

**KEY INDICATORS OF STUDENT SUCCESS  
AT A TERTIARY INSTITUTION: A CASE  
STUDY OF CTI EDUCATION GROUP'S  
ACCOUNTING PROGRAMMES**

Submitted in fulfilment of the requirements of  
the degree of  
Master of Technology: Public Management  
in the Faculty of Management Sciences at  
Durban University of Technology

Ntemo Kiamuangana Maurice  
Student Number: 21451943

Supervisor: Dr Alexander Dawid Van Der Merwe

Date: March 2015

## DECLARATION

I Kiamuangana Maurice Ntemo declare that

- (i) The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.
- (ii) This dissertation/thesis has not been submitted for any degree or examination at any other university.
- (iii) This dissertation/thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
- (iv) This dissertation/thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
  - a) their words have been re-written but the general information attributed to them has been referenced;
  - b) where their exact words have been used; their writing has been placed inside quotation marks, and referenced.
- (v) This dissertation/thesis does not contain text, graphs or tables copied and pasted from the internet, unless specifically acknowledged, and the source being detailed in the dissertation/thesis and in the references sections.

Signature:

## ABSTRACT

Linking access with success in South African higher education has become vital. There is a clear necessity to identify and rigorously research factors contributing to student success that are within the institutions sphere of influence so that institutional policies and practices can be intentionally aligned and designed to create conducive conditions for student success

This study documents the key indicators of student success based on a sample of BComm Accounting students enrolled at CTI Education group (MGI)/Durban Campus from 2009 to 2011.

Using data collected from 54 students enrolled in the three groups, this study investigates whether or not matriculation aggregate scores as well as selected individual matric subject scores (including Mathematics proficiency, English language proficiency and Accounting) and demographic information (such as gender, race, socio-economic status, and first-generational status) are key indicators of success for students enrolled in BComm Accounting at CTI Education group/Durban Campus from 2009 to 2011.

Qualitative and quantitative data have been collected and incorporated into the econometric model. Qualitative data such as gender, ethnicity and parent level of education have been used as dummy variables and were analysed using either Pearson or Spearman's correlation tests. Due to the disparity in performance of students, the researcher sought to use the descriptive econometric model. The data (qualitative and quantitative) have been analysed using mostly descriptive methods and to a less extent the Ordinary Least Squares through Stata software. The findings of this study show that:

- In all three samples average matric score proved to be a significant indicator of student academic success at the end of the first-year;
- In all three samples, the first step of the model (Gender, ethnicity and first generational of students) did not explain a significant amount of the percentage of student academic success at the end of the first-year for the three cohorts;
- From 2009 to 2011, the overall results suggested a significant difference between students who lived close to campus and those who travelled a long distance to campus;
- In all three samples the Age variable did not explain a significant correlation between the variable Age and student academic success at the end of the first-year.

## DEDICATION

I dedicate this study to my family, especially my precious wife Bibiche Bazola Ntemo for her encouragements, patience and assistance, my beautiful daughters Samantha and Carole Ntemo, my parents and my siblings for their support and faith in me.

## ACKNOWLEDGEMENTS

My gratitude goes to the Almighty God for making it possible for me to undertake and complete this Master's degree.

It took a lot of courage and strength to undertake this second Masters graduate program as I was adjusting between work, family life, studies and resolving financial problems. Without the support of Dr. Alexander Dawid Van Der Merwe, this dream could still be in my imagination and future plans.

I would like to thank Dr. Van Der Merwe for agreeing to supervise my dissertation despite all his huge responsibilities. He was committed and guided me through his comments and encouragement.

I am ever grateful for the contribution of Professor Geoff Harris who has never ceased to provide me with opportunities to move beyond who I am, to who I can become. Your mentorship and guidance have been instrumental in every aspect of my growth as a post graduate student.

I also wish to express my sincere appreciation to Doctor Claire Vermaak for her kindness, humility, encouragement and massive contribution towards the completion of this project.

My gratitude goes to my wife, Bibiche, for her understanding and help. Thanks for your support and for taking care of Samantha and Carole when I was busy writing.

My thanks also go to Samantha and Carole for loving me whenever you did not understand why dad was so busy typing his work instead of playing with you.

Ms. Nicola Angelosante, Ms. Vani Naidoo and Mrs. Helga Van Wyk have helped me a lot with regard to data collection and supported this research.

Finally, my gratitude goes to all CTI/MGI BComm Accounting students who agreed to be part of this study and who opened their heart to express their thoughts on this research project and to any other people for their contribution to make this dream become a reality.

## LIST OF ACRONYMS

ACT:	American College Testing
ANOVA:	Analysis of variance
BAC:	British Accreditation Council
BComm:	Bachelor of Commerce
CEPI:	Center for Educational Performance and Information
CHE:	Council on Higher Education
CTI:	Computer Training Institute
DHET:	Department of Higher Education and Training
DoE:	Department of Education
DUT:	Durban University of Technology
FET:	Further Education and Training
FYE:	First-year experience
GET:	General Education and Training
HE:	Higher education
HESA:	Higher Education South Africa
HET:	Higher Education and Training
HEQF:	Higher Education Qualifications Framework
HSRC:	Human Sciences Research Council
ICT:	Information and communication technology
LLB:	Bachelor of Laws Degree
MGI:	Midrand Graduate Institute
NCHE:	National Commission on Higher Education
NCHEMS:	National Centre for Higher Education Management Systems
NFF:	New funding framework
NQF:	National Qualifications Framework
NRF:	National Research Foundation
NSC:	National Senior Certificate
NPHE:	National Plan for Higher Education
NSFAS:	National student financial allocation scheme
OBE:	Outcomes-based education
OECD:	Organisation for Economic Cooperation and Development

OLS:	Ordinary least squares
SA:	South Africa
SAQA:	South African Qualifications Authority
SAJHE:	South African Journal of Higher Education
SAPSE:	South African Post-Secondary Education
SDS:	Student Development and Success
SES:	Socio-economic status
TIMSS:	Trends in International Mathematics and Science Study
UNESCO:	United Nations Educational, Scientific and Cultural Organisation
UK:	United Kingdom
<u>UNISA</u> :	University of South Africa
US:	United States
WCCF:	Wisconsin Council on Children and Families

## TABLE OF CONTENTS

DECLARATION .....	i
ABSTRACT .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENTS .....	iv
LIST OF ACRONYMS .....	v
TABLE OF CONTENTS .....	vii
Chapter 1: INTRODUCTION .....	1
1.1. Background .....	1
1.1.1. Education at large in South Africa .....	1
1.1.2. CTI Education Group .....	2
1.2. Objectives of the Study .....	4
1.3. Significance of the Study .....	4
1.4. Research Questions .....	5
1.5. Research Scope and Structure .....	6
1.5.1. Scope of the Study .....	6
1.5.2. Structure of the Study .....	6
Chapter 2: LITERATURE REVIEW .....	7
2.1. Introduction .....	7
2.2. The Concept of student academic success .....	7
2.3. Determinants of student academic success in South Africa .....	8
2.3.1 The history of South African school system .....	9
2.3.2 The South African Education System .....	11
	vii



2.3.3. Higher Education in South African .....	14
2.3.4. South Africa’s HE Enrolment patterns and participation rates .....	17
2.3.5 Student Academic Success in South African High Education .....	18
2.3.6 The key role of first year in student academic success .....	22
2.3.6.1 At-risk students in South Africa .....	22
2.3.6.2 Millennial students in South Africa .....	23
2.3.6.3 Shifting from high school to higher education .....	24
2.3.6.4 First-year academic performance is an indicator of future success at HE .....	26
2.3.6.5 Coping with divergence between expectations and experiences .....	26
2.3.7 Student academic success in tertiary education .....	27
2.3.7.1 Measuring Student success .....	28
2.3.7.2 Factors linked to student Academic Success .....	33
2.3.7.3 Other factors influencing student academic success .....	43
2.4 Determinants of student academic success at CTI/MGI .....	46
2.4.1 General Information .....	46
2.4.1.1 MGI: Background .....	46
2.4.1.2 Benefits for enrolling at CTI/MGI .....	47
2.4.1.3 Entrance requirements for the BComm Accounting Degree .....	47
2.4.1.4 Entrance requirements for the Pre-Degree Foundation Programme .....	47
2.4.2 Factors linked to Student Success at CTI/MGI .....	49
2.4.2.1 Lecturers qualification and assessment methods .....	49
2.4.2.2 Academic Support and Development .....	50
2.4.2.3 Family and Community Support .....	51
2.4.2.4 Financial Assistance .....	52
2.4.2.5 Identification of Problems and Resources Provision .....	53
2.4.2.6 Course selection .....	53
2.4.2.7. Resources .....	54
2.4.2.8 Class Attendance and Preparation .....	55
2.4.2.9 Teaching and Learning Approaches .....	55
2.4.2.10 Networking .....	58
2.4.2.11. Balance .....	58
2.5 Chapter Conclusion .....	59

CHAPTER 3: METHODOLOGY .....	60
3.0 Introduction .....	60
3.1 Research Design .....	60
3.2 The Aim and Delimitation of the study .....	61
3.3 The target population .....	62
3.4 Sample Size and Sampling Technique .....	62
3.5 Sample Characteristics .....	63
3.6 Data Collection Procedure and Instruments .....	66
3.7 Reliability and validity .....	67
3.8 Data Analysis .....	67
3.8.1 Justification for the choice of variables .....	68
3.9 Ethical Considerations .....	70
3.10 Conclusion .....	71
CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION.....	72
4.0 Introduction .....	72
4.1 Background of the respondents .....	72
4.1.1 Background of the respondents for the 2009 cohort .....	72
4.1.1.1 Respondents by Gender .....	72
4.1.1.2 Respondents by Ethnicity .....	73
4.1.1.3 Respondents by Age .....	73
4.1.1.4 Respondents by Distance travelled to school .....	74
4.1.1.5 Respondents by Parent level of education .....	74
4.1.1.6 Respondents by Average matric score .....	75
4.1.2 Description of the dependent variable .....	75
4.1.2.1 Overall score of BComm 1 for the cohort of 2009 .....	76
4.1.2.2 Tests of Correlation for BComm 1 for the cohort of 2009 .....	77
4.2 Background of the respondents for the 2010 cohort .....	82

4.2.1 Respondents by Gender .....	82
4.2.2 Respondents by ethnicity.....	82
4.2.3 Respondents by Age .....	83
4.2.4 Respondents by Distance travelled to school .....	83
4.2.5 Respondents by parent level of education .....	84
4.2.6 Respondents by average matric score .....	85
4.2.7 Description of the dependent variable .....	85
4.2.7.1 Overall score of BComm 1 for the cohort of 2010 .....	86
4.3 Background of the respondents for the 2011 cohort .....	91
4.3.1 Respondents by Gender .....	91
4.3.2 Respondents by Ethnicity .....	92
4.3.3 Respondents by Age .....	92
4.3.4 Respondents by distance travelled to school .....	93
4.3.5 Respondents by Parent level of education .....	94
4.3.6 Respondents by Average matric score .....	95
4.3.7 Description of the dependent variable .....	95
4.4 Student retention and throughput .....	101
4.5 Conclusion .....	103
<b>CHAPTER 5: DISCUSSION, LIMITATIONS AND CONCLUSION .....</b>	<b>104</b>
5.1 Discussion: Major Findings of the Study .....	104
5.1.1 Research question one .....	105
5.1.1.1 The correlation between respondents' characteristics (qualitative) and academic success .....	105
5.1.1.2 The correlation between respondents' characteristics (quantitative) and academic success .....	107
5.1.1.3 Pearson's correlation test and scatter plot graph .....	107
5.1.1.4 Sequential OLS regression including key indicators of Student	

Academic Success .....	108
5.1.2 Research Question Two .....	108
5.1.3 Research Question Three .....	109
5.2 Limitations and Recommendations .....	109
5.2.1 Data collection method .....	109
5.2.2 Sample related limitations .....	110
5.2.3 Single institution studies .....	112
5.2.4 Quantitative indicators and analysis methods .....	112
5.3 Conclusion .....	113
REFERENCES .....	115
APPENDICES .....	131

## CHAPTER 1: INTRODUCTION

This chapter will discuss the background of the study, location of the study, the overall objectives, and the research question as well as the importance of the study.

### **1.1. Background**

This section discusses education as a whole in South Africa and at Computer Training Institute (CTI) Education Group in particular.

#### **1.1.1. Education at large in South Africa**

The development of tertiary education schemes, the broadening of delivery and the surged diversity of the learning body has led to opening the sphere from the old-fashioned perspective of higher education to the broader one of tertiary education, which is expected to echo the increasing variety of institutes and programmes (OECD 2008). As this broadening view of tertiary education is important, one cannot undermine the necessity to differentiate tertiary education from post-secondary education. Tertiary education deals with a larger scope of programmes, with diverse prerequisites and selection criteria, including mathematics proficiency as well as total matric score, to recruit incoming students in order to help them adjust into the specific field they plan to enroll in at the tertiary institution.

In spite of the widespread agreement about the importance of improving student success which may have a huge social and economic payoff, policy analysts in different societies have amazingly limited hard data on which educational strategies should be based in order to raise student educational achievement.

This preoccupation of raising student educational achievement seemingly pervades much educational policy discourse in South Africa. South African students get lower marks in mathematics tests as well as other related courses at tertiary education institutions, even when

compared with their fellow students from other African countries (van der Berg and Louw 2006, cited by Carnoy & Chisholm 2008). Most South African students find it very annoying to study mathematics at high school and are not comfortable to learn the subject at tertiary education level. As a result, many South African students find it hard to succeed at the tertiary education level because of the link between the subject and their fields of study such as BComm Accounting in the case of the current research, prompting them either to drop out or extend the duration of their studies after several years of repetition. Students who perform poorly in mathematics are likely to struggle at tertiary level. The above brief background makes the study on key determinants of student success at any South African tertiary education institution an important research.

### **1.1.2. CTI Education Group**

The CTI Education Group, a wholly registered private tertiary institute can be identified as a result of the development of higher education schemes, the broadening of provision and the surged heterogeneity of the learning body in South Africa.

Established in 1979 and formerly known as Computer Training Institute, CTI engaged in a partnership with another private institute, Midrand Graduate Institute (MGI) in 2006 to form the presently known as CTI Education Group. CTI Education Group (referred to in this study as CTI) has degree-conferring status and offers both full-time and part-time degree programmes.

Being the only higher education institution in Africa that enjoys a dual accreditation from both the South African Council on Higher Education (CHE) as well as the British Accreditation Council (BAC) in the UK, CTI is using this unique advantage to ensure that all programmes and academic service delivery (both for local and international programmes) are of the highest local and international standards and that students have more comprehensive employment opportunities available to them at the completion of their studies. Graduates at this institution possess a distinct advantage of having an unparalleled access to both global and local employment opportunities.

Presently, the group is striving to broaden its boundaries with numerous other affiliations to

include other fields on top of the existing computer related education as mentioned below. The CTI Education Group has presently expanded from one campus located in Randburg, Gauteng, to 13 remote campuses situated countrywide and qualifications offered and supported through CTI and its partners range across four faculties, namely:

- (1) Faculty of Information Technology
- (2) Faculty of Commerce
- (3) Faculty of Creative Arts & Communication
- (4) Faculty of Psychology & Counselling and Law.

Furthermore, as an official UNISA licensee, CTI offers on-campus lectures, tuition support and assessments for the Bachelor of Laws (LLB) degree on behalf of the University of South Africa (CTI's Prospectus, 2013).

In 2011, Pearson Education became the group's majority shareholder by acquiring a 75% stake in CTI. As Pearson's aim is to contribute into the local as well as international higher education market by providing learning materials, assessments as well as other educational solutions and tools; this partnership will ensure that Pearson's strong brand, educational resources and global reach will complement CTI's strengths. Currently, Pearson Education owns the entire CTI Education Group by completing the acquisition of the remaining 25% of shares ([www.cti.ac.za](http://www.cti.ac.za)).

This study focuses on the key indicators of factors determining the student success at CTI. The emphasis given to mathematics in relation to students enrolled in Commerce at CTI requires that students must meet a minimum proficiency in mathematics before benefiting from instruction which incorporates the bigger picture of mathematics because of the link between the later and the BComm Accounting degree programme.

One of the aims of this thesis is to ascertain the impact of mathematics proficiency, English language proficiency and Accounting on the success of students registered in BComm Accounting degree programmes at CTI. To test the hypothesis that mathematics proficiency and

other factors are correlated with success at tertiary level, structural equation modelling will be used among other statistical methods. The expected outcomes should substantially support this.

## **1.2. Objectives of the Study**

The main objective of the current research project is to:

Examine whether or not matriculation aggregate score as well as selected individual matric subject scores (including Mathematics proficiency, English language proficiency and Accounting) and demographic information (including gender, race or, socio-economic status, and first-generational status) are key indicators of success for students enrolled in the BComm Accounting programme at CTI Education group (Durban) from 2009 to 2011.

