3.1.1 | Univariate analyses (ANOVA) of achievement in REK114 against gender           | 162 |
| 7.3.1.2 | Univariate analyses (ANOVA) of achievement in REK114 against ethnicity        | 163 |
| 7.3.1.3 | Regression analyses of achievement in REK114 against age                      | 165 |
| 7.3.1.4 | Regression analyses of achievement in REK 114 against psychosocial background | 166 |
| 7.3.2   | Univariate analyses of independent variables                                  | 169 |
| 7.3.2.1 | Regression analyses of achievement in REK114 against OBS134                   | 169 |
| 7.3.2.2 | Regression analyses of achievement in REK114 against abstract thinking        | 171 |
| 7.3.2.3 | Regression analyses of achievement in REK114 against time perspectives        | 173 |
| 7.3.3   | Multivariate analyses – full model  | 178 |
| 7.4     | SUMMARY OF FINDINGS   | 185 |

---

## **CHAPTER 8**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

---

|         |                         |     |
|---------|-------------------------|-----|
| 8.1     | INTRODUCTION            | 190 |
| 8.2     | CONCLUSIONS             | 194 |
| 8.2.1   | Confounding variables   | 195 |
| 8.2.1.1 | Gender                  | 195 |
| 8.2.1.2 | Age                     | 195 |
| 8.2.1.3 | Ethnicity               | 196 |
| 8.2.1.4 | Psychosocial background | 196 |

|         |                         |     |
|---------|-------------------------|-----|
| 8.2.2   | Independent variables   | 197 |
| 8.2.2.1 | Study attitude (OBS134) | 197 |
| 8.2.2.2 | Abstract thinking       | 198 |
| 8.2.2.3 | Time perspective        | 198 |
| 8.2.3   | Dependent variable      | 200 |
| 8.3     | LIMITATIONS             | 201 |
| 8.4     | RECOMMENDATIONS         | 203 |
| 8.5     | FINAL CONCLUSION        | 205 |

|                           |            |
|---------------------------|------------|
| <b>LIST OF REFERENCES</b> | <b>207</b> |
|---------------------------|------------|

## **APPENDICES**

### **ABSTRACT**

### **OPSOMMING**

### **LIST OF ACRONYMS AND ABBREVIATIONS**

---

## LIST OF TABLES

---

|             |   |     |
|-------------|---|-----|
| Table 2.1:  | Influence of cognitive factors on performance in accounting   | 46  |
| Table 3.1:  | Influence of non-cognitive factors on accounting performance  | 87  |
| Table 3.2:  | Influence of non-cognitive factors on students' academic performance in general                         | 87  |
| Table 7.1:  | Gender distribution of the respondents in the sample (n=550)  | 154 |
| Table 7.2:  | Ethnic distribution of the respondents in the sample (n=544)  | 155 |
| Table 7.3:  | Age distribution of the respondents in the sample (n=533)   | 155 |
| Table 7.4:  | Psychosocial background distribution of the respondents in the sample (per total of PSQ) (n=551)        | 156 |
| Table 7.5:  | Performance of the respondents in the sample in OBS134 (n=553)  | 157 |
| Table 7.6:  | Abstract thinking ability of the respondents in the sample (total score of factor B of 16PF) (n=553)    | 157 |
| Table 7.7:  | Time perspective of the respondents in the sample (individual scores of five time perspectives) (n=553) | 159 |
| Table 7.8:  | Performance in REK114   | 160 |
| Table 7.9:  | ANOVA REK114 and gender   | 162 |
| Table 7.10: | Performance in REK114 according to gender   | 162 |
| Table 7.11: | ANOVA REK114 and ethnicity  | 163 |
| Table 7.12: | Regression of REK114 on age   | 165 |
| Table 7.13: | Regression of REK114 on psychosocial background   | 166 |
| Table 7.14: | Regression of REK114 on OBS134  | 169 |
| Table 7.15: | Regression of REK114 on abstract thinking   | 171 |
| Table 7.16: | Regression of REK114 on past-negative time perspective  | 173 |
| Table 7.17: | Regression of REK114 on past-positive time perspective  | 174 |
| Table 7.18: | Regression of REK114 on future time perspective   | 175 |
| Table 7.19: | Regression of REK114 on present-hedonistic time perspective   | 176 |
| Table 7.20: | Regression of REK114 on present-fatalistic time perspective   | 177 |
| Table 7.21: | Results of multivariate analysis  | 179 |
| Table 7.22: | R-square of the dependent variable: REK114  | 180 |
| Table 7.23: | Stepwise model selection of predictors of performance in REK114   | 181 |
| Table 7.24: | Final fitted model  | 184 |

|             |  |     |
|-------------|--|-----|
| Table 7.25: | R-square for the fitted model of the dependent variable: REK114                  | 184 |
| Table 7.26: | Summary of null hypotheses accepted and rejected at a 0.05 level of significance | 189 |

---

## LIST OF FIGURES

---

|             |   |     |
|-------------|---|-----|
| Figure 2.1: | Theoretical outline of research focus                                 | 31  |
| Figure 2.2: | Outline of cognitive factors  | 32  |
| Figure 3.1: | Outline of non-cognitive factors                                      | 50  |
| Figure 4.1: | Hierarchical model to explain Vernons' structure of cognitive ability | 93  |
| Figure 5.1: | Zimbardo's time perspectives  | 114 |
| Figure 7.1: | Histogram of abstract thinking ability of respondents                 | 158 |

### APPENDICES

- Appendix A: Consent form
- Appendix B: Psycho-Social Background of Students
- Appendix C: Abstract thinking
- Appendix D: Time perspective
- Appendix E: Statistical Analysis Plan

### ABSTRACT

### OPSOMMING

### LIST OF ACRONYMS AND ABBREVIATIONS

## CHAPTER 1

### ORIENTATION TO THE STUDY

#### 1.1 INTRODUCTION

National and international research findings indicate a problem with student success and non-completion regarding higher education studies in general, and, more specifically, with first-year accounting at the higher education level (Doran, Bouillon & Smith, 1991: 74; Zabel, 1995: 87; Bargate, 1999: 139; Fraser & Killen, 2003: 254; Lourens & Smit, 2003: 169; Duff, 2004b: 409–410; Seidman, 2005: xii; Steenkamp, Baard & Frick, 2009: 113). According to Tinto (in Horstmanshof & Zimitat, 2007: 704), non-completion rates are generally highest in students' first year of study at university. At the University of the Free State (UFS) the average throughput rate of first-year accounting students over the past five years (2004–2008) has been 54%. Steenkamp, Baard and Frick (2009: 116) report that the throughput rate for first-year accounting students at the University of Stellenbosch has been below 70% for the past number of years, while Du Plessis, Müller and Prinsloo (2005: 684) report a throughput rate of less than 33% for distance education first-year accounting students at the University of South Africa.

Since the introduction and implementation of Outcomes-Based Education (OBE) and the institution of Curriculum 2005 in 1997, the South African school curriculum has moved towards a more learner-centred approach. This means that teachers

have to facilitate learning and learners have to participate in the process of learning actively in order to develop their critical thinking skills. The main purpose of the implementation of Curriculum 2005 was to address the inequalities in education that came to exist during South Africa's apartheid era and to bridge the gap between historically advantaged and disadvantaged schools. To address the shortcomings of Curriculum 2005, the Revised National Curriculum was implemented for grades through to 9 in 2004, and for grades 10 to 12 in 2006 (Chrisholm, 2003: 272–284). Although the main aim of the new curriculum was to address the aforementioned inequalities in education between the historically advantaged and disadvantaged schools, Harley and Wedekind (2004: 205–206) cite a number of studies that indicate that the gap between historically advantaged and disadvantaged schools has in fact widened, because the formerly disadvantaged schools do not have the resources and infrastructure to apply OBE effectively (Chrisholm, 2003: 284). The result is that first-year students who entered university from 2009 onwards are students who obtained their National Senior Certificate under the Revised National Curriculum. This implies that the gap in the academic backgrounds of first-year students from previously disadvantaged schools and first-year students from formerly advantaged schools is now even bigger than it was between students who matriculated from the 'apartheid' school curriculum.

In view of the effect of OBE and the revised Curriculum 2005, as well as the current unacceptable throughput rate, it has become important to focus on possible

reasons why some students are successful in first-year accounting and others are not. From the end of 2008 learners will have completed Grade 12 under the new curriculum. This implies that the 2009 first-year accounting students will be students who completed Grade 12 under the new curriculum. As from 2009 new admission requirements applied to learners wishing to enrol for higher education studies at South African universities. By studying the predictors of success and non-completion of first-year accounting students, more knowledge can be gained regarding the preparedness of students and university authorities are better able to evaluate the effectiveness of these new admission requirements and make informed decisions regarding admission of first-year accounting students. For the purpose of this study the concept *success and non-completion* will be used interchangeably with the concepts of *achievement* and *performance*.

First-year accounting or REK114 is a compulsory subject for all B Com degrees at the UFS except the B Com degree in Human Resource Management. This implies that, in most cases, students have to pass at least first-year accounting to obtain their degrees. Consequently, research into the factors contributing to success and non-completion in first-year accounting is important. Extensive research has been conducted on the influence of various teaching methods, learning styles, deep and surface learning, lecturer performance, class size, and tutorials on the success or non-completion of students in general, and on accounting students in particular (Duff, 1997; Holt, Godfrey & Godfrey, 1997; Doran & Golen, 1998; Naser & Peel, 1998; Bonner, 1999; Booth, Lockett & Mladenovic, 1999; Marcheggiani, Davis &



Sander, 1999; Apostolou, Watson, Hassell & Webber, 2001; De Wet & Van Niekerk, 2001; Byrne, Flood & Willis, 2002; Murdoch & Guy, 2002; Biggs, 2003; Dowling, Godfrey & Gyles, 2003; Cooper, 2004; Duff, 2004a; Maree, Louw & Millard, 2004; Ramburth & Mladenovic, 2004; Elias, 2005; Halabi, Tuovinen & Farley, 2005; Jackling, 2005; Visser, McChlery & Vreken, 2006). These research findings established that learning styles and teaching methods sometimes have an influence on the performance of students, but that, even when students have the same learning style and attend the same lectures and tutorials, some are successful in their accounting studies and others are not.

Many other determinants of success and non-completion in accounting have been researched and contradictory findings reported. These determinants include age, gender, prior knowledge of accounting, prior knowledge of mathematics, language proficiency and pedagogical techniques (Moses, 1987; Lipe, 1989; Tyson, 1989; Keef, 1992; Gist, Goedde & Ward, 1996; Naser & Peel, 1998; Bargate, 1999; Bonner, 1999; Koh & Koh, 1999; Gammie, Paver, Gammie & Duncan, 2003; Gracia & Jenkins, 2003; Hartnett, Römcke & Yap, 2004; Du Plessis *et al.*, 2005; Levy & Murray, 2005; Tickell & Smyrnios, 2005; Barnes, 2006). In a study on student performance in first-year accounting in the USA, Turner, Holmes and Wiggins (1997: 287) indicate that ‘...students’ innate abilities and motivation influence grades to a greater degree than do instructors or course characteristics’. Accordingly, the researcher decided to investigate three relatively unexplored, potential predictors of success and non-completion in first-year accounting:

- Study attitude

Accounting requires and teaches the skill of mathematical calculations, and, although the ability to do mathematical calculations is partly an aptitude, it is a skill that may be acquired through conscientiousness and hard work which indicates a positive study attitude. This study therefore needed to make use of some gauge or measure of study attitude. To this end it was decided to compare accounting marks with the marks of another subject which requires conscientiousness and diligence to succeed. Business management (OBS134) was selected as such a subject. This subject was furthermore chosen because most of the subjects in the study population were also enrolled for OBS134. Therefore, study attitude was operationally determined through the marks obtained in OBS134.

A significant relationship between marks in first-year accounting and first-year business management would indicate whether low achievement occurs only in first-year accounting, or whether it also occurs in first-year business management. This would thus indicate whether successful first-year accounting students possessed a positive study attitude or not.

- Students' employment of abstract thinking skills

Yen, Konold and McDermott (2004: 158) state that the most commonly used predictors of academic achievement are measures of cognitive ability.

Cognitive ability includes factors such as concrete and abstract thinking and, because accounting employs abstract concepts, ideas and calculations, it was necessary to determine the degree to which those students who were successful in accounting employed abstract thinking skills.

- Students' time perspective

Students' effective time management is based on their specific time perspective. Zimbardo and Boyd (1999) identified the following five possible time perspectives: past-negative, past-positive, present-hedonistic, present-fatalistic and future.

Students with a past-negative time perspective are governed by situations that they experienced in the past, are very predictable and conservative, and do not like change. They avoid taking risks for the reason that they do not like taking risks (Zabel, 1995: 23). Therefore, if they experienced academic difficulty or failure in the past they may have a negative attitude towards academics or a specific subject and in this manner their past-negative time perspective may exercise a negative influence on their academic performance.

Students with a past-positive time perspective are positive and will reflect on the present with optimism even when things are not going well. In general, it

can be said that these persons have a healthy outlook on life that may be reflected in their academic performance (Zimbardo & Boyd, 1999: 1275).

Students with a present-hedonistic time perspective are orientated towards the present and for these students present enjoyment, pleasure and excitement is more important than the rewards of tomorrow. They also tend to have a low preference for consistency and low impulse control because they place emphasis on novelty and sensation seeking (Zimbardo & Boyd, 1999: 1278). These persons will therefore rather postpone studying and enjoy the present, which may result in poor academic performance.

Students with a present-fatalistic time perspective believe that the future is predestined and uninfluenced by their actions, and that 'fate' determines whatever happens to them. Therefore, they believe that nothing they do will change the situation (Zimbardo & Boyd, 1999: 1275–1276). Consequently, they believe that it does not matter how hard they study; the outcome of their studies is predestined.

Zimbardo and Boyd (1999: 1281) stated that students with a future time perspective are ambitious goal seekers and strive to use their time wisely. These students experience greater success in their studies than students who have different time perspectives according to the Zimbardo Time Perspective Inventory. How students manage their time will therefore

depend on their individual time perspectives. Chapter 5 focuses on the different time perspectives in more detail.

The researcher decided to focus on these determinants after a literature review of the field. Two main factors guided this decision. Firstly, in past research the above-mentioned factors have been shown to be linked to academic success and non-completion in general (Zimbardo & Boyd, 1999; Beyers, 2001; Tight, 2003; Van der Linde, 2005; Barnes, 2006). Secondly, no significant research has been done on the relationship between these factors and first-year accounting in particular.

## **1.2 STATEMENT OF THE RESEARCH QUESTION**

This research will expand the existing body of knowledge on the predictors of success and non-completion in first-year accounting. It will provide answers to the following research question:

*Are the following variables, namely study attitude, level of abstract thinking and time perspective, predictors of success and non-completion in first-year accounting?*

Subsidiary questions that emerged from the above research question are:

- Is there a positive relationship between study attitude, as measured by achievement in first-year business management (OBS134), and achievement in first-year accounting (REK114)?

- Is there a relationship between the ability to think abstractly and achievement in first-year accounting (REK114)?
- Is there a relationship between students' time perspectives and achievement in first-year accounting (REK114)?

### **1.3 HYPOTHESES**

Research data was collected from a selected group of first-year accounting students at the UFS. The data was analysed and interpreted to test the following hypotheses:

**Null hypothesis ( $H_0$ ):** No relationships exist between achievement in first-year accounting (REK114) and a positive study attitude as indicated by achievement in first-year business management (OBS134), abstract thinking and time perspective.

**Research hypothesis ( $H_1$ ):** Relationships exist between performance in first-year accounting (REK114) and a positive study attitude as indicated by first-year business management (OBS134), abstract thinking and time perspective.

The following specific null hypotheses and corresponding alternative hypotheses were tested:

H<sub>0a</sub>: No relationship exists between a positive study attitude and performance in REK114.

H<sub>1a</sub>: A positive relationship exists between a positive study attitude and performance in REK114.

H<sub>0b</sub>: No relationship exists between abstract thinking and performance in REK114.

H<sub>1b</sub>: A positive relationship exists between abstract thinking and performance in REK114

H<sub>0c</sub>: No relationship exists between a past-negative time perspective and performance in REK114.

H<sub>1c</sub>: A negative relationship exists between a past-negative time perspective and performance in REK114

H<sub>0d</sub>: No relationship exists between a past-positive time perspective and performance in REK114.

H<sub>1d</sub>: A positive relationship exists between a past-positive time perspective and performance in REK114

- H<sub>0</sub>e: No relationship exists between a present-hedonistic time perspective and performance in REK114.
- H<sub>1</sub>e: A negative relationship exists between a present-hedonistic time perspective and performance in REK114.
- H<sub>0</sub>f: No relationship exists between a present-fatalistic time perspective and performance in REK114.
- H<sub>1</sub>f: A negative relationship exists between a present-fatalistic time perspective and performance in REK114.
- H<sub>0</sub>g: No relationship exists between a future time perspective and performance in REK114.
- H<sub>1</sub>g: A positive relationship exists between a future time perspective and performance in REK114.

#### **1.4 AIM OF THE STUDY**

The primary aim of this study was to determine relatively unexplored factors as possible predictors of success and non-completion in first-year accounting.

The following objectives emanated from this aim:

- To determine the relationship between a positive study attitude as measured by achievement in first-year business management (OBS134) and performance in first-year accounting.



- To determine the relationship between abstract thinking and performance in first-year accounting.
- To determine the relationship between a dominantly past-negative time perspective and performance in first-year accounting.
- To determine the relationship between a dominantly past-positive time perspective and performance in first-year accounting.
- To determine the relationship between a dominantly present-hedonistic time perspective and performance in first-year accounting.
- To determine the relationship between a dominantly present-fatalistic time perspective and performance in first-year accounting.
- To determine the relationship between a dominantly future time perspective and performance in first-year accounting.

## **1.5 RESEARCH DESIGN AND METHODOLOGY**

In discussing the research design and methodology of the study it is necessary to firstly identify the variables.

### **1.5.1 Identifying the variables**

Fraenkel and Wallen (2008: G-8) define a variable as: 'A characteristic that can assume any one of several values'. The different forms of variables used in this study will be discussed below:

### **1.5.1.1 The dependent variable**

In this study the dependent variable is performance in REK114 and it will be reported as a continuous variable. Operationally, performance in REK114 will be defined as the final mark obtained in REK114.

### **1.5.1.2 The independent variables**

For the purpose of this study the independent variables are as follows:

1. Performance in OBS134 as an indicator of study attitude, is reported as a continuous variable. Operationally, performance in OBS134 is defined as the final mark obtained in OBS134.
2. Abstract and concrete thinking. For the purpose of this study, abstract thinking is operationally defined as the total score on factor B of the Sixteen Personality Factor Questionnaire (16PF Questionnaire).
3. Time perspective. For the purpose of this study, time perspective is operationally defined as the individual scores of the five different time perspectives of the Zimbardo Time Perspective Inventory.

### **1.5.1.3 The confounding variables**

The confounding variables in this study were gender, age, ethnicity and the psychosocial background of the students.

### **1.5.2 Research design**

This study was based on the post-positivist paradigm, because the researcher strived to be as objective and neutral as possible in the search for probabilistic evidence. This means that the researcher searched for significant predictors of success and non-completion in first-year accounting, realising the impediments to knowing reality with certainty.

The research was conducted using a quantitative non-experimental predictive multivariate design due to the nature of the research hypotheses. The study was non-experimental because no attempt was made to manipulate the variables. Many variables were included in the design to attempt a prediction of the interdependence between multiple independent variables and the dependent variable, namely performance in first-year accounting. Generalisations were not made to the whole population because whole frame sampling and not random sampling was employed. However, inferences from the results that were obtained from the study could be made and the applicability to a larger population could be speculated upon (Viljoen 2007a:31).

#### **1.5.2.1 Population and sampling**

Because the entire population of first-year accounting students at the UFS was used in the study, this constituted a form of whole frame sampling based on the principle of convenience of sample selection.

### **1.5.2.2 Data collection**

A comprehensive literature study was conducted to investigate the determinants of success and non-completion at university in general and in first-year accounting specifically. Both national and international resources such as books, journal articles, theses and internet articles were studied.

Information on students and their performance in REK114 and OBS134 was gathered by means of gaining access to statistical data from the university after consent was obtained from the appropriate university authorities. Other data was gathered by means of existing or adapted questionnaires that were completed by the respondents. The following questionnaires served as measuring instruments:

- Biographical questionnaire
- The Psycho-Social Questionnaire (PSQ)
- Factor B of the 16PF Questionnaire
- The Zimbardo Time Perspective Inventory (ZTPI)

The measuring instruments used will be discussed in the following paragraph.

### **1.5.2.3 Measuring instruments**

Data were collected quantitatively using the above-mentioned self-reporting measuring instruments as research tools. The questionnaires were all English to ensure more reliable results as the respondents had different languages as their

first languages. In this way 89% of the respondents completed the questionnaire in their second language. A discussion of the instruments used follows below.

#### *1.5.2.3.1 Biographical questionnaire*

The biographical questionnaire measured aspects such as gender, age and ethnicity.

#### *1.5.2.3.2 Psycho-Social Questionnaire (PSQ)*

The PSQ was developed by Viljoen in 2007. This questionnaire is used for the measurement of psychosocial factors of the subjects' childhood and present situation. The psychosocial factors that are measured include the childhood and present situation of the subjects' emotional support, socioeconomic situation, and the conduciveness of their environment to learning and depression.

#### *1.5.2.3.3 Factor B of the 16PF Questionnaire*

The Sixteen Personality Factor Questionnaire (16PF) is an American questionnaire that was developed by R.B. Cattell and originally published under the copyright of the Institute for Personality and Ability Testing in 1949. 'The Sixteen Personality Factor Questionnaire (16PF) is widely known and generally used for the assessment of personality' (Prinsloo, 1992: 1). However, personality consists of many factors, of which the ability to think abstractly (intelligence) is one (Maas, 1975: 13–15). Factor B of Cattell's 16PF Questionnaire measures the degree to which a person employs abstract thinking.

#### *1.5.2.3.4 The Zimbardo Time Perspective Inventory (ZTPI)*

The Zimbardo Time Perspective Inventory (ZTPI), published in 1999, was developed by Philip Zimbardo and John Boyd. The instrument is used to measure individuals with regard to their orientation towards time, i.e. past-negative, past-positive, present-hedonistic, present-fatalistic and future time perspectives.

The measuring instruments will be discussed in detail in Chapter 6.

#### **1.5.2.4 Data analysis and reporting**

The data was coded by the researcher and then recorded by the Department of Information and Technology Services at the UFS. This department analysed the data quantitatively according to the Statistical Analysis Plan developed by Professor Schall from the university's Statistics Department (Schall personal communication, 2009).

Univariate and multivariate analyses were conducted to test the hypotheses. A .05 level of significance was used. Multivariate analyses were then conducted to determine significant predictors of success and non-completion in first-year accounting at the UFS.

## **1.6 DEMARCATION OF THE STUDY**

The study is limited to first-year accounting students registered at the UFS. The study was conducted within the field of higher education studies and the area of study is what Tight (2003: 7) refers to as 'the student experience'. Ethical aspects of the study will be discussed in Chapter 6.

## **1.7 SIGNIFICANCE OF THE RESEARCH**

The study is significant because it focuses on possible predictors of success and non-completion of first-year accounting at the University of the Free State which have not previously been investigated. The outcome of this study will enable the university to make informed decisions on, for example, the admission requirements for first-year accounting as a component of the various B Com degrees. The study is timely, because, as from the end of 2008 learners exiting secondary school will be the first South African learners to have completed Grade 12 under the Revised National Curriculum. Therefore, the study's respondents were those students who had completed Grade 12 under the new curriculum. The results of this study may contribute towards informed decision-making by the university on the possibility of new admission requirements. This will enable parents and students to make better decisions regarding subject choices and field of study on which to build a career. The study also pointed out whether the participating students displayed positive or negative study behaviour, whether students should be assisted to develop abstract

thinking skills and whether students should be counselled regarding their time perspective and personal time management.

## **1.8 CONCEPT CLARIFICATION**

A number of key words, terms and concepts are used throughout the study. The definitions below are presented for ease of interpretation. Other concepts used in the study that may need clarification are explained in more detail as the specific concept arises.

**Abstract thinking:** Lundsteen (1970: 375) indicates that abstract thinking is the ability to see something within the whole instead of seeing only one aspect. By seeing the whole, the person is enabled to involve a number of aspects in getting to the root of a problem and finding its solution. Louw and Edwards (1998 482) are of the opinion that abstract thinking is the ability to discern and solve problems without being practically involved in the situation. It is also the ability to think about and understand the relationships between abstract concepts. From the above definitions of abstract thinking it is evident why Vyshedskiy (2008: 16) concluded that there is no clear definition of abstract thinking. For the purpose of this study, the above definitions of abstract thinking should be seen together with probably the best definition, as provided by Van der Walt (1979: 181) who states that abstract thinking is the ability to solve problems where symbols are used as basis.



**Academic success:** 'Academic success is usually taken to mean that students are able to meet the assessment requirements of the programme in which they enrol' (Fraser & Killen, 2003: 261).

**Aptitude:** Aptitude refers to a person's potential (Sedlacek, 2004: 64). Barret (2004: 3) is of the opinion that: 'All of us have so much ability that never gets used'. He hence refers to aptitude as 'hidden ability'.

**Academic performance:** This concept can be defined by the final marks that students obtain for registered subjects at a tertiary institution. The terms 'achievement', 'performance' and 'academic performance' will be used interchangeably for purposes of this study.

**Cognitive factors:** Cognitive factors are factors that have to do with the perception, learning, memory and thinking processes of a person (Louw & Edwards, 1998: 459).

**Cognitive ability (intelligence):** Cognitive ability is similar to intelligence and can be defined as '...the ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought'. Cognitive ability therefore includes abstract thinking as an aspect of intelligence (Neisser *et al.*, 1996: 77).

**Conscientiousness:** 'Conscientiousness involves organising, performing administrative tasks, following regulations, integrity, and motivation' (Sedlacek, 2004: 37). Students who reflect the personality attribute of conscientiousness will therefore demonstrate the above-mentioned characteristics in their studies.

**Depression:** Depression can be defined as: 'A mood or state of sadness, gloom, and pessimistic ideation, with loss of interest or pleasure in normally enjoyable activities'. Persons suffering from depression can also experience feelings of worthlessness and guilt and may experience a diminished ability to concentrate and think (Colman, 2001: 196).

**Extrinsic motivation:** 'Extrinsic motivation for learning is defined as the desire to attain an external goal' (Donald, 1999: 28).

**First-generation students:** First-generation students can be described as those students whose parents do not have any tertiary education.

**Health:** The concept of health refers to the well-being of a person and it comprises the following three types of health:

*Emotional health:* In the university context, the emotional health of a student '...includes one's ability to appropriately express one's emotions, one's ability to learn, and one's ability to have meaningful interactions and connections'. This

statement by the Thompson Rivers University (2010: 1 of 1) was made because people are not merely physical beings. Emotional well-being is important in the achievement of overall wellness. Thompson Rivers University further mentions that students may experience high levels of stress because of the many adjustments and experiences that occur during the semester and they then may find it difficult to maintain all aspects of emotional health.

*Physical health:* Physical health refers to the well-being of a person's body.

*Social health:* The social health of a person refers to '...that dimension of an individual's well-being that concerns how he gets along with other people, how other people react to him, and how he interacts with social institutions and social mores' (Russell, 1973: 75).

**Higher education:** Higher education refers to education at a tertiary institution after completion of Grade 12.

**HIV/AIDS:** AIDS (acquired immune deficiency syndrome) is an incurable, but preventable disease caused by the human immunodeficiency virus (HIV) (HESA, 2008: 26–27).

**Interpersonal sensitivity:** According to Boyce and Parker (in McCabe, Blankstein & Mills, 1999: 588), ‘..interpersonal sensitivity is a personality style characterized by an excessive awareness of both the behaviour and feelings of others’.

**Intrinsic motivation:** ‘Intrinsic motivation for learning is defined as the desire to learn for the sake of learning’ (Donald, 1999: 28).

**Learning styles:** ‘A learning style refers to a person’s preferred approach to learning. Students learn in different ways; and the approach they prefer may be an important determinant in their academic performance’ (Visser *et al.*, 2006: 98).

**Locus of control:** ‘The place where control is perceived to be. This is internal for independent, self-directed, accountable people. It is external to dependent, other-directed people who have given up accountability for themselves to others, or worse, to circumstances’ (The Pacific Institute, 1998: 2).

**Non-cognitive factors:** ‘Non-cognitive is used to refer to variables relating to adjustment, motivation, and perceptions, rather than the traditional verbal and quantitative (often called cognitive) areas typically measured by standardized tests’ (Sedlacek, 2004: 36).

**Non-completion:** Non-completion can also be described as ‘...wastage, drop-out, exits, attrition, withdrawal, non-persistence and non-continuation’ (McGivney, 1996: 21).

**Non-verbal intelligence:** Non-verbal intelligence ‘...is manifested through performance on tasks that require minimal use of verbal materials, but this does not necessarily imply verbal and non-verbal intelligence are two different kinds of intelligence. Non-verbal intelligence tests were devised to evaluate intelligence in persons who may for a number of reasons have problems with verbal materials’ (Reber & Reber, 2001: 471).

**OBS134:** OBS134 is the subject code for the first semester module of the first-year business management course at the UFS.

**Personality:** ‘Personality consists of attitudes or beliefs that are a function of environmental states’ (Pratt, 1980: 501).

**Personality traits:** Personality traits can be defined as ‘...patterns of thought, feelings, and behaviour’ (Borghans, Duckworth, Heckman & ter Weel, 2008: 3).

**Personality style (type):** Personality style is a broader concept that encompasses personality traits.

**Positive self-concept:** A person with a positive self-concept ‘...demonstrates confidence, strength of character, determination, and independence’ (Sedlacek, 2004: 37).

**Psychosocial factors:** Psychosocial factors include factors that are both social and psychological in origin. It therefore has to do with people’s psychological experiences in interaction with their social environment (Collins Concise Dictionary, 2004: 1208).

**REK114:** REK114 is the subject code for the first semester module of the first-year accounting course at the UFS. For purposes of this study, achievement in REK114 was taken to reflect achievement in first-year accounting as a whole because the average mark obtained by students in the first semester and the second semester of first-year accounting has been very similar over the years.

**Self-efficacy:** A person's belief in himself to cause, bring about or make happen (The Pacific Institute, 1998: 2).

**Self-esteem:** ‘Self-esteem is defined by how much value people place on themselves’ (Baumeister, Campbell, Krueger & Vohs, 2003: 2). Self-esteem and self-concept are used as terms with the same meaning and a positive self-concept implies high self-esteem. A negative self-concept will then be used in the same sense as low self-esteem.

**Social problem-solving:** ‘Social problem-solving is an important coping strategy mediating the affective experiences associated with daily life stressors or problems’ (McCabe *et al.*, 1999: 588).

**Socioeconomic factors:** Socioeconomic factors refer to factors relating to both social and economic areas of concern (Collins Concise Dictionary, 2004: 1208).

**Socioeconomic status:** ‘Socioeconomic status consists of three interrelated but conceptually distinct dimensions: education, occupation and income/wealth’ (McMillan & Western, 2000: 243). Socioeconomic status therefore refers to the level of education, the occupation and financial position of a person.

**Stress:** Stress refers to ‘psychological and physical strain or tension generated by physical, emotional, social, economic, or occupational circumstances, events, or experiences that are difficult to manage or endure’ (Colman, 2001: 711).

**Study attitude:** Study attitude is a vague concept, but for purposes of this study attitude may be seen as the students’ orientation towards their studies. This orientation will then explain their actions and the effort that they put into their studies.

**Success:** In this study success refers to the passing of a module or subject.

**Teaching methods:** Teaching methods refer to different kinds of activities that the lecturer can employ in an attempt to enhance the learning experience of students (Biggs, 2003: 3–4).

**Time perspective:** ‘The totality of the individual’s views of his psychological future and psychological past existing at a given time’ (Lewin, 1951: 75).

**Tutorials:** During tutorials students are exposed to extra questions and tasks in a specific subject. The students have to work independently or in small groups to answer specific questions. They get immediate feedback from the tutor and the tutor may also explain problem areas to the students. The tutor is usually a senior student.

**Verbal intelligence:** Verbal intelligence refers to the ability of a person to deal with vocabulary, comprehension of a written piece, discussion of absurdities and the ability to understand and interpret verbal relations (Thorndike, Cunningham, Thorndike & Hagen, 1991: 360–384). In short, verbal intelligence reflects the ability to think constructively through the use of language (Van der Walt, 1979: 318).

## **1.9 OUTLINE OF THE STUDY**

Chapter 1: Orientation and background

Chapter 2: Cognitive determinants of success and non-completion at university  
with specific reference to accounting



Chapter 3: Non-cognitive determinants of success and non-completion at university  
with specific reference to accounting

Chapter 4: Accounting and abstract thinking skills

Chapter 5: Time perspectives

Chapter 6: Method of research

Chapter 7: Results and discussion of results

Chapter 8: Conclusions, limitations and recommendations of the study

## **1.10 CONCLUSION**

This chapter focused on the main issues addressed in this study, and demonstrated how these issues were addressed. Many determinants of success and non-completion have been researched in the past and many contradictory findings have been put forward. This study is an attempt to determine the reason why students who are influenced by the same determinants succeed in accounting and others do not. Can relatively unexplored determinants of success and non-completion in first-year accounting provide new insight with which to address the problem of low throughput rates?

Chapter 2 will focus on the cognitive determinants, according to literature, of success and non-completion at university and other tertiary institutions worldwide.

## **CHAPTER 2**

# **COGNITIVE DETERMINANTS OF SUCCESS AND NON-COMPLETION AT UNIVERSITY WITH SPECIFIC REFERENCE TO ACCOUNTING**

### **2.1 INTRODUCTION**

Chapter 1 indicated that there are various determinants of student performance at the tertiary education level. It was found that teaching methods and learning strategies do have an influence on student performance, but when addressing student success and non-completion, the students' learning style, teaching methods and resulting performance cannot be seen in isolation. Beyers (2001: 10) states that the student functions as a system within a system, but also in relation to other systems. This is confirmed by Kersop (2004: 185) who states that the prediction of academic performance should be holistically analysed because various determinants come into play in the prediction of academic success.

Chapters 2 and 3 will focus on various determinants of academic success in the study of accounting at tertiary institutions worldwide, and especially on the determinants of success and non-completion in accounting as a first-year university subject in South Africa. The factors identified through the literature review that may have an influence on student performance are numerous and will be grouped into those which are cognitive in nature and those which are non-cognitive. This

chapter focuses on the cognitive factors, while Chapter 3 will focus on the non-cognitive factors. Where research findings on certain determinants of success or non-completion in accounting are minimal, a description of the determinants of academic success in general will be used to illustrate the problem.

The focus of this study is discussed against the background of academic determinants as described in the theoretical outline in Figure 2.1. The intention of this diagram is to contextualise the factors that are the research focus of the study. It is not the objective of the study to research all possible determinants of success and non-completion in first-year accounting, but to focus only on those factors outlined in Chapter 1.