## **1.3. Significance of the Study**

Key indicators of student success have been the subject of ongoing discussion among academics, researchers and policy makers around the world and in South Africa, it is no different. According to Harb and El-Shaarawi (2006) the findings of the numerous studies that have been undertaken to assess the key indicators of student success at tertiary education institutions have pointed out to hard work and discipline, previous schooling, parents' education, family income as well as self-motivation as factors that can determine differences in student grades. Leader (2010) also pointed out that student's previous results and motivation affect positively the current academic performance. Most literature in previous studies tends to focus on student success in the bigger public tertiary institutions around the world. However, in considering that a one size does not fit all and since there are cultural differences between these universities and private tertiary institutions, such as CTI, Harb and El-Sharaawi (2006) believed that such differences play an important role in shaping the factors which affect student success. It is therefore essential to study those relevant factors which are relevant to the CTI Education Group.



Tertiary education institutions in South Africa need insights on what would make a student successful. These factors can be taken into consideration when determining entry requirement and this will help facilitate fair, reliable and valid acceptance criteria for students.

Theoretical models taking into account numerous attributes and pre-university experience that might have an impact on student success would be suggested and tested taking into account variables pertaining to the reality and environment of CTI.

The importance of this study is to provide scientific information that will help the Admission Office to inform their admission criteria, curriculum planning and strategy planning and for policy makers in CTI Education Group in its different campuses in particular to design and implement education policies in order to improve student success on the one hand and, to improve the efficiency of tertiary education institutions in general, on the other hand. This may therefore lead to possible changes to the entry requirements at CTI Education Group as well as an improvement in the pass rate in the commerce degree programmes.

#### **1.4. Research Questions**

To achieve the objectives set above, the current research attempts to address the following three questions:

- 1) What are the key indicators of student academic success in the BComm Accounting degree programme for students enrolled at CTI Education group (Durban) from 2009 to 2011?
- 2) Can matric scores be considered as key indicators of student academic success in the BComm Accounting degree programme for students enrolled at CTI Education group (Durban) from 2009 to 2011?
- 3) Should CTI Education group continue to recruit students in BComm Accounting based on current admission requirements?

## **1.5. Research Scope and Structure**

### **1.5.1. Scope**

This research will be conducted at the Durban campus of one of the leading private tertiary institutions in South Africa, CTI Education Group. Students at this selected campus will be the targeted population and their records will be used together with other background information to identify the key determinants of student success at CTI for the period between 2009 and 2011.

### **1.5.2. Structure**

The research will be divided into the following five chapters. Chapter 1 is the introduction, Chapter 2 reviews the literature, Chapter 3 discusses the research methodology, Chapter 4 presents the analysis results and Chapter 5 discusses the conclusion.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. Introduction

Government and educators have a growing concern about the significant numbers of students who fail their courses at tertiary institutions and drop out their studies. Another concern is the fact that the ratio of students abandoning their studies prior to completion has not changed significantly over the past three decades. In 1967, studies suggested that about 42% of students enrolled at tertiary institutions six years earlier had failed to complete their degree. By 1997, there were still about 39% of students who failed to complete their university studies after five years of their enrolment (Mentz 2012).

As a result of this immense proportion of students dropping out and failing to complete their degree, there is a great probability of government funding being wasted within the education sector. In an attempt to decrease the level of wasted funds in this sector, the clear understanding by South African government and educators, of the different factors that can directly or indirectly influence student academic success at tertiary level is very important. The identification of students at risk of failing to complete their tertiary education by the stakeholders can help to implement supplementary programs to meet the needs of these students and enable the effectiveness of government funding to the sector.

### 2.2. The Concept of student academic success

The concept of student success has been explained in different ways by numerous researchers. According to Mortimore (2002), performance is the achievement under test conditions. Meanwhile, De Jager (2002) defined performance as the change that occurs after an individual has undergone training or planned experience, particularly with regard to individual behaviour, knowledge or skills. He went on to state that performance connects to student achievement and success in his/her course of study. Okemwa (2000) has connected student success to effectiveness by describing this as the capability of the individual to be productive after formal, vocational training or planned experience. This effectiveness can be manifested in students' individual behaviour, knowledge or skills. All these definitions depict performance as that which can be observed after training.

The key reason behind the selection of this outcome lies in the fact that course grades represent the accomplishment of certain course standards listed in syllabi and known to all registered students (Mortimore 2002). Course standards include different kinds of assessments students have to pass, such as examinations, assignments, tests and writing essays; thus, course grades serve as a summative evaluation of students' performance (De Jager 2002).

Furthermore, employers and admissions committees in tertiary institutions often apply course grades to study the past performance of students and predict their future success. Student academic success at tertiary level can be influenced by many factors, including their prior academic ability, background, family's level of wealth and demographic characteristics. The traits of the secondary school attended by students as well as students' university entrance scores play a key role in determining their outcomes at university. Stephen et al (2004) emphasised English language proficiency as another indicator of student academic success.

This chapter will discuss the key determinants of grades impacting on student academic success in general, and CTI's students' characteristics in particular, that may influence their success. This concept has been interchangeably employed in the present study with academic performance.

### **2.3. Determinants of student academic success in South Africa**

Enhancing student academic achievement in higher education is essential to individuals, institutions and societies, more particularly developing economies such as South Africa (Mentz 2012). The achievements of a nation are based on advances in science, technology and raising the level of educational achievement in the general population (Hofstein & Lunetta 2004).

Within the wider society, higher education has an important role to play in building a vibrant democratic society, stimulating social justice and transformation, as well as participating towards South Africa's economic growth and competitiveness (CHE 2004). In this context, one of the key challenges for the South African higher education (HE) sector today is to produce a suitable number and mix of high-quality graduates who can act as responsible citizens in a democratic society achieving their own potential, while simultaneously participating towards the inclusive

wellbeing of South Africa. The higher education sector is predominantly financed by government and registered students, unspoken social agreements and government regulatory policies will continually hold Higher Education institutes liable for the quality of education they supply and their capability to educate the nation successfully in the conceivable future (CHE 2009).

To make the complexity of the student academic success problem and the variety of factors affecting student outcomes in South African HE more understandable, it is important to first comprehend the country's historical and social contexts in which the educational sector is implied. Given the fact that school level education cannot be separated from the current challenges faced by the country's higher education system, the following section provides brief comments on school education.

### **2.3.1 The history of South African school system.**

Prior to the first democratic election in 1994, the highly fragmented school system was seen as a tool to endorse inequality and sustain the supremacy of White South Africans. This was attained by unfair allotment of human capital and financial resources within the school system, and by constraining the access of non-White South Africans to high quality educational opportunities (OECD 2008a).

The first democratic election of the government in 1994 led to a large scale reform of the school system in terms of structure, financial spending and curricula. As part of the drive to create an equitable, single, seamless coordinated system of education, the school system was readjusted to form part of the NQF and a significant refurbishment of the program was undertaken in 1994, leading to all learners in the school system countrywide having exactly the same curriculum for the first time during 2008. This fundamental change of curriculum was launched in 1997 as Curriculum 2005, which was later reformed in 2002 to be the Reformed National Curriculum Statement (OECD 2008b).

Among various key philosophical transformations, one was the shift from the previous aims and objectives approach to an outcomes-based approach to education (Umalusi 2008). The move to a post-industrial society and the development of the knowledge economy has led to substantial growth in global higher education – actually, the enlargement of HE has been indicated as one of the most significant HE trends of the latter 20th century (Altbach et al. 2009).

Locally and internationally, this noteworthy development has resulted in a progressively disparate student population. Previously, access to HE was normally limited to an advantaged minority who entered High Education directly after high school, depended on their sponsors to subsidise their tertiary education and probably only had to work part time. Contemporary student populations are significantly different, and most of undergraduate students in the United States no longer fit this “traditional classification” (Choy 2002). The eradication of Apartheid policies in SA was an accelerating element that has immensely influenced the substantial shifts in the demographic characteristics of the higher education student body.

This promptly flourishing of student population with its increasing levels of complexity has presented South African Higher Education systems with one of its most significant challenges, that is, enhancing the accessibility to success ratio (Altbach et al. 2009; HESA 2010). At the moment, this impartiality in outcomes, mostly for diverse categories, has remained an intangible ideal, and student underperformance in undergraduate education is both a national as well as international issue. Studies indicate, that in the United States under 33% of degree seeking students graduate from public higher institutions within the normal 4-year period (Knapp et al. 2011) and below half of undergraduates in the United States graduate within 5 years (ACT 2010).

The substantial discrepancy in the performance rates of distinct demographic categories is even more alarming. Students from higher socio-economic status (SES) groups in the US are approximately five times as probably to gain a degree than their counterparts from lower socio-economic status groups; Asian and White students have a higher probability of graduating than do their Black counterparts. Furthermore, the collaboration between race and gender suggests that females in all categories have a better chance of graduating than males of the same race or

ethnicity (Mentz 2012). In the spite of numerous attempts to address these disparities, there has been no meaningful reduction in completion differences with respect to different SES and gender groups.

In SA the overall graduation rates are likewise disturbing with only about 45% of students ultimately graduating, and substantial disparities between White students and their Black counterparts endure (Scott, Yeld & Hendry 2007). In a hard-hitting report released by the Council on Higher Education (CHE) on Tuesday 20 August 2013, it has been revealed that less than 5% of black African and coloured students succeed at tertiary education and at least 50% of all first-year entrants drop-out and never graduate at all (Macfarlane 2013).

### **2.3.2 The South African Education System**

To comprehend the intricacy of the student performance issue as well as the variety of factors that affect student results in South African Higher Education, it is important to primarily comprehend the local social and historical contexts in which the educational sector is implanted. Given the fact that school level education is indivisible from the issues that the Higher Education system is facing at the moment, the following section presents brief comments on school education.

Currently, education in South Africa for both school level as well as Higher Education is organised in line with the National Qualifications Framework (NQF) and the Higher Education Qualifications Framework (HEQF). The former comprises 10 levels: level 1, which falls under General Education and Training (GET), includes grades from 1 to 9. Levels 2 (grade 10), 3 (grade 11) and 4 (grade 12) are classified as Further Education and Training (FET), and contain both FET schools and FET colleges (South African Qualifications Authority (SAQA) 2006; South African Qualifications Act 1995).

Conversely, some FET colleges that offer programs for higher education institutions may have supplementary programs, taking the qualification up to Level 5 (OECD 2008b). The rest of the levels (5 to 10) are regarded as Higher Education and Training (HET), where Levels 5-7 include

undergraduate degrees and levels 8-10 refer to postgraduate degrees as suggested by the Department of Education (DoE 2007). The GET as well as the FET sectors are henceforth jointly referred to as the South African school system.

In South Africa the current spending on education is only marginally under the UNESCO's standard of 6% for government spending on education (OECD 2008b). Higher Education is mainly financed by government subsidy. The spending on Higher Education per year has gradually gone up since 2004. However, while general spending on HE as a portion of national gross domestic products has enhanced since 2004, the proportion spending of HE to the national budget has dropped (CHE 2009). In spite of this relatively substantial financial investment in the overall educational sector, the system is stricken by inefficiencies and large scale of inequalities which pose a serious danger to socio-economic progress and development in South Africa if left unattended (Mentz 2012).

The outcome-based approach to education has not come without controversy. Since its inception, OBE approach has triggered pervasive controversy with criticisms levelled at the structure, content, assessment strategies and the implementation of the curriculum model (Bloch 2009). The first group of learners to have completed their National Senior Certificate (NSC) enrolled HE at the beginning of 2009 amid extensive controversy and evidence indicating that the curriculum failed to effectively prepare them for Higher Education (Prince & Yeld 2010).

Unfortunately, there is significant evidence to confirm that students in the entire school system are poorly performing and under-equipped, especially in the fields of Science and Mathematics. SA students are constantly underperforming on international skills tests in the GET sector. In the Trends in International Mathematics and Science Study (TIMSS) for example, South Africa is ranked the lowest of all participating countries in both 1999 and 2003, and lower than 12 other sub-Saharan African states (Howie 1999). Mullis et al (2004) are among other researchers to have confirmed these low proficiency levels. Recently, Mullis et al. (2012) have also echoed this argument. In a study conducted by the Human Sciences Research Council and researchers from participating universities in 2007 using a sample of 2,700 learners in Gauteng schools, after test it was found that low level of student mathematics learning in most of the schools was evident



with the average score of around 49 percent, with an individual standard deviation of at least 19 percent (HSRC 2008). The argument has been echoed by a more recent report suggesting that the overall number of learners who are achieving an NSC pass with more than 40% in mathematics has been falling over the same period to 17% of the class of 2013 (Campbell & Prew 2014).

Other evidence supporting these results can be found by analysing results on standardised tests such as the Progress in Reading Literacy Study (PIRLS) (Bloch 2009), Monitoring Learning Achievement study (UNESCO's Education for All project), the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) study of Grade 6 learners as well as the most recently, Annual National Assessments project in South Africa (Department of Basic Education 2011) involving the assessing of students in government schools in Grades 2 to 7 to assess learner performance by means of standardised tests. It indicates that the quality of basic education is still way below expectations and that the sector continues to face several challenges.

The 2011 Annual National Assessments (ANA) suggested that the proportion of students who could have demonstrated at least the 'achieved' level of performance ranged from 12 percent to 31 percent subject to the particular grade level and major (Mentz 2012). In 1996, studying became compulsory up to the age of 15 in SA, and significant progress has been made towards this goal. Nearly universal enrolment has been achieved in the compulsory grades, where at some stage the majority of learners have successfully completed grade 9. Nevertheless, from the age of 16, the percentage of learners who entered school started to drop gradually, to the level that just about half of the concerned age group participate in the Grade 12 exam annually, of which many do not perform satisfactorily (OECD 2008b).

The ratio of learners passing their matric exams has been dropping since 2003, after an initial promising rise from 1998 till 2003. In 2009, it reached its lowest point in nearly a decade with only 60.6% of learners passing (MacGregor 2010). However, over the past four years the pass rate has gradually increased from 60.6% in 2009 to 67.8% in 2010, 70.2% in 2011, 73.9% in 2012 and 2013 has seen the highest pass rate in 20 years with 78.2% (Wilkinson 2014).

Adding to the low matric pass rates problem, some of the learners who pass their Grade 12 examination are not eligible to enter Higher Education. The *Human Resources Development*

*Review* (Breier & Mabizela 2007) for the period 2002-2004 suggests that out of the total of 451,000 Grade 12's who wrote the Senior Certificate Exam, only about 18 percent of them have qualified to go to University.

Despite this progress from the previous review period (2000-2004) by Subotsky (2003), the amount of qualified students for HE stays low. By 2007 the overall portion of certified passes had dropped to 15.1% (OECD 2008b) and in 2009 a total of 19.8 percent of matriculants obtained a bachelors pass (please note that to enter into the HE prior to the implementation of the NSC passing with endorsement was the required minimum criteria, and a Bachelors pass in the NSC is the equivalent of an endorsed pass in the old curriculum), allowing them to enrol for Higher Education (MacGregor 2010).

Aggravating even further the issues of inefficient academic preparedness, low Grade 12 pass rates and inadmissibility is the fact that only a portion of those eligible to enter High Education actually are doing so. Both *Human Resource Development Reviews* (Breier & Mabizela 2007) cited above, suggest that about 20 percent of learners who qualified to enrol Higher Education actually did so at least a year after the completion their Grade 12. As a result, tertiary institutions are left with no option other than admitting ill equipped students from a relatively small group of applicants who are poorly prepared to cope with the academic demands of Higher Education (Hunt et al. 2009; OECD 2008a). Consequently, these students frequently end up becoming academically marginalised and disadvantaged in Higher Education, exposing them to the risk of dropping out before completing their degrees.

### **2.3.3. Higher Education in South Africa**

In this section the social context of HE in SA will be discussed with special reference to the period leading up to 1994 as well as the important changes that have occurred subsequently.

Analogous to the pre-1994 school system, Higher Education during the Apartheid era was conceived expressly to sustain the political, educational and social superiority of White students through an advantaged and privileged educational scheme, while restricting coloured students' access to resources and high-quality learning. Among the key characteristics of HE under the

Apartheid government was the biased investment of resources in the system, divided clearly along racial lines and for the most part, students of one group did not have access to the educational schemes of students in other groups (OECD 2008b). The general participation rates in Higher Education were low and did not show the country's true population composition and did not help to develop the needed skills to sustain the country's growth and development (Mentz 2012).

Besides the division in the system along racial lines, tertiary institutions were further categorised according to their type (colleges, technikons and universities). Each type was grouped in line with their racial groups. They had their own qualification structure and were awarded different qualifications (OECD 2008b). Among the most significant changes in the HE landscape post-apartheid, there has been the radical restructuring of the sector through mergers and incorporations in 2004 (Jansen et al. 2007) from 306 separate tertiary institutes (public or private) to around 70 new institutes (OECD 2008b).

The new public Higher Education landscape contains 23 public High Educational Institutions: 11 "traditional" universities focussing on research and a mix of discipline-based and professional degree qualifications; six universities of technology focusing on a mix of vocational, technological, career-oriented and professional programmes that lead to a diploma, certificate or degree; and six "comprehensive universities" that combine both types of Higher Educational Institutions (CHE 2004). Within this dynamic new Higher Education environment, numerous important policy developments have contributed to the prompt expansion of student enrolments, and over time have reallocated the focus within the sector from broadening access, to providing access with attainment (note that the concepts higher education and tertiary education are used interchangeably in this study).

The African National Congress has announced a framework for education after the first democratic elections in 1994. The framework was based on the principles of non-racialism, non-sexism, democracy, redress and a unitary system of education administered by a single national department (see CHE 2004 and Republic of SA 1996, Article 3:4). The transformation of HE from its previous disjointed condition started with the National Commission on Higher

Education (NCHE) in 1994. This innovative process led to the NCHE report entitled *A Framework for Transformation* (NCHE 1996), which was broadly commended both domestically and internationally, and viewed as a model tertiary education policy document (OECD 2008b).

The report suggested an integrated system to intensify effective and efficient participation in Higher Education as a way to start addressing the massive disparities of the system via a process of enlargement (NCHE 1996). The *Education White Paper 3: A Programme for the Transformation of Higher Education* (DoE 1997) has set out policy for this transformation of HE, after which a period of substantial development in HE enrolments followed (OECD 2008b).

However, despite these major policy transformations and the institutional mergers, the disparities between previously advantaged and disadvantaged establishments continued to be prevalent and hard to conquer. In a move to tackle this, the National Plan for Higher Education (NPHE) was established. It had comprehensive, specific goals on numerous key matters including improvement of efficiency in graduation rates by emphasising success and ensuring quality of education provision (DoE 2001). As a result of the NPHE, the DoE has sought to achieve its goals by launching different mechanisms to steer the sector (Mentz 2012).

Funding is among the main steering mechanisms currently employed. Unlike before 1994 where funding enabled the maintenance of disparity, funding post-1994 initially emphasised promoting access for historically disadvantaged groups and serving the goal of broadening via a formula-based system of resource allocation for the South African Post-Secondary Education system as a whole (Steyn & De Villiers 2007). Nevertheless, as time went by, the NPHE acknowledged the role that funding should play in meeting the national education objectives; leading to the announcement of the new funding framework (NFF) in 2003. It aimed to be ‘goal-oriented’ (associating funding with the achievement of national policy goals), ‘performance-related’ which links funding to accountability for research and teaching outputs through the subsidy formula, and also aimed to promote institutional and social redress through different forms of assigned funding (CHE 2004). Despite the criticism on the formula, it served to move the focus in the HE

sector from a narrow-minded focus on access, to a more comprehensive focus on providing access with success (Bundy 2006).

Following the key policy developments described above, the discussion below signals that while the goal of widening access to HE for historically disadvantaged groups has to some degree been achieved, the ideal of equity in student outcomes has not been accomplished and has become one of the most critical factors that the sector is facing today.

#### **2.3.4. South Africa's HE Enrolment patterns and participation rates**

In the global sphere, massification has been a major driver of development and has participated into the establishment of some of the most vitally problematic issues that tertiary establishments face today (Altbach, Reisberg & Rumbley 2009).

In line with the international trend of expanding enrolments, the South African overall gross participation rate in public HE increased in the period from 1996 to 2006 from 14 percent to just over 16 percent (OECD 2008b). However, the critical concern is that participation rates progressively vary immensely between ethnic groups, where between 55 and 64% of the White age group entered Higher Education, and only 12 percent of the Black African group enrolled (CHE 2009).

Nevertheless, an analysis of longitudinal enrolment data suggests that the overall demographic profile of the students registering at tertiary institutions has significantly improved over the past 15 years, both in terms of gender and race. Enrolments for the Black African and Coloured pool of students have more than doubled since 1994, and these two cohorts of students currently account for over 70 percent of the total enrolments in South African HE (Scott 2009b). Currently female students are more dominant in tertiary institutions than male, also Black African students have outnumbered White students in public tertiary institutions (see Jansen et al. 2007).

In spite of improvements in the representativeness of higher education student profiles, there are still significant differences in enrolment patterns according to gender and race in South Africa.

Access for Black African and female students to the high-status and scarce-skill areas and postgraduate programmes is disproportionately limited. Also, Black African students remain registered to a large extent in the Humanities and Social Sciences. These numbers suggest that the SA higher education enrolment patterns are essentially unchanged from those pre-1994 (Mentz 2012).

### **2.3.5 Student Academic Success in South African High Education**

An analysis of the throughput and graduation rates of the students who are entering tertiary institutions in South Africa shows a depressing picture. The OECD (2008b) point out in their review of South African education that, besides the traditionally White English-medium institutions, retention rates for the system have dropped after 1997.

Scott et al. (2007) have supported that when they analysed the throughput rates computed by determining the number of students in a given pool who complete their tertiary education and graduate within the required time and dropout rates and delayed completion of degrees. The cohort data for the study was made available by the DHET and the researchers tracked the 2000 cohort for their study purposes. By the end of 2004, only 30 percent of the total first-time enrolling student intake had graduated five years after enrolling for the first time, a further 56 percent of the intake had left their original tertiary establishments without graduating, and 14 percent were still in the database. According to them, a suitable estimate of total completion rate when transfers and those still in the database are considered for the cohort would probably be around 45 percent (Scott et al. 2007). Another analysis by the Human Sciences Research Council (HSRC) suggests only an average of 15 percent of students that completed their tertiary studies in the required time period (MacGregor 2007). According to the HSRC researchers these dropout figures translate to over R3 billion worth of wasted state subsidies annually (Letseka & Maile 2008).

Furthermore, there were some inconsistencies between the different types of institutions regarding their throughput rates.

Universities outperformed the former technikons, and contact institutions outperformed the distance institutions though there is significant deviation within each sub-sector. The contact universities were the best-performing sub-sector, where half of the 2000 intake had graduated by the end of 2004 (Scott et al. 2007). In the cases of both technikons and universities, the completion rates are much higher if distance education institutions are excluded from the statistics. Nevertheless, because the distance education institutions constituted 32 percent of the first-year intake in the 2000 pool, the performance and completion rates of contact university students cannot be considered as significant (Scott et al. 2007).

An examination of throughput rates by race suggests a trend of relatively poorer performance by traditionally disadvantaged students in tertiary institutions. However, overall performance trends warrant closer attention as clearly indicated in the table 2.1 below. For most students access has not been translated into success. Comparing both categories of races, the White completion rate is way greater than the Black completion rate in all subject matter, which serves to reverse the progress made by rising enrolments. Combining the overall participation rate of Black students with attrition figures of over 50 percent and low completion rates, it can be concluded that the HE sector is catering for less than 5 percent of the Black and Coloured age cohort (Scott et al. 2007).

Despite the fact that the situation of low pass rates and inequalities between ethnic groups is not unique to South Africa, the critical gap in the South African context is that the high dropout and low graduation rates occur in a system where there is already low overall participation. Therefore, even though similar proportions of students may be dropping out elsewhere, the impact on the sector is far more devastating (Scott 2009b).

Table 2.1 below indicates the percentage of Black African and White students by the Classification of Education Subject Matter (CESM) category of students who have graduated after five years, based on the 2000 cohort study (see Scott et al. 2007).

Table 2.1: Percentage Black African versus White students graduating within 5 years  
by CESM category

CESM Category	White students	Black African students
Languages	65%	26%
Business/Management	83%	33%
Law	48%	21%
Engineering	64%	32%

Various tertiary institutions have taken action over the past three decades to address the problem of poor higher education performance through different academic development initiatives. Prior to the action, foundation subjects were offered in key courses with the intention to fill in the gaps between high school and tertiary education for students with the innate ability and potential to succeed in tertiary education, but who were academically disadvantaged.

Nevertheless, by the late 1980's numerous universities or tertiary institutions had translated these foundation subjects into foundation programmes attached to specific degrees (Scott 2009a). Literature regarding the effectiveness of these extended programmes is not as widespread as it ought to be, but individual analysis point to the educational advantages they offer to students, particularly Black African students (Mentz 2012). A major problem remains that these programmes are not system wide and do not have financial support to address an issue that significantly affects most of students in tertiary establishments across South Africa (Smith 2009). The only way to make any significant impact on student success is to implement systematic approaches to education that are flexible enough to accommodate, and effectively support students from different educational and socio-economic backgrounds. This will practically result in shifting from "Band-Aid" approaches towards fundamental changes to curricula structures; the provision of integrated academic support; and a revision of teaching and learning approaches and policy as stated by the (CHE 2010).

Along these lines, it is very motivating to mention numerous discussions on a national level aimed at structural and policy changes, which include review of the four-year undergraduate syllabus (MacGregor 2009a). Change at the national policy level is however, a time consuming



process and is doubtful to provide a general cure-all solution. Furthermore, tertiary establishments cannot afford to wait for systemic level changes as the sole solution to the issue of academic success without assessing sustainable tools to improving student success within their own context.

Finding ways to solve the issue of student underperformance in the educational environment is vital when the implications for both the higher education institutions and the broader society are considered. Higher Education countrywide now faces an uncomfortable tension. On the one hand, increased participation in Higher Education is urgently needed to enable South Africa to at least compete with other developing countries in terms of human capital. In addition greater access to higher education must be accompanied by more equitable access to all fields of study in respect of the country's various demographic groupings. On the other hand, the higher education system is still unable to adequately accommodate currently enrolled students. This tension can never be addressed unless tertiary institutions systematically identify and implement strategies that enhance the performance of different student cohorts who are not adequately prepared for higher education even within the context of progressive increased enrolments patterns (Scott et al. 2007). Therefore, significant transformations to the educational process are needed in order to properly address the issue. This study can potentially improve the educational sector's comprehension of the diverse needs of different students, and subsequently participate towards improving the educational process to successfully accommodate all categories of students.

Furthermore, due to the fact that tertiary education is gradually perceived as the engine of economic development, an efficient HE environment is vital to the national aims of transformation and redress (Scott 2009b). There needs to be a major rebalancing of equity of outcomes in order to enable the current graduate output to meet the needs of South Africa regarding sustainable economic growth and development. This imperative applies equally to the need to affect redress in the workplace. These measures should go some way to helping resolve the current skills shortage, which is posing a threat to the economy (Scott 2009b). A consequence of low performance rates at undergraduate levels is the relatively small cohort of students who will progressively complete their postgraduate degrees. This results in lower numbers of high-quality postgraduate students who complete their studies which, in turn, leaves

South African tertiary institutions with a limited number of future academics, especially from designated groups (Mentz 2012). As a result, South Africa is lagging behind its counterparts from both developed and developing countries as far as PhD completion rates are concerned. Furthermore, the postgraduate profile remains predominantly White and male students (Koen 2007). Despite the fact that a number of initiatives are currently underway in an attempt to alleviate this inequality (NRF 2007) the success of such projects significantly relies to a large extent on a cohort of high quality successful undergraduates.

### **2.3.6 The key role of first year in student academic success**

Most students drop out of tertiary institutions during their first-year of enrolment (Scott, 2009b). This trend, which has been confirmed in South Africa by MacGregor (2007), in the United States by ACT (2010) and in Australia by the Department of Education, Training and Youth Affairs (2000), is of concern given that persistence to the second year of study is an important condition for eventual degree completion. Thus, higher institutions aiming to improve outcomes in undergraduate education for different categories should include deliberate institutional efforts to get involved during the first year in order to alleviate high dropout levels.

The literature suggests that numerous possible reasons may influence a student's decision to discontinue his or her studies. These include the concepts of students at risk and millennial students as well as the failure to negotiate the transition between high school and higher education (Mentz 2012). To permit a better understanding about the key role of first-year in academic success, it is important to first understand the concepts of students at Risk and Millennial students within the modern day student population's context.

#### **2.3.6.1 At-risk students in South Africa**

The concept of "at-risk" students was developed in the United States and refers to students at-risk of dropping out of higher education. This concept was developed in response to the need to comprehend the student academic performance issue in a more distinct way as student populations continued to change promptly and low overall success rates continued to torment tertiary establishments.

Though there exists no one succinct and universal definition of an at-risk student, various characteristics are linked in the literature to the concept of at-risk students in the United States.

These characteristics include: being a first generation student coming from a household where neither parent nor guardian has earned a baccalaureate degree (equivalent to bachelor's degree in SA), being a member of a minimal Socio-Economic Status group, having to financially sustain oneself, working after hours, being a single parent or having dependents, being a member of a marginalised ethnic group, being disabled, being homosexual, bisexual or transsexual students, being a commuter student (students not accommodated on campus or living far from campus), delaying entry into Higher Education, attending lectures part-time and being academically underprepared for higher education (Johnson et al. 2004).

Although in South African literature, there is no official definition of an at-risk student that has been identified, a significant proportion of students currently enrolled in local tertiary institutions possess the above-discussed characteristics and can therefore be defined as at-risk students. The general characteristics of at-risk students recorded in the literature could easily include the seemingly widespread concerns regarding the levels of academic readiness of matriculating students countrywide.

#### **2.3.6.2 Millennial students in South Africa.**

Apart from their cohort sizes and demographic profiles, student bodies have also varied considerably in terms of their expectations of academic environments as well as their approach to learning. This fact complicates the task of providing access with success to all students (Mentz 2012). The current Millennial or Generation Y students enrolled in Higher Education diverge from previous generations of students in their attitude towards learning. These students prefer to work collectively, they thrive on active tasks and are exceptionally tech savvy (McGlynn 2007). Millennial students spend less time on-campus and participate more in extracurricular activities than previous generations of students. The key to creating learning environments that facilitate success for this group is through intentionally designed, integrated classroom and co-curricular

experiences that complement the academic syllabus (Krause et al. 2005), while instantaneously providing students with valuable feedback and suitable individual support (McGlynn 2007).

Kennedy et al. (2006) suggest that since most of this literature on millennial students has been conducted in the United States' context, there is some uncertainty surrounding the relevance of these results in other contexts. However, Wessels and Steenkamp (2009) found that in the South African context most first-year students could in fact be characterised as millennial in nature; nevertheless it is more probable that there exist hefty inter-institutional disparities conditional to the context and type of institutions.

Unfortunately, the sudden and significant changes in local student populations discussed thus far have not been complemented with simultaneous transformation in syllabus, methods of teaching, staff cohorts and administrative systems at the country's tertiary establishments (CHE 2010). Consequently, institutions have found themselves insufficiently prepared to cater for the growing numbers of diverse, at-risk, millennial students they have enrolled (Mentz 2012).

Acknowledging the key role played by the educational environment in contributing towards academic success, thorough studies on the connection between the traits of modern day undergraduate student populations and the Higher Education sector is increasingly becoming a key factor in achieving enhanced undergraduate student performance (Mentz 2012). Thus it is not surprising to note that studies on student academic performance have received immense consideration worldwide with a great deal of emphasis being placed on assessing students in their first year of enrolment. Consequently, the important role played by the first-year of study's impact on academic success and persistence in undergraduate studies is now well accepted.

### **2.3.6.3 Shifting from high school to higher education**

The transition from high school to higher education places significant demands on youth and involves lots of new challenges (Terenzini et al. 1994; Parker et al. 2004).

Several studies have referred to this period as the most challenging stage of students' careers especially at undergraduate academic level (Giddan 1998). Fisher & Hood (1987) suggest that some at-risk group of students such as first-generation students, students of colour and women

battle more to make the transition. Building new relationships with peers and staff, negotiating new lifestyles, learning to live independently, adjusting current relationships with family members and friends and grasping time and money management are among the psychological adjustments students need to make as they transit from high school to tertiary education (Dyson & Renk 2006). This is so critical that some authors such as Nipcon et al. (2006-2007) suggest that the emotional and social change may primarily be of greater importance than academic adjustment in the decision to remain enrolled at tertiary institutions.

On top of the psychological challenges, students are exposed to a completely new academic status quo which they are often not ready to enter. Literature from both Australia and the United States shows that students enrolling HE are not properly equipped (McInnis et al. 2000; Greene & Winters 2005).

Likewise, the learning and teaching methods used at high schools frequently fail to adequately suit the majority of students in South Africa as they enter HE (Leibowitz et al. 2009). The increasing influence of the hectic psychological conversion and the academically strange environment lead to making the first year of enrolment at tertiary level an exceptionally high-risk transition period. Tertiary institutions should consider the large variety of strategies they can apply to promote an effective transition through this vital stage of academic life, particularly for diverse and at-risk students, thereby promoting the fundamental success of the student in Higher Education (Lee et al. 2009). One critical way in which tertiary institutions can help to assist first-years to make a successful transition from high school to academic life is the application of “Frontloading support” during the first year, specifically the first semester especially for students who enter tertiary education with more than two risk factors (Kuh 2006).

Above all, it has been proved that student high school performance is highly linked to performance at tertiary education. Geiser and Santelices (2007), found in their study conducted on validity of high school grades in predicting student success beyond the freshman year that high school grade point average is consistently the best predictor of college grades. They referred to Geiser and Studley (2003) who sampled 80,000 students enrolled at the University of California and traced 4 year college outcomes which include cumulative grade point average and

graduation in order to ascertain the relative influence of high school record to predict longer term college performance. They have discovered that high school grades were the strongest factor in predicting four year college performance for all academic disciplines. Similarly, Anderson et al. (1994) carried out a research on the determinants of success in university and their key findings revealed a strong positive correlation between student performance in high school and performance in college.