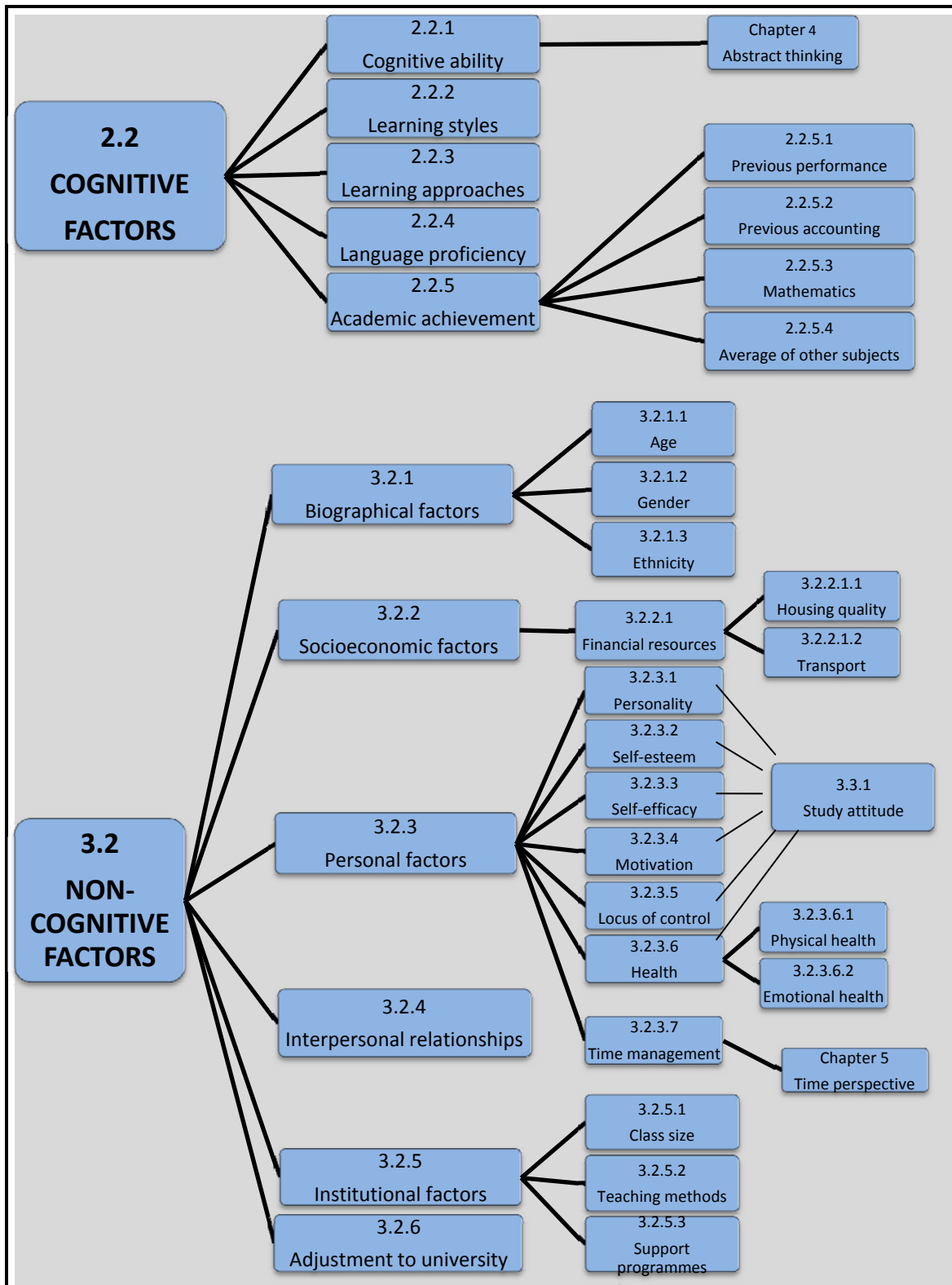
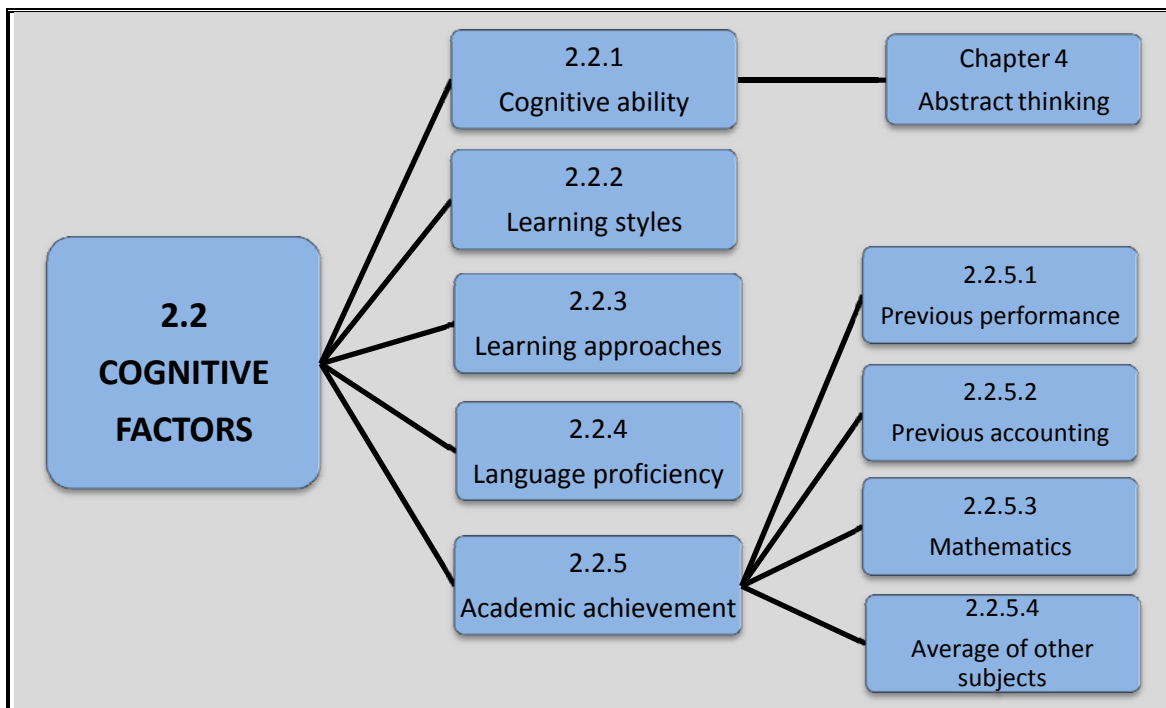


Figure 2.1: Theoretical outline of research focus

The following cognitive factors were identified as having an influence on the success or non-completion of students at the tertiary education level in general, and on the success and non-completion of first-year accounting in particular.

## 2.2 COGNITIVE FACTORS

Cognitive factors that may influence a student's academic performance are those factors that relate to the mental processes of a person. The cognitive factors will be discussed according to the outline provided in Figure 2.2



**Figure 2.2: Outline of cognitive factors**

### 2.2.1 Cognitive ability (intelligence)

Owen and Taljaard (1995: 171–172) indicate that many definitions for intelligence exist, but that these definitions are not independent from one another and can be grouped under different themes, namely:

- Intelligence is the ability to adapt to one's environment and new situations in one's life;
- Intelligence is the ability to study;
- Intelligence is the ability to solve divergent and new problems; and
- Intelligence is the ability to think abstractly.

Gardner (in Shaffer, 1999) developed his theory of Multiple Intelligences, proposing that people display at least seven distinctive kinds of intelligence, namely: linguistic, spatial, logical-mathematical, musical, body-kinaesthetic, interpersonal and intrapersonal. The logical-mathematical intelligence is used in accounting and involves the ability to operate or to perceive relationships in abstract symbol systems and to think logically and systematically in evaluating one's ideas (Shaffer, 1999: 319–320).

The one factor which consistently shows a positive relation to academic performance in general and to accounting, is cognitive ability (Stanfiel, 1973; Eskew & Faley, 1988; Dinius, 1991; Turner *et al.*, 1997; Jackling & Anderson, 1998; Koh & Koh, 1999; Kahn & Nauta, 2001; Van Eeden, de Beer & Coetzee, 2001; Eiselen & Geysers, 2003; Gracia & Jenkins, 2003; Hartnett *et al.*, 2004; Jin, Kwon & Yun, 2004; Perlow & Kopp, 2004). Gracia and Jenkins (2003: 25) indicate that cognitive ability is significantly correlated to previous and current performance of accounting students. No national or international studies have found a negative

or an insignificant correlation between cognitive ability and academic performance. Neisser *et al.* (1996: 82) summarises this by stating that ‘the relationship between test scores and academic performance seems to be ubiquitous’.

In accounting, students have to be able to solve problems and in order to do this they have to be able to think abstractly. Upon consideration of the definition of intelligence in general and, more specifically, Gardner’s logical-mathematical intelligence, it becomes clear that abstract thinking is a very important aspect of intelligence which must be factored into performance in accounting. Abstract thinking and the relation of abstract thinking to cognitive ability will be discussed in detail in Chapter 3.

### **2.2.2 Learning styles**

It is important to differentiate between learning styles and learning approaches. Biggs (2003: 17) stated that people use the term learning styles when they actually refer to learning approaches. According to Duff (1997: 263), a learning style is ‘...the composite of characteristic cognitive, affective and physiological factors which serve as relatively stable indicators of how an individual interacts with and responds to the learning environment’. The determinants of an individual’s learning style are primarily personological and likely to remain stable over a period of time (Duff, 1997: 265). In Duff’s opinion a learning style is therefore relatively fixed and is a combination of personal attributes that a person uses to learn; it is thus a stable trait of the individual. Marriott (2002: 43–62) performed a longitudinal study

of undergraduate accounting students and found that, although a learning style indicates a person's preferred way of learning, the preferences of the students for a specific learning style change over the period of time they spend at university.

Kolb's Experimental Learning Model (ELM) is the model used most widely to explain learning styles. The Learning Style Inventory (LSI) and the revised version (LSI-1985) are associated measures of the ELM (Duff, 1997: 263–264). According to the ELM, learning is a cyclic process that involves four abilities. These abilities are Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualisation (AC), and Active Experimentation (AE). The four abilities can be grouped into two bipolar dimensions called Reflective versus Active, and Concrete versus Abstract. The LSI is a self-report inventory that was designed to measure an individual's preferences along each of the dimensions mentioned above. A person's preferences can be classified into one of four groups: Accommodators (CE and AE), Divergers (CE and RO), Convergents (AC and AE), and Assimilators (AC and RO) (Stout & Ruble, 1991: 42).

Learning styles have been widely researched in accounting using the LSI as well as its revised version (Wilson & Hill, 1994). Most of these studies focused on the learning style preferences of accounting students. Mixed results were found with respect to the existence of a preferred learning style for accounting students. Togo and Baldwin (1990) researched whether a learning style can predict performance in first-year accounting. They found that Convergents performed better than



Accommodators, but differences between Convergents, Assimilators and Divergers were not significant.

Honey and Mumford's learning style questionnaire (LSQ) was applied by Duff to accounting students at the University of Paisley, Scotland. Results of this research indicated no significant relationship between learning styles and academic performance in accounting (Duff, 1997: 263–270).

### **2.2.3 Learning approaches**

A learning approach involves more than the student; it also depends on the learning situation and teaching context. According to Biggs (2003: 17), students have preferences for a specific approach, but the teaching context will influence the approach that will be used by the student. Duff (1997: 265) states: '...approaches to learning are dependent on situational factors such as course structure and methods of assessment used', while Byrne, Flood and Willis (2002: 28) say: 'A learning approach describes the way a student relates to a learning task'. Biggs, Kember and Leung (2001: 137) summarise it best when they state that 'an approach to learning describes the nature of the relationship between student, context and task'.

The study of students' learning approaches in higher education has received much attention in the literature. Research findings generally have identified two approaches, namely the deep and surface learning approaches. Students who take

a deep approach will search for meaning in the work that they study and will relate their study material to existing experiences and ideas. These students also have an intrinsic interest in the learning material and aim at understanding the learning material. Students with a surface approach will rely on rote learning and memorisation without relating the study material to existing experiences and ideas. The student who takes a surface approach will study the learning material with the aim of passing a test or examination (Biggs, 2003; Cooper, 2004; Duff, 2004a; Elias, 2005). Wilding and Andrews (2006: 171) indicate consistent relations between general life goals and approaches to study. They stated that the deep approach can be associated with altruistic life goals, while the surface approach can be associated with wealth and status goals.

Research has been conducted on the influence of the deep and surface approaches on student performance in accounting courses. Researchers employed a number of research instruments across a variety of studies and found a significant negative correlation between the surface approach and the performance of accounting students (Booth *et al.*, 1999; Byrne *et al.*, 2002; Ramburth & Mladenovic, 2004; Elias, 2005).

Byrne *et al.* (2002) and Elias (2005) found a positive correlation between the deep approach and performance in accounting, while Booth *et al.* (1999) and Ramburth and Mladenovic (2004) found no relationship between the deep approach and performance in accounting. Booth *et al.* (1999: 291) indicated that accounting

students tested consistently higher on the surface approach than students in either the arts, education or science.

The difference in findings is not surprising, because different studies used different designs. Students participating in the various studies mentioned above could, for example, have been exposed to different teaching methods that would have influenced their learning approach. It may also be that the test or exam questions that evaluated their performance in accounting differed in complexity levels. Lecturers may also differ when it comes to setting examination questionnaires in that lecturers ask questions of differing levels of complexity. An approach to learning is not fixed and stable, because an approach only indicates a tendency of students towards learning (Biggs, 2003: 17). Different teaching contexts and tasks may influence how the students will react. Many factors in the teaching context and task may influence the research results and therefore it is difficult to predict student performance only on the basis of the tendency towards a specific learning approach.

#### **2.2.4 Language proficiency**

Proficiency in English for students who have languages other than English as their first language is a factor that needs to be considered when investigating student performance. In South Africa many students study in English, a language which is not their first language. Students who study at the UFS mostly have one of the

following first languages: Afrikaans, Sesotho, Setswana, isiXhosa or isiZulu. Many of these students are not fluent in English, influencing their academic performance.

Hartnett *et al.* (2004: 168–182) state that international students at the University of Newcastle in Australia are faced with English language difficulties as one of their main problems, because English is not their first language. In spite of the language difference it was found that accounting performance by the foreign students whose first language is not English is no worse than the performance of resident students whose first language is English (Hartnett *et al.*, 2004: 182). In a study carried out at Deakin University in Australia, one of the objectives was to determine whether the first language of students explained differences in accounting performance. It was found that foreign students whose first language was not English experienced difficulties in English comprehension and writing skills. Nevertheless, language was not indicated as significant in explaining their performance in accounting (Jackling & Anderson, 1998: 65–73).

The problems indicated above are familiar in the South African context since especially black students are faced with language difficulties. South Africa has eleven national languages and instruction at universities takes place in only Afrikaans or English. Chinese and Taiwanese students studying at South African universities also face some of the same problems as the black students. Eiselen and Geyser (2003: 128) found that students who are at risk of failing first-year

accounting find it more difficult to express themselves, and their vocabulary in the language of instruction is not as good as students who perform well in accounting.

Koh and Kriel (2005: 218–229) performed a study at the University of Port Elizabeth, South Africa, where they investigated whether language is a contributing factor to non-completion of first-year accounting students. They found that students who have difficulty solving accounting problems experienced these problems because they had ‘...ineffective reading skills and strategies, a lack of knowledge, or inability to apply knowledge in order to solve a problem’. This problem was experienced by students who studied accounting in English as their first language as well as students studying it in their second- or third language. Koh and Kriel (2005: 227) further stated that ‘these problems could not be attributed directly to difficulties with English caused by poor proficiency in the language, or their ability to decode the language; the essential problem may be an under-developed discipline-based cognitive and conceptual framework’. They stated that to develop the students’ reading ability would help only some students; the development of students’ problem-solving skills should also be addressed.

Barnes (2006: 70) reports a positive relationship between Grade 12 English and first-year accounting at the Central University of Technology in Bloemfontein, South Africa. This could indicate that language proficiency exercises an influence on the accounting students’ performance at this institution. However, participating students whose first language is not English did not consider English as language

of instruction a problem regarding poor performance in accounting. In a study conducted at the University of Johannesburg, South Africa, Heathcote and Human (2008: 29) also report that, among third-year accounting students whose first language is not English, 96.3% of black students and 96.5% of white students who receive their accounting instruction in English indicated that their reading and writing skills were not hampering their performance.

The conclusion can be made that English proficiency may influence students' performance in accounting, but only up to a specific point. Students who are proficient in English, but who lack problem-solving abilities, will still find it difficult to succeed in accounting, whereas students who possess problem-solving skills and are proficient in English will succeed. Koh and Kriel (2005: 228) summarise this by stating that 'isolated remedial courses in English are ineffective and integrated remedial courses are only partially effective'. This may be the reason why most students who are not English first-language speakers do not consider English as language of instruction as a barrier to their performance in accounting.

## **2.2.5 Academic achievement**

### **2.2.5.1 Previous academic performance**

Universities worldwide rely heavily on entrance scores when admitting students to their institutions. Many national and international studies have researched the university entrance score, or students' average Grade 12 score in the prediction of university and specifically accounting performance. These studies found a

significant relationship between previous academic performance and academic success generally, and specifically in accounting (Eskew & Faley, 1988; Gist *et al.*, 1996; Turner *et al.*, 1997; Jackling & Anderson, 1998; Rego & Sousa, 1999; Huysamen, 2000; Kahn & Nauta, 2001; Smith & Naylor, 2001; Van Eeden *et al.*, 2001; Lourens & Smit, 2003; Tickell & Smyrnios, 2005; Barnes, 2006).

In a study at Monash University in Australia, students who would not normally be granted access to university on account of low entrance scores were entered into an equity and access programme. This is a supportive transitional programme that entails a range of teaching and learning initiatives. It was found that three-quarters of these students could continue with normal degree programmes at the university and their academic performance in the degree programmes was comparable to that of students who had entered university directly (Levy & Murray, 2005: 129–140). Levy and Murray (2005: 130) state that ‘...these students can become successful at a tertiary level when provided with an appropriately supportive transitional program and environment’. From a South African perspective, Huysamen (2000: 146) supports this when he refers to previously disadvantaged students by stating: ‘The introduction of academic support and bridging courses at historically white universities to cater for these students bears testimony to these students’ competitive disadvantage’.

These studies focus on students in general and not on accounting students in particular. Bridging programmes, tutorials and support are currently offered for

students studying accounting at the UFS. Some of these students are successful in their studies and others are not. The literature studied does not offer explanations for the success versus non-completion of students studying the same course.

#### **2.2.5.2 Previous accounting knowledge**

Results of research on the influence of previous accounting knowledge on performance in first-year accounting are conflicting. At the University of Queensland, Rhode and Kavanagh (1996: 283) found a positive relationship between high school accounting marks and first-year accounting marks. They furthermore found that for students with the same ability, students who studied accounting at school scored better than those who had not taken accounting at school, and that when Grade 12 qualifications decline, the importance of previous exposure to accounting increases. Other international studies that found a positive relationship between school accounting marks and first-year accounting marks include Eskew and Faley (1988), Gul and Fong (1993), Colley and Volkan (1996), Hartnett *et al.* (2004), and Tickell and Smyrnios (2005). Locally, Barnes (2006: 69) found a positive relationship between Grade 12 accounting and first-year accounting at the Central University of Technology.

Contradictory to the results mentioned in the previous paragraph, other studies have stated that performance in high school accounting and performance in first-year accounting are unrelated (Baldwin & Howe, 1982; Bergin, 1983; Schroeder, 1986; Bartlett, Peel & Pendlebury, 1993; Eiselen & Geyser, 2003). Moses (1987:



288) states that previous accounting knowledge is not strongly related to performance in the first year, while Jackling and Anderson (1998: 71) as well as Doran *et al.* (1991: 81) state that high school accounting has a positive relationship to first-year accounting courses only, and not to the years of accounting study after the first year at university.

From the studies mentioned in the previous paragraphs it is clear that no consensus exists as to whether or not previous knowledge of accounting has an influence on performance in first-year accounting. The researcher is of the opinion that previous accounting knowledge can be a benefit to students in their first-year accounting studies, but that it is not an important predictor of success in first-year accounting. There are other factors that may have a stronger influence on the success or non-completion in first-year accounting. The reason for this belief is that the researcher, in 12 years of experience in the lecturing of first-year accounting students, has been confronted with students with previous accounting knowledge who have failed as opposed to students without previous accounting knowledge who have succeeded and even passed with distinction.

### **2.2.5.3 The influence of mathematics**

A further factor that has been researched regarding achievement in accounting is the influence of mathematical ability. International studies indicate a positive relationship between performance in mathematics and first-year accounting (Gul & Fong, 1993; Tho, 1994; Wong & Chia, 1996; Koh & Koh, 1999). Nationally, two

separate studies conducted at Universities of Technology (former Technikons) found no relationship between students' Grade 12 marks in mathematics and first-year accounting (Bargate, 1999; Barnes, 2006).

This contradictory result is surprising, because it is generally accepted among accounting lecturers that proficiency in mathematics contributes positively to accounting performance and because many tertiary institutions require mathematics for admission to a B Com degree. Koh and Koh (1999: 16) are of the opinion that overall research seems to suggest that a link between a mathematics background and performance in accounting exists, because accounting is a mathematics-based course that requires quantitative and numeric skills. De Wet, Erasmus and Ponting (2008) state: 'To be successful in accounting specifically, a good level of knowledge of mathematics from a secondary education level is required'. Latief (2005: 57) is of the opinion that for all subjects where calculation and abstract thinking is required, mathematics should be made a prerequisite.

#### **2.2.5.4 Average of other subjects**

A positive relationship has been found between average performance in the specific grade (GPA) and performance in accounting (Moses, 1987; Eskew & Faley, 1988; Turner *et al.*, 1997). It is therefore clear that if a student's average score for all subjects is good, performance in accounting will also be good. Academic achievement is determined by cognitive and non-cognitive factors as well as a student's study attitude. Study attitude is, in turn, influenced by cognitive

and non-cognitive factors. After the discussion of cognitive and non-cognitive factors, a further discussion of study attitude will follow in paragraph 3.4. A thorough literature review failed to find studies that tested the relationship between first-year accounting marks and marks in another first-year subject, as was done in this study.

## 2.3 SUMMARY OF LITERATURE FINDINGS

Table 2.1 presents a summary of the research findings on the influence of cognitive factors on the success of accounting students nationally and internationally.

**Table 2.1: Influence of cognitive factors on performance in accounting**

| <b>Factor</b>                 | <b>National research</b> | <b>International research</b> |
|-------------------------------|--------------------------|-------------------------------|
| Cognitive ability             | Positively related       | Positively related            |
| Learning styles               | Not researched           | Inconclusive                  |
| Learning approaches           | Not researched           | Inconclusive                  |
| Language proficiency          | Positively related       | No significant influence      |
| Previous academic performance | Inconclusive             | Positively related            |
| Previous accounting           | Inconclusive             | Inconclusive                  |
| Previous mathematics          | Inconclusive             | Inconclusive                  |
| Grade performance average     | Not researched           | Positively related            |

## 2.4 CONCLUSION

As may be seen from the summary above, the only cognitive factor that shows a positive relation to performance in accounting nationally and internationally is cognitive ability. With regard to learning styles, learning approaches, previous accounting and previous mathematics exposure, the results are inconclusive. National research on the influence of previous academic performance on accounting performance was inconclusive, while international research indicated a positive relationship between previous academic performance and performance in accounting. The reason for the inconclusive results in South Africa may be due to the fact that students who come from previously disadvantaged schools and who have the ability to perform well academically were not exposed to all the opportunities that could have enabled them to perform academically at school. Once these students start attending university they are granted the same opportunities as all the other students and are then able to perform well and attain success in accounting.

A comprehensive literature review revealed that, thus far, the influence of cognitive factors on the success or non-completion in accounting have received more attention than the influence of non-cognitive factors. Many studies indicated that previous academic performance is the best predictor of success in accounting, but Janse van Rensburg (1999: 67) came to the conclusion that cognitive and non-cognitive factors together may be useful in predicting academic performance. Chapter 3 will focus on studies that have investigated non-cognitive factors as

predictors of success and non-completion in general and, more specifically, in first-year accounting.

## **CHAPTER 3**

# **NON-COGNITIVE DETERMINANTS OF SUCCESS AND NON-COMPLETION AT UNIVERSITY WITH SPECIFIC REFERENCE TO ACCOUNTING**

### **3.1 INTRODUCTION**

Chapter 2 focused on the cognitive factors influencing success or non-completion in first-year accounting. However, as seen in paragraph 2.1, non-cognitive factors may also influence academic performance of students in general and specifically in accounting. Figure 2.1 presented a theoretical outline of all the cognitive and non-cognitive factors that may influence first-year accounting performance. This chapter investigates non-cognitive factors identified by the literature as possible determinants of academic performance. Where research findings on non-cognitive determinants of success or non-completion in accounting are minimal literature findings on the determinants of general academic success or non-completion will be discussed.

### **3.2 NON-COGNITIVE FACTORS**

The non-cognitive factors that may have an influence on performance in first-year accounting refer to factors that are not related to the cognitive functioning of a student. These factors are biographical factors, psychological together with social factors (psychosocial factors), as well as factors relating to the institution of study.

The non-cognitive factors will be discussed according to the outline in Figure 3.1 which contextualises the non-cognitive determinants of accounting as researched in this study.

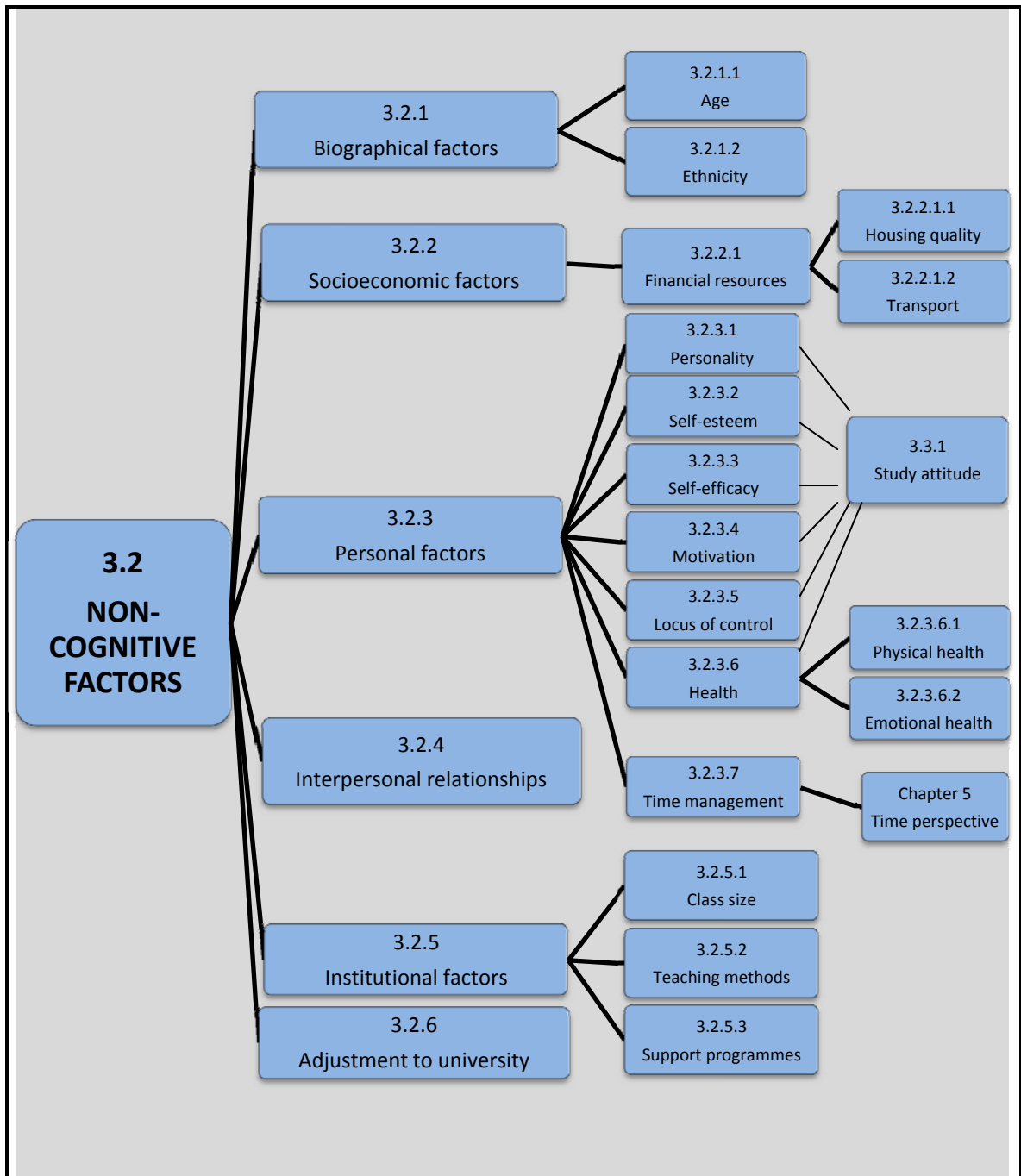


Figure 3.1: Outline of non-cognitive factors

### **3.2.1 Biographical factors**

Age, gender and ethnicity are known as biographical factors. Biographical factors form part of the non-cognitive factors that may influence success and non-completion at university and will be discussed in the following paragraphs.

#### **3.2.1.1 Age**

Research findings are inconsistent when it comes to the relationship of age to academic success in accounting. Koh and Koh (1999: 24) found that younger students perform significantly better in accounting than older students, but a specific age indication was not given. Du Plessis *et al.* (2005: 696) found that students aged between 17 and 30 are more likely to succeed in their accounting studies than students older than 30. Contrary to these findings, Cantwell, Archer and Bourke (2001: 1) report that older students perform better than younger students, but again the age of best performance was not indicated. Beyers (2001: 31) cites the example of older persons who are responsible for paying their own tuition. These students work harder to succeed because they are more careful and do not want to waste their money. The following studies found no relationship between age and success in accounting (Naser & Peel, 1998; Dickson, Fleet & Watt, 2000; Barnes, 2006). Eiselen and Geysers (2003: 119) agree with this observation, stating that only some studies showed age and academic success in accounting to be related.



The conclusion can be made that there may be a relationship between age and achievement in accounting, but that other factors may influence this relationship, making it difficult to draw a conclusion regarding the influence of age on success and non-completion in accounting.

### **3.2.1.2 Gender**

International studies on the relationship between performance in general and performance in accounting found that female students outperform male students (Tyson, 1989; Cantwell *et al.*, 2001; Smith, 2004). Smith (2004: 167) explains the phenomenon by stating that 'females are generally performing the role of the hard-working, dedicated and focused student; males seem to be identifying with a "macho" culture that glorifies sporting prowess and socializing at the expense of academic study'.

Lipe (1989: 144) found that gender does not have an impact on the results of accounting students, but that female students performed better in female-instructed classes and male students performed better in male-instructed classes. Gammie *et al.* (2003: 177) report that female students only performed better in their first-year of accounting study whereas Doran *et al.* (1991: 82) found that males have higher examination scores in Accounting Principles I, but not in Accounting Principles II. Accounting Principles I and Accounting Principles II refer to the first two college courses at Iowa State University where the research was conducted. Barnes (2006: 73) found no significant difference between the performance of males and

females in first-year accounting in a study conducted at the Central University of Technology.

As seen in the paragraphs above, the results of studies on the influence of gender on the accounting performance are inconclusive and contradictory. This indicates that gender cannot be isolated from all the other factors that may influence student performance in first-year accounting.

### **3.2.1.3 Ethnicity**

Ethnicity as a predictor of academic success is a sensitive and controversial issue, especially in the South African context. No studies on the effect of ethnicity on accounting performance were found. It appears as if the literature on this issue in South Africa is lacking.

Regarding academic achievement in general, it was found that the graduation rates for black students, students of Hispanic origin and American Indians in the US were lower than for the white and Asian students. In 67 of the large institutions in the US, 27% of blacks, 26% of American Indians, 31% of Hispanics and only 18% of 'other ethnic groups' failed their first-year. In Canada, a study at York University showed that the success rate for first-year students of South Asian, Chinese and European origins vary little (Grayson, 1998: 323–348).

In South Africa, Negash (in Barnes, 2006: 29) studied the academic performance of black South African students at a traditional white university. He observed the performance of black and white students when they were exposed to the same lectures, tutorials and learning material and found that black students obtained lower marks than white students. According to Huysamen (2000: 147), white first-year students perform better than black first-year students, but the gap in performance between the two groups narrows in the second year and further still in the third year.

According to these national and international studies, ethnicity may be a predictor of success or non-completion, but a conclusion cannot be made without considering other factors such as background knowledge, first language, quality of schools attended, financial issues and family background.

### **3.2.2 Socioeconomic factors**

Socioeconomic status refers to socioeconomic factors such as level of education, the occupation and financial position of a person. Socioeconomic factors are potential determinants of success or non-completion in first-year accounting students. Factors such as financial resources and the associated effect on housing quality and transport and the influence thereof on academic performance will be discussed in this paragraph. The influence of socioeconomic factors on the academic performance of students in general is addressed in the literature and

only a few references to the influence of these factors on accounting performance could be found.

A study at the University of Aveiro in Portugal researched the influence of parents' level of literacy and family income and found no relationship between these socioeconomic factors and academic performance (Rego & Sousa, 1999: 91–107). Kanyongo, Certo and Launcelot (2006: 638) conversely state that socioeconomic status can be measured in different ways within different cultural contexts, but no matter how it is measured, it remains an important predictor of achievement.

Ishitani (2003: 433) found that first-generation students were more likely not to complete their tertiary studies. Khanh (2002: 3) is of the opinion that first-generation students come from lower socioeconomic backgrounds. The implication is that students whose parents do not have any tertiary education may find it difficult to complete their studies because their parents may not have the funds and knowledge to support their children. The influence of insufficient financial resources will be discussed in the next paragraph.

### **3.2.2.1 Insufficient financial resources**

South Africa is a developing country hosting from the very poorest of the poor to people who are extremely wealthy. This implies great variation in the socioeconomic status of the country's citizens. Tertiary education is financially out of reach for most South African citizens, and very difficult to afford for the

remainder, with only a few privileged students being able to study without a loan. In research conducted at a previously disadvantaged university, Beyers (2001) reports that students indicated financial problems as an important factor affecting academic achievement. First-year students interviewed by Beyers (2001: 106) stated that they did not have money to buy food and therefore could not concentrate in class, or, they were so hungry that they did not attend their classes. Even students who had been allocated bursaries said that they did not have enough money for transport, housing and prescribed books. According to these students, financial problems also lead to anxiety. Dass-Brailsford (2005: 579–580) confirms this finding in her study on academic achievement among disadvantaged, black first-year students in South Africa. The students who participated in this study said that poverty was a major stressor and that the financial stress affected their studies negatively.

Lourens and Smit (2003: 172) focused on first-year students and identified reasons for their dropping out of tertiary education at a South African university of technology. Amongst other things, they found that the financial difficulties encountered by students led to non-completion of their studies. According to Khanh (2002: 1 of 12), first-generation students who were registered for their first-year, said that they were stressed about the financial aspect of their studies. Bennett (2003: 137) found financial problems to be ‘...the strongest influence on the stay/quit decision...’ among the students who participated in his study.

In a more recent study by Heathcote and Human (2008: 1–42) at the University of Johannesburg, it was reported that third-year residential previously disadvantaged accounting students did not regard the stress caused by financial problems to be a significant barrier to success at university.

The reason for this difference in findings by the various authors may be attributable to the difference in the academic level (year of study) of the students who participated in the research. Students who experienced real financial problems in their first year may already have dropped out of university by the time of investigation and thus might not have been included amongst the participants. Another reason may be that it is easier for a third-year student to obtain a bursary with evidence of previous successful academic achievement than for a first-year student who has not had the chance to deliver such evidence.

#### *3.2.2.1.1 Housing quality*

Following the study by Robbins, Lauver, Davis and Langley (2004) mentioned in paragraph 3.2.2, Dass-Brailsford (2005: 580) reported that students described their physical living conditions as a source of stress. Beyers (2001: 107–108) indicated that in her research the focus groups of students mentioned the following problems with regard to physical living conditions:

- The houses where they lived were overcrowded.
- They had no desks where they could study; they had to study on their beds.

- Family members showed no consideration regarding noise and interference when they wanted to study.
- Landlords imposed rules which were too strict, for example, that all lights must be out by 21:00.
- There was always noise in the area, because of spaza shops near to where they were living.

#### 3.2.2.1.2 Transport

According to Dass-Brailsford (2005: 579), the stress caused by transport was another factor identified by students to influence their academic achievement. Beyers (2001: 108) found that students experienced transport problems in that they were forced to make use of expensive public transport. In cases where students could not afford the transport they had to walk, which consumed the time they had for studying. Steenkamp *et al.* (2009: 127) support these findings in their report that students noted transport issues as a factor influencing success in first-year accounting.

### 3.2.3 Personal factors

As seen in Figure 3.1, a variety of personal factors influence students' success and non-completion in general. However, a limited number of studies on the effect of personal factors on the success and non-completion in accounting were found. A discussion of the results of these studies is presented below. Where studies

regarding the effect of personal factors on the performance in accounting is lacking, the effect of personal factors on the performance in general is discussed.

### **3.2.3.1 Personality**

Some authors refer to personality as a non-cognitive factor, because it includes aspects that cannot be accounted for by the individual's cognitive or intellectual functioning (Anastasi, 1976; Owen & Taljaard, 1995; Kersop, 2004). According to Borghans *et al.* (2008: 3), personality encompasses traits other than cognitive ability. However, they prefer not to use the term 'non-cognitive' to describe personality traits, because '...many aspects of personality are influenced by cognitive processes'.

Many theories on personality types have emerged over the years. One of the first theories was that of Carl Jung. Jung said that differences between people can be explained in terms of the differences between two attitudes (extraversion and introversion), two perceptual functions (intuition and sensing) and two judgement functions (thinking and feeling). A more contemporary theory was developed by Myers-Briggs. Myers-Briggs based their theory on that of Jung and devised a framework describing 16 personality styles derived from all the possible combinations of the four personality functions. The different functions are: extroversion (E) or introversion (I), sensing (S) or intuition (N), thinking (T) or feeling (F), and judging (J) or perceiving (P) (Saklofske & Zeidner, 1995: 215; Kovar, Ott & Fisher, 2003: 77).



The Sixteen Personality Factor Questionnaire (16PF) is a widely known personality test. The test was developed and standardised by Cattell for use in the USA and many researchers worldwide have investigated and supported its validity (Prinsloo, 1992: 1). Despite the 16PF's prominence worldwide, no research has yet been conducted on the relation between the personality factors identified with the use of the 16PF and success or non-completion in accounting.

Oswick and Barber (1998: 249–254) used the Myers-Briggs Type Indicator to investigate the relationship between personality type and an introductory level accounting course. No significant correlations between the Myers-Briggs personality types and student performance in accounting were found.

A project at a university in California studied the relationship between personality types and the performance of students majoring in accounting. They found that students identified as the sensing type performed better in their accounting courses and no significant differences were found between the performance of extroverts and introverts although there is a commonly held stereotype that introverts make the best accountants (Nourayi & Cherry, 1993: 111–115).

Gul and Fong's research (1993: 33–42) focused on first-year accounting students at a university in Hong Kong using only the introverted-extroverted dimension. This study found that introverted students performed better than extroverted students.

A variety of reasons could explain why the results of the above-mentioned two studies differ, but it is important to note that the research by Nourayi and Cherry took place at a university in the United States of America and that the respondents were third-year accounting students. The research by Gul and Fong took place at a university in Hong Kong and the respondents were in their first-year of accounting. These studies also made use of different measuring instruments. No other studies relating to the connection between first-year accounting performance and the introverted-extroverted dimension were found.

According to Borghans *et al.* (2008: 15), the most widely accepted taxonomy of personality traits is the Big Five or five-factor model. The Big Five factor model was developed by Goldberg (Saucier, 1994: 507–508). The five factors comprising the Big Five are:

- Openness to experience – persons with this personality trait exhibit characteristics such as receptiveness and openness towards change, innovation, new experiences, and learning;
- Conscientiousness – persons with this personality trait exhibit characteristics such as conscientiousness, reliability, trustworthiness, orderliness, and rule-following;
- Extraversion – persons with this personality trait exhibit characteristics such as a tendency to be sociable, a tendency to be outgoing, gregariousness, warm-heartedness, expressiveness, and talkativeness;

- Agreeableness – persons with this personality trait exhibit characteristics such as being agreeable, participative, helpful, cooperative, and they are inclined to interact with others harmoniously, and
- Emotional stability – persons with this personality trait shows characteristics such as an overall level of adjustment and emotional resilience in the face of stress and pressure. The inverse of emotional stability is neuroticism. (Lounsbury, Saudargas & Gibson, 2004: 522).