#### **2.3.6.4 First-year academic performance is an indicator of future success at HE.**

After mastering their critical transition phase, students have to face the challenge of effectively performing in their academic tasks throughout their first year of studies. This transition phase is vitally important since about 67 percent of the gained knowledge and cognitive skills occur during the first year of enrolment (Reason et al. 2006). Additionally, the foundation for future academic success is laid by suitable academic performance achieved during the first year of enrolment, particularly in the first semester. Thus increased retention and improvement in graduation rates have been linked to academic performance achieved in the first year of enrolment (Ryan & Glenn 2002-2003; Bowen et al. 2009).

In the United States, literature suggests that up to 50 percent of the divergence in first-year students' academic performance was linked to their experience within the educational setting (Mentz 2012). Thus, emphasising the significance of the quality and nature of the first year educational experience as a key factor to a student's academic performance is a potentially promising approach. Inspired by this tertiary institutions can design first-year syllabuses in such a manner that they meet the needs of diverse, at-risk and millennial students thus contributing towards improving academic performance and preventing dropouts (Reason et al. 2006).

#### **2.3.6.5 Coping with divergence between expectations and experiences**

The overall disparity between what is expected by students from the tertiary education environment and what they experience – usually referred to as the freshman myth - is another reason to pay more attention on the first year enrolment (Cole et al. 2009). Basically, students enrol in tertiary institutions with unrealistically high expectations not only in respect of what they expect of higher education but often also in terms of what they expect of the higher

education institution. Such disappointment may lead to poor academic adjustment and students consequently discontinuing their studies if not managed by institutional interventions (Baker et al. 1985; Lowe & Cook 2003).

In South Africa, the literature suggests that learners with good academic achievement in high school tend to have high level of confidence in their ability to adjust to university life and high academic performance (Nel et al. 2009). According to Nel & Kistner (2009), the recent modification to the NSC and the alleged inflation in grade may justify a scenario where first-time enrolling students having an unrealistic perception of their own academic capability. Hence, in line with Bitzer & Troskie-de Bruin (2004), it is very important to adequately prepare matriculants to have more realistic hopes of tertiary education offerings, and to support learners who achieve lower results more effectively in order to improve retention rates in tertiary education. In light of this, a recent publication by the CHE (2010) underlined the key role that universities need to play in making explicit the frequently veiled “rules and routines of academic and social engagement within university environments” (CHE 2010: 182).

The above discussions have clearly demonstrated that tackling student academic performance, especially in the first year of enrolment within the SA higher education system is a serious and crucial matter, particularly in the light of the large number of at-risk students. The next section will change the emphasis of the discussion from contextual problems to a more detailed investigation of the student academic success. The discussion in the following section serves the purpose of demonstrating the necessity of identifying factors within the institution’s sphere of impact as a channel of moving towards the aim of enhanced student performance while providing a broad overview of the various factors linked to student academic success.

### **2.3.7 Student academic success in tertiary education**

This section will investigate the concept of student success in tertiary institutions by explaining major terminologies and highlighting some of the issues linked to assessing student performance using the current factors; identifying diverse theoretical perspectives to understand student academic success; and highlighting findings from some past studies on key indicators of student academic success.

### **2.3.7.1 Measuring Student success**

There is no standardised terminology used to describe and measure student success or academic performance across institutions both nationally or worldwide, thus making the task of describing and comprehending student academic success a complex and quasi impossible mission (Letseka et al. 2010).

The challenge in identifying a comprehensive, consistent and clear definition of what success in high education with accuracy is, has hindered efforts to accurately identify the factors which contribute to or hamper it (Mentz 2012). The most commonly applied quantitative results from an institutional perspective include academic performance which is most frequently measured in terms of grades, time taken to complete the degree, retention from first to second year regarding first-year students, dropout or retention rates as well as graduation rates. Additional quantitative results or effects include postgraduate enrolment after the achievement of an undergraduate degree and performance on discipline specific exams such as professional board exams as far as Psychology is concerned and other alumnus (Kuh et al. 2007a).

Qualitatively, outcomes like personal development, student satisfaction and sense of belonging in the educational set up have also been utilised as indicators of student academic success for the higher education institution (Mentz 2012). Cognitive and non-cognitive competencies such as knowledge acquisition, complexity, personal and interpersonal ability, humanitarianism, a well-developed sense of identity as well as civic engagement are among personal development outcomes. Kuh et al. (2007a) suggest other competence outcomes including proficiency in critical thinking, solving real life problems, writing, speaking, information literacy in a knowledge economy and ultimately job and life satisfaction.

These outcomes strongly correspond to the critical cross-field outcomes set out by the SAQA in the South African context. These are values expected from all students irrespective of the qualification they are enrolled in, which include the ability to identify and solve problems, to promote life-long learning, communicate effectively, to work effectively with others, to organise and manage one-self efficiently, and to show responsibility towards the environment and others (SAQA 1998). The construct of “academic success” is confounded by measurement and



definitional issues. The present section will briefly examine some terms and definitions regarding student academic success, particularly in the context of South Africa.

#### *2.3.7.1.1 Student retention.*

The terminology “student retention” is frequently used consecutively with persistence; but Reason (2009a) does not agree with that. More accurately, the word persistence refers to the individual level, while retention is associated with the institutional level and refers to an organisational trend. This means that institutions retain students, while students persist towards achieving their individual aims.

Retention can also be tracked on multiple levels, including systemic, institutional, module-specific and discipline-specific. Systemic retention refers to whether the students remain in the Higher Education system, irrespective of which institutions they are enrolled in. According to this model students who leave one institution, but enrol immediately in another are considered as “persisters”. On the other hand, institutional retention refers to the proportion of students who failed to graduate, but remain enrolled at the same tertiary institution from year to year, and are tracked within a single institution. Though the first model (systemic retention) provides a more accurate national description by admitting students relocating from one institution to another, it is costly and not easy to track, and so far in the South African HE context it is impossible to systemically track students (Letseka et al. 2010).

The discipline-specific retention model is a more limited view of retention, which observes whether or not a student remains enrolled in their initial major subject of study within a particular institution. This means that a student can persist in an institution while not being retained in their particular discipline. This type of tracking and reporting can be effective and very important in areas such as science, engineering and technology where skills are scarce. This would be equivalent to tracking students on the programme level in the South African context. At the micro-level, module-specific retention traces and studies retention at the modular level by enabling institutions to determine which modules have challenging completion rates, regardless of whether or not the student was retained at the tertiary institution.

This particular study was conducted at a single and private institution and only analyses related to persistence from first to second year have been examined on an institutional level by using individual students as the unit of analysis.

#### *2.3.7.1.2 Students dropout.*

In the South African context the term “dropout” is not consistently defined between institutions. Some universities for example, classify a student as a dropout if they fail to complete their degree irrespective of the motive. Others, nevertheless, use the terminology in reference to students who discontinue their studies for reasons other than exclusion on financial or academic grounds and are thus denied the choice to enrol again (CHE 2010). The Department of Higher Education and Training does not compel reporting to distinguish between excluded students on the basis of financial or academic grounds and those who do not return willingly (Scott et al. 2007). This deficiency makes it difficult to secure consistent and reliable data and limits the effectiveness of comparing reported dropout rates among tertiary institutions.

A distinction has been made between students “dropping out” of Higher Education and those who “stop out” (Letseka & Maile 2008). The main difference between these two categories is the durability of their departure decision. Students who leave a tertiary institution without obtaining a degree, including both students who drop out and those who stop out are referred to as student departure. Those who drop out leave Higher Education with no intention to return, while students who stop out intentionally interrupt their studies and return at a later date to resume and complete their qualifications (Mentz 2012). The distinction is gradually becoming important to the extent that certain literature indicates that the factors (such as finance accessibility) linked to the two categories of behaviour differ arithmetically. Treating these two distinct categories as one may lead to misleading results as well as lack of accuracy in tracking systems and limited effectiveness for designed interventions for at-risk groups (Mentz 2012). In South Africa the distinction between “dropping out” and “stopping out” may be particularly important where financial constraints frequently force students to suspend their studies in order to go and make money before coming back to continue.

#### *2.3.7.1.3 Graduation, throughput and success rates.*

Graduation rates in South Africa are computed by dividing the headcount enrolments for the specific academic year by the number of students who graduate within each tertiary institution for the same academic year (CHE 2009). Throughput rates on the other hand, involve the systematic tracking of a cohort from first year of enrolment to graduation that takes into account a multiplicity of factors. Nevertheless, the relative absence of cohort studies in South Africa has led to a situation where graduation rates remain a (problematic) proxy for throughput (Scott et al. 2007; Letseka et al. 2010).

Being a rough measure that does not allow for a nuanced understanding of the factors linked to true graduation rates, the use of graduation rates as a proxy measure for throughput rates within institutions is problematic. Increased enrolments at a first-year level which can negatively affect graduation rates and divergent durations of degree programmes are not accounted for at all for example. Also, given the fact that the rates of graduation are computed within an institution, and the lack of a national student tracking system makes identification of ‘dropouts’ very challenging at a particular tertiary institution who go on to become successful graduates elsewhere, it is difficult to determine an accurate measure of the systemic graduation rate (Scott et al. 2007; Steyn & De Villiers 2006).

#### *2.3.7.1.4 Conceptualising the choices of students’ academic success.*

In keeping with its aims and objectives, the current study has focused on the institutional level to analyse indicators of student academic success. Within the context of this study, the following two quantitative variables will measure institutional outcomes of student academic success in the first year:

- Numbers of students progressing from first to third year as an indicator of retention. Due to the fact that the research was conducted over a 3-year period involving three cohorts of first-year students from 2009 to 2011, no systematic tracking from enrolment to graduation is possible for the last cohort.
- Percentage of credits passed during the first-year as a proxy for academic performance.

Contrary to the overall academic mark earned by students, the percentage of credits passed during the first and second-year gauge of achievement was selected for various reasons. These include, firstly, the consideration that the practice of providing a summative indication to students of their academic achievement on a year-to-year basis is not common at the tertiary institution being studied. Additionally, despite the fact that it is idealistic for students to get good marks in their subjects, it remains important to their progression towards degree completion that they pass as many of the credits they enrol for as possible, irrespective of the academic mark they obtain.

These conceptualisations/measures, however have numerous limitations. One of the main criticisms of all types of quantitative indicators of student academic success is the fact that they fail to match the learning quality they went through (Mentz 2012). In the context of the current project the researcher admits that both academic grades and percentage of credits passed remain inaccurate reflections of the quality of learning that has taken place, and do not account in any way for the numerous qualitative outcomes of Higher Education as discussed above.

Additionally, the absence of institutional information distinguishing between students who stop out and those who drop out, means that no differentiation can be established from both categories for the purposes of statistical analysis in the current research. Therefore, it must be borne in mind that this research is being administered at a single private tertiary institution, and thus it is impossible to identify whether or not students who were not retained at the institutional level were in fact retained at the systemic level. Hence, students who do not register for their second and third year are considered as having dropped out.

Furthermore, failure to explain the motives for student dropout implies that no differentiation can be established between students who choose not to return the following year and those who are excluded for academic or financial reasons. Finally, when using quantitative indicators for student academic success, the process of normalising scores leads to a comparison of diverse curriculums and faculties without considering the diverging degrees of challenges between them or the different academic demands of the various programmes and faculties (Mentz 2012).

### **2.3.7.2 Factors linked to student Academic Success**

While access to Higher Education has theoretically increased to make provision for all, not all categories of students have the same probability of success once they have enrolled in a programme. This fact is well supported by the literature which reports that students' individual characteristics among other factors, will determine their chances of eventually completing their studies (Mentz 2012).

Specific factors that can determine student academic success at the level of tertiary education include: individual characteristics, demographic characteristics and additional factors. The focus of this discussion is on students aged 17 – 24 years. The literature suggests that factors determining the success of this demographic group of students may differ somewhat from the factors that influence non-traditional students such as married, older students and those with dependents (Engle & O'Brien 2007). It has been proved that student age does not have a significant impact on their academic performance Ebenuwa-Okoh (2010) and Jabor et al. (2011). This was confirmed by Kyoshaba (2009). However, the distance travelled from home to school has been proved to have a positive relationship with student academic performance. Prior literature has indicated neighbourhood schools are a much more positive environment for students and their families. It therefore contributes to student performance (Armstrong 2011).

It is notable that most of these factors represent variables that are not within the higher education institution's sphere of influence. Furthermore, studies associated with the factors leading to student academic success in South Africa are not as extensive in nature or quantity as in the United States (this comparison is made due to the similarities in terms of social groups between the two countries). In addition very limited amount of national or multi-institutional level studies are available for purposes of comparison. Consequently, the literature presented in this section is biased towards the United States context, but where possible South African literature is presented. This lack of comprehensive, systemic research in the national context further highlights the importance of research such as the current study in order to understand student success more comprehensively from a local perspective.

Considering the definitional and operational issues linked to measuring student academic success, there is extensive acknowledgement that more effective and efficient means to track throughput are needed in the South African context (CHE 2009). Also, there is agreement among numerous scholars that a comprehensive, concise and systemically consistent definition (or measure) of academic success in Higher Education is important to truly comprehend the key indicators of student academic success (Hearn 2006).

Over and above the challenges of monitoring dropout rates, there is very limited systemic awareness in South Africa as to the reasons underlying this phenomenon (CHE 2007). It is in this circumstance an effective monitoring system is required to distinguish between the causes of both student dropouts and stop-outs.

In the spite the challenges associated with gauging student academic success, studies such as the current research can potentially make a valuable contribution to assessing and understanding this issue at the level of undergraduate study.

The following section will concentrate on theories and perspectives that have been suggested by different researchers for understanding student academic success, and will discuss key factors that have been identified as contributors to academic success. The discussion will take place in the context that student academic success is a complex phenomenon that requires an integrated multi-disciplinary approach and cannot be understood by analysing just a few cases. Secondly, most of the explicit factors which have been suggested as contributors to student academic success are variables situated outside of the institution's sphere of influence. Hence, though these studies collectively expand our comprehension about how different categories of students experience tertiary it cannot be taken for granted that they offer credible strategies for boosting students' academic success.

#### **2.3.7.2.1 Academic Success: Theories and perspectives.**

Students who enrol in tertiary education are most likely influenced to do so as a result of their family influence/experience, social situations, culture of origin, educational backgrounds and political contexts. According to Kuh et al. (2007b), any study of student dropout and academic

success needs to be understood in this context, and must also consider a wide range of indicators linked to the individual, socialisation agents, and the HE institution. As a result of this intricacy, it is perhaps not surprising that, to date, various theoretical orientations have been used to study student academic success.

Reason (2009a) stressed that while each of the models and theoretical perspectives that will be discussed here provide some insight into student success, they are too narrowly focused, lack complexity and identify only a limited number of factors that affect student outcomes. This general shortcoming has produced a somewhat flawed and disjointed literature in respect of factors that may influence academic success. It is therefore not surprising that some researchers consider student academic success an elusive and thus poorly framed construct that requires a multi-theoretical approach to study. Ill-structured problems challenge single solution models and necessitate numerous solutions simultaneously (Braxton et al. 2004).

Using a multi-theoretical approach may be exceptionally suitable as tertiary education is constantly diversifying and evidence confirms how students from different backgrounds are each differently influenced by specific variables (Mentz 2012).

The following section will discuss the most notable theories that have been suggested to date by highlighting the work of prominent theorists in the field.

### 1. Sociological theories.

According to Spady (1970, 1971), students who fail to integrate socially were associated with the highest probability of dropping out. Intellectual development, academic performance, integration into the customs of the tertiary establishment, and friendship support may all influence social integration of students. All these variables in turn, indirectly affect the decision to drop out through two intervening factors: institutional and satisfaction commitment.

It has been suggested that numerous individual characteristics such as personal attributes, family background and academic experiences of high school affect an individual's initial commitment to higher education. Furthermore the goal of completing his/her studies directly inspires a student's decision as to whether to remain in higher education. In turn, these variables affect the

degree of students' integration into the social and academic life on the campus, ultimately further influencing their drop out or persistence decision (Mentz 2012).

Other literature has suggested that social integration may be a more robust indicator of student academic success than academic integration (Kuh et al. 2007a). In the context of South Africa, literature has confirmed the importance of both academic and social integration for the success of students (Bitzer 2009).

## 2. Organisational theories.

Unlike sociological perspectives, organisational perspectives attempt to emphasise environmental factors by giving more attention to the influence of institutional structures and processes on student academic success. These theories emphasise on size of institutions, resources, selectivity and student-staff ratios. But, the connection between these institutional characteristics and students' behaviour remains poorly explained in the literature and the theories produced on the basis of existing research lacks explanatory power (Kuh et al. 2007a).

Bean (1980, 1983) recommended a comprehensive organisational theory which incorporates external factors, while also paying attention to the importance of the individual student's behavioural intention to persist. Later on, he and Metzner suggested a different model for non-traditional students, considering the nature of their social interactions with peers and academic staff (Bean & Metzner 1985).