Lounsbury *et al.* (2004: 524) found a significant relationship between the factors of the Big Five and students' intention to withdraw from tertiary education in their first-year. The participants of this study were first-year students in psychology. Furnham, Chamorro-Premuzic and McDougall (2003: 49) indicate that the Big Five personality traits are better predictors of academic performance than cognitive ability. The study by Furnham *et al.* (2003) involved first-year students but no indication was given of what degrees or subjects they were enrolled for. The results revealed positive and significant correlations between conscientiousness and academic performance, and negative correlations between extraversion and academic performance. The correlation between academic performance and neuroticism was found not to be significant. A study by Chamorro-Premuzic and Furnham (2003: 319–338) investigated the predictive power of certain personality factors for the academic performance of students over three years. The results showed that neuroticism may impair academic performance, while conscientiousness improves it.

McCabe *et al.* (1999: 589–602) researched the link between the personality traits of interpersonal sensitivity and social problem-solving, and academic performance in general. They found that interpersonal sensitivity may be a predictor of academic performance. For female students, social problem-solving was not indicated as a significant predictor of academic performance, but for male students, social problem-solving was a significant predictor of academic performance.

From the above discussion it is clear that not much research has been done on the relationship between personality and success in first-year accounting. In the literature reviewed, research employing the Myers-Briggs Type Indicator on first-year accounting students revealed no correlation between personality style and accounting performance. On the other hand, as stated earlier, the Big Five includes conscientiousness as a personality trait, which demonstrates a significant positive relationship with academic performance. It seems that the different instruments used yielded a contradiction in the findings. The reason may be that students with different personality styles who perform well in accounting may all possess the personality trait identified as conscientiousness. Although no study that used the Big Five to research the relationship between the five factors and first-year accounting was found, it can be presumed that if the academic performance of students is influenced, for example, by conscientiousness, performance in accounting will also be positively influenced by this trait.

### **3.2.3.2 Self-esteem (self-concept)**

As seen in Chapter 1, self-esteem is defined by how much value people place on themselves. According to Baumeister *et al.* (2003: 2), high self-esteem refers to a highly favourable global evaluation of the self, whereas a low self-esteem refers to an unfavourable definition of the self. The terms self-esteem and self-concept are used interchangeably and thus a positive self-concept implies the same as high self-esteem. Negative self-concept is then used in the same sense as low self-esteem.

‘Self-esteem played a crucial role in the encouraging or discouraging withdrawal when a person experiences low grades or substantial financial problems (Bennett, 2003: 123). What is meant by this is that a person with strong self-esteem will more readily continue with their studies at university despite low grades or financial problems; whereas a student with low self-esteem will easily feel discouraged in the face of low grades or financial problems and might simply decide to quit. This finding is confirmed by a number of American studies that found a positive relationship between self-esteem and marks, retention and completion. These studies revealed that the correlation between self-esteem and retention or completion of studies is stronger than the correlation between self-esteem and marks (Tracey & Sedlacek, 1985, 1988, 1989; Milem & Berger, 1997; Sedlacek, 1999).

Tangney, Baumeister and Boone (2004: 29 of 50) reported a significant positive correlation between self-control and self-esteem, and showed that higher self-control scores correlated with higher marks. This suggests that persons with high self-control have good self-esteem and that it may be the high self-control of students that is responsible for their strong academic performance.

Watson, McSorley, Foxcroft and Watson (2004: 200) found that students who believe in their own effectiveness and who expect to perform well academically are more likely to obtain higher marks. Schmidt (1990: 52–53) differentiates between global self-esteem and academic self-esteem and states that a stronger correlation is to be found between academic self-esteem and academic performance than between global self-esteem and academic performance.

Sedlacek, who developed the Noncognitive Questionnaire (NCQ) and authored *Beyond the Big Test*, does not differentiate between global self-esteem and academic self-esteem, but states that a positive self-concept is predictive of success for any student at a tertiary institution. In his opinion, this is even more important for students of colour (Sedlacek, 2004: 39).

### **3.2.3.3 Self-efficacy**

Where self-esteem is a broader construct encompassing all perceptions of the self, self-efficacy refers to the belief of persons in their personal abilities to perform a specific task (Gaskill & Hoy, 2002: 186). Students who are confident about their

academic skills expect high marks for their examinations and tests and expect that the quality of their work will reap benefits. Students who do not believe in their academic ability envision low marks even before they start writing tests or examinations (Pajares, 2007: 4).

Thelwell, Lane and Weston (2007: 580) researched the mood state of students prior to writing an examination. They indicate that ‘...higher positive moods (e.g. happiness) and lower negative moods (e.g. tension) are suggested to be associated with higher self-efficacy and goal difficulty, which in turn were associated with higher performance levels’. Chemers, Hu and Garcia (2001: 61) as well as McKenzie and Schweitzer (2001: 30) confirm that self-efficacy is significantly related to academic performance. The reason why students with high self-efficacy perform better than students with low self-efficacy is that those who believe they are capable of performing a task, work harder, persist longer and persevere despite adversity (Collins in Pajares, 2002: 117).

#### **3.2.3.4 Motivation**

According to Pintrich and Schunk (1996 5), motivation is ‘...the process whereby goal-directed activity is instigated and sustained.’ The literature reviewed refers to two types of motivation, namely intrinsic motivation and extrinsic motivation (Louw & Edwards, 1998: 314). A clarification of the concepts of intrinsic motivation and extrinsic motivation was provided in Chapter 1.

When faced with a difficult accounting question or even day-to-day accounting exercises, one may be led to wonder why some students take on difficult questions, while others postpone their work or give up doing what is expected from them. According to Eppler and Harju (1997: 557), the answer lies in the student's orientation towards goals. The student who responds more optimistically by tackling the problem reflects an orientation towards *learning goals*. The student who responds less optimistically reflects an orientation towards *performance goals*. When students with a learning goal orientation face obstacles, they will persist and try varied problem-solving strategies. These students enjoy challenges and believe that effort is a means to success. Students with a performance goal orientation tend to prefer easier tasks where success is ensured and when they are faced with obstacles they may experience performance anxiety and task aversion. These students also show a desire to elicit favourable judgements about their performance and tend to avoid negative evaluations (Eppler & Harju, 1997: 557–558).

Bye, Pushkar and Conway (2007: 143–144) refer to an orientation towards learning goals as an intrinsic goal orientation and to an orientation towards performance goals as an extrinsic goal orientation. Sansone and Smith (in Bye *et al.*, 2007: 144) state 'an intrinsically motivated student is likely to display autonomy and employ self-initiated exploratory strategies. By contrast, an extrinsically motivated student seeks approval and external signs of worth and is more likely to ask procedural questions than content-enhancing questions'.



Fazey and Fazey (2001: 347) state that students who are intrinsically motivated will study because they have an interest in studying as such. Interest in the subject, according to Bye *et al.* (2007: 152), is a significant predictor of intrinsic motivation. This means that, if students are interested in a subject, they are more likely to be intrinsically motivated, and if they are intrinsically motivated, study success is more likely.

Harrell, Caldwell and Doty (1985: 724) state that ‘...a student’s motivation to strive for academic success is positively correlated with the student’s academic performance’. The findings of Vallerand and Bissonette (1992: 599) support this claim in that their study revealed that students who persisted in a course were more intrinsically motivated than students who dropped out. Cheng and Ickes (2009: 817–822) conducted a study on students from various ethnic backgrounds at the University of Texas. They found that, regardless of previous academic performance or ability, relatively high self-motivation (intrinsic motivation) may compensate for the effect of low conscientiousness in predicting academic performance at university. This may explain the finding of Bye *et al.* (2007: 152) that interest and motivation predict success.

Geiger and Cooper (1996: 113–129) conducted a study to determine what specific motivational factors potentially influence first-year accounting students to perform academically. They found that individual students differ with regard to specific

motivators. Motivating factors for improved academic performance were better marks, an enhanced feeling of personal satisfaction from performing well, and the applicability of the course to possible future jobs. Although the enhanced feeling of personal satisfaction is an example of intrinsic motivation, their study did not address the distinction between extrinsic and intrinsic motivation. A literature review on the significance of the correlation between motivation and success in accounting did not reveal any distinction between intrinsic and extrinsic motivation. However, many studies have indicated that motivation as such proved to be an important predictor of success in accounting (Harrell *et al.*, 1985; Gracia & Jenkins, 2002; Glass & Oakley, 2003; Du Plessis *et al.*, 2005).

#### **3.2.3.5 Locus of control**

Students with an internal locus of control believe that what happens to them and how their life unfolds depend on their own actions and choices. Students with an external locus of control believe that what happens to them depends on fate or other powerful people. Students with an internal locus of control perform better academically than students with an external locus of control (Dollinger, 2000: 537–539; Fazey & Fazey, 2001: 346). The reason why students with an internal locus of control perform better than students with an external locus of control may be attributed to the fact that students with an internal locus of control realise that they have to study to pass, while students with an external locus of control believe their success is not determined by how hard they study but by external factors or people.

Fraser and Killen (2003: 261) found that students who fail were likely to attribute the cause of their failure to the lecturer. When students succeed or perform very well, they tend to attribute the reason to their effort, ability and persistence. From these findings it may be deduced that students who fail tend towards having a more external locus of control, whereas students who pass may tend towards having a more internal locus of control. This implies that first-year accounting students who are inclined towards possessing an internal locus of control are more likely to pass the subject.

#### **3.2.3.6 Health**

An in-depth review of the literature yielded no evidence of studies on the correlation between health and success or non-completion in accounting. Nevertheless, if there is a correlation between health and general academic performance, this leads one to believe that there will also be a correlation between health and performance in accounting. During students' first year of higher education they are faced with numerous educational and personal stressors that impact negatively on their physical and emotional health (Hall, Chipperfield, Perry, Ruthig & Goetz, 2006: 190). A student's physical health can be damaged by poor sleep patterns (Trockel, Barnes & Egget, 2000: 125; Buboltz, Brown & Soper, 2001: 131), binge drinking (Keeling, 2001: 53; Vaez & Laflamme, 2003: 156), the use of drugs (Jones, Oeltmann, Wilson & Brener, 2001: 36) and unsafe sexual

practices (RHRU, 2004). Certain aspects of students' physical and emotional health will be discussed in the paragraphs to follow.

#### *3.2.3.6.1 Physical health and HIV/AIDS*

When students experience problems with their physical health, they are not able to attend classes and to study effectively. DeBerard, Spielmans and Julka (2004: 66) found that certain physical health variables were related to retention in tertiary education.

Many diseases are the cause of chronic illness, but HIV/AIDS has reached epidemic proportions in South Africa. Meiberg, Bos, Onya and Schaalma (2008: 49) state: 'South Africa is in the midst of a catastrophic AIDS epidemic; it has the highest number of people living with HIV in the world'. The University of the Witwatersrand Reproductive Health Research Unit (RHRU, 2004) found that 10.2% of South Africans between the ages of 15 and 24 years are HIV-positive. Among 20–24 year olds the prevalence was 16.5%. This means that there is an increase in the age group of university-going people who contracted the disease.

Chilisa, Bennell and Hyde (2001: 23) state that students reported HIV/AIDS as a cause for their being absent from lectures, on account of being sick, seeking medical care or being hospitalised. When the parents of students die from HIV/AIDS these students are left to take care of siblings, making it difficult to study and attend lectures. Students also reported that they have to take care of HIV/AIDS-infected family members. All these HIV/AIDS-related factors result in

lower student performance and non-completion. Students who themselves suffer from HIV/AIDS also stay away from class or drop out of higher education because of the stigmatisation they experience. Jansen (in *Sunday Independent* 2 November, 2008: 9) supports this opinion and states that the high rate of HIV infection amongst students in higher education reduces the number of students who succeed.

The HIV/AIDS pandemic not only affects the physical health of students, but may also impact on their emotional health. The latter may be affected through the stress endured on account of family members being HIV-positive. The stress caused by the fear of having contracted the disease also affects student performance. Many students avoid HIV testing because of fear, and living with this fear, in turn, causes prolonged stress. Because so many students are affected by AIDS, whether it is personally or through their family members or relatives, HIV/AIDS can be seen as a contributing factor towards non-completion at university.

#### 3.2.3.6.2 *Emotional health*

Various factors may contribute towards the stress that students and especially first-year students experience. Naidoo (1999: 50) found that first-year students experience stress as they adjust to university and academic life. Hall *et al.* (2006: 189) also state that first-year students are faced with numerous educational and personal stressors that may impact negatively on their physical and emotional health. Students may experience stress due to financial limitations, as seen in

paragraph 3.2.2.1. Students also experience stress on account of experiencing traumatic events such as violence, political unrest and South Africa's high crime rate (Botha, Brand, Cilliers, Davidow, de Jager & Smith, 2005: 83). Bennett (2003: 137) reports that students who perform poorly academically experience stress, which has a major influence on their motivation. Struthers, Perry and Menec (2000: 581) concur by stating that students' academic stress is negatively correlated to their marks. As seen in the previous paragraph, the fear of having contracted HIV/AIDS may also be a stressor that affects students' emotional health.

Whatever the reason for students' stress, this may influence academic performance (Lumley & Provenzano, 2003: 641). Pritchard and Wilson (2003: 18–27) researched the relationship between emotional health and student performance and found a significant correlation. Students' emotional health is also related to their intention to drop out of tertiary education. Dusselier, Dunn, Wang, Shelley and Whalen (2005: 15) stated that 'stress is the foremost impediment to academic performance, outranking the other top 10 impediments to learning, including cold, flu, sore throat, sleep difficulties, concern for a troubled friend or family member, and relationship difficulties'.

However, stress is not the only factor that affects students' emotional well-being. Their well-being can also be affected by depression. In a study conducted by Furr, McConnell, Westefeld and Jenkins (2001: 97–99), students indicated that poor academic performance, loneliness, financial problems and relationship problems

with their boyfriend or girlfriend were the major causes of depression. Ruthig, Hayes, Stupnisky and Perry (2009: 233–234) are of the opinion that first-year students are presented with numerous challenges that some may experience as overwhelming and that these students may become overly stressed and ultimately depressed. They further state that ‘stress and depression are common elements of poor psychological well-being that can negatively impact college performance’. Heiligenstein and Guenther (1996: 59–64) found that students who suffer from moderate to severe depression may experience poor academic performance because depression has an effect on the cognitive processes associated with learning. Fathi-Ashtiani, Ejei, Khodapanahi and Tarkhorani (2007: 998) support this finding by stating that ‘there is a significant negative correlation between self-concept, self-esteem, depression and academic achievement’.

Research findings thus reveal that stress and depression are major obstacles to academic performance. It is therefore very important that students learn to deal with the stressors experienced at university. Pritchard and Wilson (2003: 25) are of the opinion that a student’s ability to deal successfully with emotional stress is very important when it comes to retention. To counteract emotional stress, researchers agree that students should be physically active, because they found that students who engage in physical activity were more positive and presented with lower stress levels (Bray & Born, 2004: 186; Dusselier *et al.*, 2005: 16; Bray & Kwan, 2006: 77). Physical health and emotional health are therefore related in the sense that a healthy lifestyle contributes to a healthy body and mind.

### **3.2.3.7 Time management and time perspective**

The way students manage their time exerts a huge influence on their academic achievement. If students do not plan their time effectively, they may end up not being able to cover all the work to be studied for a test or examination. Barnes (2006: 89) found a positive relationship between class attendance and performance in first-year accounting. Steenkamp *et al.* (2009: 131) support this in their finding that students with a better record of class attendance performed significantly better compared to students who demonstrated poor class attendance. The students who participated in this study reported that poor class attendance and laziness were the reasons they did not pass first-year accounting. The reason given by students for poor attendance was that they had to study for other tests. According to Steenkamp *et al.* (2009: 129), this might be an indication of poor time management by students. The implication is that students have to manage their time in such a way so that they are able to attend all their classes and not end up using class time to study for other tests or for other more enjoyable activities. Barnes furthermore indicated that students who do not spend time doing their homework on a regular basis will not be able to gauge the areas in which they experience problems up until just before the test or examination. By this time students do not have enough time to ask for help or to try to understand the work before taking the examination. Students who manage their time well will also spend time doing homework exercises and preparing for their lectures so that they will draw full benefit from what is presented in class.



Dusselier *et al.* (2005: 16) indicate that ‘...time management has a buffering effect on stress’. This means that students who manage their time well and spend enough time studying and attending classes, may experience less stress than students who fail to do these things. Eiselen and Geysers (2003) aimed to identify factors that distinguish between achievers and at-risk students in first-year accounting. They state at-risk students are more likely to procrastinate and to study in a less disciplined way’ (Eiselen & Geysers, 2003: 128). Other studies also found that students’ first-year performance is influenced by their time management (Fraser & Killen, 2003: 261; Jansen & Bruinsma, 2005: 236). Paragraph 3.2.3.1 revealed that the personality trait of conscientiousness is positively related to academic performance. Students who manage their time well are conscientious and therefore the deduction can be made that it is not only the personality trait of conscientiousness that leads to good academic performance but also the trait of good time management (Furnham *et al.*, 2003: 49; Lounsbury *et al.*, 2004: 522).

Students perceive a lack of motivation as a factor hindering their success in first-year accounting (Steenkamp *et al.*, 2009: 127). Motivation also plays a role in time management. Motivated students will manage their time in such a way that they have enough time for studying. Zimbardo and Boyd (1999: 1282) state that time perspective plays a role in one’s thoughts, feelings, actions, goal focus and grades. This implies that a students’ time perspective will play a role in their motivation. Van der Linde (2005: 4) found statistically significant relationships between time

perspective and academic performance. In accounting it is of the utmost importance that students manage their time well and study on a regular basis, because there are many abstract concepts that students need to understand and apply. No research has yet been conducted on the influence of students' time perspective on success or non-completion in accounting, but if persons' time perspective plays a role in their motivation and goal focus it is hypothesised that time perspective will play a role in how well students manages their time. Time perspective will be discussed in greater detail in Chapter 5.

#### **3.2.4 Interpersonal relationships**

From paragraph 3.2.3.6.2 it is clear that stress and depression negatively influence academic performance, and that various factors can contribute towards stress or depression. Relationship problems with parents and significant others may also lead to the stress experienced by students. Furr *et al.* (2001: 98) as well as Dusselier *et al.* (2005: 14) report that relationship problems with boyfriends/girlfriends and roommates are significant predictors of stress or depression and thus may influence academic performance.

Ruthig *et al.* (2009: 233) states that first-year students who are optimistic and who receive support from family, friends and significant others experienced less stress and depression when compared to those first-years who do not receive this support. Elliot, Menard, Rankin, Elliot, Wilson and Huizinga (2006: 170) report that '...warmth and a positive affective climate is a prerequisite for high self-esteem,

academic and social competence and better mental health'. Other studies indicate that a lack of support by parents, family or peers is strongly related to students' academic failure (Schmidt, 1990: 88; Fuertes & Sedlacek, 1994: 77; Strage & Brandt, 1999: 146; Wintre & Yaffe, 2000: 30; Dass-Brailsford, 2005: 574; Dennis, Phinney & Chuateco, 2005: 234).

It is evident that students with a strong support system will find it easier to cope with stressors. If students experience less stress, they will find it easier to study and perform better academically. Although extended family members and significant others have an influence on the academic life of students, students' parents play a vital role in preparing their children for higher education and supporting their academic success.

### **3.2.5 Institutional factors**

Factors such as class size, the quality of accounting lectures, and support programmes for first-year students have been researched and will be discussed in the following paragraphs.

#### **3.2.5.1 Class size**

Biggs (2003: 105) refers to a large class as a class with 40 students or more. Students and lecturers prefer smaller classes and believe that more learning takes place in smaller classes, but no conclusive differences in performance were found between students from large classes versus smaller ones (Doran & Golen, 1998: 221). Williams, Cook, Quinn and Jensen (1985: 315) stated that class size may be

less important for student achievement than was previously thought. They further state that ‘...it appears that increasing class size from current levels of 30 to 40 or more, up to several hundred, may not radically affect student achievement’. However, these researchers also mention that class size may have a smaller impact on lower-level educational outcomes where facts have to be recalled, than on higher-level educational outcomes requiring the development of thinking and problem-solving skills.

Dowling *et al.* (2003: 373–391) researched the difference in performance between undergraduate accounting students who were exposed to a relatively traditional teaching model and those exposed to a hybrid flexible method. The hybrid flexible method consisted of electronic delivery of content and attendance of lectures fortnightly in groups of not more than 40 students. The results indicated that the students exposed to the hybrid flexible method performed better in the examinations than the students who received the traditional instruction in large classes. The study could not establish exactly which aspect of the model led to the improved examination results, but the analysis strongly indicated that the key difference is attributable to the smaller classes.

### **3.2.5.2 Teaching methods**

In recent years there has been a call for change in the way that accounting is taught, i.e. a move away from the lecture-centred approach to a student-centred approach where the students are more actively involved in the learning situation.

Methods for getting students more involved in the learning situation entail the use of group work in class or through an interactive lecturing style where the lecturers not only lecture, but where students get the opportunity to interact with the lecturers through questions posed by the lecturers or the completion of small class assignments that are open for discussion.

Marcheggiani *et al.* (1999: 203–210) compared different teaching methods in first-year accounting. These methods were the group-Socratic teaching method and an interactive lecture style and different groups of students were assigned to each style. With the group-Socratic method, students were assigned to groups where they were presented with questions posed by the instructor. The students had to search for answers to the questions in their groups. This method is also referred to as cooperative learning, because students have to cooperate to find solutions for the questions. Learning takes place through the cooperation. In the group exposed to the interactive lecture method, the lecturer explained the questions, but students had to interact by means of questions to the lecturer, discussions with the lecturer and other students, and answering questions posed by the lecturer. At the end of the year the examination results of the two groups were compared but no significant differences were found in student performance or attitudes.

Beets and Lobingier (2001: 231–235) compared the examination results of accounting students after instruction had taken place by means of using the chalkboard, overhead projector and computer-projected software. These results

also yielded no evidence that any one of the methods resulted in significantly higher examination scores. Murdoch and Guy (2002: 280) found that active learning through group learning techniques could be used more effectively in smaller than in larger classes. Group learning techniques in smaller classes also led to better examination results than those for the students who were placed in larger classes.

From the above it is evident that research results on the influence of pedagogical techniques and class size in the lecturing of accounting revealed inconclusive results. However, Beets and Lobingier (2001: 235) found that the examination results of students may improve when lecturers use their own preferred teaching method. As already mentioned in paragraph 2.1.2.3.5, some students who fail are likely to attribute their failure to the lecturer. When students succeed or perform very well, they tend to attribute this to their own effort, ability and persistence (Fraser & Killen, 2003: 261). It is therefore questionable whether the teaching method used really has a significant influence on student performance.

### **3.2.5.3 Support programmes**

Universities worldwide run initiatives aimed at supporting student learning in order to improve their marks. Peer mentoring and tutoring as well as supplementary instruction are examples of these support programmes. This paragraph discusses findings on the influence of these support programmes on first-year accounting.

In a tutorial programme senior students (peer tutors) are trained to guide first-year students in the solving of problems and exercises in a specific subject and to assist them in developing their problem-solving skills. Tutorial classes take place in smaller groups of about 20 students. First-year students are actively involved and have to solve problems with the guidance of the tutor. Older studies (Cohen, Kulik & Kulik, 1982; Gage & Berlinger, 1992) have suggested that tutoring leads to better academic achievement, higher self-esteem and intrinsic interest in the subject. However, these studies did not focus on first-year accounting. In a more recent study Maree *et al.* (2004: 25–33) researched the impact of tutorials on the performance of first-year students in mathematics and found that this intervention showed no significant influence. Monem (2006: 14) conducted a study involving first-year accounting students and found that even if students receive the memorandum of the tutorial questions after they attempted the questions on their own, the final marks of first-year accounting students did not improve.

Peer mentoring goes a step further than peer tutoring. In peer mentoring, first-year students receive academic and social support from senior students. It is therefore a support programme to enhance student-centred learning (Packham & Miller, 2000: 57). Fox and Stevenson (2006: 189–200) measured the effectiveness of peer mentoring for first-year accounting students who participated in this programme on a voluntary basis. The results indicated that peer mentoring had a positive effect on the performance of the first-year accounting students.

Jones and Fields (2001: 531–545) developed a Supplemental Instruction (SI) programme in which students were assisted by SI leaders who previously demonstrated competence in the course. The SI leaders assisted the students in mastering the course concepts of first-year accounting and concurrently their reading, reasoning and study skills were developed. In this way, students' learning strategies and critical thinking skills were enhanced. The programme was offered on a voluntary basis and only drew a few student participants. The researchers found that the students who participated in the SI programme outperformed those who chose not to participate, after which the programme became mandatory.

From the research findings above it is clear that there are contradictory results with regard to the effectiveness of tutorials in promoting academic performance. Regarding peer mentoring and SI, the studies indicate that these initiatives exercise a positive influence on student performance. The reason for the difference in findings may be that student performance cannot be addressed in isolation, because the entire human being is involved in the issue of academic performance. Regarding this fact and the study by Fox and Stevenson, the authors mention that it could be that the students who participated in the peer mentoring programme were simply more motivated than the students who did not participate, which is why they performed better (Fox & Stevenson, 2006: 199).



### **3.2.6 Adjustment to university life**

Leveson (1999: 361) is of the opinion that academic difficulties and problems that students encounter appear to be linked to difficulties that these students experience in adjusting to university life in general. Furthermore, Gallon (in Byrne & Flood, 2005: 115) stated that ‘...the transition to higher education can be stressful for students and their ability to both adapt to the type of learning required and to adjust to the wider environment is affected by their preparedness for higher education’. In South Africa students from previously disadvantaged schools and cultures not only have to adjust to the campus environment, but also to a different set of cultural and social customs, beliefs and values (Huysamen, 2000: 146). It is therefore clear that students find it difficult, to a lesser and greater extent, to adjust to university and that this may influence their performance. To make it easier for students to adjust to the demands of university life, they have to be prepared for this mode of life and have access to support.

Tinto (in Elkins, Braxton & James, 2000: 251–253) indicated that students have to pass successfully through three stages before they are well adjusted to university life. These three stages include separation, transition and incorporation. A student’s gender, race, academic aptitude, academic achievements, socioeconomic background, the parents’ educational level and the student’s level of institutional commitment will influence how well a student handles the separation stage. Students need support from parents, family members and friends during the separation stage and students whose culture does not value tertiary education may

find the stage particularly difficult. However, students who successfully pass through the stage of separation are more likely to continue their studies during the second semester.

During the transitional phase students may experience difficulties if their expectations of higher education differ from reality. Byrne and Flood (2005: 119–121) found that most students have very positive expectations of their university studies and that they feel confident about their ability to pass all their examinations on the first attempt. However, they underestimate the commitment and effort that they have to put into their studies. In this sense there is a discrepancy between their expectations and reality, which may cause them to experience difficulty during the transitional stage to adjust to the demands of reality.

First-generation students find the transition from high school to university more difficult than their peers because they are often confronted with cultural as well as social and academic transitions. In South Africa many first-generation students come from traditionally disadvantaged communities and schools (Huysamen, 1999: 132). Therefore, they are more likely than their peers to drop out from university at the end of their first year (Pascarella, Pierson, Wolniak & Terenzini, 2004: 250). Another reason offered by Pascarella *et al.* (2004: 277) for why first-generation students do not perform as well academically is that these students are more likely to have to work on a part-time basis to pay their tuition fees. This information

corresponds with what was previously discussed under paragraph 3.2.2.1 regarding students with lower socioeconomic status.

Elkins *et al.* (2000: 261) found that both strong academic achievement in high school and parent education exercise a positive influence on first- to second-semester persistence. Johnson and Nelson (1998: 355) stated that the influence of parents and family may impede or facilitate students' adjustment to university. It is clear from research that students may find it difficult to adjust to university, especially first-generation students. To help students become successfully incorporated into university life they have to know what to expect once they enter into higher education. First-year students also need plenty of support from their parents, family or friends to become incorporated into university. The university also has a role to play in the support of students through non-academic as well as emotional support.

### **3.3 SUMMARY OF LITERATURE FINDINGS**

Two tables have been created to summarise the findings of the literature review. Table 3.1 offers a summary of the findings relating to the influence of non-cognitive factors on the success of national as well as international accounting students and Table 3.2 of the non-cognitive factors on general academic success. Whenever 'not researched' is indicated next to a factor, this means that a search through many databases did not reveal any relevant studies on the factor. 'Inconclusive' implies that the findings of various studies are not sufficient for coming to a final

conclusion and that more research is needed in the area. 'Contradictory' means that different studies revealed conflicting results.

**Table 3.1: Influence of non-cognitive factors on accounting performance**

| <b>Factor</b>      | <b>National research</b> | <b>International research</b> |
|--------------------|--------------------------|-------------------------------|
| Age                | Contradictory            | Contradictory                 |
| Gender             | Contradictory            | Contradictory                 |
| Personality        | Inconclusive             | Inconclusive                  |
| Motivation         | Positively related       | Positively related            |
| Time management    | Positively related       | Positively related            |
| Class size         | Not researched           | Inconclusive                  |
| Teaching method    | Not researched           | Inconclusive                  |
| Support programmes | Not researched           | Inconclusive                  |
| Adjustment         | Positively related       | Positively related            |

**Table 3.2: Influence of non-cognitive factors on students' academic performance in general**

| <b>Factor</b>               | <b>National research</b> | <b>International research</b> |
|-----------------------------|--------------------------|-------------------------------|
| Lack of financial resources | Related                  | Not researched                |
| Poor housing quality        | Related                  | Not researched                |
| Transport problems          | Related                  | Not researched                |
| Self-esteem                 | Positively related       | Positively related            |
| Self-efficacy               | Not researched           | Positively related            |
| Locus of control            | Positively related       | Positively related            |
| Physical health             | Related                  | Related                       |
| Emotional health            | Related                  | Related                       |
| Interpersonal relationships | Related                  | Related                       |

### **3.4 STUDY ATTITUDE**

The researcher decided to focus on the aspect of study attitude after having reviewed the literature on cognitive and non-cognitive factors influencing academic achievement. The reason for this is that study attitude is influenced by both cognitive and non-cognitive factors. It is the researcher's opinion that certain non-cognitive factors may collectively permeate students' attitude towards studying. These factors include personality, self-esteem, self-efficacy, motivation, locus of control and health.

Study attitude, however, is a construct that defies description since it is so broad and difficult to demarcate. Colman (2001: 65) defines attitude as '...a more or less consistent pattern of affective, cognitive and conative or behavioural responses (or of feeling, thinking or behaving) towards a psychological object'.

With reference to paragraph 1.8, study attitude is then described as students' orientation towards their studies and this orientation will explain the actions and the effort the students put into this aspect of their lives. As seen in paragraph 1.5.1.2, study attitude will be regarded as one of the independent variables of performance in first-year accounting. Since no measuring instrument could be found to measure study attitude as such, study attitude will, for the purpose of this study, be measured through performance in OBS134.

### **3.5 CONCLUSION**

A comprehensive review of the literature revealed that many factors have been researched as possible predictors of success and non-completion in higher education in general, but that not so many studies have been focused on student performance in accounting. Biographical factors proved to deliver inconclusive results, whereas financial difficulties, unsatisfactory housing quality and transport problems were linked to success or non-completion. Socioeconomic factors may exercise a direct or indirect influence on success or non-completion with students dropping out of university on account of insufficient funds as an example of such a direct relationship. When students experience stress as a result of financial problems, this socioeconomic factor has an indirect effect on academic performance.

Personal factors may also affect student success at university. Physical illness may prevent students from attending class or make it difficult for them to get down to the business of studying. In this case physical health impacts directly on academic performance. Physical illness may also influence a student's emotional well-being and in that sense the physical condition exerts an indirect effect on the student's success. Stress and depression were also found to influence academic performance in general, whereas studies on the influence of personality and personality traits delivered inconsistent results. Furthermore, various studies have pointed at motivation and locus of control as factors exerting a definite effect on academic performance.

The literature review yielded evidence of an interrelationship between factors such as financial problems, relationship problems, physical health problems, stress or depression and academic performance. All these factors may be separately or collectively responsible for success or non-completion at university or in first-year accounting in particular. The researcher opined that a student's study attitude is collectively influenced by many of the non-cognitive factors discussed in this chapter, and that study attitude as such impacts on performance in first-year accounting.

After a review of all the cognitive and non-cognitive factors discussed in Chapters 2 and 3, the researcher focused on abstract thinking skills as a higher order cognitive function which may reveal a relationship with performance in first-year accounting and also investigated the possible influence that different time perspectives may have on performance in first-year accounting. For this reason abstract thinking skills will be discussed in Chapter 4 and time perspective will be the focal point of Chapter 5.

## CHAPTER 4

### ACCOUNTING AND ABSTRACT THINKING SKILLS

#### 4.1 INTRODUCTION

Chapters 2 and 3 outlined the cognitive and non-cognitive predictors of success and non-completion in accounting. It became evident from the literature review that previous studies about the predictors of accounting performance did not make specific mention of abstract thinking as a predictor of success or non-completion as such, but that the terms 'intelligence' and 'cognitive ability', were used. Paragraph 2.2.1 stated that cognitive ability (intelligence) is a significant predictor of success or non-completion in accounting. The definition of intelligence refers to it being '...the ability to think abstractly'. Borghans *et al.* (2008: 12) also state that intelligence can be defined as the ability to solve abstract problems. From the literature reviewed and consequently discussed in Chapter 2, cognitive ability can therefore be seen as a multi-faceted concept with abstract thinking as one of these facets.

In order to study abstract thinking and to understand where it fits into the framework of cognitive ability, it is important to have a clear understanding of cognitive ability and all its related facets. This chapter will discuss theories on cognitive ability, after which the researcher will address abstract thinking, the measuring of this ability and the concept of critical thinking.



### **4.1.1 Theories on cognitive ability**

As seen in paragraph 1.8, the terms cognitive ability and intelligence are used interchangeably. Many researchers have made contributions to the body of theory on cognitive ability. The most prominent theories will be discussed below.

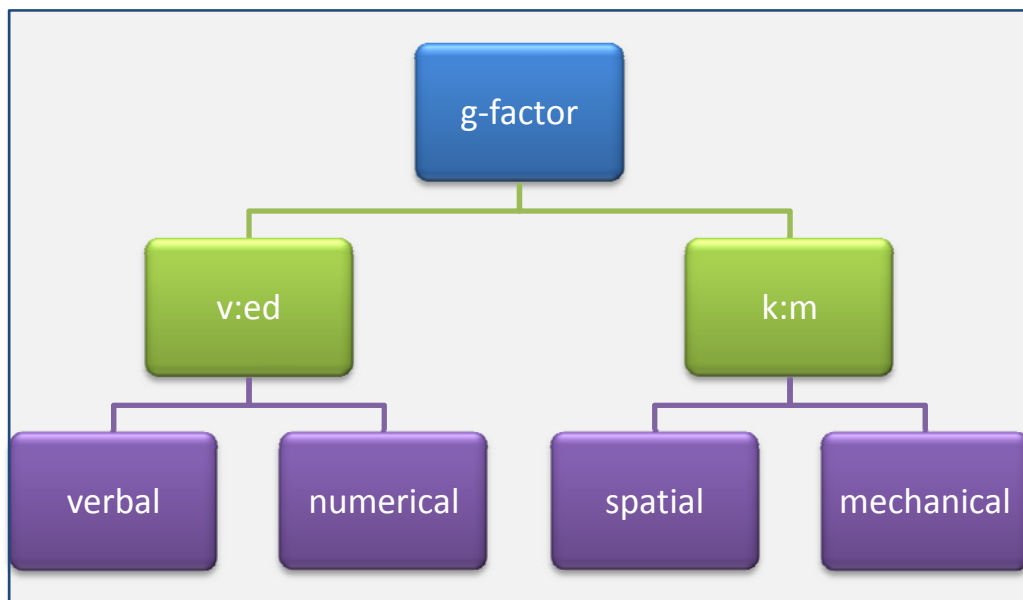
#### **4.1.1.1 Spearman's two-factor theory**

British psychologist Charles Spearman was one of the first to develop a theory of cognitive ability. He published his well-known two-factor theory in the beginning of the twentieth century. According to this theory, all cognitive activities share a general factor, known as general intelligence and referred to as the *g* factor. The *g* factor was seen as a fundamental intellectual ability common to all types of intellectual behaviour. Spearman opined that a person with a high *g* factor will be successful in any intellectual task, from mathematics and science to languages and economics (Kennedy, 1975: 218).

Apart from the *g* factor, Spearman also identified the *s* factor. The *s* factor refers to a specific intellectual ability. A person's performance in mathematics, for example, is therefore the combined result of the general intelligence (*g*) and the specific mathematical ability (*s*). Where the *g* factor is therefore general, there are many *s* factors which are not necessarily independent of each other. The *s* factors can overlap, resulting in group factors. However, the *g* factor is responsible for the

correlation between all the factors (Louw & Edwards, 1998: 307–308; Grobler, 1998: 32–33).

Based on Spearman's work, his colleague Vernon developed a structure of cognitive ability and explained that the *g* factor is at the top of the hierarchy of factors. There are two broad group factors at the next level, namely the verbal-educational (*v:ed*) and the practical-mechanical (*k:m*) abilities. Verbal and numerical sub-factors constitute the *v:ed* factor, whereas spatial and mechanical sub-factors constitute the *k:m* factor. Figure 4.1 is an attempt to explain this relationship, but it is an over-simplification because the relationship between the factors in reality, is more complex.



**Figure 4.1: Hierarchical model to explain Vernon's structure of cognitive ability**

The general factor dominates the group factors, namely the verbal-educational and the practical-mechanical factors, and the group factors, in turn, dominate numerous specific factors (*s* factors). Specific factors that are dominated by the verbal-educational factor include logical reasoning, verbal ability, numerical ability, and word fluency. The practical-mechanical factors dominate specific factors such as those relating to technical subjects, mechanical information, spatial ability, drawing, craft and psychomotor coordination. People with a high *g* factor normally perform better in most fields than those with a low *g* factor. The group factors and specific cognitive abilities together are also known as aptitude (Owen & Taljaard, 1995: 215–217, 224).

Aptitude can be seen as the potential of persons that enables them to reach a certain level of ability provided that they are trained. Ability is subject to aptitude. For example, accounting students need to have numerical ability. This numeric ability is referred to as a specific aptitude and is dominated by the group factor *v:ed* (Owen & Taljaard, 1995: 223–224; Barrett, 2004: 103–108). To be successful in accounting studies, students need to have an aptitude for the verbal-educational (*v:ed*) group factor that includes specific factors such as logical reasoning, verbal and numerical ability.

#### **4.1.1.2 Thurstone's theory**

Thurstone rejected Spearman's two-factor theory and subsequently formulated one which states that a person's total cognitive ability is dependent on eight separate

and more or less mutually exclusive components of intelligence. These abilities include verbal comprehension, perceptual speed, inductive reasoning, word fluency, number facility, memory, spatial relations and verbal fluency (Grobler, 1998: 33). According to Thurstone's multifactorial theory, the eight abilities are primary mental abilities that form the basis of intelligence. Thurstone suggested that '...we should not speak in terms of intelligence, but rather in terms of intelligences, which may or may not be closely related' (Kennedy, 1975: 218; Lubart, 2003: 280).

Thurstone initially regarded the eight components as separate, but later found that these components inter-correlate. He then postulated that a second-order factor existed, which formed the basis of the eight factors. This factor was similar to Spearman's *g* factor, but Thurstone indicated that Spearman's *g* factor was 'less definitive and useful' than his own. The initial views of Spearman and that of Thurstone differed in the sense that Spearman regarded the general factor of intelligence as the most important one, while Thurstone saw the specific factors as being of supreme importance. Spearman later admitted to the presence of group factors and specific factors while Thurstone later admitted to the presence of a general factor and group factors. Therefore, Spearman and Thurstone's theoretical viewpoints did not differ much (Kennedy, 1975: 218; Louw & Edwards, 1998: 307–308).

#### 4.1.1.3 Other approaches to cognitive ability

Guilford's concept of intelligence is more complex than the theories of Spearman and Thurstone. Guilford's model represented intelligence as consisting of five operations, four content categories and six products. Initially, this model consisted of 120 factors of intelligence which were later expanded to a total of 150 factors. Guilford was of the opinion that intellectual factors are interdependent and that the total personality of a person is at work to determine the intelligence of that person. He did not support the existence of a general factor because he felt that intelligence was too varied to be expressed by a single factor such as the general factor (Louw & Edwards, 1998: 308–309; Eysenck in Grobler, 1998: 34).

The psychologist Cattell was responsible for a very important contribution towards the theory on cognitive ability. Using factor analysis Cattell attempted to separate Spearman's *g* factor into two factors that he called fluid intelligence (*g*) and crystallised intelligence (*gc*). Fluid intelligence refers to an ability that is not dependent on a person's experience. Fluid intelligence can be defined as '...an expression of the level of complexity of relationships which an individual can perceive and act upon when he does not have recourse to answers to such complex issues already stored in memory' (Cattell, 1987: 115).

Crystallised intelligence (*gc*), on the other hand, refers to '...the accumulation of information and is influenced by education and cultural exposures' (Moutafi, Furnham & Paltiel, 2004: 1014). According to Grobler (1998: 33), the fluid ability

can be perceived as the biological aspect of intelligence, while the crystallised intelligence reflects the influence of schooling and acculturation on intelligence. Fluid and crystallised intelligence are correlated.

Although theories on cognitive ability may differ, it is evident that intelligence refers to the *g* factor or fluid intelligence. Aptitude refers to the *s* factor or crystallised intelligence (*gc*). Intelligence tests and aptitude tests differ slightly and many tests have been developed to measure these separate constructs. Intelligence tests measure the innate potential of a person and the test is as far as possible uncontaminated by learning. This means that the questions in the test do not tap into the knowledge that a person has acquired, which is why intelligence tests seem to be so abstract and unrelated to what people normally do. An intelligence test measures, for example, the level on which a person functions to solve a problem. An aptitude test attempts to assess whether a person is able to consider a problem in full, in a specific field (Barrett, 2004: 126–127). Aptitude tests are designed to provide information about types of intelligence (*s* factors) that are relevant to different skills or careers (Barrett, 2004: 2). ‘An aptitude test measures a person’s present performance on selected tasks to provide information that can be used to estimate how a person will perform at some time in the future or in a somewhat different situation.’ Measures of aptitude depend on general life experiences to predict how a person may perform in future, but because the *g* factor (intelligence) controls all the *s* factors (aptitude), a high score on an aptitude test will indicate a high cognitive ability (Thorndike *et al.*, 1991: 357).

### **4.1.2 Cognitive development**

Piaget, the well-known Swedish biologist and psychologist, identified four stages of cognitive development. According to Piaget, the formal-operational level is the highest level of thinking and involves the most complex cognitive structures. At the formal-operational level, which starts at the age of 11 years, students are able to think abstractly and are able to solve problems without being in the situation requiring a solution (Louw & Edwards, 1998: 356, 460–464, 482). The concrete-operational level comes just before the formal-operational level and Jones and Davidson (1995: 165) state that it ‘...develops between the ages 7 years and 11 years and is limited to the relatively concrete realities of the world. During this age children are generally unable to consider abstract concepts that depart from that reality’. These researchers further state that the transition from concrete-operational reasoning to formal-operational reasoning is usually not completed by the age that students attend university.

### **4.1.3 Abstract thinking and accounting**

The theories above indicate that when intelligence (*g* factor) is measured, it is actually abstract thinking which is being measured and therefore cognitive ability refers in part to the ability of a person to think abstractly.

In first-year accounting students are confronted with many abstract concepts and they have to be able to understand these concepts, solve problems and do calculations with these concepts as the basis. The abstract concepts in accounting

are numerous, but a few examples include: calculations of goodwill, income, expenses, profit ratios, profit sharing ratios and capital contribution ratios. To solve accounting problems and do calculations in which these abstract concepts appear, accounting students must be able to reason abstractly.

According to Shute (in Jones & Davidson, 2007: 70), structured questions include definitions, fact memorisations, format memorisations, concept memorisations, classifying, ordering and working with algorithms. In structured questions students have to answer the questions with a memorised description or apply a learned procedure to solve the problem. In accounting this will entail, for example, a journal entry or a simple calculation. Contrary to structured questions, unstructured questions involve reasoning, combinatorial reasoning, probabilistic reasoning, hypothetical-deductive reasoning and correlational reasoning. Most questions in accounting are unstructured questions because students have to use the above-mentioned reasoning skills to answer these questions. The degree to which the question is unstructured may vary. Questions for first-year students are more structured than those that are posed in more advanced accounting courses.

Research has found that students whose reasoning skills fall in the formal-operational level perform significantly better on unstructured questions than students in the concrete-operational level. Students with stronger problem-solving abilities will perform equally well in structured questions than those with poorer



problem-solving abilities. These studies include those of Amernic and Beechy (1984), Jones and Davidson (1995) as well as Jones and Davidson (2007: 70).

Accounting questions are mostly unstructured and thus require hypothetical-deductive reasoning for their solutions (Shute in Jones & Davidson, 1995: 164). If hypothetical-deductive reasoning is required in accounting, this means that students of accounting must be able to function on the highest cognitive level, namely the formal-operational level of thinking where they must be able to think abstractly. They must also be able to think deductively. This means they have to use ideas and abstract concepts and apply these in order to solve a problem (Geist & King, 2008: 49). Based on Piaget's theory, children become able to think abstractly in the formal-operational phase and this phase may still be in process during the time at which most people are first-year students. One may therefore speculate that performance in accounting is dependent on students' ability to think abstractly, but that the development of abstract thinking might not be complete for all first-year students at this stage.

The results of the above-mentioned studies are supported by Eisert and Tomlinson-Keasy who found, as early as 1978, that up to 50% of first-year students were not able to function on the formal-operational level (in Jones & Davidson, 1995: 166). First-year students in accounting might not yet have developed the abstract thinking skills required for success in the subject.

#### 4.1.3.1 Critical thinking

The terms abstract thinking, critical thinking and analytical thinking are used to describe the thinking skills that students with higher order abilities possess (Wolcott & Lynch, 1997: 60; Kealy *et al.*, 2005: 34; Sin, Jones & Petocz, 2007: 147).

Kealey, Holland and Watson (2005: 33–45) found a significant correlation between critical thinking skills and first-year accounting. Students who participated in this study had to pass an algebra test before they were allowed to register for accounting. Even then, 35% to 45% did not complete the accounting course or achieved a grade of C minus or below. It was then suggested that ‘...success in principles of accounting may require a more sophisticated level of reasoning than that required for intermediate algebra’. To measure critical thinking ability the students had to complete a writing assignment on a financial article. The results of the study indicated that critical thinking skills predict success in first-year accounting above and beyond other measures such as the grade performance average.

Wolcott, Baril, Cunningham, Fordham and St. Pierre (2002: 77, 88) implied that critical thinking is the same as abstract thinking, because they refer to the study by Amernic and Beechy (1984) and then use the term critical thinking in the place of the term abstract thinking, as it was used in the original study. They further state that students’ critical thinking skills appear to develop during college, but it is unclear whether specific educational programmes or activities can improve critical

thinking. If Wolcott *et al.* use the concept 'critical thinking' in the same sense as the concept 'abstract thinking', their findings indicate that abstract thinking skills appear to develop during college. Piaget's stance discussed in paragraph 4.1.2 supports this statement in that abstract thinking skills continue to develop after the age of 11 and are usually not completed at the age that most students attend university (Jones & Davidson, 1995: 165).

The researcher is of the opinion that a person can apply critical and analytical thinking to solve concrete problems, but that the person is then functioning on a concrete-operational level. According to Piaget's theory on cognitive development, as already stated, the concrete-operational level is the level before the formal-operational level which develops at the age between 7 and 11 years. In accounting, students have to deal with abstract concepts and problems and apply critical thinking and analytical thinking. Therefore, critical and analytical thinking cannot be regarded as an equivalent of abstract thinking, because critical and analytical thinking are possible in concrete situations. For abstract reasoning, however, the person should also be able to deal with abstract situations. In the researcher's opinion, abstract thinking, analytical thinking and critical thinking are not equal, but abstract thinking encompasses analytical thinking and critical thinking. Therefore, for purposes of this study, the use of the term abstract thinking will imply the ability to think analytically and critically.

#### 4.1.4 The measurement of abstract thinking

Paragraph 4.1.3 indicated that abstract thinking or reasoning skills are required in the study of accounting. If this is the case, the question arises: How can abstract reasoning be measured to determine if there is a relation between abstract reasoning skills and performance in accounting? According to Spearman, tests that measure the *g* factor are tests that deal with abstract relationships (in Owen & Taljaard, 1995: 216). Therefore, intelligence tests can be used to measure abstract thinking because these tests measure the *g* factor. According to Anastasi (in Owen & Taljaard, 1995), examples of intelligence tests with which abstract thinking can be measured are Raven's Progressive Matrices and Cattell's Culture Fair Intelligence tests. Colom, Escorial, Shih and Privado (2007: 1505) also mention that abstract thinking (fluid intelligence) '...is measured by abstract tests like the Progressive Matrices Test or verbal tests that depend on figuring out the relationships between certain words when the meanings of all the words themselves are highly familiar'.

Another test that can be used to measure abstract thinking is factor B of the 16PF Questionnaire. When Cattell developed the 16PF he designed a specific sub-test to measure the ability to think abstractly in order to measure intelligence. This part of the 16 PF Questionnaire is known as the factor B of the questionnaire. For some of the items in factor B the person completing the test '...must possess basic information obtained by formal education in order to choose the correct answer. Other items are designed to measure what in technical terms is called *fluid*

*intelligence*' (Cattell, 1989: 30–31). Although factor B of the 16PF Questionnaire was designed to measure the ability to think abstractly, no study could be found that has used this measuring instrument to measure the relationship between abstract thinking and performance in accounting or any other subject.

The studies referred to in paragraph 2.2.1 made use of different measuring instruments to measure cognitive ability and, by implication, abstract thinking. In South Africa, Eiselen and Geysers (2003: 118–129) used the General Scholastic Aptitude Test (GSAT) and Van Eeden *et al.* (2001: 171–178) used the GSAT as well as the Senior Aptitude Test (SAT). International studies that also used the SAT were those by Eskew and Faley (1988) and Turner *et al.* (1997). Dinius (1991), Kahn and Nauta (2001) as well as Perlow and Kopp (2004) used the American College Testing Program (ACT) as measuring instrument for aptitude. The General Mathematical Aptitude Test GMAT used by Jin *et al.* (2004) is a graduate aptitude test that measures general verbal and mathematical skills that are developed over a long period of time. Jin *et al.* (2004: 71) stated that the GMAT total score and the undergraduate grade performance average may be the best predictors of performance in accounting. Many other studies have also used the grade performance average as a measure of academic aptitude (Koh & Koh, 1999; Kahn & Nauta, 2001; Hartnett *et al.*, 2004). Auyeng and Sands (1994: 267) stated that the tertiary entrance score is an indicator of general intelligence and academic ability. Therefore they made use of the Queensland Tertiary Entrance score, which is considered to be a surrogate for general intelligence and academic ability, to

determine whether intelligence may be considered as a predictor of success in accounting.

The GSAT, SAT and GMAT tests all measure verbal and non-verbal intelligence. Eiselen and Geyser (2003: 122) as well as Jin *et al.* (2004: 75) found that achievers score higher on both dimensions, but that there is a more significant correlation between verbal intelligence and achievement than between non-verbal intelligence and achievement. Van Eeden *et al.* (2001: 171) stated that the GSAT Verbal Scale seems to be a good predictor of performance in first-year accounting.

## **4.2 CONCLUSION**

As was seen in this chapter, some of the references to cognitive ability date back to the seventies. The reason for this is that cognitive ability theory boomed during this time. Much less theory on the topic emerged subsequent to this because of the criticism that academics placed too much emphasis on intelligence and that the other factors which influence academic performance were being overlooked. However, the findings made in these early years are still of value for present research.

This chapter illustrated that performance in accounting depends on the employment of higher order cognitive skills. Paragraph 4.1.3 discussed the fact that students whose reasoning skills fall in the formal-operational level perform significantly better on unstructured questions than students on the concrete-

operational level. It was then stated that, although first-year accounting questions are more structured than those posed in more advanced accounting courses, students still need to function on the formal-operational level to be able to answer these questions. The main characteristic of formal-operational thinking is abstract and hypothetical thinking. This brings us back to the definition of intelligence by Borghans *et al.* (2008: 12) which states that intelligence can be defined as the ability to solve abstract problems. The researcher observed that, even though different studies made use of different intelligence tests as measuring instruments for abstract reasoning, all these studies revealed that students must possess the ability to think abstractly to be successful in accounting.

From the literature review on cognitive ability, it can be deduced that because abstract thinking functions on the formal-operational level (the highest level), individuals' abstract thinking may function on various levels within the formal-operational level. This study will make an attempt to determine whether the level of abstract thinking, in other words the level of cognitive functioning on the formal-operational level, has an influence on achievement in first-year accounting. This will be done by determining the relationship between factor B of the 16PF Questionnaire and achievement in first-year accounting. Factor B of the 16PF Questionnaire and the motivation for using this questionnaire will be discussed in detail in paragraph 6.5.3.2.

According to Rhode and Thompson (2007: 83), cognitive ability (especially *g*) is a strong predictor of academic performance, but ‘...there is still anywhere from 51% to 75% of the variance in academic achievement that is unaccounted for by measures of general cognitive ability alone’. From this finding it is evident that abstract thinking plays a major role in predicting academic performance, but that many other factors also influence academic achievement.

One of these factors may be a students’ time perspective, because, according to paragraph 3.2.3.4, time perspective plays a role in motivation and goal focus. The influence of students’ time perspective on academic performance will be discussed in Chapter 5. Chapter 6 will focus on the choice of appropriate measuring instruments to measure the relationships between abstract thinking and performance in first-year accounting, and between time perspective and performance in first-year accounting.



## **CHAPTER 5**

### **TIME PERSPECTIVE**

#### **5.1 INTRODUCTION**

Chapter 4 discussed the influence of abstract thinking skills on performance in accounting. It became evident from the literature review that abstract thinking plays a major role in predicting academic performance, but that many other factors also exert an influence. In probing further into the predictors of accounting performance, the question arises: Why do some students, when faced with a difficult accounting exercise, take it on, while others postpone or give up doing what is expected from them? Research findings have revealed that students who procrastinate are those who are at risk of failing accounting. It has also become evident that students' motivation plays a role in their management of time.

If time management and motivation influence performance in accounting it can be hypothesised that students' time perspective may be the driving force behind their motivation and goal focus. Zabel (1995: 23) stated that '...time-orientation affects every aspect of a person's life'. Therefore, time perspective and motivation have an interactive effect on each other. Support for this statement is found in the work of researchers who found that a person's time perspective plays a role in their motivation to achieve something (Zabel, 1995: 24–25). As stated in paragraph 3.2.3.7, no research has yet been done on the influence of students' time

perspective on success or non-completion in accounting. Horstmanshof and Zimitat (2007: 703) are of the opinion that students' time perspective is '...an under-researched factor that may significantly influence student engagement'. A summary of research conducted by Athawale (2004) revealed that, despite the importance of time perspective, the concept has not been explored in any depth and that very little South African literature is available. However, the researcher did indeed find some research on students' time perspective and general academic performance. This will be the focus of Chapter 5.

## **5.2 DEFINITION OF TIME PERSPECTIVE**

The definition of time perspective is dated but still offers a concise clarification of the term. Zimbardo and Boyd (1999: 1271–1272) elaborate on the term by stating that time perspective is often a non-conscious process during which personal and social experiences are assigned to specific time frames. Each person's perspective of time, partitions their experiences into past, present and future time frames and has a definite influence on their judgements, decisions and actions. Zabel (1995: 20) states that '...a person's time perspective can influence all aspects of his life which include academics, relationships, motivations, emotions, attitudes and behaviours'.

Van der Linde (2005: 15) is of the opinion that factors such as cognition and personality also play a role in a person's time perspective. Time perspective is not the determining factor of an individual's personality, although certain personality

factors, for example, impulsivity, may be associated with differences in time perspective. Therefore, within the framework of a person's personality and cognition, time perspective may be the driving force behind one's motives. Lennings, Burns and Cooney (1998: 629) stated that '...time perspective is an important but subtle cognitive construct underlying personality, decision making, and goal setting'. Thus, it is clear that there is an interrelationship between time perspective, motives and personality. The results of a study by Zabel (1995) support this in having found significant correlations between scores on the Myers-Briggs Type Indicator (MBTI) and the Stanford Time Perspective Inventory (STPI). Whichever way it is viewed, Zimbardo and Boyd (1999: 1273) state that '...time perspective plays a dynamic role in everyday life decisions, goal settings, and actions'.

A person's time perspective should not be confused with the non-cognitive predictor of success, namely time management, as discussed in paragraph 3.2.3.7. Time management refers to how well students manage their time, and this, in turn, can be influenced by a student's time perspective. For example, students with an orientation to the future will be more engaged in their studies, and perform better than students with a present-hedonistic orientation (Horstmanshof & Zimitat, 2007: 714). The reason for this is that students with the present-hedonistic orientation will concentrate on the present and prefer socialising with friends over studying for an upcoming test. Students with an orientation to the future, however, will concentrate

on their studies, realising that, if they study well in advance, they will be more likely to perform better.

The different time perspectives that people have are explained in the following paragraph.

### **5.2.1 The various time perspectives**

Lewin, one of the first researchers who stressed the influence of a person's time perspective on behaviour in 1951, defined time perspective as '...the totality of the individual's views of his psychological future and psychological past existing at a given time' (in Blinn & Schwartz, 1987: 2). This implies that future and past events have a fundamental impact on the present behaviour of a person to the extent that these events become part of a person's everyday cognitive reasoning.

Lennings *et al.* (1998: 629) stated that three dimensions of time perspective can be identified. These dimensions include temporal extension, temporal attitude and temporal structure. Temporal extension is highly related to goal setting and people's orientation to the past or the future will influence their goal setting. The temporal attitude refers to whether a person has a positive, negative or neutral feeling towards time. The third dimension, namely temporal structure, refers to the ability of a person to integrate the past, present and future.

The concept of time perspective is focused on mainly three time frames, namely the past, present and future. These time frames are used for encoding, storing and

recalling events that a person has experienced. Time frames are also used to form expectations and to set goals. Since the introduction of Lewin's ideas on the psychology of time, time perspective has been related to a host of psychological and sociological constructs. However, most existing research has been conducted into a single perspective, without the complicating influence of the other temporal perspectives. These time perspective theories assume that a low score on a specific time frame equals a high score on another time frame and these time perspective theories are therefore one-dimensional (Zimbardo & Boyd, 1999: 1273).

Zimbardo and Boyd (1999: 1272) opined that the reason why previous theories on time perspective have not been incorporated into current areas of psychological science is because of the disjointed and non-cumulative nature of past research, the lack of adequate theory and the absence of a valid measure for assessing time perspective. To address the shortcomings of the previous scales, Zimbardo then refined the present and future time perspectives and devised five possible time perspectives. Contrary to previously held beliefs that a low score on one dimension implies a high score on another, these five perspectives are regarded as being independent. When a specific orientation is used excessively in relation to the other time perspectives it serves as a cognitive temporal bias towards an orientation towards the past, future or present time frame. A person will then rely on a specific perspective of time in daily life choices. For example, a person who is predominantly present time orientated may be able to enjoy the moment, but may

have a problem delaying gratification and planning realistic goals (Zimbardo & Boyd, 1999: 121–122).

A person's time perspective is relatively stable and determined by the situations affecting that person. Many learned factors, for example, cultural factors, educational factors, religious factors, socioeconomic status and family modelling, may determine the specific time perspective that is dominant in a specific person's life. People are rarely aware of the subtle operation and influence of time perspective and the biasing powers of the time perspective in their lives, but the multiple-determined time perspective is very pervasive in people's lives and exerts a definite influence on their everyday decisions and actions (Zimbardo & Boyd, 1999: 1271–1272).

An optimal time perspective is balanced in the sense that the past, present and future components blend and flexibly engage depending on the demands, needs and values of a specific situation. Zimbardo (2002: 62) explains it as follows: 'A positive past orientation connects us with our roots, heritage, family, religion and national rituals. It gives us a sense of stability, of our self over time; it's where positive self-esteem is nourished. A future orientation gives us wings to soar to new destinations, to seek new challenges and opportunities by envisioning scenarios of possible future selves. A present time perspective allows spontaneity, sensation seeking, openness to novelty, being in the moment, and fully experiencing and expressing emotions.' Although this is the optimal and balanced

time perspective, people tend to have a dominant time perspective towards the past, present or future.

Due to the one-dimensional nature of previous theories, the following paragraph will discuss multi-dimensional time perspectives according to Zimbardo's time perspective theory. One of these perspectives is future-oriented, while two are past-oriented and two are present-oriented. Paragraph 5.2 has referred to two of these time perspectives by mentioning students with a future time orientation and students with a present-hedonistic orientation. Figure 5.1 is a representation of the different time perspectives classified by Zimbardo. A discussion of the general characteristics of people with different time perspectives will follow.

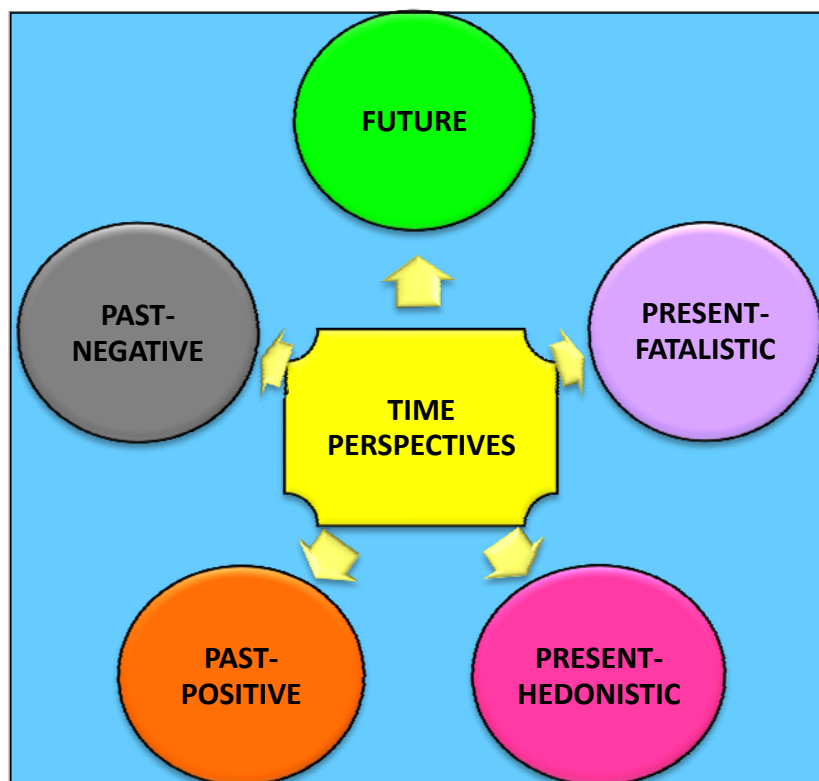


Figure 5.1: Zimbardo's time perspectives

### **5.2.1.1 Past-negative time perspective**

Zimbardo (in Zabel, 1995: 23) found that past-oriented persons are less common than present- and future-oriented persons in the US. He found very few students with a past-oriented time perspective in college settings. Students with a past-negative time perspective are governed by situations that they experienced in the past and they are very predictable and conservative and do not like change. They are also risk avoiders.

According to Zimbardo and Boyd (1999: 1273), persons with a past-negative time perspective usually reflect a negative, aversive view of the past. The reason why they have a negative attitude towards the past may be due to unpleasant or traumatic events that they experienced in the past. Such unpleasant events might be embedded in adverse psychosocial conditions while growing up. Persons with a past-negative time perspective may also have a negative attitude towards the past because they reconstructed favourable events of the past negatively or because of a combination of both (unpleasant or traumatic events and a reconstruction of favourable events).

### **5.2.1.2 Past-positive time perspective**

The past-positive time perspective is the opposite of the past-negative time perspective with regard to feelings and perceptions of the past. Persons who have a past-positive time perspective possess a glowing, nostalgic and positive view of



the past. These persons are more inclined to score low on depression and anxiety measures. They also tend to have a good self-esteem. The past of a person with a past-positive time perspective was basically positive and they reflect on the present with optimism even when things are not going so well. In general, it can be said that these persons have a healthy outlook on life (Zimbardo & Boyd, 1999: 1275).

### **5.2.1.3 Present-hedonistic time perspective**

Students with a present-hedonistic time perspective are oriented towards the present and for these persons present enjoyment, pleasure and excitement is more important than the rewards of tomorrow. This means that they will not sacrifice their current pleasure in order to reap future benefits and they fail to consider future consequences. They also tend to have a low preference for consistency and low impulse control because they place emphasis on novelty and sensation seeking (Zimbardo & Boyd, 1999: 1278). This is in line with the findings of Strathman, Gleicher, Boninger and Scott Edwards (1994: 742) who state that these persons are ‘...more concerned with maximising immediate benefits at the expense of costs or benefits that will not occur for some time, and they place a high priority on such immediate benefits’.

An unpublished 1992 manuscript of Zimbardo (in Zabel, 1995: 21) agrees with the above and describes present-hedonists as people who live for the moment and who are high risk-takers who do something because they enjoy it and not for a

reward. These people hardly ever consider the consequences of their actions and are prone to addictions, for example, alcohol. They avoid pain, work and planning for the future and, although they do not perform well in academics, they may perform well in situations where they receive instant feedback. It is also stated that these persons are more aggressive, emotional and volatile and may be more intense as friends.

The reasons why students with a present time perspective may not typically consider future consequences may be because they regard immediate goals as more important than future goals. They may find future-relevant information unconvincing or the present, with its more concrete and certain consequences, may have a greater influence on them (Strathman *et al.*, 1994: 742).

#### **5.2.1.4 Present-fatalistic time perspective**

Persons with a present-fatalistic time perspective reflect on the absence of a focused time perspective. This means they do not reflect the excitement of people with present-hedonistic time perspective, the nostalgia of those with past-positive time perspective or the bitterness of those with a past-negative time perspective. They believe that the future is predestined and uninfluenced by their actions, but that fate determines whatever happens to them. Therefore, nothing they can do will be able to change things. Students with a present-fatalistic time perspective perceive that they have a lack of control over future events and they achieve lower

marks. If their depression and anxiety levels are measured they will score high on these measures. They are also pessimistic and high risk-takers. If compared to other time perspective types, they have the most severe psychological disorders, for example, depression, eating disorders, drug addictions and suicide (Zimbardo & Boyd, 1999: 1275–1276).

From Zimbardo's unpublished manuscript (in Zabel, 1995: 21) it became evident that, although a distinction can be made between the present-hedonistic and the present-fatalistic time perspective, present-oriented people, in general, think in concrete terms and are easily distracted and tempted. They find it difficult to put thoughts into action and do not usually do well in educational settings that focus on future issues.

#### **5.2.1.5 Future time perspective**

Simons, Vansteenkiste, Lens and Lacante (2004: 122) define the future time perspective as '...the present anticipation of future goals'. Strathman *et al.* (1994: 742) state that people with a future time perspective '...believe certain behaviours are worthwhile because of future benefits, even if immediate outcomes are relatively undesirable, or even if there are immediate costs'.

According to Zimbardo and Boyd (1999: 1278), persons with a future time perspective plan for the future and achieve the goals that they have set. They also state that these persons consider future consequences and abstain from actions

and behaviours that may jeopardise their future goals. They are therefore conscientious and not inclined towards risk-taking, showing a preference for consistency and reward dependence. Persons with a future time perspective are also less aggressive than persons with a present-fatalistic time perspective and less impulsive than persons with a present-hedonistic time perspective. Zabel (1995: 20) agrees with the above and is of the opinion that this time perspective allows a person to plan for the future bearing past successes and failures as well as possible future failures and successes in mind. Therefore, these persons have a balanced time orientation and are able to enjoy the fun moments of the present.

### **5.2.2 Direct and indirect influence of time perspective on academic performance: research-based evidence**

Paragraph 5.1 reported that current research on time perspective and especially on time perspective and academic performance is very limited. This view is shared by other researchers (Pienaar & Bester, 1996; Athawale, 2004; Horstmanshof & Zimitat, 2007). Because time perspective has an influence on all aspects of a person's life, research has been done on the influence of time perspective in various fields. This section will discuss the direct and indirect influence that time perspective may have on students' academic performance.

#### **5.2.2.1 Time perspective, motivation and academic performance**

De Volder and Lens (1982: 566) indicated that several studies in the sixties found that students with a high grade performance average were characterised as having

a long future time perspective. A specific description of what is seen as a long future time perspective is not stated in the article, but Wallace (1956: 240) defines the extension of future time perspective (FTP) as ‘...the length of the future time span which is conceptualized’. From this definition it seems as if the length of FTP is very vague and subjective, because FTP depends on how individuals conceptualise the future. In their study, De Volder and Lens (1982: 570) indicate that they found that students who place higher value on goals in the distant future and on studying diligently to reach these goals, will be more persistent in studying hard daily and will obtain better academic results. Again there is no indication of the specific time span referred to with the term ‘distant future’.

Horstmanshof and Zimitat (2007: 706) state that future-oriented students are more intrinsically motivated and therefore they are more likely to employ deep approaches to their studies. Nuttin (in De Volder & Lens, 1982: 566) is of the opinion that the psychological future is related to motivation and that the future is our primary motivation space. From previous research it is therefore evident that time perspective plays a major role in the motivation of a person. According to paragraph 3.2.3.4, many researchers agree that motivation plays a critical role in the academic success of a student and because time perspective influences motivation, the deduction can be made that time perspective has an influence on students’ academic performance. This deduction is in accordance with the discussions of Simons *et al.* (2004: 124–125) as well as Kauffman and Husman

(2004: 1) who stated that the future time perspective of a student positively affects the motivation, persistence and achievement of that student.

Van der Linde (2005: 47) found a statistically significant relationship between future time perspective and the academic performance of Grade 12 learners, while the present-fatalistic time perspective was found to be negatively related to academic performance. The present-fatalistic time perspective was also found to be negatively related to the future time perspective. This finding suggests that learners who score high on future time perspective and low on the present-fatalistic time perspective are more inclined to perform better academically. Horstmanshof and Zimitat (2007) researched the relation between time perspective and the academic engagement of first-year students and found that students with a future time orientation were more academically orientated and engaged in their studies than students who scored higher on the other time perspectives. The ZTPI was used as the measuring instrument for both of these studies. Brown and Jones researched the relation between the academic performance of black high school students and the future time perspective by using the FTO. They reported that African-American students with a strong future orientation tended to have higher grades (Brown & Jones, 2004: 257–266).

Zabel (1995) conducted research with the purpose of identifying characteristics that contribute to the non-completion rates of students registered for

correspondence courses at Texas Tech University. To identify at-risk students, the variables of time perspective and personality were used. The dependent variable was the final grade point. The STPI was used to determine the time perspectives of the students and the instrument used to determine the personality types was the MBTI. The study found no significant correlation between time perspective and the final grade point and also no significant correlation between personality type and the final grade point. However, the study found significant correlations between personality types and time perspectives. Zabel (1995) found no significant relationship between time perspective and academic performance while the two later studies mentioned in the previous paragraph found significant correlations between time perspective and academic performance. The reason for the contradictory results may be because this study used a different measuring instrument (STPI) to the ZTPI used in the two later studies.

A study by Harber, Zimbardo and Boyd (2003: 257–262) indicated that differences in the time perspectives of first-year psychology students exercised an influence on how promptly and reliably students completed their assignments. It was found that future-oriented students (especially future-oriented women) started earlier and completed their assignments earlier. Present-oriented students (especially present-oriented men) are prone to delay their assignments. This finding may have an implication for success in accounting, because, to be successful in accounting students have to do their homework on a regular basis because the new

knowledge and principles learned build on existing understanding. If students postpone doing homework they may encounter problems when it comes to a test or examination because they will not have enough time to catch up all the work.

#### **5.2.2.2 Time perspective, ethnicity and academic performance**

Researchers in the 1970s and 1980s found cross-cultural differences in the future time perspectives of students and adults in Australia, Brazil, India and the US (in Seijts, 1998: 157). Athawale (2004: 13–20) found no cross-cultural differences in time perspective among black and white adolescents. In this study the Grade 9 learners of four schools, chosen on the basis of the predominant cultural groups, gender and prevalent socioeconomic status of the learners, were used as research participants. Because of insufficient and the contradictory nature of the findings, no deduction can be made about the influence of time perspective on the academic performance of students from different cultures.

#### **5.2.2.3 Time perspective, health and academic performance**

Rothspan and Read (1996: 131–134) researched risk of HIV and time perspective among college students and found that students who tested high on present-hedonistic and present-fatalistic time perspectives were more sexually active and promiscuous than students high on the future time perspective. In paragraph 3.2.3.6.1 it became evident that HIV may have a negative influence on students' academic performance on account of absenteeism or being too ill to study.



Keough, Zimbardo and Boyd (1999: 156) conducted research into whether persons with a specific time perspective are more inclined towards smoking and the use of alcohol or drugs. They found that persons with a dominantly present time perspective are more inclined towards alcohol, drug and tobacco use. This, in turn, may impact negatively on academic performance.

It has become clear that time perspective may indirectly affect academic performance and achievement, because students with a future time orientation are found to be more motivated, and motivated students perform better. It is an accepted fact that health influences academic performance, as seen in paragraph 3.2.3.6. Students with a present time perspective are more prone to risky behaviour, and risky behaviour negatively affects academic performance.

The question that can now be asked is: Would a time perspective intervention help students to become more motivated and perform better as a result? No research has yet been done on the possible influence of a time perspective intervention on academic achievement, but one study investigated the use of a time perspective intervention for increasing physical activity among young adults. Hall and Fong (2003: 688–694) reported the results of this intervention on three groups of students. Before the intervention started the time perspectives of the research group were identified using the Time Perspective Questionnaire-Exercise Version (TPQ-E). One group received an intervention that was designed to enhance a long-

term time perspective. A second group underwent a goal-setting control intervention and a third group underwent no intervention at all. The time perspective intervention consisted of three weeks of education and activities to help students to become more cognisant of long-term implications of their current actions. The goal-setting intervention had all the major informational and structural components of the time perspective intervention, but without the thematic component of long-term time perspective; only weekly goal-setting was applied for a period of three weeks. The no-treatment group only attended the fitness classes without any extra intervention. After the ten weeks, participants had to complete the TPQ-E again. Comparisons of the test results revealed that the group which drew most benefit from this intervention was the one which had received instruction on enhancing long-term time perspective, followed by the group which had undergone the goal-setting intervention, and then, predictably, the no-treatment group.

To test whether or not the beneficial effects of the time perspective intervention were lasting, a second study was conducted with another group of students where the follow-up interval was extended to six months. The results of this study were the same and the findings revealed that time interventions can promote maintenance of behaviour change with regard to physical activity (Hall & Fong, 2003: 695–701).