## 3. Psychological theories.

Various psychological theories have been employed as frameworks in order to understand and explain student academic success. Distinctive theories involve psychological contract theory, self-efficacy theory, coping behavioural theory, attitude-behaviour theory, locus of control theory and self-theories about intelligence.

Whilst Bean's initial work was primarily based on organisational theory, his later research emphasised psychological aspects. He and Eaton came up with a student dropout theory by combining four of the abovementioned psychological theories including locus of control theory



attitude-behaviour theory, self-efficacy theory and coping behavioural theory (Mentz 2012). Their new Attitude-behaviour theory suggested that attitudes lead to intentions, which in turn lead to specific behaviours.

In the context of tertiary education, the intention to persist and the eventual choice of dropping out or remaining enrolled at the institution is motivated both by the original intention of the student upon their entry, and their behaviour during the academic year. Students' educational choices may be further influenced by their coping styles (approach/avoidance) and their capability to effectively adapt socially and academically to the new environment. Significantly, the self-efficacy of students affects the determination of how they will react to their fluctuating experiences and influences their intention to persist in higher education based on their perception of their capability to achieve this objective (Bean & Eaton 2001-2002). The multi-theoretical model recommended by these researchers once again illustrates the intricacy of gauging academic success puzzle and underscores the need for a multi-disciplinary approach.

Psychological contract, essentially a mental model, is a set of subjective beliefs and expectations first-years students hold about their relationship with their peers, academic staff and the tertiary institution. This set of anticipations participates towards shaping the behaviour of students in such a manner that violating them can result in mistrust of the organisation, disengagement from the educational experience and may eventually influence the student's decision whether to drop out or not (Kuh et al. 2007a).

Self-intelligence theory focuses on how students perceive their own intellectual ability, either as a construct that is fixed or one that is malleable. Early learning experiences during the first year of enrolment can be structured in such a way to allow students' positive adjustment to their self-beliefs about their intelligence. Historically disadvantaged students who may have doubts about their own academic capabilities particularly constitute relevance of this research (Mentz 2012).

#### 4. Economic perspectives.

Recent economic perspectives try to account for how students' assessment of the costs and benefits of tertiary education, impact their decisions on whether to persist or drop out. Among economic theories, the College Choice Nexus Model is a three-stage model that examines how socioeconomic factors influence students' choices to enrol in tertiary education and how their subsequent experience at higher education institutions influences their judgments as to whether their academic and social experiences merit the price they must pay in terms of effort, time and finance (Mentz 2012). In South Africa, student decision to both enrol and persist at tertiary education is significantly affected by economic factors (Letseka &Maile 2008).

#### 5. Cultural perspectives.

Recent studies have focused on the role played by institutional cultures in participating towards academic success of student. Cultural perspectives show that the normative patterns of an institution favour the traditional students, and that students who are historically underrepresented have to cope with further challenges in adjusting to these cultures as they enter the tertiary education. This disadvantage affects the degree to which students participate in different activities at campus and their effective usage of the relevant support services at their disposal (Kuh et al. 2007a).

A supportive institutional environment that sufficiently accommodates students from all social groups is critical in boosting academic success of students (Mentz 2012). Numerous South African literature points to the influence of institutional cultures on the students experience and performance (Soudien 2008a; CHE 2010).

#### 6. Moving towards a more integrated approach.

In spite of a growing body of literature in respect of factors impacting on academic success, it remains an elusive construct in that no single model or theory can account for all relevant indicators (Braxton et al. 2004; Reason et al. 2006; Mentz 2012). In an effort to merge results from various perspectives, a number of researchers have recently suggested a wider framework which seeks to account for a broader range of factors that may influence academic success. This framework provides a conceptual overview that embraces the most significant factors identified

by researchers, and therefore allows for a more useful model with which to analyse student academic success (Reason et al. 2006).

According to this framework, students come to a particular tertiary institution with a variety of personal, demographic and academic characteristics as well as experiences which predispose their participation in different ways with the formal and informal learning environment, leading them to subsequently interact with the institutional and peer environments, as well as with important socialisation agents. The complexity in which these factors interact determines the extent to which students' learning takes place, and thus influences students' decisions as to whether to persist or not in their studies (Reason et al. 2006; Reason 2009a). A special attraction of this model is that it has been tested specifically in first-year illustrations (Reason et al. 2006).

The next section will discuss student characteristics that may be implicated in academic success. Pre-university characteristics and experiences model suggested by Reason et al. (2006) may provide some sort of framework for analysing the influence of students' characteristics on their educational decisions.

#### **2.3.7.2.2 Determinants of student academic success: Characteristics**

Determinants of student academic success can be divided into two main categories, namely: Demographic and individual characteristics.

##### **1. Demographic characteristics.**

Recently, there has been a move away from employing socio-demographic factors to predict student retention as researchers have battled to formulate practical policies from these research studies. The extensive within-group variance complicates socio-demographic findings which renders them difficult to interpret and thus of little practical value. Nevertheless, the admission of socio-demographic factors continues to be necessary in research in order to improve comprehension of the conditional impacts of interventions for different groups (Reason 2009a). Demographic characteristics known to be associated with student academic success include: gender, race or ethnicity, socio-economic status, and first-generational status.

It has been proved that marital status, race and residence influence the retention of women and men in different ways and that these specifications need to be considered when conducting research about gender (Leppel 2002). The State of HE reported recently in SA suggests that women are currently more successful in Higher Education than men, but much scope remains for a more in-depth assessment about the way other demographic and individual factors interact with gender in the context of South Africa (CHE 2009).

Various studies in the United States suggest that race is a key predictor of retention and that coloured students have less probability to persist to graduation (Murtaugh et al. 1999; Carey 2004). Academic performance of students from various ethnic groups in SA has been proved to be an important determinant of academic success, and it is evident that prevalent differences in academic performance between different racial group students remains one of the vital problems facing the sector (Mentz 2012).

Nevertheless, there is no unequivocal ground in this regard. It has been revealed that various factors predicted retention in coloured students compared to their White counterparts. Analyses employing multivariate models suggest that the impact of race on retention is less consistent when socio-economic status and pre-university experiences are considered, and that significant access to financial aid may in fact equalise retention rates across racial groups (Murtaugh et al. 1999; Pascarella & Terenzini 2005).

The literature generally confirms that family socio-economic status sets the stage for students' academic performance by increasing the probability that a child will attend a quality high school, possess higher educational aspirations and experience significant familial aid (Mentz 2012). Lower-income students have less chance to enrol in tertiary education, and as soon as they get into the system, they are more likely to be juggling the demands of the tertiary institution with their work, children as well as other family responsibilities, and are less aware of aid structures they have available on campus (Swaner & Bronwell 2008).

Recently, studies conducted in South Africa have found that students from lower socio-economic status groups find the transition from school to higher education much tougher than students

from higher socio-economic status groups and that family responsibilities are a key cause of stress for first-year students further contributing to the challenge of making a successful transition from high school to higher education (Nel, et al. 2009; Pillay & Ngcobo 2010).

Neither race nor socio-economic status can be entirely understood particularly in SA without considering the role played by first-generation status in student academic success. These students face numerous challenges as they enter tertiary education since they generally have less familial support to enter tertiary education, have less awareness regarding higher education, have high probability of working full-time and frequently feel isolated in the new tertiary set up (Swaner & Bronwell 2008). They also have more probability to come from low-income families, to live far from campus, to study part-time and to work full-time. Kuh et al. (2007a) suggest that there is a disproportional representation of ethnic and racial minority groups in the population of first-generation students.

Another risk variable for affecting first-generation students is the fact that they do not generally engage in the broad variety of social and academic activities related to student success in higher education as much as their second-generation peers and consequently find the transition into higher education more challenging. Consequently, they have been found to have more probability to drop out compare to their second-generation peers in the South African context (Mentz 2012). Even though socio-demographic factors impacting on student success are outside of the institution's sphere of influence, understanding the complexity of interactions between them in relation to student academic success remains significant for institutions who want to understand their student population with more accuracy.

## 2. Individual characteristics.

Besides demographic characteristics variables, which are beyond control of both the individual and the tertiary institution, there exist various individual characteristics that influence student academic success. Studies have consistently proved that the sources of success at tertiary institution are located in the past experiences of individuals, experiences whose impact is not simply removed when they enter higher education (Hearn 2006). Individual characteristics include: individual psychological factors; personal motivation; academic ability as well as

preparedness; educational aspirations and goals. Reason (2009a) points out that despite the variances in the results for students who differ in terms of these characteristics, these outcomes do not have automatic policy value since tertiary institutions can exercise only limited influence over them.

The classroom experiences of high school are important indicators of how they are likely to interact with their tertiary environment. Thus students with a thorough high school academic preparation are more likely to be successful at tertiary education level irrespective of who they are, what their financial situation is or which institution they enrol in. In addition to their stronger academic grounding in terms of curriculum content, ad hoc studies indicate that students who lack adequate preparation in high school also lack the ability to implement effective study skills and strategies (Mentz 2012). That has been confirmed by Harb and El-Shaarawi (2006) findings that have pointed out to hard work and discipline, previous schooling as well as self-motivation as factors that can determine differences in students' grades. Leader (2010) also pointed out that student's previous results and motivation affect positively the current academic performance

In the South African context, various studies have been conducted regarding the correlation between matric marks and performance at higher education, specifically for certain fields of study (see Foxcroft & Stumpf 2005; Eiselen & Geysers 2003; Lourens & Smit 2003 and Huysamen 2003). Whilst the literature is equivocal, some studies suggest that the predictive validity of Grade 12 marks differs between demographic groups (Huysamen 2003).

However, past academic performance is not the only individual level determinant of success in tertiary education.

Studies show that educational aspirations in the form of desire to complete a degree were a key predictor of persistence for certain at-risk groups.

Other than past academic performance, desire to complete a degree was the top-ranked effect item among minorities in terms of direct effects on persistence, while educational aspirations were found to be the best predictor of first semester grades for first-generation students (Mentz 2012). Numerous studies have established that various psychosocial and personality factors also play a role in academic success in tertiary education at the individual level, even after traditional

predictors like preparedness and educational aspirations have been considered. Examples of specific psychological variables linked to students' academic performance in South African and worldwide studies include time management, conscientiousness, academic self-discipline, high levels of self-regulation, internal locus of control, emotional control, communication skills, academic self-confidence (self-efficacy) and self-confidence (ACT 2007; Van Bragt, Bakx, Bergen & Croon 2010; George, Dixon, Stansal, Gelb & Pheri 2008; Petersen, Louw & Dumont 2009).

Note that there is also strong evidence from cross-national studies in the US that highlights the effectiveness of personal motivation in students' academic performance. Generally, students with high motivation possess a high level of persistence in their studies and succeed academically (ACT 2007). In the context of South Africa, it has also been found that motivation plays an important role on the academic success of first-year students (Bitzer 2009).

### **2.3.7.3 Other factors influencing student academic success**

In addition to the demographic and individual characteristics that influence student academic success, there is another group of factors that studies have shown to have an impact on persistence and success of students at tertiary education. This set includes: language of tuition, access to finances, enrolment patterns, residency, working on- or off-campus and adequate parental support. These factors are briefly discussed below.

#### **1. Language.**

Student academic success and proficiency in the language of tuition are positively correlated.

The majority of students in South Africa receive tuition in a language other than their mother tongue, thus placing additional academic strain on them and increasing their risk of academic failure or early dropout in both school and in higher education (Umalusi 2004; Mentz 2012).

The recent CHE report, which concluded that language of instruction was one of the most significant barriers to academic success in South African higher education, has also identified the influence of proficiency in language on student academic success (CHE 2010).

## 2. Finances.

While acknowledging that finances are not the only factor influencing dropout in their recent analysis of factors influencing the completion rates of students in the United States, Bowen et al. (2009) conclude that provision of financial support has an impact on both enrolment and completion rates. Financial support is continuously vital to the success of low-income students, and ensuring that they will continue to receive financial aid in the future is a significant factor in the decision making process of this group of students (Mentz 2012).

In South Africa, literature suggests that the high cost of higher education is one of the main reasons why most of students do not complete their degrees, and that financial concerns are an important source of stress for students, thus leading to both poor academic performance and dropout (Pillay & Ngcobo 2010; Letseka & Breier 2008; Letseka & Maile 2008; Van Koller 2010). Acknowledging the key role played by financial aid in improving students' participation and success, a comprehensive review on the National Student Financial Aid Scheme (NSFAS) has been initiated by the ministry of Education (NSFAS 2010; HESA 2010).

## 3. Enrolment patterns.

A reading of the literature suggests that delaying enrolment in higher education (irrespective of the reason) decreases the probability that students will persist and complete a degree (Pascarella & Terenzini 2005). Furthermore the nature of the enrolment pattern impacts on student progress. Students who stop out of their studies for a certain period of time are significantly less likely to persevere with their studies and complete their degrees than those with continuous enrolment (Pascarella & Terenzini 2005). Additionally, students who enrol on a fulltime basis are more likely to persist than students who are enrolled part time (Knapp et al. 2011).

## 4. Residence.

The literature reports abundant evidence to support the notion that living on campus is strongly associated with higher retention rates, particularly in the first-year of enrolment (Pascarella & Terenzini 2005). This finding has been recently confirmed by national studies in the US context (Bowen et al. 2009). Living on campus encourages social integration, leads to greater participation in campus co-curricular activities and enhances the personal development of



students – all of which are positively associated with persistence (Pascarella & Terenzini 2005). In Australia, first-year students living on campus were reported to have a more positive university experience (McInnis et al. 2000).

The South African experience mostly accords with findings reported in the general literature. Thus Nel et al. (2009) suggested that students who commute to/from campus (most of which live off campus for financial reasons) find themselves at a relative disadvantage from both a social and academic point of view, especially in the first year of enrolment. Notwithstanding this, since student enrolments are likely to continue unabated for the foreseeable future, it seems unlikely that tertiary institutions will be able to cater for all students' demands to be housed on campus. This reality renders it necessary to identify other determinants of the academic performance of students who live off campus and which could be leveraged to improve academic success.

#### 5. Working students.

Limited working hours in addition to attending lectures (between 3 p.m. to 8 p.m.) does not appear to hamper a student's probability of performing well at tertiary institution, while working more than this was proved to negatively influence grades as well as the persistence of students (Torres, Gross & Dadashova 2010-2011; Mentz 2012). On the other hand, O'Brien & Shedd (2001) noted that working on campus may in fact positively affect students' academic performance, especially when work-study positions for senior students are related to their academic and career interests.

#### 6. Parental encouragement and support.

It has been found that the influence of the family on the success or failure of undergraduate students may be the most under-researched component associated with persistence (Reason 2009a). Research by Braxton et al. (2004) indicates that family support may in fact be an important factor that may positively impact on students' performance. The literature confirms that students who perform better are more likely to persist in their studies to the completion when they have families that sanction their study choices and otherwise generally support them. This finding is peculiarly evident in respect of students from historically underprivileged populations as well as for commuter students (Braxton et al. 2004). Recently in South Africa it has been

found that lack of adequate support from parents for the educational goals of their children is associated with low levels of motivation cited by a first-generation student (Nel et al. 2009).

## **2.4 Determinants of student academic success at CTI/MGI**

To understand the diverse factors associated with the academic performance of students at CTI/MGI, it is important to understand, among other things, the background of this institution, the perceived benefits of enrolling at CTI/MGI and the entrance requirements of the BComm Accounting Degree.

### **2.4.1 General Information**

#### **2.4.1.1 MGI: Background**

Midrand Graduate Institute (MGI) was established in 1989 and is a private university-level degree conferring institution in South Africa. It is one of the first of its kind in the Southern African Region. Its main campus based in Midrand offers a unique residential campus environment while its remote campuses are located in strategic locations countrywide. The institution is well known for its excellence in career-focused on locally accredited and internationally recognized programmes.

MGI has a senate that governs all academic functions. External experts from the industry as well as other universities serve on its senate which is externally and independently chaired. All its faculties have Advisory Boards that include representatives from industry and public universities, thus ensuring that MGI's qualifications are relevant, benchmarked and of the highest standard. This attention to rigour and quality should allow graduates to enter the labour market with confidence upon completion of their studies.

MGI believes in building a healthy learning environment by offering individual academic attention with their small-sized classes and an exciting range of social, cultural and recreational activities to permit their students to reach their full potential.

The Student Affairs Unit is ever-present on campus to provide support and service to all students. Students gain practical experience through MGI's quest speaker programmes, practical assignments, field trips and numerous projects, such as the Business Advice Centre, English Support Services and Law Clinic as well as a range of sport disciplines.

#### 2.4.1.2 Benefits for enrolling at CTI/MGI

Unlike the traditional university-style of lecturing where a single class is attended by as many as four hundred students, CTI/MGI aims to keep its class sizes relatively small. This approach ensures that individual attention is maintained, resulting in a better understanding of study material, the development of individual thinking and a higher pass rate. The majority of the degree programmes include field trips, internship programmes or practical components. This enables students to match their academic knowledge with real life experience.