As stated before, no research has been done on the effect of a time perspective intervention on students' academic performance, but Seijts (1998: 157) is of the opinion that future time perspective is a flexible construct that is capable of modification. Therefore, if time perspective interventions can change behaviour with regard to physical activity, it would not be unrealistic to surmise that it could also change behaviour related to academic performance. Exploring this possibility could be an avenue for future research.

### **5.3 CONCLUSION**

As became evident from the literature review, time perspective is the specific orientation of a person towards time; a disposition that influences all decisions and actions. The influence of time perspective on various aspects has been researched, but no research has yet been done on time perspective and performance in accounting. The research on time perspective and academic performance is also very limited.

A significant relationship has been established between time perspective and motivation with the latter exerting an influence on academic performance. The dominant time perspective of a student determines how students manage their time and time management, in turn, influences academic performance.

Time perspective may also play a role in students' health in the sense that students who hold a present-oriented time perspective are more prone to risky behaviour such as unsafe sex and the abuse of drugs and alcohol, which may result in health problems. Time perspective thus exerts an indirect influence on academic performance when we consider that students with ill health cannot function optimally in their studies.

Fraser and Killen (2003: 261) researched the factors influencing academic success or failure of first-year students. The students who participated in the study reported that '...academic failure was attributed primarily to a lack of study, poor time management and inadequate goal setting'. Persistent and active study, setting appropriate goals and effective time management were the most prominent reasons students cited for their academic success. This chapter illustrated that time perspective has a big role to play in how students go about their higher education studies.

As stated in Chapter 1, the purpose of this study is to determine the effect of study attitude, abstract thinking and specific time orientations on achievement in first-year accounting. Chapter 6 will give a description of the research design and methodology employed to conduct this research.

## CHAPTER 6

### RESEARCH DESIGN AND METHODOLOGY

#### 6.1 INTRODUCTION

From an extensive literature review, as indicated in the previous chapters, it became evident that there are numerous factors influencing the general success and non-completion of students in higher education, as well as in first-year accounting. All of these factors are set out in Tables 2.1 and 3.1. Of all the factors researched, the only factors that consistently showed positive relationships to performance in accounting, nationally and internationally, were cognitive ability, motivation and time management. Cognitive ability is universally regarded as a crucial indicator of general academic success as well as success in accounting (Stanfiel, 1973; Eskew & Faley, 1988; Dinius, 1991; Turner *et al.*, 1997; Jackling & Anderson, 1998; Koh & Koh, 1999; Kahn & Nauta, 2001; Van Eeden *et al.*, 2001; Eiselen & Geysler, 2003; Gracia & Jenkins, 2003; Hartnett *et al.*, 2004; Jin *et al.*, 2004; Perlow & Kopp, 2004). Students' time management skills are largely determined by their specific time perspective and therefore time perspective may have an influence on academic success.

The focus of this study was on the relatively unexplored determinants of success and non-completion in first-year accounting. The study was therefore conducted by examining the predictor variables, namely study attitude, level of abstract thinking

and time perspective. In order to control for the effect of confounding variables (age, gender ethnicity and psychosocial factors) they were built into the design as independent variables.

This chapter will provide a description of the study's research problem, hypotheses, variables, research design and methodology as well as its validity and reliability.

## **6.2 STATEMENT OF THE RESEARCH QUESTION**

This research has expanded on the existing body of knowledge on the predictors of success and non-completion in first-year accounting. It specifically provided answers to the following research question:

*Are the following variables, namely study attitude, level of abstract thinking and time perspective predictors of success and non-completion in first-year accounting?*

Subsidiary research questions that emerged from the above research question include:

- Is there a positive relationship between study attitude, as measured by achievement in first-year business management (OBS134), and achievement in first-year accounting (REK114)?

- Is there a relationship between the ability to think abstractly and achievement in first-year accounting (REK114)?
- Is there a relationship between students' time perspectives and achievement in first-year accounting (REK114)?

### 6.3 HYPOTHESES

The research data was collected from a selected group of first-year accounting students at the University of the Free State. The data was analysed and interpreted to test the following hypotheses:

**Null hypotheses ( $H_0$ ):** No relationships exist between achievement in first-year accounting (REK114) and a positive study attitude as indicated by achievement in first-year business management (OBS134), abstract thinking and time perspective.

**Research hypotheses ( $H_1$ ):** Relationships exist between performance in first-year accounting (REK114) and a positive study attitude as indicated by first-year business management (OBS134), abstract thinking and time perspective.

The following specific null hypotheses and corresponding alternative hypotheses were tested:

H<sub>0a</sub>: No relationship exists between a positive study attitude and performance in REK114.

H<sub>1a</sub>: A positive relationship exists between a positive study attitude and performance in REK114.

H<sub>0b</sub>: No relationship exists between abstract thinking and performance in REK114.

H<sub>1b</sub>: A positive relationship exists between abstract thinking and performance in REK114.

H<sub>0c</sub>: No relationship exists between a past-negative time perspective and performance in REK114.

H<sub>1c</sub>: A negative relationship exists between a past-negative time perspective and performance in REK114.

H<sub>0d</sub>: No relationship exists between a past-positive time perspective and performance in REK114.

H<sub>1d</sub>: A positive relationship exists between a past-positive time perspective and performance in REK114.



H<sub>0e</sub>: No relationship exists between a present-hedonistic time perspective and performance in REK114.

H<sub>1e</sub>: A negative relationship exists between a present-hedonistic time perspective and performance in REK114.

H<sub>0f</sub>: No relationship exists between a present-fatalistic time perspective and performance in REK114.

H<sub>1f</sub>: A negative relationship exists between a present-fatalistic time perspective and performance in REK114

H<sub>0g</sub>: No relationship exists between a future time perspective and performance in REK114.

H<sub>1g</sub>: A positive relationship exists between a future time perspective and performance in REK114.

## **6.4 IDENTIFYING THE VARIABLES**

The variables of the study are the phenomena or factors that are being researched. The factor or phenomenon studied is not constant but is subject to variation, hence its name (Colman, 2001: 773; Viljoen, 2007a: 13; Fraenkel & Wallen, 2008: 39). A discussion of the study's dependent variable, the independent variables and the confounding variables follows below.

### **6.4.1 The dependent variable**

Fraenkel and Wallen (2008: 42) state that ‘...the dependent variable “depends on” what the independent variable does to it, how it affects it’. Various independent variables may influence the dependent variable (Viljoen, 2007a: 14). The dependent variable in this study is performance in REK114 and it will be reported as a continuous variable. Operationally, performance in REK114 will be defined as the final mark obtained in REK114. The final mark was calculated using the average of the module mark added to the examination mark. The module mark was calculated by using the average mark for two term tests.

#### **6.4.2 The independent variables**

Fraenkel and Wallen (2008: 42) state that ‘...an independent variable is presumed to affect (at least partly cause) or somehow influence at least one other variable’.

For purposes of this study the independent variables will be as follows:

- Performance in OBS134 as an indicator of study attitude, reported as a continuous variable.
- Abstract and concrete thinking, reported as a continuous variable.
- Time perspective, reported as a continuous variable.

#### **6.4.3 The confounding variables**

Confounding variables are also known as extraneous variables, third variables or nuisance variables. These variables are independent variables that have not been controlled and that could possibly influence the dependent variable (Viljoen, 2007a:

13; Fraenkel & Wallen, 2008: 43–44). Viljoen (2007a: 16) gives a clear description of confounding variables by stating: ‘Confounding variables are variables that may influence our results but which are not a part of our study or are not what we are interested in’.

The confounding variables in this study were the students’ gender, age, ethnicity and the psycho-social background of students currently and as it was during their childhood.

## **6.5 RESEARCH DESIGN AND METHODOLOGY**

The theory underlying the research is grounded in the post-positivist paradigm. A positivist paradigm emphasises the objectivity and quantification of phenomena in the gaining of knowledge (McMillan & Schumacher, 2006 31). A post-positivist paradigm reflects the cultural phenomenon of modernism and recognition is given to the fact that total objectivism is not possible. However, objectivity is seen as a goal to strive for and therefore studies with a post-positivist paradigm seek probabilistic evidence (Polit & Beck, 2008: 15). This study is based on the post-positivist paradigm because the researcher strived to be as objective and neutral as possible in the search for probabilistic evidence. This means that the researcher searched for the most significant predictors of success and non-completion in first-year accounting, realising the impediments to knowing reality with certainty. To maximise objectivity, research designs based on the post-positivist paradigm make

use of numbers, statistics, structure and experimental control (MacMillan & Schumacher, 2001: 31). Quantitative modes of inquiry are therefore a characteristic of the post-positivist paradigm.

The research in this study was conducted using a quantitative non-experimental predictive multivariate design due to the nature of the research hypotheses. Quantitative research searches for relationships between variables and it may also explain the relationships between different variables (Fraenkel & Wallen, 2008: 15). The study was non-experimental because there was no randomisation of the sample and no attempt was made to change behaviour in the study. Many variables were included in the design to attempt a prediction of the interdependence between multiple independent variables and the dependent variable, namely performance in first-year accounting. Generalisations cannot be made to the whole population because whole frame sampling was used. However, inferences from the study's results can be made and the applicability to a larger population can be hypothesised (Viljoen, 2007a: 31).

The three sources of variability, namely systematic variance, error variance and confounding variance were recognised and controlled for in the research design of the study by applying the principle of MAXIMINCON. The variance of the dependent variable was maximised because the design measures used provided sufficient variability and the sample size was large enough to provide sufficient

variability. The error variance in this study was minimised because standardised measurement procedures were employed, measures with high reliability were used and a large sample was selected. The confounding variables were controlled by keeping the circumstances in the three classes subject to the research the same, and by building confounding variables into the research design as independent variables. Each confounding variable was measured and the effect of the independent variable on the dependent variable was analysed and accounted for (McMillan & Schumacher, 2006: 18).

### **6.5.1 Population and sampling**

The population refers to the group that is relevant to the researcher's study and to whom the findings of the study would be generalised (Fraenkel & Wallen, 2008: 91). Bless, Higson-Smith and Kagee (2006: 184) refer to the population as '...the complete set of events, people or things to which the research findings are to be applied'. This group is also known as the target population. Under the term population, Fraenkel and Wallen (2008: 91) distinguish between the target population and the accessible population. The target population refers to the whole group that the researcher *would like to study* and to generalise the study to. The accessible population is that part of the target population that the researcher *was able to study*, because it is rarely possible to involve the whole target population in the research.

The population under study (target population) in this specific study comprised 1 157 first-year accounting students registered for REK114 at the UFS during 2009. The subjects in the population were from various ethnic groups. Because the entire population of first-year accounting students formed the target population for this study, this constituted a form of whole frame sampling based on the principle of convenience of sample selection.

Due to the large number of REK114 students, they were obliged to attend the same lecture during different time slots. One group received lectures in Afrikaans (first-language speakers of Afrikaans) and two groups received lectures in English. The English groups were mixed groups of English first-language speakers and second- or third-language speakers of English. All three groups were comprised of students from different ethnic backgrounds.

### **6.5.2 Data collection**

A comprehensive literature study was conducted to determine the determinants of success and non-completion at university in general and, specifically, in first year Accounting. Both national and international resources such as books, academic journals, theses and pages on the internet were consulted to ensure a solid foundation for the research.

Information on students and their performance in REK114 and OBS134 was gathered by means of obtaining statistical data from the university after consent was given by the appropriate authorities of the university.

Data pertaining to students' biographical details, psychosocial backgrounds, abstract thinking levels and time perspectives were gathered by means of questionnaires administered during class time. The data was collected on the same day and under the same circumstances for all three groups. Due to the population size and the unavailability of a big enough venue for all the REK114 students, the students had to complete the questionnaires during each group's particular scheduled class. The students completed the following measuring instruments:

- Biographical questionnaire
- The Psycho-Social Questionnaire (PSQ)
- Factor B of the 16PF Questionnaire (16PF)
- The Zimbardo Time Perspective Inventory (ZTPI)

Six hundred and eighteen students were willing to participate in the study and thus represented the accessible population. This implies a response rate of 53%. The reason why only 53% of the first-year accounting students participated in the study was due to poor class attendance (students did not know beforehand that they would be asked to participate in the study) and because a number of students were

not willing to participate. Data from 553 of the 618 questionnaires could be used, because some of the students were not registered for both REK114 and OBS134. The measuring instruments used in this study and the rationale for the use of these instruments will be discussed in the next paragraph.

### **6.5.3 Measuring instruments**

Data was collected quantitatively using the above-mentioned self-reporting measuring instruments as research tools. A discussion of the instruments and the rationale for using them is given below.

#### **6.5.3.1 Biographical questionnaire (See Appendix B)**

The biographical questionnaire recorded information relating to aspects such as gender, age and ethnicity. 'Content-validation is partly a matter of determining if the content that the instrument contains is an adequate sample of the domain of content it is supposed to represent' (Fraenkel & Wallen, 2008: 150). The biographical questionnaire has content validity, because the questions measure responses on the exact domain it is supposed to represent, namely gender, age, and ethnicity.

#### **6.5.3.2 Psycho-Social Questionnaire (PSQ) (See Appendix B)**

The PSQ was developed by Viljoen in 2007. This questionnaire is used for the measurement of psychosocial background factors relating to the subjects'



childhood and present situation. It consists of 19 items on a semantically differentiated scale which collects information on the emotional support and the socioeconomic situation of the subject's childhood, as well as the conduciveness of the childhood environment to learning and depression. The respondent's present life situation is measured with regard to financial situation, love life, family life, depression and HIV/AIDS.

According to Fraenkel and Wallen (2008: 148), validity can be referred to as '...the degree to which evidence supports any inferences the researcher makes based on the data he or she collects using a particular instrument. Construct validity refers to how well a measure of the construct explains differences in the behaviour of individuals or their performance on certain tasks'. The reason why the PSQ was used is because a literature study revealed that many of the factors influencing the academic performance of students form part of the factors measured by the PSQ. The PSQ therefore has construct validity, because the 19 items of the questionnaire are grounded in the literature regarding psychosocial background factors.

The PSQ demonstrated a high reliability with a Cronbach alpha-coefficient of 0.82 in a pilot study (Viljoen, 2007b). The PSQ therefore showed internal consistency which indicates adequate reliability. A high score on the PSQ indicates that

respondents have a negative psychosocial background, while a low score on the PSQ indicates that respondents have a positive psychosocial background.

### **6.5.3.3 Factor B of the 16PF Questionnaire (See Appendix C)**

The Sixteen Personality Factor Questionnaire (16PF) is an American questionnaire developed by R.B. Cattell and originally published under the copyright of the Institute for Personality and Ability Testing in 1949. The questionnaire has been revised a number of times since 1949. Different forms are available for use in different settings and they test persons on different educational levels. Form B was chiefly standardised for post-secondary academic environments (Prinsloo, 1992: 1). The factor B questions from form B (the 1992 adapted version for South Africa) were used for this study.

‘The Sixteen Personality Factor Questionnaire (16PF) is widely known and generally used for the assessment of personality’ (Prinsloo, 1992: 1). However, personality consists of many factors of which the ability to think abstractly (intelligence) is one (Maas, 1975: 13–15). Factor B of Cattell's 16PF measures the degree to which a person employs abstract thinking. Abstract thinking takes place when no reference to material objects or specific examples and ideas can be made (Collins Concise Dictionary, 2004: 6). With reference to paragraphs 4.1.1 and 4.1.2, abstract thinking is the ability to think abstractly and when intelligence is measured, one of the aspects measured, is the ability to think abstractly.

Therefore, whenever there is a reference to the measuring of intelligence in this paragraph, this implies that the abstract thinking ability of students was measured. Saggino and Kline (1996: 592) state that the 16PF includes a simple measure of intelligence, namely factor B of the 16PF. Factor B of the 16PF distinguishes between abstract and concrete thinkers. The reliability coefficient of this factor is 0.54. The reliability coefficient of factor B is lower than the reliability coefficient of other factors in this questionnaire. Although the reliability coefficient is lower, it is still significant enough to distinguish between people who employ higher levels of abstract thinking and people who employ lower levels of abstract thinking (Maas, 1975: 48). The lower reliability of factor B does not indicate that this factor is an inappropriate measure for abstract thinking ability, because factor B shows a high correlation with other intelligence tests, which indicates that factor B is valid (Cattell, 1966: 72; Cattell, 1989: 31–32). ‘The relationship between scores obtained using the instrument, and scores obtained using one or more other instruments or measures is referred to as criterion validity’ (Fraenkel & Wallen, 2008: 148). Therefore, according to Cattell (1966: 72), factor B has criterion validity.

Cattell further indicates that, because a single scale of 13 items in factor B of the 16PF provides a rough estimate of a person’s ability to think abstractly, it should be treated with caution. This does not mean that the measure is not applicable, because ‘...when a person gets a high score on Factor B, the score is more likely to reflect a true measure of intellectual ability for two reasons. First, it is not

possible to fake high scores unless the test is given in an unsupervised situation where the examinee can obtain the correct answers from other people. Second, the laws of probability indicate that a sten score of 8.9 or 10 rarely results from chance (Cattell, 1989: 31–32)'. In a few cases, poor performance (a low score on factor B of the 16PF) may be due to students who become anxious in a test situation and this anxiousness may, in turn, lead to poor test performance. In this case it does not mean that the student is less able to think abstractly. However, with large samples it is highly unlikely that all low scores can be attributed to such factors.

The rationale for using factor B of the 16PF in this specific study includes the following:

- The subjects do not know that their intelligence is being measured. If students know that their intelligence is being measured they may be less willing to participate in the study. This statement is supported by a study by Gracia and Jenkins (2003: 25) who found that intelligence is significantly correlated to previous and current performance of accounting students. In their study, the same students participated on a voluntary basis, but the number of students who completed the intelligence test was remarkably less than the number who completed the attitudinal questionnaire. The deduction can be made that, if students know that their cognitive ability will be tested, they stay away because they are not willing to have their intelligence

measured. If students know that their intelligence is being tested they may become anxious, and, as seen in the previous paragraph, anxiousness may lead to poor performance which might be an inaccurate reflection of their ability to think abstractly. Ethically speaking, no results were made known because no student names or student numbers were used.

- Intelligence tests are long, time consuming and expensive. Koh and Koh (1999) as well as Kahn and Nauta (2001) and Hartnett *et al.* (2004) used the grade performance average to measure intelligence. Auyeng and Sands (1994: 267) stated that the tertiary entrance score is an indicator of general intelligence and academic ability and therefore they used the Queensland TE score which is considered to be a surrogate for general intelligence and academic ability, to determine whether intelligence may be considered as a predictor for success in accounting. Although not mentioned, the reason why these studies used previous performance to measure intelligence may be due to the time and cost involved in intelligence testing as well as the fact that students do not want to have their intelligence measured. The researcher decided to use factor B of the 16PF, because it is brief, less expensive and students do not know that an aspect of their intelligence is being measured.
- Eiselen and Geyser (2003: 122), Van Eeden *et al.* (2001: 171) and Jin *et al.* (2004: 75) found that achievers in first-year accounting and post-graduate

accounting score higher on both the verbal and non-verbal dimensions, but that there is a more significant correlation between verbal intelligence and performance in accounting than between non-verbal intelligence and performance in accounting. Since factor B of the 16PF is a verbal test, the researcher deemed this test appropriate for measuring abstract thinking.

- Cattell (1989: 32) stated that factor B of the 16PF could indicate a student's aptitude for abstract thinking and in this way one can determine whether students might benefit from interventions to assist the development of abstract thinking skills. This implies that, if the results of this study reveal that  $H_{0b}$  can be rejected, first-year accounting students with an aptitude for abstract thinking can attend programmes to develop their abstract thinking skills; an intervention which may lead to an improvement in their marks.

Considering the rationale for using factor B of the 16PF, the researcher is of the opinion that even with a reliability coefficient lower than other intelligence tests, factor B of the 16PF was the most appropriate test for use in this study.

#### **6.5.3.4 The Zimbardo Time Perspective Inventory (ZTPI) (See Appendix D)**

The Zimbardo Time Perspective Inventory (ZTPI), was published in 1999, was developed by Philip Zimbardo and John Boyd. The sample used in the development of the questionnaire constituted college-aged students. The

instrument is used to measure the orientation of an individual towards the past, present and future. The ZTPI consists of 56 items presented in the form of statements and respondents are required to indicate their orientation towards these statements on a 5-point Likert scale. The 56 items represent five factors comprising the ZTPI, namely past-negative, past-positive, present-hedonistic, present-fatalistic and future. The test-retest reliability of these factors range from .70 to .80, with the past-negative time perspective at .70, the past-positive time perspective at .76, the present-hedonistic time perspective at .72, the present-fatalistic time perspective at .76 and the future time perspective at .80 (Zimbardo & Boyd, 1999: 1276; Harber *et al.*, 2003: 258; Worrell & Mello, 2007: 488).

The rationale for using the ZTPI is that, as seen in paragraph 5.2.2, existing research has shown that students' time perspective may influence their academic performance either directly or indirectly (De Volder & Lens, 1982: 570; Rothspan & Read, 1996: 131–134; Brown & Jones, 2004: 257–266; Keough *et al.*, 1999: 156; Kauffman & Husman, 2004: 1; Simons *et al.*, 2004: 124–125). Unfortunately, the volume of research on time perspective and especially on the relationship between time perspective and academic performance is very limited (Pienaar & Bester, 1996; Athawale, 2004; Horstmanshof & Zimitat, 2007). Since no research has been done on the relationship between a student's time perspective and performance in accounting, the researcher decided that the influence of time perspective on

performance in first-year accounting should be researched using an appropriate measuring instrument.

A literature review of the notion of time perspective revealed that previous research has shown a belief that scoring low on one dimension of time perspective equals a high score on another dimension. However, Zimbardo and Boyd developed the ZTPI to address the shortcomings of the previous scales by refining the present and future time perspectives and focusing on five possible time perspectives. These five perspectives are regarded as being independent which implies that, if a person scores high on one perspective, this does not imply a low score on the alternate perspective (Zimbardo & Boyd, 1999: 121–122). The questionnaire shows content validity because the instrument measures what is assessed in the study, namely students' different time perspectives, and it has an appropriate sample of items with which to measure the different time perspectives. The fact that the questionnaire was developed for the same age group as the age of the students tested in this study added to the validity of the questionnaire. As indicated earlier in this paragraph, the reliability of the ZTPI was high. The ZTPI was therefore decided upon as the instrument best suited for the specific study.

#### **6.5.4 Data analyses and reporting**

The analyses of data refers to the 'categorizing, ordering, manipulating and summarizing of data to obtain answers to research questions and to test research



hypotheses' (Kerlinger, 1986: 125). Data in this study was coded by the researcher and then recorded by the Department of Information and Technology Services. This department then analysed the data quantitatively, according to the Statistical Analysis Plan developed by Professor Schall from the Statistics Department of the UFS (Schall personal communication, 2009; 2010). (See Appendix E)

Univariate and multivariate analyses were conducted to test the hypotheses. A .05 level of significance was used. Multivariate analysis was used to determine the most significant predictors of success and non-completion in first-year accounting at the UFS, using SAS (Statistical Analysis System) software.

#### **6.5.5 Ethics**

The research is ethical, because none of the participants could suffer any physical or psychological harm through participation. Permission to conduct the study was obtained from the Head of Department of the Centre for Accounting at the UFS. Students in the target population were briefed about the aim and purpose of the questionnaire and the researcher answered all questions that the students had about the research. The researcher respected the right of any individual to refuse to participate in the study or to withdraw from participating at any time. Written permission was obtained from the students who participated in the study before they were required to complete the questionnaires. (See Appendix A). Students were assured that participation in the research was voluntary and that all data

obtained would remain confidential. No use was made of identifying particulars, but students had to indicate their student number.

## **6.6 RELIABILITY AND VALIDITY OF THE RESEARCH**

Fraenkel and Wallen (2008: 147) state that ‘...reliability refers to the consistency of scores or answers from one administration of an instrument to another, and from one set of items to another’. Kerlinger (1986: 405) states that the reliability of research depends on the reliability of the measuring instruments and the choice of the correct statistical procedure. Paragraph 6.5.3 described the different measuring instruments used in this study and gave a statement regarding their reliability. The statistical procedures were guided by a professional statistician and valid software for data analysis was used. The study is therefore considered reliable.

‘Validity refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes’ (Fraenkel & Wallen, 2008:147). Two types of validity exist, namely internal and external validity.

For this specific study internal validity refers to the extent to which differences in the dependent variable (final marks in REK114) are accounted for by differences in the independent variables (final mark in OBS134, abstract and less abstract thinking, and time perspective) and not by the confounding variables (gender, age ethnicity and psychosocial background of students currently and as it was during

their childhood. (Kerlinger, 1986: 300; Maas, 1998: 24). It can be stated that the study has internal validity because the principle of MAXIMINCON was applied when building confounding variables into the design as independent variables and measuring their effect on the dependent variable. If the dependent variable is influenced by any of those confounding variables, it will be shown in the results.

External validity refers to the extent to which results of the research can confidently be generalised to the population from which the sample was selected (Kerlinger, 1986: 300; Maas, 1998: 24). In this specific study the sample size was big enough to deduce that the results can be generalised to the whole target population of first-year accounting students at the UFS during 2009, but because random selection of the sample was not done, no other generalisation can be made. As was stated in Chapter 1, the applicability to a larger population can be hypothesised.

## **6.7 CONCLUSION**

This chapter focused on the research design and methodology of the study. The chapter began with a statement of the research problem and the study's hypotheses. Detailed information on the dependent, independent and confounding variables were presented and the design and methodology of the research were discussed with reference to the data collection and measuring instruments.

It was indicated that the theory underlying the research is based on the post-positivist paradigm which emphasises the objectivity and quantification of research.

A quantitative non-experimental predictive multivariate design was used for the study and this specific design added to the objectivity and quantification of the research. Procedures utilised for data analyses and reporting were also provided in this chapter. The chapter concluded with the statement that the study can be regarded as ethical, reliable and valid. The results of the study will be presented, interpreted and discussed in Chapter 7.

## CHAPTER 7

### RESULTS AND DISCUSSION OF RESULTS

#### 7.1 INTRODUCTION

The main aim of the statistical analysis was to determine whether the following independent variables are predictors of the dependent variable, namely success and non-completion in first-year accounting. These independent variables include:

- Study attitude as measured by achievement in OBS134.
- The level of abstract thinking as measured by the score on factor B of the 16PF Questionnaire.
- Time perspective as measured by the individual scores for the five time perspective of the ZTPI.

The effect of the potential confounding variables (age, gender, ethnicity and psychosocial background) on the dependent variable (REK114) was measured and analysed (Schall personal communication, 2009).

This chapter presents the analyses of the responses, as well as the marks obtained in the biographical questionnaire, the PSQ, factor B of the 16PF Questionnaire, the ZTPI and the marks obtained in OBS134 of first-year accounting students at the UFS. The responses were analysed quantitatively by means of both descriptive and inferential statistics according to the Statistical

Analyses Plan developed by Professor Schall of the Statistics Department at the UFS. Univariate and multivariate analyses were conducted to test the hypotheses. An analysis of covariance was then used to determine significant predictors of success and non-completion in first-year accounting at the UFS.

The results obtained are presented in tabular and written form, followed by an interpretation and discussion of the results. Descriptive statistics regarding the confounding variables (gender, age, ethnicity and psychosocial background) will be provided in terms of either continuous or categorical variables. This will be followed by descriptive statistics for the independent variables (final mark obtained in OBS134, total score on the 16PF Questionnaire and individual scores for the five time perspectives according to the ZTPI) in terms of continuous variables. Lastly, descriptive statistics for the continuous dependent variable, namely the final mark obtained in REK114, will follow. For purposes of this study, as stated in paragraph 1.1, the concept *success and non-completion* will be used interchangeably with the concepts *achievement* and *performance*.

Abbreviations used in the tables for the different variables are as follows:

|                 |   |
|-----------------|---|
| Ethnic:         | Ethnicity of the students   |
| Psycho total:   | The total score of items in the PSQ                                   |
| OBS134:         | Marks obtained in OBS134 as an indication of student's study attitude |
| Abstract total: | Total score of the 16PF Questionnaire                                 |

|            |  |
|------------|--|
| PastNeg:   | Score obtained for the past-negative time perspective      |
| PastPos:   | Score obtained for the past-positive time perspective      |
| PresHedon: | Score obtained for the present-hedonistic time perspective |
| PresFatal: | Score obtained for the present-fatalistic time perspective |
| Future:    | Score obtained for the future time perspective             |

## 7.2 DESCRIPTIVE STATISTICS: THE SAMPLE

### 7.2.1 Descriptive statistics: Categorical confounding variables

#### 7.2.1.1 Gender

**Table 7.1: Gender distribution of the respondents in the sample (n=550)**

| <b>Gender</b> | <b>Frequency</b> | <b>Percentage</b> | <b>Cumulative Frequency</b> | <b>Cumulative Percentage</b> |
|---------------|------------------|-------------------|-----------------------------|------------------------------|
| <b>Male</b>   | 243              | 44.18             | 243                         | 44.18                        |
| <b>Female</b> | 307              | 55.82             | 550                         | 100.00                       |

Frequency Missing = 3

The sample size for this result is 550 because three of the 553 respondents did not indicate their gender. Of the 550 respondents who indicated their gender on the questionnaire, 243 (44.18%) were male, while 307 (55.82%) were female.

### 7.2.1.2 Ethnicity

**Table 7.2: Ethnic distribution of the respondents in the sample (n=544)**

| <b>Ethnicity</b> | <b>Frequency</b> | <b>Percentage</b> | <b>Cumulative Frequency</b> | <b>Cumulative Percentage</b> |
|------------------|------------------|-------------------|-----------------------------|------------------------------|
| <b>Black</b>     | 357              | 65.63             | 357                         | 65.63                        |
| <b>Coloured</b>  | 34               | 6.25              | 391                         | 71.88                        |
| <b>Indian</b>    | 12               | 2.21              | 403                         | 74.08                        |
| <b>White</b>     | 141              | 25.92             | 544                         | 100.00                       |

Frequency Missing = 9

The sample size for this result is 544 because nine of the 553 respondents did not indicate their ethnicity. Of the 544 respondents who indicated their ethnicity, 357 (65.63%) were black, 34 (6.25%) were coloured, 12 (2.21%) were Indian and 141 (25.92%) were white. This indicates that the majority of the respondents who participated in the study were black, followed by white, coloured and Indian.

## 7.2.2 Descriptive statistics: Continuous confounding variables

### 7.2.2.1 Age

**Table 7.3: Age distribution of the respondents in the sample (n=533)**

| <b>Variable</b> | <b>N</b> | <b>N Miss</b> | <b>Mean</b> | <b>Std Dev</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Median</b> |
|-----------------|----------|---------------|-------------|----------------|----------------|----------------|---------------|
| <b>Age</b>      | 533      | 20            | 19.93       | 3.28           | 17.00          | 50.00          | 19.00         |

Frequency Missing = 20



The sample size for this result is 533 because twenty of the respondents did not indicate their age. The age of the respondents in the sample varies between 17 and 50 years. The mean age is 19.93 years and the median age is 19. This indicates that the majority of the students in the sample are relatively young and that they started studying immediately after completing Grade 12.

### 7.2.2.2 Psychosocial background

**Table 7.4: Psychosocial background distribution of the respondents in the sample (per total of PSQ) (n=551)**

| <b>Variable</b>           | <b>N</b> | <b>N Miss</b> | <b>Mean</b> | <b>Std Dev</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Median</b> |
|---------------------------|----------|---------------|-------------|----------------|----------------|----------------|---------------|
| <b>Psychosocial Total</b> | 551      | 2             | 40.90       | 14.97          | 19.00          | 99.00          | 38.00         |

Frequency Missing = 2

The number of respondents who completed the PSQ (sample size) was 551 because two respondents did not complete the PSQ. The PSQ was designed as a six-point semantic differential type scale consisting of nineteen items, while the maximum score per item is six. Therefore, a maximum total score of 114 is possible. A high score indicates negative psychosocial circumstances, while a lower score indicates positive psychosocial circumstances. The total of the midpoints for nineteen items is 66.5. The mean of this sample is 40.9 and the

median is 38, both of which are lower than the total midpoint. The Gaussian distribution (normal distribution curve) is positively skewed. This implies that more students in this sample have a favourable psychosocial background and that fewer students have an unfavourable psychosocial background.

### 7.2.3 Descriptive statistics: Independent variables

#### 7.2.3.1 Performance in OBS134

**Table 7.5: Performance of the respondents in the sample in OBS134 (n=553)**

| Variable | N   | N Miss | Mean  | Std Dev | Minimum | Maximum | Median |
|----------|-----|--------|-------|---------|---------|---------|--------|
| OBS134   | 553 | 0      | 57.09 | 14.16   | 0.00    | 90.00   | 57.00  |

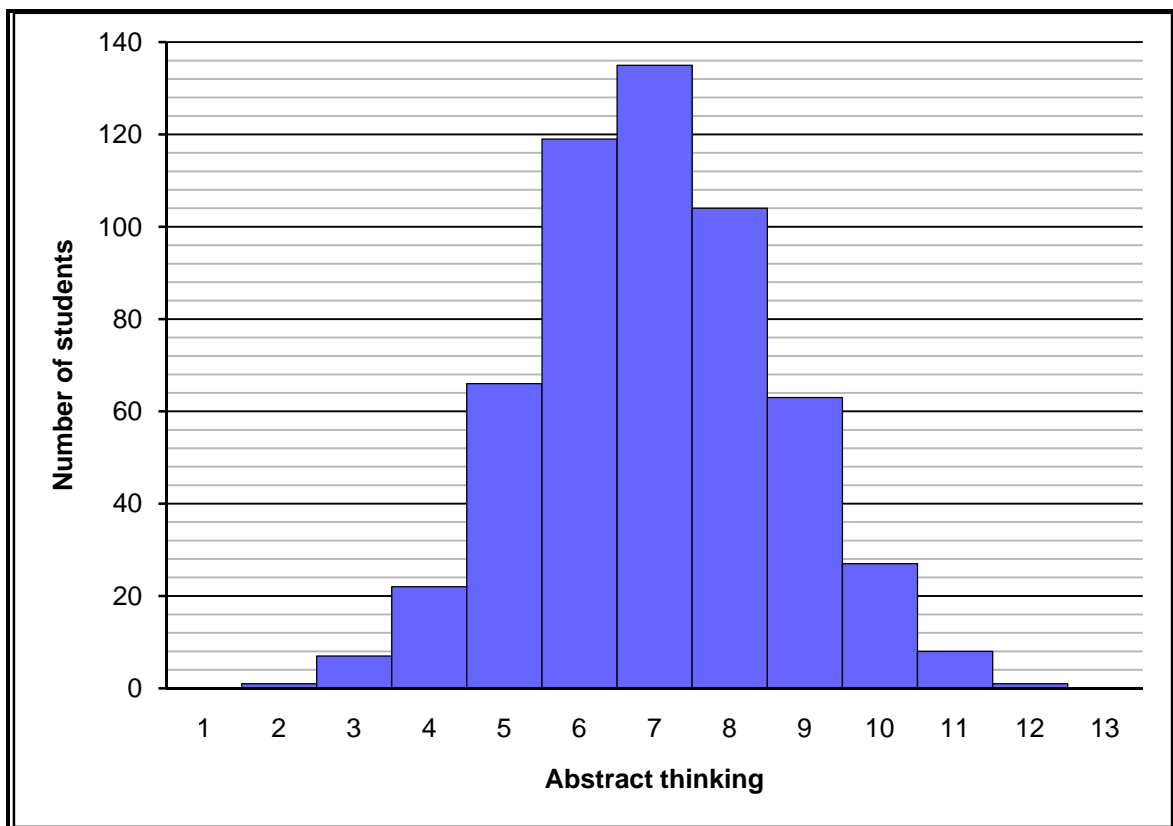
The sample size for this result is 553. The mean of the final marks obtained by the 553 students was 57%, while the median was 57%. Considering this, together with the fact that the range is between 0% and 90%, it shows that the distribution of the marks approximates the normal distribution curve.

#### 7.2.3.2 Abstract thinking ability

**Table 7.6: Abstract thinking ability of the respondents in the sample (total score of factor B of 16PF) (n=553)**

| Variable       | N   | N Miss | Mean | Std Dev | Minimum | Maximum | Median |
|----------------|-----|--------|------|---------|---------|---------|--------|
| Abstract total | 553 | 0      | 7    | 1.63    | 2.00    | 12.00   | 7.00   |

The sample size for this result is 553, which means that all of the students in the sample completed factor B of the 16PF Questionnaire. The maximum score that a respondent could obtain for this questionnaire is 13. The mean and the median obtained by the respondents in this study were both 7 and, therefore, the distribution of the scores approximates the Gaussian distribution (normal distribution curve). In Figure 7.1 below, the histogram shows the distribution of marks obtained by first-year accounting students who participated in the study.



**Figure 7.1: Histogram of abstract thinking ability of respondents**

The histogram shows that most of the students obtained a score of 7 for abstract thinking, while the highest score was 12 and the lowest score was 2. A total of 385

of the 553 students (65%) obtained a score ranging from 6 to 8. This indicates that scores are grouped around the mean. As mentioned previously, the mean and median of abstract thinking are the same, which supports the finding that abstract thinking scores approximate a normal distribution.