#### 2.4.1.3 Entrance requirements for the BComm Accounting Degree

Entry into degree studies is conditional on candidates being in possession of a South African National Senior Certificate (NSC) for degree purposes or an MGI approved equivalent, as well as the necessary points requirements according to the MGI point system. In addition students need to pass two languages, one of which must be on the home language level (currently referred to as first language level) and the other on the first additional language level (currently referred to as second language level). Faculties such as BComm (Accounting) and others require mathematics proficiency with a minimum of 50% or higher grade.

#### 2.4.1.4 Entrance requirements for the Pre-Degree Foundation Programme

At CTI (MGI) there is a pre-degree programme that has been implemented since 2003 in order to prepare students who do not meet current degree requirements, for a degree programme. This has been further developed in response to National Senior Certificate and secondary education curriculum changes (CTI 2013). Students who fail to meet the entry requirements for MGI degrees, or those who do not have the required matric

subject combinations to enrol for an MGI degree, are permitted to enrol in the pre-degree programme as an alternative access path. To qualify for the programme students are required to obtain 17-24 MGI points and a National Senior Certificate (NSC) in order to enrol in the Pre-degree Foundation programme. To qualify for the BSc streams, students must obtain 24 MGI points and a NSC with Mathematics (CTI's Prospectus 2013).

The foundation programme spans a full year, and upon passing the appropriate subjects, students are allowed to enrol for a degree of their choice the following year. The programme serves as a bridging year between school and university-level education, and its aim is to teach students the academic skills, knowledge and attitudes required to succeed at a tertiary level, in a supportive environment. Thus programme initially includes elements of an NQF Level 4 qualification (matric level) and builds students up to NQF Level 5. Degree modules begin at NQF Level 5/6 in first year and culminate at Level 7 (under the current SAQA NQF levels).

The modules offered in the Pre-degree foundation programme for students planning to enrol for BComm Accounting degree include: Student Skills, Introduction to Computer Skills, Bridging English, Bridging Mathematics and Introduction to Commerce (Economics). This programme does not only provide a wealth of personal development to students, but also plays a significant role in preparing students for their university-level studies and life in general. Statistics show that many students who successfully completed the Pre-degree programme and then went on to study a degree are performing well in their degree studies. Indeed, in many cases they outperform students who have progressed directly into the degree studies ([www.cti.ac.za](http://www.cti.ac.za)). The Pre-degree programme is offered at MGI's main campus and at the MGI remote sites of delivery.

## **2.4.2 Factors linked to Student Success at CTI/MGI**

Ensuring student success at tertiary education level is a complex and challenging task. A student's success in navigating the educational system is not solely due to any one factor and this fact is evident from a reading of the literature. On the contrary, the students who succeed tend to enjoy circumstances that support their educational journey from several different angles. The more of these factors that are present, the better the chances are that a given student will do well.

### **2.4.2.1. Lecturers qualification and assessment methods**

The lecturers that a student has throughout his/her academic career will play an important role in his/her success. Lecturers who are positive, and who create an open, supportive learning environment enhance student success. Good lecturers allow students see the value and practicality of the course material; they help convince students that the material is worth absorbing. Lecturers who are enthusiastic and passionate about their subjects inspire students to become interested in it as well.

In addition to awareness of students and lecturing styles, it is important that lecturers provide different forms of instruction to students with varying needs, particularly in tertiary institutions like CTI where class sizes are relatively small (CTI's Prospectus 2013). For gifted and academically advanced students, differentiating instruction may mean putting those students in different groups and assigning them tasks according to their aptitude to work with the less gifted in order to further boost their understanding of the material. The group work approach recognises that every student is different, and should be given both challenging and personalized learning experiences that will prepare him/her for success in life. No "one size fits all" approach will work for everyone. Not all students will require the same structured support. It is up to the lecturer to recognise a student's strengths and weaknesses and facilitate the support accordingly.

Offering help regularly will help students feel motivated. If students feel like they are in it alone, they will become frustrated and shut down. Instructors can help students achieve success by assisting them regularly. Once students have achieved success, they will likely have a greater degree of motivation to try to attain this level of success again.

Assessment methods also play an important role in student academic success in addition to lecturing styles. When students are assessed regularly with tools that provide insight into their progress and learning style, lecturers can adjust their lecturing methods to better support learning. Constant, regular and vigilant assessment is required if lecturers are to adapt to the needs of their students. This includes using tools like rubrics and checklists that evaluate, not just the material the student needs to learn, but also the student's learning style. Tutorial periods must be used effectively to help students learn assessment-taking skills and boost their academic performance.

#### **2.4.2.2 Academic Support and Development**

Literature reveals that the existence of a well-developed system of student support services on campus (such as counselling centres, technology centres, writing centres and career services) contributes to student success and persistence. Facilitating awareness of such support services is very important for low-income and first-generation students who are often not aware of the support available to them (Mentz 2012). Whilst this list is not exhaustive, it indicates how institutions can actively create conditions in the first year of study promoting development of students and thus contributing to success both individually and institutionally.

Academic support and development is provided by higher education institutions in order to address issues around student retention, progression and success. These vary broadly in scope and approach of tertiary institutions.

Academic development units, in one form or another, are very important for student success at tertiary institutions. They are the heart of institutional academic support and development and generally encompass alternative access programmes, staff development, tutor training, curriculum development and academic development workshops for students (Jones-White et al. 2010). Every institution should have academic support and development programmes in their respective departments in order to assist lecturers to develop greater insight into their fields/disciplines.

### **2.4.2.3. Family and Community Support**

In 2006, The National Postsecondary Education Cooperative examined factors related to student success in college and after. It proposed a number of educational factors that could enhance students' success. If resources were to be channeled into screening students according to their background, postsecondary activities, and institutional conditions may potentially improve a student's chances of success.

At-risk students need parent involvement more than most. Students who attend schools with a high level of community and parental involvement are set up for success, while those who attend schools that do not enjoy such support have a more difficult time. According to the Michigan Department of Education, parental involvement is twice as important in predicting a student's success as socio-economic status. Schools can encourage parental involvement through one-way communication, such as newsletters in order to avoid dropouts (CEPI 2012). Parents can also be involved more by educating them about the curriculum, teaching strategies and assessment methodologies, student class attendance and other relevant information. Schools could set up websites with this information, hold parent-teacher days and invite discussion on these topics

According to Harb and El-Shaarawi (2006) the findings of the numerous studies that have been undertaken to assess the key indicators of student success at tertiary education institutions have pointed out to parents' education, family income as well as community support as factors that can determine differences in students' grades.

Hence, student success at tertiary education level is directly correlated with family and community support. Thus, for example, among the various means of encouraging parent involvement in their child's education includes requiring weekly parent awareness indicating that the parent understands what his/her child's assessments have been and that the child has completed them timeously. Mandatory parent-lecturer conferences to discuss the circumstances of individual students, and parent-academic associations may lend further parent support to the educators in their child's learning institution. Successful associations may lead to parental involvement in college planning, portfolio creation, recognition programs, scholarship assistance, family counseling and parenting classes to low-income families (CEPI 2012).

#### **2.4.2.4. Financial Assistance**

Previous studies suggest that the prime and most obvious reasons for student early withdrawal from higher education programmes are financial difficulties.

Researchers at the Institute for Access Studies note key ways in which financial pressures impact on students in the United Kingdom (Jones et al. 2008).

Although financial constraints on their own may not be sufficient cause for student withdrawal, and should not be viewed in isolation from academic and socio-cultural factors, it has been suggested that they can easily hinder student success, by causing anxiety and decreasing the time available for study and socialising, which in turn might lead to student withdrawal. In this way, financial constraints can impact on academic success and social integration of students and lead to feelings of isolation and alienation.

A South African study conducted for NSFAS by Budlender *et al* (2002) cited in Jones et al (2008), confirmed that financial constraints are key reasons that contribute to students' withdrawal from tertiary institutions countrywide. Thus a lack of funding affects their ability to afford registration fees, meals, accommodation, text books, materials and equipment and transport.

Government assistance, along with work-study programs and scholarships can help to encourage students to attend classes. Government grants are distributed based on financial need. Financial information provided by the families is used to determine the family's estimated financial contribution and need for financial assistance.

Tertiary institutions play a key role in providing formalised financial support, mainly through their financial aid services departments. Additionally, less formalized financial support may be offered to students through discretionary funds or even by individual staff members who may assist particularly needy students by giving them money out of their own wallets.



#### **2.4.2.5. Identification of Problems and Resources Provision**

Students who are well-prepared for the transition from high school to higher education will always have an advantage over those who are not. The ease and pace at which they can adjust and settle down to their studies and to their new environment can impact significantly on their success in their first year, which is the critical phase of their academic life.

Typical challenges facing first-year students include adapting to the freedom from teachers and prefects, the absence of bells and whistles signalling routines, the distractions of a new social life, the workload and the very different (from school) style of instruction that is involved (Jones et al. 2008). These can be very challenging for new students and might lead to withdrawal. Many students get into difficulty in the first few months of their studies at tertiary education and seldom recover from it. Majority of students struggle during the first year, however, because of poor learning methods, poor work habits and reluctance to seek help when it is clearly needed. Students should be able to recognise when they have a problem and ask for help. However, there may be various, complex factors that prevent them from seeking assistance.

Early identification of at-risk students and providing resources for these students is essential for their success. Success for All, an achievement-based program for disadvantaged students provides extra tutoring. With one-on-one tutoring and a support team, issues specific to individual students can be identified and addressed. Issues may include learning and social disabilities, safety issues or identification of a need for multiple learning support networks (CEPI 2012). This should give priority to first year students, which is a critical phase of tertiary education (Mentz 2012).

#### **2.4.2.6. Course selection**

Suitable course selection is one of the key factors in student success and, unfortunately, the majority of students fail to complete their studies because the course they have chosen does not match their expectations or their interests.

To enable students to make informed and sound career choices for themselves, they need to be aware of their own natural aptitudes and knowledgeable about the different possible careers they want to pursue. Also, to enrol in their preferred study programmes they must have taken the

required subjects at school level. Sadly, most of the youth are forced to make higher educational choices when they may have very little awareness about, or experience of, various careers or industries. Therefore, sound guidance in schools, as part of the curriculum, would clearly go a long way towards addressing this challenge.

Preparing students adequately for the transition to higher education, along with sound career guidance may reduce the likelihood of students basing their educational choices on hear-say from other students, students advisors suggestions or because the name of the course sounded good to them.

#### **2.4.2.7. Resources**

Literature suggests that student's self-reported academic gains during the first year on campus are greatly influenced by the perception of the degree of support they receive on campus. Students who perceived campus environments more positively were more likely to be committed to educationally purposive activities (Reason et al. 2006). Studies also show how planning to include minority groups into the dominant campus culture promotes their success, although meta-analyses suggest that the influences of racial climate on the completion of the degree may be indirect for the overall population of tertiary education learners (Pascarella & Terenzini 2005). In South Africa, it was found that a perceived lack of support for minority students resulted in lack of motivation and adequate commitment in academic activities (Mentz 2012).

The generally demanding nature of higher education assessments challenge students to do their best in any task assigned to them either during or after class. Adequate resources should allow students to either take additional support classes or advance based on their aptitude. These additional support classes may include Basic English, mathematics and other core subjects classes. It is also important to encourage students to acquaint themselves with the different resource materials at their disposal. These resources include Internet access, the necessary prescribed and reference textbooks and extracurricular activity resources which they can access from the resource centre.

After-school programs and extracurricular activities play a very important role in student success, because they help students build self-esteem and socialization skills. Sports and other activities help students find hobbies that they're passionate about. This provides students with motivation and direction. According to the Wisconsin Council on Children and Families, there is a strong correlation between participation in after-school programs and student success (WCCF 2010). These activities help students form a connection with the institution either through academics, sports, faculty, and other activities that inspire them to succeed. Meaningful activities with other classmates help students to become more committed to their own success.

#### **2.4.2.8. Class Attendance and Preparation**

Student attendance is another indicator of success. This means monitoring absenteeism, dealing with truancy, and finding motivators to improve/impact attendance behaviors. A tertiary institution that is performing well should keep its attendance registers up to date and communicate student attendance with their parents/sponsors.

Preparation is a key skill for student success. Students should have pens, pencils, paper and classroom texts, as well as any other materials required for their course of study. Prepared students come to class with their assignments completed; they are also mentally alert due to adequate rest and nutrition.

Additionally, Successful students will have excellent note-taking skills. During every class session, students should copy down the lecturer's main ideas, supporting ideas and important concepts. After class, students should review their notes and re-copy anything that was written illegibly or needs further explanation. Successful students should also take notes while reading assigned material or completing their assignments.

#### **2.4.2.9. Teaching and Learning Approaches**

One of the key functions of a tertiary institution is teaching and learning, and it is therefore important that the broad implementation of effective pedagogical practices form the core of the student success agenda on any tertiary institution (Pascarella & Terenzini 2005). Promoting and

stimulating effective classrooms, encourages and entices learners to commit themselves to the learning process, which leads them to the success path.

Given the importance of effective teaching and learning to student success, the following principles, which are directly associated to classroom activities such as prompt feedback, active learning, respect for diverse methods of learning and high expectations need to be discussed in the CTI context.

### *1. Active learning.*

Active learning is any class or class related activity that involves students doing things and reflecting on the things they do (Bonwell & Eison 1991 cited in Mentz 2012). They include activities such as participating in discussions, asking questions, cooperative learning in small groups, debating or even role playing. Persistence is greatly affected by student participation in these types of activities, which improve learning, social and academic integration (Pascarella & Terenzini 2005).

Ad hoc evidence in the context of South Africa points towards the positive influence of active learning on critical thinking in undergraduate students (Mentz 2012). However, national studies conducted among South African undergraduates revealed that during the first year numerous students do not frequently participate in active learning experiences (Strydom & Mentz 2010).

### *2 Prompt feedback.*

Studies reveal that providing students with timely feedback that is both corrective and supportive, directs their learning toward higher order learning goals and the development of self-regulated learning is thus fostered (Pascarella & Terenzini 2005). Research in South Africa suggest that, due to different factors, such as heavy staff workloads and large classes, feedback provided to learners does not participate into the learning experience of the students (CHE 2010). In a recent national study conducted in SA, it was found that the majority of learners reported that they did not often receive prompt feedback on their academic activities (Mentz 2012).

### *3. High expectations.*

The principle of setting high expectations for student performance is supported by extensive research evidence (Schilling & Schilling 2005). Setting high expectations for learners regarding class attendance, work requirements for classes and academic achievement, helps to cultivate a sense of responsibility among learners, who in turn adjust their behaviour according to the higher education expectations (Schilling & Schilling 2005).

Conversely, it is vital to balance the high expectations challenge with high-quality support systems and realistic academic advising. Research on student academic success in the context of South Africa points to a potentially problematic trend where lecturers communicate to undergraduate student the expectations that they will not be able to master at the academic environment (CHE 2010). In light of the positive impact of high expectations on student academic success, the pervasiveness of this disturbing phenomenon and its influence on student success in South Africa may warrant further studies.

### *4. Respect for diverse learning methods.*

At the core of effective pedagogical approaches lies an educational philosophy that values individual students for their unique talents and diverse needs. Pedagogic methodologies that focus on individual student strengths are particularly effective in enhancing success among historically underserved learners (Pascarella & Terenzini 2005). This approach may prove particularly useful in redirecting the current conversations in South Africa that only focus on the underprepared student, to a debate which also considers the extent to which the institution is poorly prepared to cater for the unique characteristics of the student population (Mentz 2012). The application of information and communication technologies in tertiary education is becoming increasingly important in creatively addressing diverse and unique ways of learning, particularly for millennial learners.

The use of technology in the classroom has the potential to employ a wide array of effective pedagogies in diverse and unique ways. For example information and communication technologies can be applied to increase active learning, enable more collaboration between peers and with staff, provide platforms for peer tutoring, and ultimately contribute to improving

student academic achievement. These types of online pedagogies are proving particularly useful for underserved students, especially those who are low income, first-generation, commuter students (Mentz 2012).

CTI Education Group, in keeping with the general shift towards online learning, is implementing a blended learning approach from academic year 2014. All incoming students as well as academic staff will be provided with Samsung Galaxy tablets (16GB, S Pen/S Note, 8.0 WXGA LCD, 1.6GHz Quad-Core CPU, Multi Window) in which all necessary learning and teaching materials will be pre-loaded including textbooks, study guides, assignments and many more.

#### **2.4.2.10. Networking**

Networking is an important skill that is associated with student success. Students who are well acquainted with their lecturers will find it easier to seek assistance outside of class. Lecturers can also introduce students to professional opportunities in their fields of study. Students well acquainted with their classmates can benefit from study groups, project collaboration and catching up on any missed assignments or class notes.

#### **2.4.2.11. Balance**

Successful students balance their academic lives with recreation and relaxation. Students who study for long periods of time can become mentally exhausted and unable to properly retain or relay information. It is important to take breaks in order to remain alert and refreshed. Students should also schedule down time to hang out with friends and participate in recreational activities to help alleviate the stress that can be associated with academic pursuit.

## **2.5 Conclusion**

Whilst substantial studies have been conducted internationally about student academic success in higher education considerably less research of this nature has been carried out in South Africa.