### 7.2.3.3 Time perspectives

**Table 7.7: Time perspective of the respondents in the sample (individual scores of five time perspectives) (n=553)**

| Variable  | N   | N Miss | Mean | Std Dev | Minimum | Maximum | Median |
|-----------|-----|--------|------|---------|---------|---------|--------|
| PastNeg   | 553 | 0      | 3.01 | 0.72    | 1.30    | 5.00    | 3.00   |
| PastPos   | 553 | 0      | 3.50 | 0.57    | 1.00    | 5.00    | 3.56   |
| Future    | 553 | 0      | 3.70 | 0.53    | 2.15    | 5.00    | 3.69   |
| PresHedon | 553 | 0      | 3.41 | 0.53    | 1.67    | 5.00    | 3.40   |
| PresFatal | 553 | 0      | 2.49 | 0.65    | 1.00    | 5.00    | 2.56   |

Table 7.7 shows the orientation of a sample of 553 respondents towards the five different time perspectives, namely past-negative (PastNeg), past-positive (PastPos), future, present-hedonistic (PresHedon) and present-fatalistic (PresFatal). A lower mean and median indicates that respondents are less oriented towards the specific time perspective, while a higher mean and median indicates that respondents are more oriented towards a specific time perspective. Although

there is only a small difference between the means and medians of the time perspectives, the lowest mean and median are the mean and median for present-fatalistic time perspective. The means and medians for the other time perspectives do not differ significantly, but the mean and median for the future time perspective is the highest, followed by the mean and median for the past-positive time perspective, future-hedonistic time perspective, past-negative time perspective and present-fatalistic time perspective.

The median indicates the most typical score (Polit & Beck, 2008: 564). Since the median for the future time perspective is the highest, it indicates that, for the specific sample, most of the students are inclined towards a future time perspective, followed by an orientation towards the past-positive, future-hedonistic, past-negative and present-fatalistic time perspectives.

#### 7.2.4 Descriptive statistics: Dependent variable

**Table 7.8: Performance in REK114**

| Variable | N   | N Miss | Mean  | Std Dev | Minimum | Maximum | Median |
|----------|-----|--------|-------|---------|---------|---------|--------|
| REK114   | 553 | 0      | 44.42 | 22.89   | 0.00    | 97.00   | 50.00  |

The mean of the final mark in REK114, obtained by the sample of 553 respondents, was 44.42%, while the median was 50%. The median is higher than

the mean and therefore the normal distribution is negatively skewed. This implies that the number of students who obtained a mark above 44.42% was more than the number of students who obtained a mark below 44.42% in REK114. An average of 44.42% for first-year accounting is, however, not good and this corresponds with the research findings indicated in paragraph 1.1, that national and international research findings indicate a problem regarding success and completion in first-year accounting.

## **7.3 STATISTICS OF ASSOCIATION**

### **7.3.1 Univariate analyses of confounding variables (ANOVA and regression analyses)**

The following paragraphs indicate the individual relationships between the different confounding variables, as well as the different independent variables and performance in first-year accounting. This means that only one of the confounding or independent variables at a time is shown in relation to performance in REK114, without considering the effect that other confounding or independent variables may have on the performance in REK114.

### 7.3.1.1 Univariate analyses (ANOVA) of achievement in REK114 against gender

**Table 7.9: ANOVA REK114 and gender**

| Source | DF | Type III SS | Mean Square | F-Value | Pr > F |
|--------|----|-------------|-------------|---------|--------|
| Gender | 1  | 3064.418519 | 3064.418519 | 5.87    | 0.0157 |

**Table 7.10: Performance in REK114 according to gender**

| Gender | REK114 LSMEAN | H0:LSMean1=LSMean2 |
|--------|---------------|--------------------|
|        |               | Pr >  t            |
| Female | 46.5309446    | 0.0157             |
| Male   | 41.7777778    |                    |

According to Table 7.9, the ANOVA indicated that the impact of gender on the performance in REK114 is significant since a p-value of 0.0157 was obtained. Upon further analysis, it became evident that female students performed better with an LSMEAN (Least Square Mean) of 46.5 than male students who had an LSMEAN of 41.8 (see Table 7.10).

In paragraph 3.2.1.2, it was indicated that the relationship of gender to performance in first-year accounting is inconclusive and contradictory. Some studies found no relationship between gender and performance in first-year

accounting (Lipe, 1989; Barnes, 2006), while Doran, Bouillon and Smith (1991) found that males performed better than females in first-year accounting. Tyson (1989), Cantwell *et al.* (2001), Gammie *et al.* (2003) and Smith (2004), on the other hand, found that female students outperformed male students in first-year accounting.

Therefore, the studies that found that female students performed better than male students in first-year accounting supports the findings of this study. The reason as to why female students perform better in first-year accounting may be speculated upon, but the researcher shares the opinion of Smith (2004: 167) who states that females are generally more diligent and focused, while males may give preference to sports activities and socialising. First-year female students may also be more mature than male students of the same age and therefore recognise that they have a responsibility to study.

### 7.3.1.2 Univariate analyses (ANOVA) of achievement in REK114 against ethnicity

**Table 7.11: ANOVA REK114 and ethnicity**

| Source    | DF | Type III SS | Mean Square | F-Value | Pr > F |
|-----------|----|-------------|-------------|---------|--------|
| Ethnicity | 3  | 1480.505924 | 493.501975  | 0.94    | 0.4223 |



As seen in Table 7.11, the p-value is not statistically significant at a  $p < 0.05$  level of significance. The impact of ethnicity on performance in REK114 was statistically insignificant since a p-value of 0.4223 was obtained. No national or international research studies on the relationship between ethnicity and performance in accounting was found in the literature. However, studies conducted to determine the relationship between ethnicity and the general performance of students reveal that ethnicity had an influence on the pass rate of first-year students because first-year white students performed better than first-year black students (Huysamen, 2000; Negash in Barnes, 2006).

Ethnic groups in South Africa have different first languages and not all students receive lectures in their first language. Therefore, students do not always study in their first language and, although first language was not indicated as a confounding variable for purposes of this study, it can be deduced that because ethnicity does not have a significant influence on the performance in REK114, language ability will also not have a significant influence on performance in first-year accounting. The reason for this deduction is that ethnicity and language are closely related and would co-vary. Language of instruction will therefore not have a significant influence on performance in REK114. This deduction is supported by the findings of Jackling and Anderson (1998) and Hartnett *et al.* (2004), who found that language does not significantly explain the differences in performance in accounting between students who study accounting in their first language and

those who study accounting in a second language. Barnes (2006), however, compared the performance in Grade 12 English with first-year accounting at the Central University of Technology and then deduced that performance in Grade 12 English could indicate that language proficiency has an influence on performance in accounting. The researcher, however, does not agree with this deduction, because a positive relationship between performance in Grade 12 English and first-year accounting could also be attributed to cognitive ability and study attitude. The study by Koh and Kriel (2005), performed at a South African university to investigate whether language is a contributory factor to non-completion in first-year accounting, supports this deduction. They point out that problems experienced by first-year students in solving accounting problems could not be attributed directly to poor English language skills, but that it may be attributed to cognitive abilities.

### 7.3.1.3 Regression analyses of achievement in REK114 against age

**Table 7.12: Regression of REK114 on age**

| <b>Parameter</b> | <b>Estimate</b> | <b>Standard Error</b> | <b>T-Value</b> | <b>Pr &gt;  t </b> |
|------------------|-----------------|-----------------------|----------------|--------------------|
| <b>Intercept</b> | 63.01480407     | 6.11961311            | 10.30          | <.0001             |
| <b>Age</b>       | -0.92844682     | 0.30299038            | -3.06          | 0.0023             |

As indicated in Table 7.12, the impact of age on performance in REK114 is significant since a p-value of 0.0023 was obtained. The t-value is -3.06, which

indicates that there is an inverse relationship between age and performance in REK114. This means that younger students perform better in REK114 than older students.

As was seen in paragraph 3.2.1.1, the literature reveals inconsistent results regarding the relationship between age and the performance in accounting. The finding of this research study, namely that younger students perform better in REK114 than older students, is supported by the findings of Koh and Koh (1999: 24) and Du Plessis *et al.* (2005: 696). These researchers found that younger students perform better in first-year accounting than older students. In the researcher's opinion, a possible reason for this might be that older students are full-time employees with families and that, because they have more responsibilities, they have less time to study.

#### 7.3.1.4 Regression analyses of achievement in REK114 against psychosocial background

**Table 7.13: Regression of REK114 on psychosocial background**

| Parameter   | Estimate    | Standard Error | T-Value | Pr >  t |
|-------------|-------------|----------------|---------|---------|
| Intercept   | 49.73000580 | 2.82689066     | 17.59   | <.0001  |
| PsychoTotal | -0.12762272 | 0.06490899     | -1.97   | 0.0498  |

According to the results indicated in Table 7.13, the impact of psychosocial background on the performance in REK114 is significant since a p-value of 0.0498, which is lower than the  $p < 0.05$  level of significance, was obtained. Lower scores on the PSQ reflect favourable psychosocial backgrounds, while higher scores on the PSQ reflect unfavourable psychosocial backgrounds. An inverse relationship exists between psychosocial background and performance in REK114, because the t-value was -1.97. The inverse relationship indicates that students who scored high on the PSQ and experienced unfavourable psychosocial backgrounds obtained lower marks in REK114 than students who scored low on the PSQ. Irrespective of the fact that the majority of students have a favourable psychosocial background, a significant inverse relationship between the psychosocial background and performance in REK114 exists.

Unfavourable psychosocial backgrounds include a lack of financial resources, health problems such as depression, a lack of emotional support, fear of having contracted HIV, and relationship problems. The finding of this study, namely that an unfavourable psychosocial background has a significant effect on performance in REK114, is supported by the findings of Beyers (2001), Khanh (2002), Lourens and Smit (2003), Bennett (2003) and Dass-Brailsford (2005) who stated that financial problems play an important role in affecting academic achievement. According to these researchers, a lack of financial resources may cause students to discontinue their studies, be unable to buy prescribed textbooks, and experience

housing and transport problems. All these factors may have a negative influence on the academic performance of students because the physical difficulties that these students experience either directly or indirectly affects academic achievement due to the stress caused by such problems.

The significance of the psychosocial background of students with regard to health problems and the impact of stress as specific health concern on the performance in REK114 are supported by the findings of the following studies. As seen in paragraph 3.2.3.6.2, studies by Naidoo (1999), Struthers *et al.* (2000), Furr *et al.* (2001), Bennett (2003), Botha *et al.* (2005), and Hall *et al.* (2006) state that first-year students experience many stressors that may lead to stress, anxiety and depression. These stressors include relationship problems with boyfriends or girlfriends; relationship problems with parents and family members; violence, crime and political unrest; and the fear of having contracted HIV/AIDS. The studies found that all these psychosocial factors may have a negative influence on academic performance.

As mentioned previously, a lack of emotional support and relationship problems are examples of an unfavourable psychosocial background. The finding of this study, namely that an unfavourable psychosocial background has a significant effect on performance in REK114, is supported by the findings of Schmidt (1990), Fuertes and Sedlacek (1994), Das-Brailsford (2005), Dennis *et al.* (2005), Strage

and Brandt (1999), and Wintre and Yaffe (2000) with regard to emotional support. The findings of these studies were discussed in paragraph 3.2.4 and all these studies indicate that students who do not receive emotional support are more likely to underachieve than those who have a strong support system.

### 7.3.2 Univariate analyses of independent variables

#### 7.3.2.1 Regression analyses of achievement in REK114 against OBS134

**Table 7.14: Regression of REK114 on OBS134**

| <b>Parameter</b> | <b>Estimate</b> | <b>Standard Error</b> | <b>T-Value</b> | <b>Pr &gt;  t </b> |
|------------------|-----------------|-----------------------|----------------|--------------------|
| <b>Intercept</b> | -1.924702274    | 3.50130666            | -0.55          | 0.5827             |
| <b>OBS134</b>    | 0.811737365     | 0.05952753            | 13.64          | <.0001             |

Table 7.14 shows the relationship between OBS134 and performance in REK114. The level of significance indicates a p-value of 0.0001 and therefore there is a significant positive relationship between study attitude (as measured regarding performance in OBS134) and REK114. Research studies that found a positive relationship between the average performance in the specific grade (GPA) and performance in accounting were those of Moses (1987), Eskew and Faley (1988) and Turner *et al.* (1997). Although these studies used GPA instead of performance in one other first-year subject, the results of the above-mentioned studies can be compared to the results of this study.

Comparing the mean of REK114 (44.42%) and the mean of OBS134 (57.09%), (see Tables 7.5 and 7.8) shows a difference of 12.67%, indicating that students perform better in OBS134 than in REK114. National and international research indicates a problem with regard to students' performance in accounting, as indicated in paragraph 1.1. Therefore, the difference between the means in REK114 and OBS134 is not surprising. A possible reason for this may be that accounting requires more mathematical calculations than business management.

Because OBS134 was used as a gauge to indicate study attitude, it means that study attitude is definitely a strong predictor of success and non-completion in first-year accounting. In paragraph 3.4, the researcher opined that factors such as personality, self-esteem, self-efficacy, motivation, locus of control and health may collectively permeate students' attitudes towards studying. (Refer to Figure 3.1 for a graphic representation of the above-mentioned factors that may be seen to collectively influence study attitude.)

Therefore, if all these factors collectively influence study attitude, the deduction can be made that, through the interrelationship of these factors, a relationship does indeed exist between study attitude and performance in REK114. This statement is supported by the findings of Furnham *et al.* (2003), which indicate positive and significant correlations between the factor conscientiousness (as aspect of personality) and academic performance. The statement is further supported by the findings of Sedlacek (1999) and Watson *et al.* (2004) who found a positive

relationship between self-esteem and academic performance. Chemers *et al.* (2001) and McKenzie and Schweitzer (2001) found that self-efficacy is significantly related to academic performance. Bye *et al.* (2007) indicate that students who are motivated are more successful in their studies. Dollinger (2000) and Fazey and Fazey (2001) state that students with an internal locus of control perform better than students with an external locus of control. Bennett (2003) reported that some physical health problems are related to retention, while Pritchard and Wilson (2003) found that a student's emotional health is significantly related to their academic performance. For a full report on how these factors may influence academic performance, refer to paragraphs 3.2.3.1–3.2.3.6.

### 7.3.2.2 Regression analyses of achievement in REK114 against abstract thinking

**Table 7.15: Regression of REK114 on abstract thinking**

| Parameter     | Estimate    | Standard Error | T-Value | Pr >  t |
|---------------|-------------|----------------|---------|---------|
| Intercept     | 37.97418521 | 4.28348027     | 8.87    | <.0001  |
| AbstractTotal | 0.92098102  | 0.59626588     | 1.54    | 0.1230  |

Table 7.15 shows the relationship between abstract thinking ability and performance in REK114. A p-value of 0.1230 for abstract thinking was obtained. This indicates that, for the sample in this study, abstract thinking does not have a



significant influence on performance in first-year accounting. However, the positive t-value of 1.54 indicates that higher marks in REK114 are associated with higher abstract thinking ability.

The reason that abstract thinking does not prove to be a significant predictor of success and non-completion in first-year accounting for this sample may be the following: students who register for first-year accounting are students who must have passed Grade 12 mathematics with at least 50%. A student who has the ability to obtain at least 50% for mathematics in Grade 12 must also have at least an average abstract thinking ability and be able to pass first-year accounting. This means that the students who formed part of the sample all possessed an adequate level of abstract thinking skills which enabled them to pass first-year accounting.

The majority of the students in the sample (65%) had an average abstract thinking ability because the scores are grouped around the mean (see paragraph 7.2.3.2 and Figure 7.1). This indicates that first-year accounting students tend to be homogeneous with regard to abstract thinking ability. In this case, abstract thinking will not be a significant predictor of success and non-completion in first-year accounting.

The reason for the researcher's deduction in the previous paragraph is that abstract thinking is an aspect of cognitive ability and, according to the literature,

cognitive ability consistently shows a positive relationship to performance in accounting (see paragraph 2.2.1). The researcher is of the opinion that abstract thinking ability might prove to be more significant in third-year and post-graduate accounting.

### 7.3.2.3 Regression analyses of achievement in REK114 against time perspectives

**Table 7.16: Regression of REK114 on past-negative time perspective**

| Parameter | Estimate    | Standard Error | T-Value | Pr >  t |
|-----------|-------------|----------------|---------|---------|
| Intercept | 54.80426488 | 4.14736362     | 13.21   | <.0001  |
| PastNeg   | -3.44887623 | 1.33907051     | -2.58   | 0.0103  |

Table 7.16 shows that the impact of the past-negative time perspective on performance in REK114 is significant because the level of significance indicates a p-value of 0.0103, which is lower than the  $p < 0.05$  level of significance. The t-value is -2.58, which indicates an inverse relationship between the past-negative time perspective and achievement in REK114. This implies that a high score on the past-negative time perspective is associated with low achievement in REK114. Therefore, respondents in the sample who are negative about the past did not perform well in REK114. This is supported by the finding that students with a past-negative time perspective are governed by situations that they have experienced in

the past (Zimbardo in Zabel, 1995: 23). This finding is also supported by the fact that students who have experienced unfavourable psychosocial factors in the past may find it difficult to achieve academically. Examples of unfavourable psychosocial factors include a lack of emotional support, an unfavourable socioeconomic situation and an environment that is not conducive to learning. Students who did not receive emotional support while growing up may be governed by insecurity and that may reflect negatively on their academic performance. This statement is supported by the findings of Schmidt (1990), Fuertes and Sedlacek (1994), Wintre and Yaffe (2000), Das-Brailsford (2005), and Dennis *et al.* (2005) who stated that a lack of support is strongly related to the academic failure of students. Students who have experienced unfavourable socioeconomic circumstances may feel that they have impediments that they may never overcome. This feeling may cause students to give up trying to achieve academically.

**Table 7.17: Regression of REK114 on past-positive time perspective**

| Parameter | Estimate    | Standard Error | T-Value | Pr >  t |
|-----------|-------------|----------------|---------|---------|
| Intercept | 34.01007883 | 6.04093661     | 5.63    | <.0001  |
| PastPos   | 2.97301484  | 1.70317061     | 1.75    | 0.0814  |

Table 7.17 shows that the impact of the past-positive time perspective on REK114 is not significant on a  $p < 0.05$  level of significance, since a p-value of 0.0814 was

obtained. If a  $p < 0.1$  level of significance is used, the relationship between the past-positive time perspective and REK114 is significant since a p-value of 0.0814 was obtained. The t-value of 1.75, however, indicates that respondents with a higher score on the past-positive time perspective obtained higher marks in REK114, although not significantly so on a  $p < 0.05$  level of significance. The p-value, however, lies in the right direction. According to Zimbardo (1999: 1275), people with a past-positive time perspective are optimistic and will reflect on the present with optimism even when things are not going that well. According to the researcher, this may be the reason for the positive t-value because, even if students with a past-positive time perspective may not perform well, they still feel optimistic and therefore they continue to make an effort to pass.

**Table 7.18: Regression of REK114 on future time perspective**

| <b>Parameter</b> | <b>Estimate</b> | <b>Standard Error</b> | <b>T-Value</b> | <b>Pr &gt;  t </b> |
|------------------|-----------------|-----------------------|----------------|--------------------|
| <b>Intercept</b> | 31.97617176     | 6.79807313            | 4.70           | <.0001             |
| <b>Future</b>    | 3.36388361      | 1.81917306            | 1.85           | 0.0650             |

Table 7.18 shows that the impact of a future time perspective on the performance in REK114 is not significant, the reason being that, on a  $p < 0.05$  level of significance, the level of significance for the relationship between the future time perspective and performance in REK114 indicates a p-value of 0.0650. However,

on a  $p < 0.1$  level of significance, the relationship between the future time perspective and performance in REK114 will be significant.

On a  $p < 0.05$  level of significance, the results have not reached significance, although they lie in the right direction. The t-value of 1.85 indicates that respondents who scored high on the future time perspective obtained higher marks in REK114, although not significantly so. This may be explained by the findings of Zimbardo and Boyd (1999), Fraser and Killen (2003) and Jansen and Bruinsma (2005). These studies indicate that people with a future time perspective consider future consequences and abstain from actions and behaviours that may jeopardise their future goals. They are therefore conscientious which will lead to good time management in order to reach their goals.

**Table 7.19: Regression of REK114 on present-hedonistic time perspective**

| Parameter | Estimate    | Standard Error | T-Value | Pr >  t |
|-----------|-------------|----------------|---------|---------|
| Intercept | 47.27673409 | 6.32738469     | 7.47    | <.0001  |
| PresHedon | -0.83761909 | 1.83166721     | -0.46   | 0.6476  |

According to the results shown in Table 7.19, the relationship between the present-hedonistic time perspective and performance in REK114 is not significant, since a p-value of 0.6476 was obtained, which is higher than the  $p < 0.05$  level of significance. The t-value of -0.46 indicates that there is an inverse relationship

between the present-hedonistic time perspective and performance in REK114. This means that, for higher scores on the present-hedonistic time perspective, the performance in REK114 is lower. This is in line with what is expected because students who score high on the present-hedonistic time perspective are oriented towards the present and for these students present enjoyment, pleasure and excitement are, for example, more important than higher marks in a test the following day. As stated in paragraph 5.2.1.3, it is expected of students who score high on the present-hedonistic time perspective to rather enjoy present activities than to study for a forthcoming test or examination. Not studying in advance for a test or examination may cause these students to achieve a poorer performance than those who study in advance for a test or examination. For this reason, it can be stated that the results of the research lie in the right direction although they have not reached significance.

**Table 7.20: Regression of REK114 on present-fatalistic time perspective**

| Parameter | Estimate    | Standard Error | T-Value | Pr >  t |
|-----------|-------------|----------------|---------|---------|
| Intercept | 49.90918037 | 3.87178127     | 12.89   | <.0001  |
| PresFatal | -2.20340138 | 1.50372991     | -1.47   | 0.1434  |

Table 7.20 shows the relationship between the present-fatalistic time perspective and performance in REK114. The impact of the present-fatalistic time perspective on performance in REK114 is not significant at a  $p < 0.05$  level of significance, since

a p-value of 0.1434 was obtained. The t-value also shows an inverse relationship between the present-fatalistic time perspective and performance in REK114, which indicates that, if respondents scored higher on the present-fatalistic time perspective, they obtained lower marks in REK114, although not significantly so. As with the past-positive, future and present-hedonistic time perspectives, the p-value is not significant, but the results lie in the right direction. This corresponds with the statement of Zimbardo and Boyd (1999: 1275–1276), which indicates that students with a present-fatalistic time perspective hold the perception that they have a lack of control over future events and therefore achieve lower marks.

### **7.3.3 Multivariate analysis – full model**

As stated in paragraph 2.1, Kersop (2004: 185) is of the opinion that the prediction of academic performance should be holistically analysed, since various determinants are present at the prediction of academic success. Therefore, in the determination of significant predictors of success and non-completion in first-year accounting, no factor can be used in isolation to predict performance in first-year accounting. To predict performance in first-year accounting, while considering the interrelationship of variables, multivariate analysis needs to be conducted. In order to do so, data is analysed, using analysis of covariance techniques (ANCOVA). The multivariate model for the performance in REK114 contained the possible confounders (age, ethnicity, gender and psychosocial background), as well as the independent variables, study attitude (OBS134), abstract thinking (Abstract Total),

past-negative time perspective (PastNeg), past-positive time perspective (PastPos), future time perspective (Future), present-hedonistic time perspective (PresHedon) and present-fatalistic time perspective (PresFatal). Data was initially analysed, using analysis of covariance (ANCOVA). The f-statistics and associated p-values were calculated for each variable in the model. Table 7.21 presents the analysis of covariance model (ANCOVA) for performance in REK114. After the presentation of this full model, stepwise model selection was applied by eliminating, one at a time, the variable that was least significantly associated with performance in REK114 (provided that the p-value was at least 0.1).

**Table 7.21: Results of multivariate analysis**

| Source        | DF | Type III SS | Mean Square | F-Value | Pr > F |
|---------------|----|-------------|-------------|---------|--------|
| Age           | 1  | 1406.47715  | 1406.47715  | 3.59    | 0.0587 |
| Ethnic        | 3  | 535.11584   | 178.37195   | 0.46    | 0.7136 |
| Gender        | 1  | 328.60931   | 328.60931   | 0.84    | 0.3601 |
| PsychoTotal   | 1  | 223.91494   | 223.91494   | 0.57    | 0.4499 |
| OBS134        | 1  | 62369.26793 | 62369.26793 | 159.24  | <.0001 |
| AbstractTotal | 1  | 558.53427   | 558.53427   | 1.43    | 0.2330 |
| PastNeg       | 1  | 2044.37844  | 2044.37844  | 5.22    | 0.0227 |
| PastPos       | 1  | 360.12874   | 360.12874   | 0.92    | 0.3381 |
| Future        | 1  | 100.95612   | 100.95612   | 0.26    | 0.6119 |
| PresHedon     | 1  | 11.76602    | 11.76602    | 0.03    | 0.8625 |
| PresFatal     | 1  | 13.92852    | 13.92852    | 0.04    | 0.8505 |



In statistics  $R^2$  refers to the proportion of the variance of the dependent variable accounted for by the independent variables via the multiple regression equation (Maas, 1998: 275). The influence of the factors that have been researched on the predictability of performance in REK114 is therefore indicated by  $R^2$  and will be discussed after the presentation of Table 7.22.

**Table 7.22: R-square of the dependent variable: REK114**

| R-Square | Coeff Var | Root MSE | REK114 Mean |
|----------|-----------|----------|-------------|
| 0.283390 | 44.20429  | 19.79031 | 44.77011    |

According to Table 7.22, the mean for REK114 is 44.77. This indicates that the average mark obtained for REK114 by the respondents was 44.77%. The  $R^2$  is 0.283. In other words, at least 28% of the variation in the marks for REK114 can be explained by the variation in the research variables, which means that the performance of a specific student can be predicted with 28% more accuracy if the eleven variables in this study are considered.

Table 7.23 on the next page demonstrates the various models fitted and specifies which variable was eliminated from the model using the stepwise procedure.

**Table 7.23: Stepwise model selection of predictors of performance in REK114**

| <b>Model</b> | <b>Independent variables in the model</b>  | <b>Variables removed from the model</b> | <b>DF<br/>For variable to be removed</b> | <b>Mean Square<br/>For variable to be removed</b> | <b>F-Value<br/>For variable to be removed</b> | <b>Pr &gt; F<br/>For variable to be removed</b> |
|--------------|--|---|--|---|---|---|
| <b>1</b>     | <b>Age, Gender, PsychoTotal<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos,<br/>Future,<br/>PresHedon,<br/>PresFatal</b> | <b>Ethnic</b>                           | <b>3 13</b>                              | <b>178.37195</b>                                  | <b>0.46</b>                                   | <b>0.7136</b>                                   |
| <b>2</b>     | <b>Age, Gender, OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos,<br/>Future,<br/>PresHedon,<br/>PresFatal</b>                 | <b>PsychoTotal</b>                      | <b>1 10</b>                              | <b>215.63871</b>                                  | <b>0.55</b>                                   | <b>0.4577</b>                                   |

| <b>Model</b> | <b>Independent variables in the model</b>  | <b>Variables removed from the model</b> | <b>DF<br/>For variable to be removed</b> | <b>Mean Square<br/>For variable to be removed</b> | <b>F-Value<br/>For variable to be removed</b> | <b>Pr &gt; F<br/>For variable to be removed</b> |
|--------------|--|---|--|---|---|---|
| <b>3</b>     | <b>Age,<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos,<br/>Future,<br/>PresHedon,<br/>PresFatal</b> | <b>Gender</b>                           | <b>1 9</b>                               | <b>241.44314</b>                                  | <b>0.62</b>                                   | <b>0.4326</b>                                   |
| <b>4</b>     | <b>Age,<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos,<br/>Future,<br/>PresFatal</b>                | <b>PresHedon</b>                        | <b>1 8</b>                               | <b>10.41540</b>                                   | <b>0.03</b>                                   | <b>0.8704</b>                                   |
| <b>5</b>     | <b>Age,<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos,<br/>Future</b>                               | <b>PresFatal</b>                        | <b>1 7</b>                               | <b>42.12062</b>                                   | <b>0.11</b>                                   | <b>0.7427</b>                                   |

| <b>Model</b> | <b>Independent variables in the model</b>                                | <b>Variables removed from the model</b> | <b>DF<br/>For variable to be removed</b> | <b>Mean Square<br/>For variable to be removed</b> | <b>F-Value<br/>For variable to be removed</b> | <b>Pr &gt; F<br/>For variable to be removed</b> |
|--------------|--|---|--|---|---|---|
| <b>6</b>     | <b>Age,<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg,<br/>PastPos</b> | <b>Future</b>                           | <b>1 6</b>                               | <b>60.06280</b>                                   | <b>0.15</b>                                   | <b>0.6948</b>                                   |
| <b>7</b>     | <b>Age,<br/>OBS134,<br/>Abstract<br/>Total,<br/>PastNeg</b>              | <b>PastPos</b>                          | <b>1 5</b>                               | <b>389.73480</b>                                  | <b>1.00</b>                                   | <b>0.3173</b>                                   |
| <b>8</b>     | <b>Age,<br/>OBS134,<br/>PastNeg</b>                                      | <b>Abstract<br/>Total</b>               | <b>1 4</b>                               | <b>530.55690</b>                                  | <b>1.36</b>                                   | <b>0.2434</b>                                   |

After the variables that were least significantly associated with performance in REK114 (provided that the p-value was at least 0.1) were removed one at a time in a stepwise model, the final fitted model is presented in Table 7.24.

**Table 7.24: Final fitted model**

| Source  | DF | Type III SS | Mean Square | F-Value | Pr > F |
|---------|----|-------------|-------------|---------|--------|
| Age     | 1  | 1283.05732  | 1283.05732  | 3.30    | 0.0700 |
| OBS134  | 1  | 68337.81231 | 68337.81231 | 175.53  | <.0001 |
| PastNeg | 1  | 3283.97100  | 3283.97100  | 8.44    | 0.0038 |

According to Table 7.24, the confounding variable, namely age, and the independent variables, namely study attitude (OBS134) and past-negative time perspective, formed part of the final model. According to this model, age was the least significant predictor of the three (p-value = 0.07), followed by the past-negative time perspective with a p-value of 0.0038. The most significant predictor of success and non-completion in first-year accounting was study attitude measured regarding performance in OBS134 with a p-value of less than 0.0001.

According to Table 7.25, the value of  $R^2$  is 0.276. This indicates that at least 27.62% of the variation in the marks for REK114 can be explained by the three variables of age, past-negative time perspective and study attitude.

**Table 7.25: R-square for the fitted model of the dependent variable: REK114**

| R-Square | Coeff Var | Root MSE | REK114 Mean |
|----------|-----------|----------|-------------|
| 0.276182 | 44.16890  | 19.73103 | 44.67176    |

## 7.4 SUMMARY OF FINDINGS

As stated in paragraph 1.4, the aim of this research study was to determine relatively unexplored factors as possible predictors of success and non-completion in first-year accounting. To be able to do this, descriptive statistics were applied to provide a picture of the confounding, independent and dependent variables. Thereafter, statistics of association were applied. Firstly, univariate analyses (ANOVA and regression analyses) were conducted to determine whether significant relationships exist between the individual variables (confounding and independent) and performance in first-year accounting (REK114).

The results of the univariate analysis regarding the confounding variables of gender, age, ethnicity and psychosocial background indicated that gender, age and psychosocial background were significantly related to performance in REK114. No significant relationship, however, exists between ethnicity and performance in REK114. The researcher also came to the conclusion that there is no significant relationship between language ability and performance in REK114 despite instruction in accounting taking place in the majority of these students' second or third languages. (Refer to Table 7.2 for the number of students per ethnic group.) Therefore, if ethnicity does not have a significant relationship to performance in REK114, language will also show no significant relationship to performance in REK114 because of the interrelationship of ethnicity and language.

The results of the univariate analyses of the independent variables, namely study attitude as measured by performance in OBS134, abstract thinking ability and time perspectives, indicate the following:

- Study attitude (OBS134) is significantly related to performance in REK114 because, on a  $p < 0.05$  level of significance, study attitude is significantly related to performance in REK114 with a p-value of 0.0498.
- Abstract thinking ability as an independent variable does not show a significant relationship to performance in REK114. In paragraph 7.3.2.2, it was stated that 65% of the students had an average abstract thinking ability as illustrated by the fact that the scores for abstract thinking ability are grouped around the mean. To support this, it was further stated that all the respondents obtained at least 50% for mathematics in Grade 12 and that this indicates that the level of abstract thinking of the respondents was adequate to pass REK114. According to the researcher, the reason that abstract thinking ability did not show a significant relationship to performance in REK114 may be because first-year accounting students tend to be homogeneous regarding their abstract thinking ability.
- For the independent variable, time perspective, five different time perspectives that students may have were analysed in order to determine

whether the most dominant time perspective of a student shows a significant relationship to performance in REK114. The results indicated that only the past-negative time perspective was significantly related to performance in REK114 at a  $p < 0.05$  level of significance. The past-positive and future time perspectives were not significantly related to performance in REK114 at a  $p < 0.05$  level of significance. However, if a  $p < 0.1$  level of significance is used, these two time perspectives show a significant relationship to performance in REK114. The present-hedonistic and present-fatalistic time perspectives were not significantly related to performance in REK114 on either a  $p < 0.05$  or  $p < 0.1$  level of significance.

To summarise the results of the univariate analyses, it can be stated that the confounding variables, age, gender and psychosocial background, are significantly related to performance in REK114, while the independent variables, study attitude (OBS134) and past-negative time perspective, are significantly related to performance in REK114.

After the univariate ANOVA and regression analyses were performed, a multivariate analysis was conducted. This was done to determine the relationship of the confounding and independent variables to performance in REK114, while considering the effect of covariance of the variables. The reason for this is that nothing exists in isolation and no factor will have an independent influence on



academic performance. The results of the ANCOVA (see page 179) indicate that, on a  $p < 0.1$  level of significance (according to the statistical analyses plan), the confounding variable, age, and the independent variables, study attitude (OBS134) and past-negative time perspective proved to be significant predictors of success in first-year accounting.

The results of the univariate and multivariate analysis of association are considered collectively in pointing to significant predictors of success in REK114. Age, past-negative time perspective and study attitude (OBS134) were indicated as significant predictors by both the univariate and multivariate analyses. Gender and psychosocial background were indicated as significant predictors of success and non-completion in first-year accounting when the univariate analysis was applied, but these two variables were eliminated when the multivariate analysis was used. The reason for this may be that confounders are related to one another, as well as to the independent variables. This means that age and psychosocial background as confounding variables might have been contained in the significant variables. Gender, for example, may be contained in study attitude, since male students may be less motivated than female students. (Motivation is one of the aspects that may have an influence on study attitude as seen in paragraph 3.4.)

Psychosocial background was eliminated when the ANCOVA was conducted. The reason for this may be that psychosocial factors are contained in the past-negative time perspective because, if students with a past-negative time perspective have

experienced unfavourable psychosocial factors, it may have a negative influence on their academic performance as discussed in paragraph 7.3.2.3.

In conclusion, Table 7.26 presents a summary of the hypotheses that have been accepted and rejected for purposes of this study.

**Table 7.26: Summary of null hypotheses accepted and rejected at a 0.05 level of significance**

| <b>Null hypotheses accepted</b>   | <b>Null hypotheses rejected</b>  |
|---|--|
| H <sub>0b</sub> : No relationship exists between abstract thinking and performance in REK114.                     | H <sub>0a</sub> : No relationship exists between performance in REK114 and a positive study attitude.        |
| H <sub>0d</sub> : No relationship exists between a past-positive time perspective and performance in REK114.      | H <sub>0c</sub> : No relationship exists between a past-negative time perspective and performance in REK114. |
| H <sub>0e</sub> : No relationship exists between a present-hedonistic time perspective and performance in REK114. |  |
| H <sub>0f</sub> : No relationship exists between a present-fatalistic time perspective and performance in REK114. |  |
| H <sub>0g</sub> : No relationship exists between a future time perspective and performance in REK114.             |  |

Chapter 8 will focus on the conclusion, limitations and recommendations of the research study.

## CHAPTER 8

### CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

#### 8.1 INTRODUCTION

Chapter 1 indicated that the throughput rate in accounting is an area of concern both nationally and internationally. As indicated in paragraph 1.1, extensive research has been done on the influence of teaching methods, learning styles, deep and surface learning, lecturer performance, small and large classes, and tutorials on the success or non-completion of students in general, and students in accounting in particular. Other determinants of success and non-completion in accounting that have been researched include age, gender, prior knowledge of accounting, prior knowledge of mathematics, language proficiency and pedagogical techniques. Consequently, the following research question emerged: *Are the following variables, namely study attitude, level of abstract thinking and time perspective, predictors of success and non-completion in first-year accounting?*

In order to answer this question, a comprehensive literature study was conducted to determine factors already researched that may have an influence on success and non-completion in accounting and, specifically, in first-year accounting. In Chapter 2, a literature study was conducted on cognitive determinants of success and non-completion. These factors were set out in Figure 2.2. Cognitive ability was

the one factor that proved to be positively related to performance in accounting both nationally and internationally. As indicated in Table 2.1, the results of national and international research differ with regard to the influence of language proficiency, previous accounting and previous mathematics on the performance in accounting. No national studies were found that researched the effect of learning styles, learning approaches and grade performance average on performance in accounting. International research indicates the following: inconclusive results regarding learning approaches; no significant influence regarding language proficiency; and a positive relationship between grade performance average and performance in accounting.

Chapter 3 covered a literature study on non-cognitive determinants of success and non-completion in general and, specifically, in accounting. With regard to age and gender, national and international research reports contradictory findings. Inconclusive results regarding the relationship between personality and performance in accounting were revealed. A literature study revealed a lack of national research regarding class size, teaching methods and support programmes. International research, however, indicates inconclusive results regarding the influence of these factors on performance in accounting. National and international research indicates that motivation, time management and adjustment to university are positively related to performance in accounting.