The complex nature of student academic success has made it peculiarly difficult to understand the construct from any one theoretical perspective. An additional frustration that confounds policy considerations is that factors found to impact on student success are often beyond the institution's sphere of influence (such as demographics and individual characteristics of students). Given these challenges it is likely that a multidisciplinary approach to studying student academic success is most suited to understanding of this issue (Mentz 2012). This study proposes such an approach in its single case analysis of CTI Education Group.

## **CHAPTER 3: METHODOLOGY**

### **3.0 Introduction**

The research methodology of the study comprises a multi-faceted approach made up of various techniques for purposes of answering the research questions. This study advocates a number of ways in which usage of different research methods can be truly complementary. Moodley (2002) posited that these methods are deliberate, logical and aim to be value-neutral. He further posited that this implies that good research methods must be cautiously created and purposely engaged in a way that is designed to capitalise on the precision of the results. This section provides a background to the study area and illustrates the methods that have been utilised in the collation and analysis of data in the selected study area. The various sections of the chapter explain the study's research design, aim of the research project, population of the study, the sampling technique and sample size, data collection instruments, reliability and validity of the research instrument, data analysis and ethical considerations and ends with a concluding discussion.

### **3.1 Research Design**

According to Mentz (2012: 119), examining the cognitive processes involved in data collection methods is an important factor in ascertaining the validity of a measuring instrument. The current section presents a critical reflection on both instruments used to collect data in this research project by summarising some of the major concerns and debates around the use of these methods in educational research. Research design has been defined in some publications as being the way in which the researcher organises and arranges their research process. It acts as a guide enabling the study to be conducted in an organised way. Visage (2010: 23) described research design as “a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems.”

A design establishes the specific procedures to be employed in the study. Some of these include the type of sampling, the interview schedule and focus group discussion schedule as well as data measurement and analysis techniques (Cooper and Schindler 2006). The design of this research is both quantitative and qualitative. Quantitative research is described by Sibanda (2009) as a method that focuses on gathering numerical data and making inferences to a sample of that



population institutional data such as students' matric as well as academic scores, date of birth, ethnicity and gender were collected for purposes of quantitative analysis. Qualitative research, on the other hand, is described by Visagie (2010) as being suitable for informing the researcher how and why things happen as they do. This style of research, according to Cooper and Schindler (2006: 196) is defined as an *“array of interpretive techniques which seek to describe, decode, translate and otherwise come to terms with the meaning not the frequency, of certain more or less naturally occurring phenomena in the social world”*.

Mora (2010) categorises qualitative research as exploratory, which is useful for probing matters of interest for which little is known and also for exploring nuances related to the relevant research topic/s. Common data collection methods used in qualitative research includes in-depth interviews, observation, focus groups, and ethnographic participation/observation. The case study of CTI Education will consider socio-demographics study participants' characteristics with factors such as gender, age, the school attended, family circumstances and the distance travelled to the campus and other individual factors have been collected in this study based on different focus groups conducted with the current BComm Accounting levels one, two and three students. Specific topics explored during focus group discussions included student perceptions about mathematics proficiency, English and Accounting. This data will be analysed using quantitative techniques. However, the interpretation of the findings will be qualitative.

### **3.2 The Aim and Delimitation of the study**

The aim of this research project is to:

Examine whether matriculation average score as well as selected individual matric subject scores (including mathematics proficiency, English language proficiency and accounting) and demographic characteristics (such as gender, age, ethnicity, being a commuter student, i.e. not living on campus and first-generational status) are key indicators of success for students enrolled in BComm Accounting at CTI Education group (Durban) from 2009 to 2011.

### **3.3. The target population**

All students enrolled in the CTI/MGI BComm Accounting programme constitute the population of the current study. Given the researcher's limited resources, the target population consisted of all first time entering first-year students enrolled at Durban campus for the following three academic years: 2009, 2010 and 2011. The respondents in this study were undergraduate BComm Accounting students because the study was about analysing the key indicators determining academic success of undergraduate students.

### **3.4. Sample Size and Sampling Technique**

Given the small size of CTI (Durban), the sample consisted of all 16 BComm Accounting undergraduate students enrolled in 2009, 12 BComm Accounting undergraduate students enrolled in 2010 and 25 BComm Accounting undergraduate students enrolled in 2011. The data used in the study are mainly institutional data collected from the CTI (Durban) through the MGI Academic Coordinator as well as the Finance Department of this campus. The balance of the data was provided by students interviewed in the different focus group discussions. Data in respect of students' performance was gleaned from students' reports for the next three years of enrolment for the cohorts of 2009 and 2010, and only for the next two years of enrolment for the cohort of 2011 because they are currently in their third year. The academic performance scores for this cohort would, therefore, not be available at the time of this analysis. The data was collected with the help of the MGI Academic Coordinator at the Durban campus of CTI.

Regarding the focus group discussions, respondents were selected at random among the three cohorts of BComm Accounting undergraduate students. The aim was to collect additional information to analyse key indicators of student academic success. According to Amin (2005), randomization of the sample plays a key role in creating equivalent representative groups that are essentially the same on all relevant variables considered by the researcher.

The methodology discussed in this section has been applied in the next chapter to determine the key indicators of student academic success. A summative conclusion will be drawn based largely on the descriptive and bivariate correlation analyses employed.

### **3.5. Sample Characteristics**

This study is administered at a single private tertiary institution. It has included three institutional data collection periods, the first in 2009, the second in 2010 and the third in 2011. The target population of students eligible to be part of this research in the three cohorts 2009, 2010 and 2011 included all BComm Accounting degree seeking, first-time entering undergraduate students at CTI Education Group. First-time enrolling students are defined by the institution as any student who is engaging into the HE system for the first time at any institute (Mentz, 2012). This particular population was primarily selected for the reason that the researcher's professional career has long been specifically focussed on this field and having worked in the private sector of higher education has motivated the pursuing of the current study within this group of students.

Employing the above mentioned criteria, a sample of 16 BComm Accounting undergraduate students enrolled in 2009, 13 BComm Accounting undergraduate students enrolled in 2010 and 25 BComm Accounting undergraduate students enrolled in 2011 was purposively selected. Conversely, due to the fact that the aim of this research is to link these quantitative outcomes obtained from the CTI institutional database, primary data were also collected in the form of focus group discussions including the current BComm Accounting 3 students, majority of which form the 2011 cohort as well as the few students of the other two cohorts that the researcher had managed to trace.

There was minimal missing data in the biographical section of the focus group discussions despite the lengthy nature of the data collection method and the fact that some of the biographical items are data collected from foreign students. In 2009, it was noted that the portion of missing responses is not above 5% in total. For 2010 and 2011, there is slightly more missing data, with two items (whether the student is local or international and the score obtained during current academic year) having over 7% of missing responses. It is not clear why the pattern of responses on these two items is so different from the rest of the items in the survey of the three cohorts. In the three cohort data, the only items which appear to be problematic in the focus group discussions in terms of what is missing are the questions used to determine the student preparedness for lectures. Though the length of the discussion may negatively impact on the probability of a student responding rightly to the questions at the end, the relatively low amount

of missing data on the other items placed towards the end of the discussion shows that this is not the case with the items related to level of parental education (also at the end of the discussion). Those variables with missing data will not be considered in the analysis to avoid possible bias arising as a result of including respondents showing missing data.

Table 3.1 below provides the summary of demographic characteristics of the samples obtained from the respective populations from 2009 to 2011 of first-time entering undergraduate students.

Table 3.1: Institutional qualitative data for BComm Accounting students from 2009 to 2011

Variable	Response option	2009		2010		2011	
		Count	Percent	Count	Percent	Count	Percent
Gender	Male	5	31%	8	62%	8	32%
	Female	11	69%	5	38%	17	68%
Ethnicity	White	2	13%	0	0%	1	4%
	African	9	56%	6	46%	19	76%
	Indian	5	31%	6	46%	5	20%
	Coloured	0	0%	1	8%	0	0%
Home Language	English	5	31%	7	54%	21	84%
	Other	3	19%	0	0%	4	16%
	Not sure	8	50%	6	46%	0	0%
Housing	Neighbouring	3	33%	6	55%	4	31%
	Off Campus	6	67%	5	45%	9	69%
Parents	Degree	3	33%	5	46%	4	31%
Level of Education	Other	5	56%	4	36%	4	31%
	Not sure	1	11%	2	18%	5	38%

It is evident from the above table that in both 2009 and 2011 most of the students in the study were female, and in both years the proportions of participants by gender category resembled very closely to the proportions of enrolments by gender within the respective samples (69% and 68% respectively). However, in 2010 the majority of respondents were male (62%).

Again, in 2009 and 2011 the majority of the respondents were Black African students (56% and 76% respectively) in both samples. In contrast, White students only represent only 13% and 4% respectively. Indian students represent 31% and 20% respectively in both the samples. Coloured students were the least represented in the three groups of the respondents with a mere 8% in 2010 and 0% in both 2009 and 2011. In 2010, Black African and Indian students are equally represented with 46% each and there were no White students at all.

In 2010 and 2011, the majority of respondents were English first language speakers (54% and 84% respectively) compared with only 31% English first language speakers in 2009, whilst 19% and 16% of respondents spoke other languages in 2009 and 2011 respectively (including isiZulu, Sesotho, IsiXhosa, Afrikaans, Tshivenda, French and other). In 2009 and 2010, 50% and 46% of respondents preferred not to reveal their home language.

Given the fact that the campus does not have housing to accommodate students at the institution, in 2009 and 2011, the majority of students lived off campus (33% and 31% respectively) most of which relied on public transport. In 2010, however, 55% of respondents resided close to campus.

The biographical section of the focus group discussion also elicited information from respondents not routinely captured by institutional databases. These include questions related to their parents' level of education, high school year of completion as well as the type of high school and the language of tuition.

In both 2010 and 2011, it appears as if only 36% and 31% of the students respectively are first-generation students. The figure of 56% first-generation students in the 2009 group, however, appears somewhat more realistic. This generally low number of first-generation students may be affected by the relatively enormous volume of missing data (11% of the respondents in 2009, 18% in 2010 and 38% of participants in 2011 failed to provide enough information in order to calculate this variable).

A closer examination of the items used to determine first-generational status (educational level for both parents) revealed that significant amounts of the missing responses on this variable

resulted from the fact that students indicated they did not know their parents' level of education and others decided not to reveal this information. Nevertheless, even when this is taken into account the volume of missing responses on this item is higher than the other items, which poses the risk of not accurately identifying first-generation students in the sample.

The vast majority of all three cohorts entered higher education straightaway after completion of their matric (92% of the 2009 group, 95% of 2010 and 98% of the 2011 group). This is a positive trend given the research evidence linking immediate enrolment into higher education with enhanced rates of retention (see discussion in Section 2.3.7.1). In addition, the vast majority of respondents revealed that they graduated from public high schools (81% of the 2009 cohort, 79% of the 2010 cohort and 85% of the 2011 cohort).

Tuition language at high school seems to have more influence in determining the choice of language of instruction in higher education than home language. More or less the same number of students who received tuition in English as well as those who received it in other languages at high school has more probability of opting for English as language of tuition at the tertiary level.

### **3.6. Data Collection Procedure and Instruments**

The researcher obtained a gatekeeper's letter of introduction from the School of Accounting, Economics and Finance, University of KwaZulu-Natal, to conduct research at CTI Education Group. Having secured the necessary clearances, the researcher obtained documents such as students' lists and numbers and admission and academic performance records of three cohorts of students (namely 2009, 2010 and 2011) from the central academic office of the MGI Department. The researcher also provided oversight to the five focus group discussions containing seven respondents each with the current BComm Accounting Students. The data was collected between July and September 2013 using focus group questionnaires, and a documentary analysis. The focus group discussions took between 40 minutes to 60 minutes.

### **3.7 Reliability and validity**

Dependability or trustworthiness in qualitative research refers to the consistency of the research findings. Due to the subjective tendency of both quantitative and qualitative consideration in this study, reliability is very important for establishing trustworthiness. In order to achieve internal reliability, the researcher has ensured good recording quality and the quality of transcriptions. Good recording and transcription allows one to have reliable information collected from the respondents which can be revisited when necessary.

Validity of the data collection form and focus group questionnaire was determined by presenting it to at least two professional people, including the researcher's supervisor as stressed by Amin (2005) that content and construct validity is determined by expert judgment. The validity of the questions posed to current BComm Accounting students was further tested by means of a pilot survey following which some items were modified where necessary.

Reliability of the instruments was obtained by using the test- retest reliability. Fraenkel and Wallen (1996 cited in Kyoshaba 2009: 41) argued that for most educational research, consistency of scores over a period of two months is usually viewed as sufficient evidence of test-retest reliability. Therefore the researcher pre-tested and retested the instruments on a small number of undergraduate students with an interval of two months. The researcher computed the reliability for multi-item opinion questions using Stata computer software. The items were tested using Cronbach Alpha, indicating a consistency figure of 0.6537, which is above the recommended scale of 0.6 according to Amin (2005).

### **3.8 Data Analysis**

Instead of using multinomial logit or probit modelling the current research study has employed the descriptive procedure in determining the key indicators of student academic success. The descriptive methodology is preferred due to the limited sample size as well as the small number of students enrolled in the BComm Accounting programme at CTI (Durban). Thus academic success is measured partly by the average mark obtained by the student in English, Mathematics

and Accounting in percentage. The multinomial logit and probit models have not been considered because they restrict the dependent variable from taking values that widely differ among the respondents. However, due to the fact that the entire population was included in the sample for the three cohorts, a Sequential OLS Regression was conducted purely to support the results of the descriptive analysis.

Due to the disparity in performance of students, the researcher sought to use the descriptive econometric model. The full empirical model of this study was specified as follows:

*Success* =  $f(\mathbf{M}_{ij}, \mathbf{D}_{ij}, \mathbf{O}_{ij})$  where  $\mathbf{M}_{ij}$  represents quantitative data mainly comprising matric scores (English, Maths and Accounting);  $\mathbf{D}_{ij}$  represents demographic characteristics of students (Age, Gender and Race) as well as individual characteristics such as individual psychological factors; personal motivation; being a commuter student and first-generation status and  $\mathbf{O}_{ij}$  symbolises academic and non-academic characteristics, which are considered constant in this study. It is important to note that success is measured in terms of the overall score from the combination of all first year modules, including all assessments where a score of 50% and above means success.

### **3.8.1. Justification for the choice of variables**

The model uses Student Academic Success (Success) as the dependent variable. It is specified as partly a function of percentage average score for a student in three main subjects, namely English, Mathematics and Accounting. These particular subjects were chosen since they constitute the major subjects of the BComm Accounting Degree programme and hence it is a must to pass them in order to earn the qualification.

In terms of demographic characteristics, the variable Gender was included in the model due to the belief that male students perform better than their female counterparts particularly under unfavourable conditions (see point 2.3.7.2.2.1 of the literature review). Meanwhile, Mentz's (2012) study has found that female students consistently outperformed their male counterparts at high school and at university. In Africa, male students are more encouraged by their families to improve academic performance than females since they are considered as the future of their



respective families. The GENDER variable is a dummy which takes the value one if male and zero otherwise.

Age (AGE) of students is also considered as a variable to explain academic success. It is hypothesized that students who are late to undertake primary education or are repeaters perform poorly as far as academic success is concerned. However, this hypothesis has been proved to be wrong by various researchers. Ebeunuwa-Okoh (2010) and Jabor et al. (2011) have suggested in both their studies that age did not have significant impact on student academic performance. This was confirmed by Kyoshaba (2009). Language spoken at home is also included as a variable in the model. English is generally the medium of instruction for all other subjects in South Africa and one would thus expect that English language proficiency should lead to better performance in these other subjects. It is expected that students who are fluent in English and speak the language in their homes are good academic performers.

Walking distance from dwelling place to campus (DIST) is also considered as a variable that explains academic success of students. It is hypothesized that the longer the distance (measured in kilometers) a student has to travel to campus the weaker school performance will be. This is because by the time the student reaches the campus he/she is tired and so academic performance will naturally suffer. This has been confirmed by Amstrong (2011) in the literature review (see 2.3.7.2).

Educational status of parents or guardians (PARENT) was also a key variable in this research. According to Harb and El-Shaarawi (2006), numerous studies have been undertaken to assess the key indicators of student success at tertiary education institutions and their findings have pointed out to parents' education and family income as factors that can determine differences in students' grades. It is expected that more educated parents usually motivate their children-students to emulate them and hence those students with more educated parents perform better at school. The variable is measured as a dummy, taking values of zero if parent has no qualification, one if completed matric, two if completed tertiary education. A positive sign is expected for this variable.

Among other variables, personal motivation has also been included in the model as a predictor variable. Motivation is measured by the frequency with which students take time to read their textbooks, make notes and otherwise prepare for classes. Again, this variable is measured as a dummy, taking values of zero if students do not read their materials at all, one if moderate and two if students do read their materials regularly. Therefore, a positive sign is expected for this variable.