Various other factors that may be related to academic performance in general are indicated in the literature, but no research has been done on the relationship between these factors and performance in accounting. These factors include financial problems, self-esteem, self-efficacy, locus of control, health and interpersonal relationships. Table 3.2 provides a summary of the research findings on the influence of these factors on academic performance in general. Considering what has been found in the literature, the researcher identified study attitude as a possible predictor of success and non-completion in accounting. As stated in paragraph 3.4, study attitude is a concept that is difficult to define and demarcate, but non-cognitive factors such as personality, self-esteem, self-efficacy, motivation, locus of control and health may be seen to collectively influence a student's attitude towards studying. Therefore, study attitude was identified as an independent variable that may have an influence on performance in first-year accounting.

Chapter 4 focussed on abstract thinking skills, since abstract thinking is an aspect of cognitive ability, a concept that was also researched. The literature study included theories on cognitive ability and cognitive development. According to the literature that was consulted, human beings function cognitively on a concrete-operational level and a formal-operational level. The main characteristic of the formal-operational level is abstract and hypothetical thinking (Jones & Davidson, 1995; Louw & Edwards, 1998). Abstract thinking was thus identified by the

researcher as a second independent variable that may have an influence on performance in first-year accounting.

The literature study revealed a further aspect, namely time perspective, that, according to the researcher, might have an influence on performance in accounting. Zimbardo and Boyd (1999) argue that people have different time perspectives and that their dominant time perspective may explain their study behaviour. The researcher therefore decided to conduct research on time perspective as a third independent variable that may have an influence on performance in first-year accounting. Chapter 5 focused on what the literature reveals about the different time perspectives.

Data was collected from students who registered for REK114 at the University of the Free State during 2009. The data was gathered by means of statistical information from the university, as well as by means of existing or adapted questionnaires that REK114 students had to complete. The questionnaires that served as measuring instruments included: a biographical questionnaire, the Psycho-social Questionnaire (PSQ), factor B of the 16PF Questionnaire and the Zimbardo Time Perspective Inventory (ZTPI).

The data gathered from the UFS and the questionnaires were coded by the researcher and the Department of Information and Technology Services at the

UFS. These were then recorded and analysed. The analysis of the data was done according to the Statistical Analysis Plan, developed by Professor Schall from the Statistics Department of the UFS (see Appendix E). To test the hypotheses, univariate and multivariate analyses were conducted, using a 0.05 level of significance. In order to control confounding variables, they were built into the design. The research design and methodology for the research study is set out in Chapter 6.

Chapter 7 focussed on the results and the discussion of the results for this research study. The next paragraph will deal with the conclusions of the results of this study.

## **8.2 CONCLUSIONS**

To interpret the results of the research study, descriptive statistics and statistics of association were used. Descriptive statistics were used to describe the confounding variables, independent variables and dependent variable by indicating aspects such as the number of respondents, mean and median. After the descriptive statistics were reported, statistics of association indicated the relationships among the variables through univariate and multivariate analyses. As stated in paragraph 7.4, the results of the univariate and multivariate analyses of association are considered collectively in pointing to significant predictors of success and non-completion in first-year accounting. The following paragraphs will

present the conclusions regarding the confounding variables, independent variables and dependent variable.

## **8.2.1 Confounding variables**

### **8.2.1.1 Gender**

As indicated in paragraph 7.2.1.1, 550 students indicated their gender on the biographical questionnaire. More females participated in the research study, since 44% of the students were male, while 56% were female. Statistics of association reveal that, according to the univariate and multivariate analyses on a  $p < 0.05$  level of significance, gender proved to be significantly related to performance in REK114, with females performing better than males. This finding is supported by the research indicated in paragraph 7.3.1.1.

According to the stepwise model selection of predictors of performance in REK114 (see table 7.23) gender was eliminated as significant predictor of success and non-completion. The researcher suggested that, in multivariate analysis, co-variance of variables is to be considered and gender as a factor might have been contained in study attitude. A possible explanation for this may be that female students are more motivated than male students and therefore female students may have a more positive study attitude than male students.



### **8.2.1.2 Age**

According to the descriptive statistics, the majority of students who participated in the research study were relatively young because the age of the respondents who participated in the study varies between 17 and 50, but the mean age was 19.93 years. The results indicate that age is significantly related to performance in REK114, with younger students performing better than older students in first year accounting. This finding is supported by research (see paragraph 7.3.1.3).

### **8.2.1.3 Ethnicity**

Descriptive statistics indicate that 66% of the respondents were black, 6% were coloured, 2% were Indian and 26% were white. This indicates that the majority of students were black. The univariate and multivariate analyses of association reveal that no significant relationship between ethnicity and REK114 was found on a  $p < 0.05$  level of significance. This finding also implies that language does not have a significant influence on the performance of first-year accounting, since the majority of the students in this sample do not study in their first language. The reason for this deduction is that the biographical questionnaires indicate that 65% of the students who participated in this study are black and that their first language is neither English nor Afrikaans. Refer to paragraph 7.3.1.2 for support of this finding.

#### **8.2.1.4 Psychosocial background**

According to descriptive statistics, the number of students who have an unfavourable psychosocial background is fewer than the number of students who have a favourable psychosocial background. The relationship between psychosocial background and performance in REK114 is significant, which indicates that the performance of students with an unfavourable psychosocial background is affected negatively. The significant relationship between the psychosocial background and performance in REK114 that was found in this study is supported by findings indicated in paragraph 7.3.1.4. Psychosocial factors that may affect academic performance include a lack of financial resources, physical health problems, emotional health problems and relationship problems. The ways in which these factors influence academic performance were discussed in paragraphs 3.2.2.1, 3.2.3.6 and 3.2.4.

It is possible that an interrelationship between psychosocial circumstances and the past-negative time perspective exists. Therefore, students with an unfavourable psychosocial background may have a negative perspective of the past and, according to the results, a past-negative time perspective has a significant influence on performance in first-year accounting. The researcher also suggests that negative experiences with regard to school accounting may influence students in such a way that they have a negative attitude towards first-year accounting and that this, in turn, influences performance.

## **8.2.2 Independent variables**

### **8.2.2.1 Study attitude (OBS134)**

As indicated throughout this study, the final mark in OBS134 was used as a gauge in measuring study attitude. Univariate and multivariate analyses indicate a significant relationship between performance in OBS134 and REK114. Study attitude, therefore, significantly predicts performance in first-year accounting but, as mentioned in paragraph 3.4, factors such as personality, self-esteem, self-efficacy, motivation and locus of control may collectively influence study attitude.

### **8.2.2.2 Abstract thinking**

Factor B of the 16PF Questionnaire was used to measure the abstract thinking ability of first-year accounting students in this study. Figure 7.1 reveals that the abstract thinking ability of the sample in this study was average and only a few high and low scores were obtained.

According to the univariate and multivariate analyses, and as indicated in paragraph 7.3.2.2, abstract thinking as independent variable was not significantly related to performance in REK114. The researcher, however, concluded that accounting students may be homogeneous with regard to their abstract thinking ability because most of the scores are grouped around the mean and, therefore, first-year accounting students may all have a level of abstract thinking required to pass first-year accounting.

### **8.2.2.3 Time perspective**

The descriptive statistics regarding the students' time perspective reveal that, for the specific sample, most of the students are inclined to have a future time perspective, followed by an orientation towards the past-positive, future-hedonistic, past-negative and present-fatalistic time perspectives.

According to the univariate analysis, the past-negative time perspective is the only time perspective that is significantly related to performance in REK114. The fact that the past-negative time perspective shows a significant relation to REK114 may be related to the finding that an unfavourable psychosocial background has a significant influence on performance in REK114 as indicated in paragraphs 7.3.2.3 and 8.2.2.1. As indicated in paragraph 5.2.1.1, students with a past-negative time perspective usually reflect a negative, aversive view of the past that may have an influence on present behaviour. This negative attitude with regard to the past may be the result of unpleasant or traumatic events that they have experienced in the past. Therefore, students with a past-negative time perspective may have experienced an unfavourable psychosocial background. This, in turn, points to the possibility that a lack of emotional support, as well as health and financial problems, may have an influence on performance in REK114 as explained in paragraph 7.3.1.4. The statistical relationship of the other four time perspectives to REK114, although not significant, are worth mentioning: the past-positive time perspective and the future time perspective are significantly related to performance

in REK114 on a 0.1 level of significance, while the relationship between REK114 and the other two time perspectives (the present-hedonistic time perspective and the present-fatalistic time perspective) lies in the right direction. This reveals that time perspective plays a role in the prediction of performance in first-year accounting. These results are in accordance with the prediction about academic achievement according to the literature (see paragraph 5.2.1).

### **8.2.3 Dependent variable**

As indicated in paragraph 7.2.4, the mean of the dependent variable, REK114, was 44%. The low mean indicates that the result is in line with national and international research on problems with regard to performance in first-year accounting and illustrates the need to determine significant predictors of success and non-completion in first-year accounting. If the significant predictors of success and non-completion are known, the areas of concern can be more easily addressed.

Thus, according to the univariate analysis, age, gender, psychosocial background, study attitude and a past-negative time perspective are significantly related to performance in first-year accounting on a  $p < 0.05$  level of significance, while the multivariate analyses indicate that on a  $p < 0.05$  level of significance, age, study attitude (performance in OBS134) and past-negative time perspective are significantly related to performance in first-year accounting. The possible reasons

for the difference between the results of the univariate and multivariate analyses were addressed in Chapter 7, as well as in the previous paragraphs.

The most outstanding result of this research study seems to be the connection between unfavourable psychosocial circumstances and a past-negative time perspective. In other words, it seems to be that an unfavourable psychosocial background leads to a past-negative time perspective which then, together, become significant predictors of success and non-completion in first-year accounting at the UFS.

### **8.3 LIMITATIONS**

Although this study indicated valuable and interesting findings, the following limitations have to be acknowledged:

- The sample size used in the research was adequate. However, because convenience sampling was used instead of random sampling, the results cannot be generalised and are therefore limited to the selected group of students. This implies that the results can be generalised only to the whole target population of first-year accounting students at the UFS during 2009 (refer to paragraph 6.5.1).
- The research results rely mainly on self-reporting measures, namely the PSQ, factor B of the 16PF Questionnaire and the ZTPI (refer to paragraphs

6.5.3.2–6.5.3.4). Self-report inventories always pose implicit problems with regard to students not being comfortable in divulging personal information, students not being motivated to answer truthfully and students not clearly understanding what is required of them. However, because a large sample of 553 participants was used, it can be assumed that the majority of these problems did not have an influence on the results. The researcher also tried to combat these limitations by informing students that participation in the study is voluntary. Students were also assured of confidentiality with regard to the information. The researcher was present in the venue to answer questions and explain uncertainties pertaining to the completion of the questionnaires.

- The data was obtained from one administration of the questionnaires and inventories only. Therefore, the data obtained could be influenced by, for example, factors such as the emotional state and illness of students that were beyond the control of the researcher. Again, these problems are intercepted by a large sample.
- Data on the nineteen items of the PSQ could have been analysed individually in order to gain insight into different areas of the psychosocial background that have an influence on academic performance. This would have ensured more specific information regarding the psychosocial background of the students in order to identify the areas in which students need support.

- The research study involved only first-year accounting students during 2009. The researcher could have come to more informed conclusions if the study had taken place over a period of three to five years.

## **8.4 RECOMMENDATIONS**

Bearing in mind the research findings, as well as the above-mentioned limitations, the following recommendations are made:

- According to the univariate analysis, age was indicated as being significantly related to performance in first-year accounting with younger students performing better than older students. In order to assist older students to pass, they can be encouraged to take fewer subjects per year instead of taking the full load of subjects indicated for a first-year student. This will enable them to spend more time on the subjects for which they have registered.
- Another research study where the PSQ is used should be conducted. In the proposed study, however, the questions should be analysed according to emotional support, socioeconomic situation and depression, or even according to each individual item appearing in the questionnaire. This should be done for both the current situation and the childhood years of the respondents. By doing so, more detailed information can be obtained with regard to specific problems in the psychosocial background and their



influence on performance in first-year accounting or on performance in general.

- The study could be repeated by selecting a random sample from all undergraduate accounting students. The results of the proposed research study could be generalised to accounting students from all universities in South Africa.
- The measuring instrument for abstract thinking ability could also be used to measure the abstract thinking ability of all accounting students from first-year to post-graduate level. This would determine the extent to which abstract thinking influences performance in accounting. The researcher is of the opinion that students require higher levels of abstract thinking ability to pass second-year, third-year and, especially, postgraduate accounting courses.
- The UFS could use the ZTPI to determine the dominant time perspective of all first-year students. Students with a past-negative time perspective should receive counselling and the university should pay more attention to the personal circumstances of students. Although the UFS does offer a counselling service, not all students who experience problems or who come from unfavourable psychosocial circumstances, make use of this service.

As stated in paragraph 4.2.2, no research has been done on the effect of a time perspective intervention with regard to the academic performance of

students, but Seijts (1998: 157) is of the opinion that time perspective is a flexible construct and that it is capable of modification. Therefore, if time perspective intervention can change behaviour with regard to physical activity, it should be possible for a time perspective intervention to change behaviour with regard to academic performance in general and, specifically, study habits and academic performance in accounting. This matter remains a subject for possible future research.

## **8.5 FINAL CONCLUSION**

The answers to the research question and subsidiary questions that were posed in paragraph 1.2 are therefore as follows:

- There is a positive relationship between study attitude as measured by the achievement in first-year business management (OBS134), and achievement in first-year accounting (REK114).
- There is no significant relationship between the ability to think abstractly and achievement in first-year accounting. The study, however, revealed that the sample obtained an average score in terms of abstract thinking ability and, as a result of this, no significant relationship between abstract thinking ability and performance in first-year accounting was revealed.
- While there is an inverse relationship between the past-negative time perspective and achievement in first-year accounting, there are no

significant relationships between the past-positive, present-, future-hedonistic and future-fatalistic time perspective and achievement in first-year accounting.

Therefore, it is proposed that the University of the Free State first has to identify students with unfavourable psychosocial backgrounds, negative study attitudes and a dominant past-negative time perspective. Special attention should then be paid to these students in the form of counselling, courses on study skills, and personal attention, especially as a means of changing their study attitude. This may enable students to be in a better position to pass accounting and perform better academically.

## LIST OF REFERENCES

Amernic, J.H. & Beechy, T.H. 1984. Accounting students' performance and cognitive complexity: Some empirical evidence. *The Accounting Review*, 59(2):300-313.

Anastasi, A. 1976. *Psychological Testing*. 4<sup>th</sup> edition. New York: Macmillan Publishing.

Apostolou, B., Watson, S.F., Hassell, J.M. & Webber, S.A. 2001. Accounting education literature review (1997-1999). *Journal of Accounting Education*, 19:1-61.

Athawale, R. 2004. Cultural, gender and socio-economic differences in time perspective among adolescents. Unpublished Master's thesis. University of the Free State, Bloemfontein.

Auyeng, P.K. & Sands, D.F. 1994. Predicting first-year university accounting using gender-based learning analysis. *Accounting Education*, 3(3):259-272.

Baldwin, B.A. & Howe, K.R. 1982. Secondary-level study of accounting and subsequent performance in the first college course. *The Accounting Review*, 57(3):619-626.

Bargate, K. 1999. Mathematics as an indicator of success in first year accounting programmes at Technikon Natal. *South African Journal of Higher Education*, 13(1):139-143.

Barnes, H. 2006. Academic performance in Financial Accounting 1 at the Central University of Technology, Free State. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Barrett, J. 2004. *Aptitude, personality & motivation tests. Assess your potential and plan your career.* London: Cogan Page.

Bartlett, S., Peel, M.J. & Pendlebury, M.W. 1993. From fresher to finalist: A three year analysis of student performance on an accounting degree programme. *Accounting Education: An International Journal*, 2(2):111-122.

Baumeister, R.F., Campbell, J.D., Krueger, J.I. & Vohs, K.D. 2003. Does high self-esteem cause better performance, interpersonal success, happiness, of healthier lifestyles? *Psychological Science in the Public Interest*, 4(1):1-44.

Beets, S.D. & Lobingier, P.G. 2001. Pedagogical techniques: Student performance and preferences. *Journal of Education for Business*, 76(4):231-235.

Bennett, R. 2003. Determinants of undergraduate student drop out rates in a university business studies department. *Journal of Further and Higher Education*, 27(2):123-141.

Bergin, J.L. 1983. The effect of previous accounting study on student performance in first college-level financial accounting course. *Issues in Accounting Education*, 1983(1):19-28.

Beyers, C. 2001. Faktore wat die akademiese prestasie van eerstejaar Vista-studente beïnvloed. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Biggs, J. 2003. *Teaching for quality learning at university.* Berkshire: Open University Press.

Biggs, J., Kember, D. & Leung, D.Y.P. 2001. The revised two-factor Study Process Questionnaire: R-SPQ-2F. *British Journal of Educational Psychology*, 71:133-149.

Bless, C., Higson-Smith, C. & Kagee, A. 2006. *Fundamentals of social research methods. An African perspective*. 4<sup>th</sup> edition. Cape Town: Juta and Company Ltd.

Blinn, L.M. & Schwartz, M. 1987. Future time perspective: A multi-method study of how home economics students picture their lives in the future. *Journal of Vocational Home Economics Education*, 6(1):1-17

Bonner, S.E. 1999. Choosing teaching methods based on learning objectives: An integrative framework. *Issues in Accounting Education*, 14(1):11-39

Booth, P., Lockett, P. & Mladenovic, R. 1999. The quality of learning in accounting education: The impact of approaches to learning on academic performance. *Accounting Education*, 8(4):277-300.

Borghans, L., Duckworth, A.L., Heckman, J.J. & ter Weel, B. 2008. The economics and psychology of personality traits. *IZA Discussion Paper No. 3333*.

Botha, H.L., Brand, H.J., Cilliers, C.D., Davidow, A., de Jager, A.C. & Smith, D. 2005. Student counselling and development services in higher education institutions in South Africa. *South African Journal of Higher Education*, 19(1):73-88.

Bray, S.R. & Born, H.A. 2004. Transition to university and vigorous physical activity: Implications for health and psychological well-being. *Journal of American College Health*, 52(4):393-412.

Bray, S.R., & Kwan, M.Y.W. 2006. Physical activity is associated with better health and psychological well-being during transition to university life. *Journal of American College Health*, 55(2):181-188.

Brown, W.T. & Jones, J.M. 2004. The substance of things hoped for: A study of the future orientation, minority status perceptions, academic engagement, and academic performance of black high school students. *Journal of Black Psychology*, 30(2):248-273.

Buboltz, W.C., Brown, F. & Soper, B. 2001. Sleep habits and patterns of college students: A preliminary study. *Journal of American College Health*, 50(3):131-135.

Bye, D., Pushkar, D. & Conway, M. 2007. Motivation, interest, and positive affect in traditional and nontraditional undergraduate students. *Adult Education Quarterly*, 57(2):141-158.

Byrne, M. & Flood, B. 2005. A study of accounting students' motives, expectations and preparedness for higher education. *Journal of Further and Higher Education*, 29(2):111-124.

Byrne, M., Flood, B. & Willis, P. 2002. The relationship between learning approaches and learning outcomes: A study of Irish accounting students. *Accounting Education*, 11(1):27-42.

Cantwell, R., Archer, J. & Bourke, S. 2001. A comparison of the academic experiences and achievement of university students entering by traditional and non-traditional means. *Assessment and Evaluation in Higher Education*, 26(3):221-234.

Cattell, H.B. 1989. *The 16PF Personality in depth*. United States of America: Institute for Personality and Ability Testing, Inc.

Cattell, R.B. 1966. *The scientific analysis of personality*. Chicago: Adline.

Cattell, R.B. 1987. *Intelligence: Its structure, growth, and action*. Amsterdam: Elsevier Science Publishers.

Chamorro-Premuzic, T. & Furnham, A. 2003. Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality*, 37:319-338.

Chemers, M.M., Hu, L. & Garcia, B.F. 2001. Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology*, 93(1):55-64.

Cheng, W. & Ickes, W. 2009. Conscientiousness and self-motivation as mutually compensatory predictors of university-level GPA. *Personality and Individual Differences*, 47:817-822.

Chilisa, B., Bennell, P. & Hyde, K. 2001. The impact of HIV/AIDS on the University of Botswana: Developing a comprehensive strategic response. Unpublished paper. University of Botswana, Botswana.

Chrisholm, L. 2003. The state of curriculum reform in South Africa: The issue of Curriculum 2005. In *State of the Nation: South Africa 2003-2004*, edited by Daniel, J., Habib, A. and Southall, R.

([www.hsrcpublishers.ac.za](http://www.hsrcpublishers.ac.za))

Retrieved on 19 August 2010.



Cohen, P.A., Kulik, J.A. & Kulik, C.C. 1982. Educational outcomes of tutoring: A meta-analysis of findings. *American Educational Research Journal*, 19(2):237-248.

Colley, J.R. & Volkan, A.G. 1996. Evaluating the quality of transfer versus non-transfer accounting principles grades. *Journal of Education for Business*, 71(6):359-362.

*Collins Concise Dictionary: 21st century edition*. 2004. Glasgow: HarperCollins Publishers.

Colman, A.M. 2001. *Dictionary of psychology*. Oxford: University Press.

Colom, R., Escorial, S., Shih, P.C. & Privado, J. 2007. Fluid intelligence, memory span, and temperament difficulties predict academic performance of young adolescents. *Personality and Individual Differences*, 42:1503-1514.

Cooper, B.J. 2004. The enigma of the Chinese learner. *Accounting Education*, 13(3):289-310.

Dass-Brailsford, P. 2005. Exploring resiliency: Academic achievement among disadvantaged black youth in South Africa. *South African Journal of Psychology*, 35(3):574-590.

DeBerard, M.S., Spielmans, G.I. & Julka, D.C. 2004. Predictors of academic achievement and retention among college freshman: A longitudinal study. *College Student Journal*, 38(1):66-80.

Dennis, J.M., Phinney, J.S. & Chuateco, L.I. 2005. The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46(3):223-229.

De Volder, M.L. & Lens, W. 1982. Academic achievement and future time perspective as a cognitive-motivational concept. *Journal of Personality and Social Psychology*, 42(3):566-571.

De Wet, J.H. & Van Niekerk, M.C. 2001. An innovative approach to accounting education at the first-year level. *Meditari Accountancy Research*, 9:93-108.

De Wet, Y., Erasmus, S. & Ponting, H. 2008. Determining the correlation between mathematics and language grades at school level and the performance of first-year accounting students. Paper presented at the Value 2008 Conference held at Sun City, South Africa from 26-28 May. University of Johannesburg, Johannesburg.

Dickson, J., Fleet, A. & Watt, H.M.G. 2000. Success or failure in a core university unit: What makes the difference? *Higher Education Research and Development*, 19(1):59-73.

Dinius, S.H. 1991. Accounting students: Secondary-level study and academic performance and characteristics. *Journal of Education*, 66(4):244-250.

Dollinger, S.J. 2000. Locus of control and incidental learning: An application to college student success. *College Student Journal*, 34(4):537-540.

Donald, J.G. 1999. Motivation for higher-order learning. *New Directions for Teaching and Learning*, 78(2):27-35.

Doran, B.M., Bouillon, M.L. & Smith, C.G. 1991. Determinants of student performance in Accounting Principles I and II. *Issues in Accounting Education*, 6(1):74-84

Doran, M.S. & Golen, S. 1998. Identifying communication barriers to learning in a large group. *Journal of Education for Business*, 73(4):221-228.

Dowling, C., Godfrey, J.M. & Gyles, N. 2003. Do hybrid flexible delivery teaching methods improve accounting students' learning outcomes? *Accounting Education*, 12(4):379-391.

Duff, A. 1997. Validating the learning styles questionnaire and inventory of learning processes in accounting: A research note. *Accounting Education*, 6(3):263-272.

Duff, A. 2004a. The role of cognitive learning styles in accounting education: developing learning competencies. *Journal of Accounting Education*, 22(1):29-52.

Duff, A. 2004b. Understanding academic performance and progression of first-year Accounting and Business Economic undergraduates: The role of approaches to learning and prior academic achievement. *Accounting Education*, 13(4):409-430.

Du Plessis, A., Müller, H. & Prinsloo, P. 2005. Determining the profile of the successful first-year accounting student. *South African Journal of Higher Education*, 19(4):684-698.

Dusselier, L., Dunn, B., Wang, Y., Shelley, I.M. & Whalen, D.F. 2005. Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health*, 54(1):15-24.

Eiselen, R. & Geysler, H. 2003. Factors distinguishing between achievers and at-risk students: A qualitative and quantitative synthesis. *South African Journal of Higher Education*, 17(2):118-130.

Elias, R.Z. 2005. Students' approaches to study in introductory accounting courses. *Journal of Education for Business*, March/April:194-199.

Elkins, S.A., Braxton, J.M. & James, G.W. Tinto's separation stage and its influence on first-semester college student persistence. *Research in Higher Education*, 41(2):251-268.

Elliot, D.S., Menard, S., Rankin, B., Elliot, A., Wilson, W.J. & Huizinga, D. 2006. *Good kids from bad neighborhoods: Successful development in social context*. Cambridge: University Press.

Eppler, M.A. & Harju, B.L. 1997. Achievement motivation goals in relation to academic performance in traditional and non-traditional college students. *Research in Higher Education*, 38(5):557-573.

Eskew, R.K. & Faley R.H. 1988. Some determinants of student performance in the first college-level financial accounting course. *The Accounting Review*, LXIII (1):137-147.

Fathi-Ashtiani, A., Ejei, J., Khodapanahi, M.K. & Tarkhorai, H. 2007. Relationship between self-concept, self-esteem, anxiety, depression and academic achievement in adolescents. *Journal of Applied Sciences*, 7(7):995-1 000.

Fazey, D.M.A. & Fazey, J.A. 2001. The potential for autonomy in learning: Perceptions of competence, motivation and locus of control in first-year undergraduate students. *Studies in Higher Education*, 26(3):345-361.

Fox, A. & Stevenson, L. 2006. Exploring the effectiveness of peer mentoring of accounting and finance students in higher education. *Accounting Education: An International Journal*, 15(2):189-202.

Fraenkel, J.R. & Wallen N.E. 2008. *How to design and evaluate research in education*. 7<sup>th</sup> edition. New York: McGraw-Hill.

Fraser, W.J. & Killen, R. 2003. Factors influencing academic success of failure of first-year and senior university students: Do education students and lecturers perceive things differently? *South African Journal of Education*, 23(4):254-263.

Fuertes, J.N. & Sedlacek, W.E. 1994. Using the SAT and noncognitive variables to predict the grades and retention of Asian American university students. *American Counselling Association*, 27(2):74-84.

Furnham, A., Chamorro-Premuzic, T. & McDougall, F. 2003. Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences*, 14:49-66.

Furr, S.R., McConnell, G.N., Westefeld, J.S. & Jenkins, J.M. 2001. Suicide and depression among college students: A decade later. *Professional Psychology: Research and Practice*, 32(1):97-100.

Gage, N.L. & Berliner, D.C. 1992. *Educational psychology*. Boston: Houghton Mifflin.

Gammie, E., Paver, B., Gammie, B. & Duncan, F. 2003. Gender differences in accounting education: An undergraduate exploration. *Accounting Education*, 12(2):177-196.

Gaskill, J. & Hoy, A.W. 2002. Self-efficacy and self-regulated learning: The dynamic duo in school performance. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education*, 185-208. San Diego, CA: Academic Press.

Geiger, M.A. & Cooper, E.A. 1996. Cross-cultural comparisons: Using expectancy theory to assess student motivation. *Issues in Accounting Education*, 11(1):113-129.

Geist, E.A. & King, M. 2008. Different not better: Gender differences in mathematics learning and achievement. *Journal of Instructional Psychology*, 35(1):43-52.

Gist, W.E., Goedde, H. & Ward, B.H. 1996. The influence of mathematical skills and other factors on minority student performance in principles of accounting. *Issues in Accounting Education*, 11(1):49-60.

Glass, J.C. & Oakley, B. 2003. Attrition and retention among accounting majors in community colleges: Problems and possible remediation. *Community College Journal of Research and Practice*, 27:679-698.

Gracia, L. & Jenkins, E. 2002. An exploration of student failure on an undergraduate accounting programme of study. *Accounting Education*, 11(1):93-107.

Gracia, L. & Jenkins, E. 2003. A quantitative exploration of student performance on an undergraduate accounting programme of study. *Accounting Education*, 12(1):15-32.

Grayson, J. 1998. Racial origin and student retention in a Canadian University. *Higher Education*, 36:323-352.

Grobler, A.C. 1998. Some predictors of the mathematics achievement of black secondary school pupils. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Gul, F.A. & Fong, S.C.C. 1993. Predicting success for introductory accounting students: Some further Hong Kong evidence. *Accounting Education*, 2(1):33-42.

Halabi, A.K., Tuovinen, J.E. & Farley, A.A. 2005. Empirical evidence on the relative efficiency of worked examples versus problem-solving exercises in accounting principles instruction. *Issues in Accounting Education*, 20(1):21-30.

Hall, N.C., Chipperfield, J.G., Perry, R.P., Ruthig, J.C. & Goetz, T. 2006. Primary and secondary control in academic development: Gender-specific implications for stress and health in college students. *Anxiety, Stress, and Coping*, 19(2):189-210.

Hall, P.A. & Fong, G.T. 2003. The effects of a brief time perspective intervention for increasing physical activity among young adults. *Psychology and Health*, 18(6):685-706.

Harber, K.D., Zimbardo, P.G. & Boyd, J.N. 2003. Participant self-selection biases as a function of individual differences in time perspective. *Basic and Applied Social Psychology*, 25(3):255-264.

Harley, K. & Wedekind, V. 2004. Political change, curriculum change and social formation. In Chrisholm, L. (Ed.) *Changing Class*. Cape Town: HSRC.

Harrell, A., Caldwell, C. & Doty, E. 1985. Within-Person expectancy theory predictions of accounting students' motivation to achieve academic success. *The Accounting Review*, 60(4):724-735.

Hartnett, N., Römcke, J. & Yap, C. 2004. Student performance in tertiary-level accounting: an international student focus. *Accounting and Finance*, 44:163-185.

Heathcote, K. & Human, E. 2008. Exploring certain South African accountancy students' perceptions regarding failure factors and university support structures: A cross-racial residential university exploratory study. Paper presented at the Value 2008 Conference held at Sun City, South Africa from 26-28 May. University of Johannesburg, Johannesburg.

Heiligenstein, E. & Guenther, G. 1996. Depression and academic impairment in college students. *Journal of American College Health*, 45(2):59-64.

Higher Education South Africa (HESA). 2008. *Being a teacher in the context of the HIV/AIDS pandemic: Reader*. Pretoria: Department of Education.

Holt, D.L., Godfrey, S.C.M. & Godfrey, J.T. 1997. The case against cooperative learning. *Issues in Accounting Education*, 12(1):192-193.

Horstmanshof, L. & Zimitat, C. 2007. Future time orientation predicts academic engagement among first-year university students. *Educational Psychology*, 77(3):703-193.



Huysamen, G.K. 1999. Psychometric explanations for the poor predictability of the tertiary-academic performance of educationally disadvantaged students. *South African Journal of Higher Education*, 13(1):132-138.

Huysamen, G.K. 2000. The differential validity of matriculation and university performance as predictors of post-first-year performance. *South African Journal of Higher Education*, 14(1):146-151.

Ishitani, T.T. 2003. A longitudinal approach to assessing attrition behaviour among first-generation students: Time-varying effects of pre-college characteristics. *Research in Higher Education*, 44(4):433-449.

Jackling, B. 2005. Perceptions of the learning context and learning approaches: Implications for quality learning outcomes in accounting. *Accounting Education: An International Journal*, 14(3):271-291.

Jackling, B. & Anderson, A. 1998. Study mode, general ability and performance in accounting: A research note. *Accounting Education*, 7(1):65-73.

Jansen, E.P.W.A. & Bruinsma, M. 2005. Explaining achievement in higher education. *Educational Research and Evaluation*, 11(3):235-252.

Jansen, J. 2008. Future looks bleak for education system. *Sunday Independent* 2 November 2008:9.

Janse van Rensburg, H.S. 1999. Nie-kognitiewe voorspellers van akademiese prestasie by eersjaar-universiteitstudente. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Jin, J., Kwon, S.K. & Yun, J.K. 2004. Predictors of student performance in the Accounting Master's Program. *Journal of Accounting and Finance Research*, 12(4):71-78.

Johnson, P. & Nelson, M.D. 1998. Parental divorce, family functioning, and college student development: An intergenerational perspective. *Journal of College Student Development*, 39(4):355-363.

Jones, J.P. & Fields, K.T. 2001. The role of supplemental instruction in the first accounting course. *Issues in Accounting Education*, 16(4):531-547.

Jones, S.E., Oeltmann, J., Wilson, T.W. & Brener, N.D. 2001. Binge drinking among undergraduate college students in the United States: Implications for other substance use. *Journal of American College Health*, 50(2):33-38.

Jones, S.H. & Davidson, R.A. 1995. Relationship between level of formal reasoning and students' performance in accounting examinations. *Contemporary Accounting Research*, 12(1):163-181.

Jones, S.H. & Davidson, R.A. 2007. Measuring the problem-solving abilities of accounting and other business students: A comparison and evaluation of three methods. *Accounting Education: An International Journal*, 16(1):65-79.

Kahn, J.H. & Nauta, M.M. 2001. Social-cognitive predictors of first-year college persistence: The importance of proximal assessment. *Research in Higher Education*, 42(6):633-652.

Kanyongo, G.Y., Certo, J. & Launcelot, B.I. 2006. Using regression analysis to establish the relationship between home environment and reading achievement: A case of Zimbabwe. *International Education Journal*, 7(5):632-641.

Kauffman, D.F. & Husman, J. 2004. Effects of time perspective on student motivation: Introduction to a special issue. *Educational Psychology Review*, 16(1):1-7.

Kealey, B.T., Holland, J. & Watson, M. 2005. Preliminary evidence on the association between critical thinking and performance in principles of accounting. *Issues in Accounting Education*, 20(1):33-49.

Keef, S.P. 1992. The effect of prior accounting education: Some evidence from New Zealand. *Accounting Education*, 1(1):63-68.

Keeling, R.P. 2001. Is college dangerous? *Journal of American College Health*, 50(3):53-56.

Kennedy, W.A. 1975. *Child psychology*. New Jersey: Prentice-Hall.

Keough, K.A., Zimbardo, P.G. & Boyd, J.N. 1999. Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Social Psychology*, 21(2):149-164.

Kerlinger, F.N. 1986. *Foundations of behavioural research*. 3<sup>rd</sup> edition. Orlando: Holt, Rinehart & Winston.

Kersop, L. 2004. Kognitiewe en nie-kognitiewe voorspellers van akademiese sukses met betrekking tot 'n universiteit se alternatiewe en hertoelatingsbeleid. Unpublished PhD thesis. University of Johannesburg, Johannesburg.

Khanh, V.T. 2002. First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1):3-11.

Koh, E. & Kriel, M. 2005. An argument for integrating language or language-related skills in the accounting curriculum. *South African Journal of Higher Education*, 19(3):218-229.

Koh, M.Y. & Koh, H.C. 1999. The determinants of performance in an accountancy degree programme. *Accounting Education*, 8(1):13-29.

Kovar, S., Ott, R.L., & Fisher, D.G. 2003. Personality preferences of accounting students: A longitudinal case study. *Journal of Accounting Education*, 21:75-94.

Latief, A. 2005. Throughput of UWC students who did at least one semester of third-year statistics. Unpublished Master's mini-thesis. University of the Western Cape, Cape Town.

Lennings, C.J., Burns, A.M. & Cooney, G. 1998. Profiles of time perspective and personality: Developmental considerations. *The Journal of Psychology*, 132(6):629-641.

Leveson, L. 1999. Small group work in accounting education: An evaluation of a programme for first-year students. *Higher Education Research & Development*, 18(3):361-377.

Levy, S. & Murray, J. 2005. Tertiary entrance scores need not determine academic success: An analysis of student performance in an equity and access program. *Journal of Higher Education Policy and Management*, 27(1):129-140.

Lewin, K. 1951. *Field theory in the social sciences: Selected theoretical papers*. New York: Harper.

Lipe, M.G. 1989. Further evidence on the performance of female versus male accounting students. *Issues in Accounting Education*, 4(1):144-152.

Lounsbury, J.W., Saudargas, R.A. & Gibson, L.W. 2004. An investigation of personality traits in relation to intention to withdraw from college. *Journal of College Student Development*, 45(5):517-531.

Lourens, A. & Smit, I.P.J. 2003. Retention: Prediction first-year success. *South African Journal of Higher Education*, 17(2):169-176.

Louw, D.A. & Edwards, D.J.A. 1998. *Sielkunde: 'n Inleiding vir studente in Suider-Afrika*. Johannesburg: Heinemann.

Lubart, T.I. 2003. In search of creative intelligence. In Sternberg, R.J., Lautrey, J. & Lubart, T.I. (Eds). *Models of Intelligence: International Perspectives*. Washington, DC: American Psychological Association.

Lumley, M.A. & Provenzano, K.M. 2003. Stress management through written emotional disclosure improves academic performance among college students with physical symptoms. *Journal of Educational Psychology*, 95(3):641-649.

Lundsteen, S.W. 1970. Manipulating abstract thinking as a subability to problem solving in the context of an English curriculum. *American Educational Research Journal*, 7(3):373-396.

Maas, F. 1975. *Die persoonlikheidsteorie van Cattell*. Pretoria: Humanitas Human Sciences Research Council.

Maas, F. 1998. *Research methods and statistics in occupational therapy*. Queensland: Department of Occupational Therapy, University of Queensland.

Marcheggiani, J., Davis, K.A. & Sander J.F. 1999. The effect of teaching methods on examination performance and attitudes in an introductory financial accounting course. *Journal of Education for Business*, March/April: 203-210.

Maree, J.G., Louw, C.J. & Millard, S. 2004. Die impak van tutoriale op die wiskundeprestasie van eerstejaarstudente. *SA Tydskrif vir Natuurwetenskap en Tegnologie*, 23(1&2):25-34.

Marriott, P. 2002. A longitudinal study of undergraduate accounting students' learning style preferences at two UK universities. *Accounting Education*, 11(1):43-62.

McCabe, R.E., Blankstein, K.R. & Mills, J.S. 1999. Interpersonal sensitivity and social problem-solving: Relations with academic and social self-esteem, depressive symptoms, and academic performance. *Cognitive Therapy and Research*, 23(6):587-604.

McGivney, V. 1996. *Staying or leaving the course: Non-completion and retention of mature students in further and higher education*. Leicester: NIACE.

McKenzie, K. & Schweitzer, R. 2001. Who succeeds at university? Factors predicting academic performance in first year Australian university students. *Higher Education Research & Development*, 20(1):21-33.

McMillan, J. & Western, J. 2000. Measurement of the socio-economic status of Australian higher education students. *Higher Education*, 39:223-248.

McMillan, J.H. & Schumacher, S. 2006. *Research in education: Evidence-based inquiry*. 6<sup>th</sup> edition. Boston: Pearson.

Meiberg, A.E., Bos, E.R., Onya, H.E. & Schaalma, H.P. 2008. Fear of stigmatization as barrier to voluntary HIV counselling and testing in South Africa. *East African Journal of Public Health*, 5(2):49-54.

Milem, J.F. & Berger, J.B. 1997. A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development*, 38:387-400.

Monem, R.M. 2006. Does access to tutorial solutions enhance student performance? Evidence from an accounting course. *Accounting and Finance*, 46:2-20.

Moses, O.D. 1987. Factors explaining performance in graduate-level accounting. *Issues in Accounting Education*, 2:281-291.

Moutafi, J., Furnham, A. & Paltiel, L. 2004. Why is conscientiousness negatively correlated with intelligence? *Personality and Individual Differences*, 37:1013-1022.

Murdoch, B. & Guy, P.W. 2002. Active learning in small and large classes. *Accounting Education*, 11(3):271-282.

Naidoo, A. 1999. Black South African student's use of counselling service. *Psychological Reports*, 84(1):49-50.

Naser, K. & Peel, M.J. 1998. An exploratory study of the impact of intervening variables on student performance in a Principles of Accounting course. *Accounting Education*, 7(3):209-223.

Neisser, U., Boodoo, G., Bouchard, T.J., Boykin, W., Brody, N., Ceci, S.J., Halpern, D.F., Loehlin, J.C., Perloff, R., Sternberg, R.J. & Urbina, S. 1996. Intelligence: Knowns and unknowns. *American Psychologist*, 51(2):77-101.

Nourayi, M.M. & Cherry, A.A. 1993. Accounting students' performance and personality types. *Journal of Education for Business*, 69(2):111-115.

Oswick, C. & Barber, P. 1998. Personality type and performance in an introductory level accounting course: A research note. *Accounting Education*, 7(3):249-254.

Owen, K. & Taljaard, J.J. 1995. *Handleiding vir die gebruik van sielkundige en skoolastiese toetse van die IPEN en die NIPN*. Pretoria: HSRC.

Packham, G. & Miller, C. 2000. Peer-assisted student support: A new approach to learning. *Journal of Further and Higher Education*, 24(1):55-65.

Pajares, F. 2002. Gender and perceived self-efficacy in self-regulated learning. *Theory into Practice*, 41(2):116-125.

Pajares, F. 2007. Current directions in self-efficacy research. *Advances in Motivation and Achievement*, 10.

(<http://www.des.emory.edu/mfp/effchapter.html>)

Retrieved on 18 November 2009.



Pascarella, E.T., Pierson, C.T., Wolniak, G.C. & Terenzini, P.T. 2004. First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, 75(3):249-284.

Perlow, R. & Kopp, L.S. 2004. Conscientiousness and ability as predictors of accounting learning. *Human Performance*, 17(4):359-373.

Pienaar, G.E. & Bester, G. 1996. Time perspective and career choice. *South African Journal of Education*, 16(2):88-93.

Pintrich, P.R. & Schunk, D.H. 1996. *Motivation in education: Theory, research and applications*. 2<sup>nd</sup> edition. Englewood Cliffs, New Jersey: Merrill Company.

Polit, D.F. & Beck, C.T. 2008. *Nursing research: Generating and assessing evidence for nursing practice*. 8<sup>th</sup> edition. Philadelphia: Lippincott/Williams & Wilkens.

Pratt, J. 1980. The effects of personality on a subject's information processing: A comment. *The Accounting Review*, 55(3):501-506.

Prinsloo, C.H. 1992. *Manual for the use of the Sixteen Personality Factor Questionnaire, South African 1992 version (16 PF, SA92)*. Pretoria: HSRC.

Pritchard, M.E. & Wilson, G. 2003. Using emotional and social factors to predict student success. *Journal of College Student Development*, 44(1):18-27.

Ramburth, P. & Mladenovic, R. 2004. Exploring the relationship between students' orientations to learning, the structure of students' learning outcomes and subsequent academic performance. *Accounting Education*, 13(4):507-527.

Reber, A.S. & Reber, E.S. 2001. *Dictionary of psychology*. London: Penguin Group.

Rego, A. & Sousa, L. 1999. Performance in higher education: Towards an understanding. *Educational Research*, 41(1):91-107.

Reproductive Health Research Unit (RHRU). 2004. HIV and sexual behaviour among young South Africans: A national survey of 15-25 year olds. (<http://www.rhru.co.za/publicationskownloads/pages>) Retrieved on October 2009.

Rhode, F. & Kavanagh, M. 1996. Performance in first year university accounting: Quantifying the advantage of secondary school accounting. *Accounting and Finance*, 36:275-285.

Rhode, T.E. & Thompson, L.A. 2007. Predicting academic achievement with cognitive ability. *Intelligence*, 35:83-92.

Robbins, S.B., Lauver, K., Davis, D. & Langley, R. 2004. Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, 130(2):261-288.

Rothspan, S. & Read, S.J. 1996. Present versus future time perspective and HIV risk among heterosexual college students. *Health Psychology*, 15(2):131-134.

Russell, R.D. 1973. Social health: An attempt to clarify this dimension of well-being. *International Journal of Health Education*, 16:74-82.

Ruthig, J.C., Hayes, T.L., Stupnisky, R.H. & Perry, R.P. 2009. Perceived academic control: Mediating the effects of optimism and social support on college students' psychological health. *Social Psychology of Education*, 12:233-249.

Saggino, A. & Kline, P. 1996. The location of the Myers-Briggs Type Indicator in personality factor space. *Personality and Individual Differences*, 21(4):591-597.

Saklofske, D.H. & Zeidner, M. (Eds.) 1995. *International handbook of personality and intelligence*. New York: Plenum Press.

Saucier, G. 1994. Mini-markers: A brief version of Goldberg's Unipolar Big-Five Markers. *Journal of Personality Assessment*, 64(3):506-516.

Schall, R. 2009. Statistical analysis plan. Personal communication: 14 April 2009.

Schmidt, L. 1990. Nie-kognitiewe voorspellers van akademiese sukses by studenteminderheidsgroepe. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Sedlacek, W.E. 1999. Black students on white campuses: 20 years of research. *Journal of College Student Development*, 40:538-550.

Sedlacek, W.E. 2004. *Beyond the big test*. San Francisco: Jossey-Bass.

Seidman, A. 2005. *College student retention: Formula for student success*. United States of America: American Council on Education/Praeger Publishers.

Seijts, G.S. 1998. The importance of future time perspective in theories of work motivation. *The Journal of Psychology*, 132(2):154-168.

Shaffer, D.A. 1999. *Developmental psychology: Childhood and adolescence*. Brooks: Cole Publishing.

Shroeder, N.W. 1986. Previous accounting education and college-level accounting examination performance. *Issues in Accounting Education*, 1(1):37-47.

Simons, J., Vansteenkiste, M., Lens, W. & Lacante, M. 2004. Placing motivation and future time perspective theory in a temporal perspective. *Educational Psychology Review*, 16(2):121-139.

Sin, S., Jones, A. & Petocz, P. 2007. Evaluating a method of integrating generic skills with accounting content based on a functional theory of meaning. *Accounting and Finance*, 47:143-163.

Smith, F. 2004. "It's not all about grades": Accounting for gendered degree results in Geography at Brunel University. *Journal of Geography in Higher Education*, 28(2):167-178.

Smith, J.P. & Naylor, R.A. 2001. Dropping out of university: A statistical analysis of the probability of withdrawal for UK university students. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 164(2):389-405.

Stanfiel, J.D. 1973. Socioeconomic Status as related to aptitude, attrition, and achievement of college students. *Sociology of Education*, 46:480-488.

Steenkamp, L.P., Baard, R.S. & Frick, B.L. 2009. Factors influencing success in first-year accounting at a South African university: A comparison between lecturers' assumptions and students' perceptions. *SA Journal of Accounting Research*, 23(1):113-140.

Stout, D.E. & Ruble, T.L. 1991. The LSI and accounting education research: A cautionary view and suggestions for future research. *Issues in Accounting Education*, 6(1):41-52.

Strage, A. & Brandt, T.S. 1999. Authoritative parenting and college students' academic adjustment and success. *Journal of Educational Psychology*, 91(1):146-156.

Strathman, A., Gleicher, F., Boninger, D.S. & Scott Edwards, C. 1994. The consideration of future consequences: Weighing immediate and distant outcomes of behaviour. *Journal of Personality and Social Psychology*, 66(4):742-752.

Struthers, C.W., Perry, R.P. & Menec, V.H. 2000. An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in Higher Education*, 41(5):581-592.

Tangney, J.P., Baumeister, R.F. & Boone, A.L. 2004. High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72(2).

(<http://lzy pants.org/kl/files/public/TangneyBaueisterBoone2004.pdf>)

Retrieved on 10 August 2009.

Thelwell, R.C., Lane, A.M. & Weston, N.J.V. 2007. Mood states, self-set goals, self-efficacy and performance in academic examinations. *Personality and Individual Differences*, 42:573-583.

The Pacific Institute. 1998. *Investment in excellence: Personal resource manual*. Seattle, USA.

Tho, L.M. 1994. Some evidence on the determinants of student performance in the University of Malaya Introductory Accounting Course. *Accounting Education: An International Journal*, 3(4):332-340.

Thompson Rivers University. 2010. Emotional health. (<http://www.tru.ca/wellness/emotional.html>)

Retrieved on 14 July 2010.

Thorndike, R.M., Cunningham, G.K., Thorndike, R.L. & Hagen, E.P. 1991. *Measurement and evaluation in psychology and education*. New York: Macmillan Publishing Company.

Tickell, G.T. & Smyrnios, K.X. 2005. Predictors of tertiary accounting students' academic performance: A comparison of Year 12-to university students with TAFE-to-university students. *Journal of Higher Education Policy and Management*, 27(2):239-259.

Tight, M. 2003. *Researching higher education*. Berkshire: Society for Research into Higher Education & Open University Press.

Togo, D.F. & Baldwin, B.A. 1990. Learning style: A determinant of student performance for the introductory financial accounting course. *Advances in Accounting*, 8:189-199.

Tracey, T.J. & Sedlacek, W.E. 1985. The relationship of noncognitive variables to academic success: A longitudinal comparison by race. *Journal of College Student Personnel*, 26:405-410.

Tracey, T.J. & Sedlacek, W.E. 1988. A comparison of white and black student academic success using noncognitive variables: A LISREL analysis. *Research in Higher Education*, 27:333-348

Tracey, T.J. & Sedlacek, W.E. 1989. Factor structure of the Noncognitive Questionnaire-Revised across samples of black and white college students. *Educational and Psychological Measurement*, 49:637-648.

Trockel, M.T., Barnes, M.D. & Egget, D.L. 2000. Health-related variables and academic performance among first-year college students: Implications for sleep and other behaviors. *Journal of American College Health*, 49(4):125-131.

Turner, J.L., Holmes, S.A. & Wiggins, C.E. 1997. Factors associated with grades in intermediate accounting. *Journal of Accounting Education*, 15(2):269-288.

Tyson, T. 1989. Grade performance in introductory accounting courses: Why female students outperform males. *Issues in Accounting Education*, 4(1):153-160.

Vaez, M. & Laflamme, L. 2003. Health behaviours, self-rated health, and quality of life: A study among first-year Swedish university students. *Journal of American College Health*, 51(4):156-162.

Vallerand, R.J. & Bissonnette, R. 1992. Intrinsic, extrinsic, and amotivational styles as predictors of behaviour: A prospective study. *Journal of Personality*, 60(3):599-620.

Van der Linde, G.J. 2005. The role of environmental quality and time perspective on the academic performance of grade 12 learners. Unpublished Master's dissertation. University of the Free State, Bloemfontein.

Van der Walt, J.S. 1979. *Opvoedkundige en psigologiese meting. 'n Psigometries-statistiese analise*. Stellenbosch: Kosmo Uitgewery.

Van Eeden, R., De Beer, M. & Coetzee, C.H. 2001. Cognitive ability, learning potential, and personality traits as predictors of academic achievement by engineering and other science and technology students. *South African Journal of Higher Education*, 15(1):171-178.

Viljoen, M. 2007a. An introduction to quantitative research design: The language and approach of science. HOS 791 Manual. Bloemfontein: University of the Free State.

Viljoen, M. 2007b. Psycho-Social Background Questionnaire. Unpublished document. CHED Library.

Visser, S., McChlery, S. & Vreken, N. 2006. Teaching styles versus learning styles in the accounting sciences in the United Kingdom and South Africa: A comparative analysis. *Meditari Accountancy Research*, 14(2):97-112.

Vyshedskiy, A. 2008. *On the origin of the human mind: Three theories: Uniqueness of the human mind, evolution of the human mind, and the neurological basis of conscious experience*. Canada: Mobile Reference.

Wallace, M. 1956. Future time perspective in schizophrenia. *Journal of Abnormal and Social Psychology*, 52(2):240-245.

Watson, M., McSorley, M., Foxcroft, C. & Watson, A. 2004. Exploring the motivation orientation and learning strategies of first-year university learners. *Tertiary and Management*, 10:193-207.



Wilding, J. & Andrews, B. 2006. Life goals, approaches to study and performance in an undergraduate cohort. *British journal of Educational Psychology*, 76:171-182.

Williams, D.D., Cook, P.F., Quinn, B. & Jensen, R.P. 1985. University class size: Is smaller better? *Research in Higher Education*, 23(3):307-318.

Wilson, R.M.S. & Hill, A.P. 1994. Learning styles – A literature guide. *Accounting education*, 3(4):349-358.

Wintre, M.G. & Yaffe, M. 2000. First-year students' adjustment to university life as a function of relationships with parents. *Journal of Adolescent Research*, 15(1):9-37.

Wolcott, S.K. & Lynch, C.L. 1997. Critical thinking in the accounting classroom: A reflective judgement development process. *Accounting Education*, 2(1): 59-78.

Wolcott, S.K., Baril, C.P., Cunningham, B.M., Fordham, D.R. & St. Pierre, K. 2002. Critical thought on critical thinking research. *Journal of Accounting Education*, 20(2):85-103.

Wong, S.N. & Chia, Y.M. 1996. English language, mathematics and first-year financial accounting performance: A research note. *Accounting Education*, 5(2):183-189.

Worrell, F.C. & Mello, Z.R. 2007. The reliability and validity of Zimbardo Time Perspective Inventory scores in academically talented adolescents. *Educational and Psychological Measurement*, 67(3):487-504.

Yen, C., Konold, T.R. & McDermot, P.A. 2004. Does learning behaviour augment cognitive ability as an indicator of academic achievement? *Journal of School Psychology, 42(2):157-169.*

Zabel, A.C. 1995. Correspondence course completion rates: Identifying at-risk students using personality variables. PhD dissertation. Texas Tech University, Texas.

Zimbardo, P.G. 2002. Time to take out time. *Psychology Today, 35(2):62.*

Zimbardo, P.G. & Boyd, N. 1999. Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and social Psychology, 77(6): 1271-1288.*

**APPENDIX A:**

**CONSENT FORM**

**SIGNIFICANT FACTORS PREDICTING SUCCESS OR NON-COMPLETION IN  
FIRST YEAR ACCOUNTING**

**Declaration by or on behalf of the Participant:**

|                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Respondent number |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

**A** I, the undersigned confirm that:

1. I have been asked to participate in the above-mentioned research survey carried out by the University of the Orange Free State (UFS)

2. It has been explained to me that:

2.1 The purpose of the research survey is to collect information on the significant predictors of success and non-completion in first year Accounting. The information collected will be used to determine the factors that have the most significant influence on the performance of students in first year Accounting. This will ensure that appropriate support can be developed in order to help students and to improve the pass rate in first year Accounting.

2.2 In order to collect this information I have been told that I will be asked a number of questions regarding:

- Biographical details
- My psycho-social background
- Abstract thinking skills
- Time perspective

2.3 I have been told that this information will be collected from 1 202 first year Accounting students and I will be asked these questions once.

2.5 I have been told that it will not take more than 60 minutes to collect the information.

3. It was also explained to me that by participating in this research survey I will help students in first year Accounting.
4. It was also explained to me that the information will be kept confidential but that it will be used anonymously for making known the findings to other educationists.
5. I understand that I will have no direct access to the results of the survey but I can contact the researcher who will inform me of the findings.
6. It was also clearly explained to me that I can refuse to participate in this research survey. If I refuse, it will not be held against me in any way.
7. The information in this consent form was explained to me by *Mrs. Joubert* in English or Afrikaans and I confirm that I have a good command of this language and understood the explanations. I was also given the opportunity to ask questions on things I did not understand clearly.
8. No pressure was applied for me to take part in this research survey.

**B** I hereby agree voluntarily to take part in this research survey.

Signed/confirmed at Bloemfontein on 2 March 2009.

.....  
Signature of  
Participant

.....  
Signature of Witness



**ENVIRONMENT CONDUCIVE TO LEARNING**

|   |   |   |   |   |   |   |                                    |    |  |
|---|---|---|---|---|---|---|------------------------------------|----|--|
| 7. The occupation of one or both of my parents or guardian filled me with<br>Admiration                                     | 1 | 2 | 3 | 4 | 5 | 6 | Disapproval                        | 20 |  |
| 8. In my family the opportunity to learn something new was regarded as<br>Important   | 1 | 2 | 3 | 4 | 5 | 6 | Not important                      | 21 |  |
| 9. My parents/ guardian made sure that I had the opportunity to experience<br>books, magazines, dictionaries, TV and videos | 1 | 2 | 3 | 4 | 5 | 6 | Never                              | 22 |  |
| 10. Regarding my further education my parents guardian<br>Had high expectations   | 1 | 2 | 3 | 4 | 5 | 6 | Were not concerned about my future | 23 |  |

**DEPRESSION**

|  |   |   |   |   |   |   |         |    |  |
|--|---|---|---|---|---|---|---------|----|--|
| 11. When I was growing up I felt depressed and down                            | 1 | 2 | 3 | 4 | 5 | 6 | Often   | 24 |  |
| 12. As a teenager I felt that life was not worth living                        | 1 | 2 | 3 | 4 | 5 | 6 | Often   | 25 |  |
| 13. Depression, Anger or drinking was experienced by one of my blood relatives | 1 | 2 | 3 | 4 | 5 | 6 | Often   | 26 |  |
| 14. I would rate my childhood as   | 1 | 2 | 3 | 4 | 5 | 6 | Unhappy | 27 |  |

CHILDHOOD TOTAL

|  |
|--|
|  |
|--|

**PRESENT SITUATION**

|   |   |   |   |   |   |   |       |    |  |
|---|---|---|---|---|---|---|-------|----|--|
| 15. My financial situation worries me             | 1 | 2 | 3 | 4 | 5 | 6 | Agree | 28 |  |
| 16. My love life is disappointing or non-existent | 1 | 2 | 3 | 4 | 5 | 6 | Agree | 29 |  |
| 17. My family members cause me to worry           | 1 | 2 | 3 | 4 | 5 | 6 | Agree | 30 |  |
| 18. I often feel depressed                        | 1 | 2 | 3 | 4 | 5 | 6 | Agree | 31 |  |
| 19. I worry that I might contract HIV or AIDS     | 1 | 2 | 3 | 4 | 5 | 6 | Agree | 32 |  |

PRESENT SITUATION TOTAL

|  |
|--|
|  |
|--|

QUESTIONNAIRE TOTAL

|  |
|--|
|  |
|--|

**APPENDIX C:**

**ABSTRACT THINKING**

Choose the best answer as well as you are able to.

20. "Spade" is to "dig" as "knife" is to:  sharp  cut  shovel
21. "Tired" is to "work" as "proud" is to:  rest  success  exercise
22. Which of the following items is different from the others?  candle  moon  electric light
23. "Surprise" is to "strange" as "fear" is to:  brave  anxious  terrible
24. Which of the following fractions is not in the same class as the others?   $\frac{3}{7}$    $\frac{3}{9}$    $\frac{3}{11}$
25. "Size" is to "length" as "dishonest" is to:  prison  sin  stealing
26. AB is to dc as SR is to:  q p  p q  t u
27. "Better" is to "worst" as "slower" is to:  fast  best  quickest
28. Which of the following should come next at the end of this row of letters: xooxxooxxx?  xox  oox  oxx
29. "Flame" is to "heat" as "rose" is to:  thorn  red petals  scent
30. Which of the following words does not belong with the others?  wide  zigzag  regular
31. "Soon" is to "never" as "never" is to:  nowhere  far  next
32. Which of the following words does not properly belong with the others?  any  some  most

|    |  |
|----|--|
|    |  |
| 33 |  |
| 34 |  |
| 35 |  |
| 36 |  |
| 37 |  |
| 38 |  |
| 39 |  |
| 40 |  |
| 41 |  |
| 42 |  |
| 43 |  |
| 44 |  |
| 45 |  |

QUESTIONNAIRE TOTAL

|  |
|--|
|  |
|--|

**APPENDIX D:**

**TIME PERSPECTIVE**

Read each item and, as honestly as you can, answer the question:

"How characteristic or true is this of you?"

33. I believe that getting together with one's friends to party is one of life's important pleasures.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

34. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

35. Fate determines much in my life.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

36. I often think of what I should have done differently in my life.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

37. My decisions are mostly influenced by people and things around me.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

38. I believe that a person's day should be planned ahead each morning.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

39. It gives me pleasure to think about my past.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

40. I do things impulsively

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

41. If things don't get done on time, I don't worry about it.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

42. When I want to achieve something, I set goals and consider specific means for reaching those goals.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

43. On balance, there is much more good to recall than bad in my past.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

44. When listening to my favourite music, I often lose all track of time.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

45. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

46. Since whatever will be will be, it doesn't really matter what I do.

|             |   |   |   |   |   |           |
|-------------|---|---|---|---|---|-----------|
| Very untrue | 1 | 2 | 3 | 4 | 5 | Very true |
|-------------|---|---|---|---|---|-----------|

|    |  |
|----|--|
| 46 |  |
|    |  |
|    |  |
| 47 |  |
|    |  |
|    |  |
| 48 |  |
|    |  |
|    |  |
| 49 |  |
|    |  |
|    |  |
| 50 |  |
|    |  |
|    |  |
| 51 |  |
|    |  |
|    |  |
| 52 |  |
|    |  |
|    |  |
| 53 |  |
|    |  |
|    |  |
| 54 |  |
|    |  |
|    |  |
| 55 |  |
|    |  |
|    |  |
| 56 |  |
|    |  |
|    |  |
| 57 |  |
|    |  |
|    |  |
| 58 |  |
|    |  |
|    |  |
| 59 |  |
|    |  |



47. I enjoy stories about how things used to be in "the good old times."  
 Very untrue      1   2   3   4   5      Very true

48. Painful past experiences keep being replayed in my mind.  
 Very untrue      1   2   3   4   5      Very true

49. I try to live my life as fully as possible, one day at a time.  
 Very untrue      1   2   3   4   5      Very true

50. It upsets me to be late for appointments.  
 Very untrue      1   2   3   4   5      Very true

51. Ideally, I would live each day as if it were my last.  
 Very untrue      1   2   3   4   5      Very true

52. Happy memories of good times spring readily to mind.  
 Very untrue      1   2   3   4   5      Very true

53. I meet my obligations to friends and authorities on time.  
 Very untrue      1   2   3   4   5      Very true

54. I've taken my share of abuse and rejection in the past.  
 Very untrue      1   2   3   4   5      Very true

55. I make decisions on the spur of the moment.  
 Very untrue      1   2   3   4   5      Very true

56. I take each day as it is, rather than try to plan it.  
 Very untrue      1   2   3   4   5      Very true

57. The past has too many unpleasant memories that I prefer not to think about.  
 Very untrue      1   2   3   4   5      Very true

58. It is important to put excitement in my life.  
 Very untrue      1   2   3   4   5      Very true

59. I've made mistakes in the past that I wish I could undo.  
 Very untrue      1   2   3   4   5      Very true

60. I feel that it's more important to enjoy what you're doing than to get work done on time.  
 Very untrue      1   2   3   4   5      Very true

61. I get nostalgic about my childhood.  
 Very untrue      1   2   3   4   5      Very true

62. Before making a decision, I weigh the costs against the benefits.  
 Very untrue      1   2   3   4   5      Very true

63. Taking risks keep my life from becoming boring.  
 Very untrue      1   2   3   4   5      Very true

64. It is more important for me to enjoy life's journey than to focus only on the destination.  
 Very untrue      1   2   3   4   5      Very true

65. Things rarely work out as I expected.  
 Very untrue      1   2   3   4   5      Very true

|    |  |
|----|--|
| 60 |  |
|    |  |
| 61 |  |
|    |  |
| 62 |  |
|    |  |
| 63 |  |
|    |  |
| 64 |  |
|    |  |
| 65 |  |
|    |  |
| 66 |  |
|    |  |
| 67 |  |
|    |  |
| 68 |  |
|    |  |
| 69 |  |
|    |  |
| 70 |  |
|    |  |
| 71 |  |
|    |  |
| 72 |  |
|    |  |
| 73 |  |
|    |  |
| 74 |  |
|    |  |
| 75 |  |
|    |  |
| 76 |  |
|    |  |
| 77 |  |
|    |  |
| 78 |  |
|    |  |

66. It's hard for me to forget unpleasant images of my youth.  
 Very untrue      1   2   3   4   5      Very true

67. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes and products.  
 Very untrue      1   2   3   4   5      Very true

68. Even when I am enjoying the present, I am drawn back to comparisons with similar past experiences.  
 Very untrue      1   2   3   4   5      Very true

69. You can't really plan for the future because things change so much.  
 Very untrue      1   2   3   4   5      Very true

70. My life path is controlled by forces I cannot influence.  
 Very untrue      1   2   3   4   5      Very true

71. It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway.  
 Very untrue      1   2   3   4   5      Very true

72. I complete projects on time by making steady progress.  
 Very untrue      1   2   3   4   5      Very true

73. I find myself tuning out when family members talk about the way things used to be.  
 Very untrue      1   2   3   4   5      Very true

74. I take risks to put excitement in my life.  
 Very untrue      1   2   3   4   5      Very true

75. I make lists of things to do.  
 Very untrue      1   2   3   4   5      Very true

76. I often follow my heart more than my head.  
 Very untrue      1   2   3   4   5      Very true

77. I am able to resist temptations when I know that there is work to be done.  
 Very untrue      1   2   3   4   5      Very true

78. I find myself getting swept up in the excitement of the moment.  
 Very untrue      1   2   3   4   5      Very true

79. Life today is too complicated; I would prefer the simpler life of the past.  
 Very untrue      1   2   3   4   5      Very true

80. I prefer friends who are spontaneous rather than predictable.  
 Very untrue      1   2   3   4   5      Very true

81. I like family rituals and traditions that are regularly repeated.  
 Very untrue      1   2   3   4   5      Very true

|    |  |
|----|--|
| 79 |  |
|    |  |
| 80 |  |
|    |  |
| 81 |  |
|    |  |
| 82 |  |
|    |  |
| 83 |  |
|    |  |
| 84 |  |
|    |  |
| 85 |  |
|    |  |
| 86 |  |
|    |  |
| 87 |  |
|    |  |
| 88 |  |
|    |  |
| 89 |  |
|    |  |
| 90 |  |
|    |  |
| 91 |  |
|    |  |
| 92 |  |
|    |  |
| 93 |  |
|    |  |
| 94 |  |
|    |  |

82. I think about the bad things that have happened to me in the past.  
 Very untrue      1   2   3   4   5      Very true

83. I keep working at difficult, uninteresting tasks if they will help me get ahead.  
 Very untrue      1   2   3   4   5      Very true

84. Spending what I earn on pleasures today is better than saving for tomorrow's security.  
 Very untrue      1   2   3   4   5      Very true

85. Often luck pays off better than hard work.  
 Very untrue      1   2   3   4   5      Very true

86. I think about the good things that I have missed out on in my life.  
 Very untrue      1   2   3   4   5      Very true

87. I like my close relationships to be passionate.  
 Very untrue      1   2   3   4   5      Very true

88. There will always be time to catch up on my work.  
 Very untrue      1   2   3   4   5      Very true

|     |  |
|-----|--|
| 95  |  |
|     |  |
| 96  |  |
|     |  |
| 97  |  |
|     |  |
|     |  |
| 98  |  |
|     |  |
|     |  |
| 99  |  |
|     |  |
|     |  |
| 100 |  |
|     |  |
|     |  |
| 101 |  |

QUESTIONNAIRE  
 TOTAL

|  |
|--|
|  |
|--|

## **APPENDIX E:**

# **Statistical Analysis Plan :“Predictors of success or non-completion in first year Accounting”**

**Version 2    Date: 12 August 2009**

### **1. Objective of statistical analysis**

The primary objective of the statistical analysis is to identify predictors of Academic Achievement (Semester Mark). In particular, the objective of the statistical analysis is to assess the association between Semester Mark as dependent variable, and the following independent variables, namely Time Perspective (5 dimensions, namely Past Negative score; Present hedonistic score; Future score; Past positive score and Present fatalistic, Abstract thinking (score on the Factor B questionnaire), and Study attitude (achievement in another first year subject taken by most Accounting students), while adjusting for the following potential confounders: age, gender, ethnic group, and the total score of the Psycho-social (PsychoS) questionnaire.

### **2. Descriptive analysis**

Frequency tabulations (number of students and percent of students per category) for the following biographic variables (Section A) will be presented:

- Gender
- Ethnic group

**Software:** SAS Proc FREQ.

Descriptive statistics (mean, SD, median, min, max, number of observations) will be presented for each quantitative variable, namely Time Perspective (5 dimensions, namely Past Negative score; Present hedonistic score; Future score; Past positive score and Present fatalistic), Abstract thinking score, Study attitude (achievement in another first year subject taken by most Accounting students), as well as for the overall total score of the PsychoS questionnaire.

**Software:** SAS Proc MEANS.

### 3. Missing Data

Missing data for any other question in the PsychoS questionnaire will, for the purposes of the calculation of a total score for the questionnaire, be replaced by the average score of the non-missing items in the same domain of the questionnaire.

### 4. Univariate analyses

Academic achievement will be analysed using one-way ANOVAs, fitting (one at a time) each of the categorical potential confounders:

- Gender
- Ethnic group

**Software:** SAS Proc GLM.

Based on the frequency distributions of the categorical confounding variables, and based on the results of the one-way ANOVAs described above, categories of the variables ethnic group might be combined for the purposes of the multivariate analysis described in Section 5 below.

Similarly, Academic achievement will be analysed using simple linear regression, fitting (one at a time) the following variables:

- The potential confounding variable: total Score of the PsychoS questionnaire
- The independent variables: Time Perspective (5 dimensions, namely Past Negative score; Present hedonistic score; Future score; Past positive score and Present fatalistic), Abstract thinking score, Study attitude (achievement in another first year subject taken by most Accounting students),

**Software:** SAS Proc GLM.

## 5. Multivariate analysis

The data will be analysed using linear regression and analysis of covariance techniques. Initially, the analysis of covariance model for Academic achievement will contain the independent variables, namely Time Perspective (5 dimensions, namely Past Negative score; Present hedonistic score; Future score; Past positive score and Present fatalistic), Abstract thinking score, Study attitude (achievement in another first year subject taken by most Accounting students), and all potential confounders (age, gender, ethnic group, and the total score of the PsychoS questionnaire). F-statistics and associated P-values will be calculated for each variable in the model. Stepwise model selection will be applied by removing, one at time, that variable (first among the confounders, then among the independent variables) which is least significantly associated with the outcome, providing that the P-value is at least 0.1.

**Software:** SAS Proc GLM.

# ABSTRACT

The main purpose of the research study was to determine significant predictors of success and non-completion in first-year accounting. In order to do so, cognitive as well as non-cognitive factors that may have an influence on performance in first-year accounting were identified through a literature study, and relatively unexplored factors were identified. Therefore, the research study investigated whether study attitude, abstract thinking and time perspective can statistically predict performance in first-year accounting. A quantitative non-experimental predictive multivariate design was used and confounding variables were taken into consideration. Five hundred and thirty three (533) first-year accounting students at a South African University participated in the study. The participants completed the Psycho-Social Questionnaire (PSQ), factor B of the 16PF Questionnaire, and the Zimbardo Time Perspective Inventory (ZTPI). Study attitude was measured in terms of performance in another first-year subject that most of the first-year accounting students had to enrol for. A univariate analysis indicated significant relationships between achievement in first-year accounting and age, gender, psychosocial background, past-negative time perspective and study attitude. The results also indicated that the relationship between first-year accounting and abstract thinking ability is not statistically significant because the sample scores for abstract thinking ability were homogeneously grouped around the mean. Because factors that may have an influence on performance in accounting are interrelated, a multivariate analysis indicated significant relationships between performance in first-year accounting and age, the past-negative time perspective and study attitude. Therefore, the above-mentioned factors can predict performance in first-year accounting to a certain extent. The most outstanding result of the study was that a past-negative time perspective together with an unfavourable psychosocial background may lead to non-completion in first-year accounting.

Key concepts: cognitive, non-cognitive, success, non-completion, study attitude, abstract thinking, time perspective, past-negative time perspective, psychosocial background, univariate analysis, multivariate analysis

# OPSOMMING

Die hoofdoel van die studie is om beduidende voorspellers van sukses en nievoltooing in rekeningkunde op eerstejaarsvlak te bepaal. Om hierdie doel te bereik, is kognitiewe en niekognitiewe faktore wat prestasie in rekeningkunde op eerstejaarsvlak moontlik kan beïnvloed deur middel van 'n literatuurstudie bepaal, en relatief onontginde faktore is geïdentifiseer. Gevolglik ondersoek die navorsingstudie of studie-ingesteldheid, abstrakte denke en tydsperspektief prestasie in rekeningkunde op eerstejaarsvlak statisties kan beïnvloed. 'n Kwantitatiewe nie-eksperimentele meerveranderlike voorspellingsontwerp is gebruik en die effek van steuringsveranderlikes is verreken. Vyfhonderd drie en dertig (533) eerstejaar-rekeningkundestudente aan 'n Suid-Afrikaanse universiteit het aan die navorsing deelgeneem. Die respondente het die Psigososiale Vraelys (PSQ), faktor B van die 16PF-vraelys, en die Zimbardo-tydsperspektief-inventaris (ZTPI) voltooi. Studie-ingesteldheid is gemeet in terme van 'n ander eerstejaarsvak waarvoor die meeste eerstejaarstudente moet registreer. 'n Enkelveranderlike-analise het aangedui dat daar 'n beduidende verwantskap bestaan tussen prestasie in rekeningkunde op eerstejaarsvlak en ouderdom, geslag, psigososiale agtergrond, die negatiewe-verlede-tydsperspektief en studie-ingesteldheid. Die verwantskap tussen rekeningkunde op eerstejaarsvlak en abstrakte denkvermoë is nie statisties beduidend nie omdat die toetsgroep homogeen gemiddeld toets met betrekking tot abstrakte denkvermoë. Faktore wat 'n invloed op prestasie in rekeningkunde kan hê, is onderling verwant; daarom het 'n meerveranderlike-analise aangedui dat ouderdom, 'n negatiewe-verlede-tydsperspektief en studie-ingesteldheid beduidende verwantskappe met prestasie in rekeningkunde toon. Daar is bevind dat bogenoemde faktore prestasie in rekeningkunde op eerstejaarsvlak tot 'n sekere mate kan voorspel. Die mees uitstaande resultaat van die studie is dat die negatiewe-verlede-tydsperspektief saam met 'n ongunstige psigososiale agtergrond tot nievoltooing in rekeningkunde op eerstejaarsvlak kan lei.

Kernkonsepte: kognitiewe, niekognitiewe, sukses, nievoltooing, studie-ingesteldheid, abstrakte denke, tydsperspektief, negatiewe-verlede-tydsperspektief, psigososiale agtergrond, eenveranderlike-analise, meerveranderlike-analise



# LIST OF ACRONYMS AND ABBREVIATIONS

|                    |   |                                      |
|--------------------|---|--------------------------------------|
| ACT                | : | American College Testing Program     |
| ANCOVA             | : | Analysis of Covariance               |
| ANOVA              | : | Analyses of Variance                 |
| FTO                | : | Future Temporal Orientation Subscale |
| GMAT               | : | General Mathematical Aptitude Test   |
| GPA                | : | Grade Performance Average            |
| GSAT               | : | General Scholastic Aptitude Test     |
| MBTI               | : | Myers-Briggs Type Indicator          |
| SAT                | : | Senior Aptitude Test                 |
| STPI               | : | Stanford Time Perspective Inventory  |
| 16PF questionnaire | : | 16 Personality Factor Questionnaire  |
| PSQ                | : | Psycho-Social Questionnaire          |
| USA                | : | United States of America             |
| UFS                | : | University of the Free State         |
| ZTPI               | : | Zimbardo Time Perspective Inventory  |