The data was compiled, sorted, edited, classified and coded into a coding sheet and analysed using the Stata computerized data analysis package. The Pearson product-moment correlation coefficient ( $r$ ) was used to compute the relationship between all selected quantitative explanatory variables and student academic success. The researcher has also used the Spearman's tests to find out how student academic success can vary with gender perspective as well as the rest of the qualitative explanatory variables.

All the qualitative data collected from focus group discussion such as parent level of education, ethnicity and the distance (whether student stayed close to campus or not) were converted to dummy variables and were replaced with codes which were analysed using Spearman's tests in order to assess their impact on the student academic success.

### **3.9 Ethical Considerations**

As stressed by Cooper and Schindler (2006), the researcher must always protect the rights of the participants and the study must be designed in a way that the latter must not suffer any physical harm, discomfort, pain, harassment, or loss of privacy (Visagie, 2010). The researcher has obtained informed consent from the research participants confirming their willingness to participate in the research. Informed consent, as Kumar (1999:192) states, implies that "subjects are adequately made aware of the type of information you want from them, why the information is being sought, what purpose it will be put to, how they are expected to participate in the investigation and how it will directly or indirectly affect them." Participants were informed that they could withdraw from the study at any time without prejudice and they were also assured of complete anonymity and confidentiality with respect to their participation. The measure of

presenting the study's findings in aggregate format further ensures respondents' right to anonymity and confidentiality.

### **3.10 Conclusion**

Quantitative and qualitative data were collected from both past and current BComm Accounting students from the three cohorts (2009, 2010 and 2011) in consideration for the present study at CTI/MGI Durban campus through institutional data as well as focus group discussions. The focus group discussions with BComm Accounting students were conducted in English which is the South African official language. The data were sorted and organized into categories to facilitate analysis and also fulfil ethical requirements and ensure trustworthiness and reliability of the research. Different descriptive techniques including Pearson and Spearman statistical tests were applied to determine correlation between student academic success and the selected independent variables using the Stata software. Given the census nature of the sampling characteristics, Ordinary Least Square (OLS) analysis has been conducted to support the descriptive outcomes for each cohort.

## CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

### 4.0. Introduction

This chapter analyses the data that were collected from the various research methods employed. The discussion that follows will in essence be an attempt to answer the research questions and thus fulfill the research objectives of the study. This chapter contains the description of the respondents' background, the dependent variable and the verification of hypotheses among others for the three cohorts in consideration.

Given the small size of the sample in this study, descriptive analysis will be considered. It includes graphical representation of data as well as Pearson and Spearman's correlation tests.

Furthermore, considering that the current study has included the entire population in the sample, it was important to conduct an OLS regression to support the descriptive analysis.

### 4.1 Background of the respondents

#### 4.1.1 Background of the respondents for the 2009 cohort

This section discusses the background of the respondents, according to gender, ethnicity, age, distance travelled to school, parent level of education average matric score and the overall results at the end of the first year of enrolment.

##### 4.1.1.1 Respondents by gender

Table 4.1 Respondents by gender

Gender	Freq.	Percent	Cum.
Female	11	68.75	68.75
Male	5	31.25	100.00
Total	16	100.00	

Table 4.1 illustrates the distribution of respondents by gender and that out of the total of 16 respondents, the female students had the highest representation of 68.75% and the male

respondents had 31.25%. This was explained by the fact that the majority of students enrolled in BComm Accounting level 1 were female.

#### 4.1.1.2 Respondents by ethnicity

Table 4.2 Respondents by ethnicity

Ethnicity	Freq.	Percent	Cum.
Black	9	56.25	56.25
Indian	5	31.25	87.50
White	2	12.50	100.00
Total	16	100.00	

Table 4.2 illustrates that out of the total of 16 respondents, Black students had the highest representation of about 56% followed by Indian students with about 31% and the rest were White students who had less than 13%. This was explained by the fact that majority of students enrolled in BComm Accounting level 1 were Black.

#### 4.1.1.3 Respondents by age

Table 4.3 Respondents by age

Age	Freq.	Percent	Cum.
22	3	18.75	18.75
23	9	56.25	75.00
24	3	18.75	93.75
25	1	6.25	100.00
Total	16	100.00	

Table 4.3 illustrates that the highest percentage of respondents (56%) were aged 23 years, and the least number of respondents (just one student) were 25 years of age. Over three quarters (about 94%) of the respondents were below 25 years, which is the right age bracket of university students in South Africa. These respondents were administered in 2013 when this study was

conducted, so to get the students age at the time of enrolment, four years must be deducted from the current age.

#### 4.1.1.4 Respondents by distance travelled to school

Table 4.4 Respondents by distance travelled to school

Distance travelled is scaled in terms of whether students lived close to campus (0-3km) or far from campus (over 3km).

Distance	Freq.	Percent	Cum.
Close	3	18.75	18.75
Far	13	81.25	100.00
Total	16	100.00	

Table 4.4 illustrates that the highest percentage of respondents travel long distances from where they live to school and vice versa (over 81%). Only less than 19% of respondents lived close to campus. This is partly explained by the fact that CTI (Durban) does not have a student accommodation policy. Students are expected to find their own accommodation, which is too expensive in the area of Durban North; as a result students have to find affordable and cheaper places elsewhere.

#### 4.1.1.5 Respondents by parent level of education

Table 4.5 Respondents by parents' level of education

Pareduc	Freq.	Percent	Cum.
No matric	13	81.25	81.25
Matric	1	6.25	87.50
Degree	2	12.50	100.00
Total	16	100.00	

Table 4.5 illustrates that the highest percentage of respondents' parents do not have a senior certificate or equivalent (over 81%). Only one student's parents completed matric and less than 13% of respondents have parents who went beyond matric and have an academic degree.

#### 4.1.1.6 Respondents by average matric score

Table 4.6 Respondents by average matric score

Averagesco	Freq.	Percent	Cum.
48.6667	1	6.25	6.25
49	1	6.25	12.50
50.3333	1	6.25	18.75
52.3333	1	6.25	25.00
53.6667	1	6.25	31.25
54.6667	1	6.25	37.50
56	2	12.50	50.00
56.6667	1	6.25	56.25
58	1	6.25	62.50
58.3333	1	6.25	68.75
60	1	6.25	75.00
60.6667	1	6.25	81.25
62.6667	1	6.25	87.50
68.3333	1	6.25	93.75
74.3333	1	6.25	100.00
<b>Total</b>	<b>16</b>	<b>100.00</b>	

Table 4.6 illustrates that the highest percentage of respondents achieved between 50.33% and 74.33% matric average score. Only less than 13% of respondents had between 48.67% and 49% before enrolling at CTI in 2009. Average matric score was computed as the average score of the three subjects in consideration for the current study, namely English Language proficiency, Mathematics Proficiency and Accounting.

#### 4.1.2 Description of the dependent variable (DV)

This section describes the dependent variable (Academic Success). In this study, academic success was conceptualized to mean grades obtained in tests, in course work and in examination (Kyoshiba 2009).

At CTI success is measured taking into account performance in all first year subjects, namely: Accounting 1, Economics 1, Statistics 1, Business Laws, Business Management, Business English and Computer Skills. They are summarized in the following formula:

***Success = f(A, Ec, S, L, M, En, C)*** Where **A, Ec, S, L, M, En, C** represent respectively the above subjects. The dependent variable was computed from the data collected at CTI in accordance with their evaluation criteria which requires a score of at least 50% as pass mark or success per module. The respondents' academic success, for the purposes of this study, was represented by overall score computed from the average score from all first year modules in percentage.

#### 4.1.2.1 Overall score of BComm 1 for the cohort of 2009

Table 4.7 Overall score of BComm 1 for the cohort of 2009

OvScore	Freq.	Percent	Cum.
29.7	1	6.25	6.25
35.7	1	6.25	12.50
36.8	1	6.25	18.75
41.9	1	6.25	25.00
42.1	1	6.25	31.25
46.7	1	6.25	37.50
49.6	1	6.25	43.75
49.8	1	6.25	50.00
52.2	1	6.25	56.25
54.9	1	6.25	62.50
55.5	1	6.25	68.75
60.3	1	6.25	75.00
62	1	6.25	81.25
67.3	1	6.25	87.50
76.4	1	6.25	93.75
81.7	1	6.25	100.00
Total	16	100.00	

Table 4.7 illustrates that students' overall performance in tests, assignments and exams was fairly good considering the mean overall score reflected in Table 4.8.

Since personal variables are said to have an effect on academic success (Kyoshiba 2009), the researcher considered it important to relate background variables to the dependent variable academic success. For purposes of testing whether background of respondents impacted on



academic success, all items in table 4.7 for the dependent variable (academic success) were combined into the table 4.8 to illustrate the overall score of the whole 2009 cohort.

Table 4.8 Summary of overall score of BComm 1 for the cohort of 2009

Variable	Obs	Mean	Std. Dev.	Min	Max
Overall Score	16	52.6625	14.438	29.7	81.7

Illustrating the aggregated BComm Accounting 1 score for the 2009 cohort, Table 4.8 shows a mean overall score of 52.66 with a standard deviation of 14.44. The lowest score for the cohort was 29.7 which mean the student has to repeat the year and the highest score of 81.7 means the student passed all the first year modules with distinction on average.

#### 4.1.2.2 Tests of correlation for BComm 1 for the cohort of 2009

Spearman's correlation test between overall score of BComm 1 for the cohort of 2009 and their Gender

```
Spearman gender overallscore
```

```
Number of obs =      16
Spearman's rho =      0.1609
```

```
Test of Ho: gender and overallscore are independent
Prob> |t| =      0.5517
```

Spearman's correlation test was run to assess the relationship between the first year overall score and the gender of BComm Accounting at CTI (Durban) using a sample of 16 participants for the 2009 cohort. The above results, suggest that there was no significant difference between academic success of male and female students. Spearman's correlation coefficient  $\rho = 0.1609$  and its calculated p value of 0.5517, which is greater than  $\alpha = 0.05$ . The conclusion therefore is that there is no significant correlation between academic success and gender of students at CTI for the cohort of 2009, contrasting therefore with Mentz's (2012) findings that female students perform better than their male counterparts.

Spearman's correlation test between overall score of BComm 1 for the cohort of 2009 and their Ethnicity

Number of obs = 16  
 Spearman's rho = 0.4100

Test of Ho: ethnicity and overallscore are independent  
 Prob> |t| = 0.1148

To assess the relationship between the first years overall score and the ethnicity of BComm Accounting students at CTI (Durban), a Spearman's correlation test was run using a sample of 16 participants for the 2009 cohort. The above results suggest that there was no significant difference between academic success of black, Indian and white students. This was statistically proved by the rho value of 0.4100 and its calculated  $p = 0.1148$ , which is greater than  $\alpha = 0.05$ . The conclusion therefore is that there is no correlation between academic success and ethnicity of students at CTI for the cohort of 2009. This is also in contradiction to Mentz's (2012) findings which indicated that there is a correlation.

Table 4.9 Pearson's test of correlation between the overall score of BComm 1 for the cohort of 2009 and their age.

	ageoverall~e	
age	1.0000	
	16	
overallscore	0.1207	1.0000
	0.6561	
	16	16

Results in Table 4.9 suggest that there is no significant difference between academic successes of different age group students. This is proved by the  $r$  value of 0.1207 and its calculated  $p$  value of 0.6561, which is greater than  $\alpha = 0.05$ . The conclusion therefore is that the age of students does not make significant difference in academic success at CTI for the cohort of 2009. This is in concordance with the findings of Kyoshaba (2009) suggesting the non- correlation between academic performance and mature age admission points of students.

Table 4.10 Pearson's correlation test between overall score of BComm 1 for the cohort of 2009 and the distance travelled to school.

	Distance overall~e	
Distance	1.0000	
	16	
Overallscore	0.6370	1.0000
	0.0080	
	16	16

A Pearson's correlation test was run to assess the relationship between the first year overall score and the distance travelled by BComm Accounting students at CTI (Durban) using a sample of 16 participants for the 2009 cohort. The results in Table 4.10, suggest that there was a significant difference between academic success and the distance travelled. This was statistically proved by the r value of 0.6370 and its calculated  $p = 0.0080$ , which is lower than  $\alpha = 0.01$ . The conclusion therefore is that staying close to campus is associated with academic success of students at CTI for the cohort of 2009. This means that students who stay close to campus are more likely to succeed at tertiary level than those who live far from campus, supporting therefore McInnis et al. (2000), Pascarella and Terenzini (2005) argument in this regard.

Table 4.11 Pearson's correlation test between the overall score of BComm 1 for the cohort of 2009 and their parent level of education.

	Parent education overall~e	
Parent educ.	1.0000	
	16	
Overallscore	-0.0085	1.0000
	0.9750	
	16	16

Results in Table 4.11 suggest that there is no significant difference between academic success of students whose parents have an educational background and those whose parents did not study enough. This is proved by the r value of -0.0085 and its calculated p value of 0.9750, which is far greater than  $\alpha = 0.05$ . The conclusion therefore is that the first generational status of students did not affect academic success of students at CTI for the cohort of 2009. This is in contradiction with Nel et al. (2009) findings in this regard.

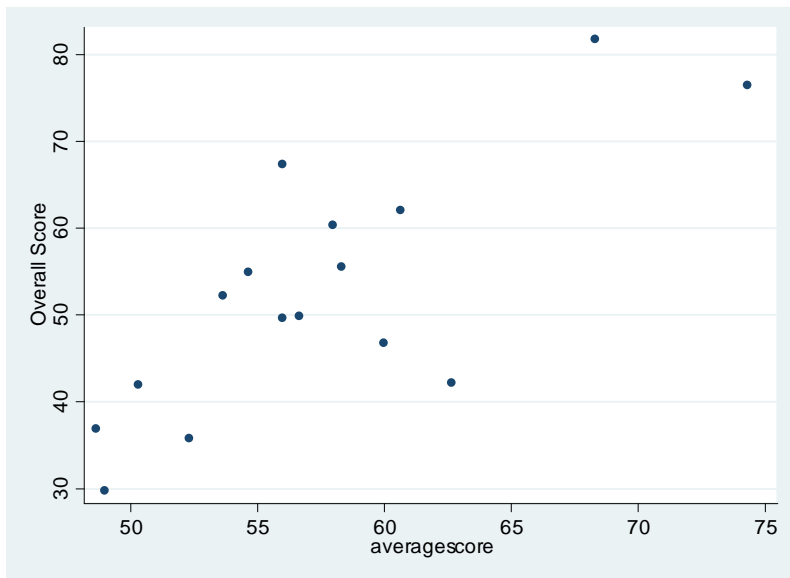
Table 4.12: Pearson’s correlation test between the overall score of BComm 1 for the cohort of 2009 and matric results.

	average overall	
Averagescore	1.0000	
	16	
Overallscore	0.7842*	1.0000
	0.0003	
	16	16

A Pearson’s correlation was run to assess the relationship between the overall score of first year BComm Accounting and their average matric score for the 2009 cohort at CTI (Durban) using a sample of 16 participants. The results in the above Table 4.12, suggest a positive correlation between both variables. This was statistically significant with  $r = 0.7842$  and  $p = 0.0003$ .

To verify these results, the relation between the overall score of first year BComm Accounting and their average matric score for the 2009 cohort at CTI (Durban) was graphed.

Figure 4.1: Scatter plot between overall score and matric score for the cohort 2009



The positive correlation between Matric’s average score and the overall first year results has been confirmed by the above graph.

The conclusion therefore is that high performance of students at high school determines their success or failure at tertiary level which is in line with Geiser and Santelices (2007) findings (see page 26).

Table 4.13 Sequential OLS regression including quantitative and qualitative variables for 2009

Source	SS	df	MS			
Model	1977.13496	2	988.567478	Number of obs =	16	
Residual	1149.70249	13	88.4386531	F( 2, 13) =	11.18	
Total	3126.83745	15	208.45583	Prob> F =	0.0015	
				R-squared =	0.6323	
				Adj R-squared =	0.5757	
				Root MSE =	9.4042	

overallscore	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
distance	6.518278	8.333321	0.78	0.448	-11.48477	24.52132
averagescore	1.390787	.4914378	2.83	0.014	.3290999	2.452473
_cons	-28.50094	27.29261	-1.04	0.315	-87.46304	30.46116

Considering that the current study has included the entire population in the sample (i.e. a census approach for all cohorts), OLS regression was employed purely for the purpose of extending the primarily descriptive analysis employed.

Table 4.13 suggests that the percentage of student success that can be explained by the average matric as well as the distance travelled to and from school is 58%. The large value for the standard error of estimate is an indication of population variability in predicting the student success with the current set of variables. The individual contribution of each of the predictors was assessed and the results reflected in the table suggests that the average matric score and the distance travelled to and from school are directly correlated and together explain a significant proportion of students' success with the p value of 0.014. This is consistent with the description analysis results. It can, therefore, be concluded that matric average score and distance are predictors of student academic success at CTI (Durban). This result is valid only for 2009 cohort/population.

## 4.2 Background of the respondents for the 2010 cohort

This section discusses the background of the respondents, according to gender, ethnicity, age, distance travelled to school, parent level of education, average matric score and the overall results at the end of the first year of enrolment.

### 4.2.1 Respondents by Gender

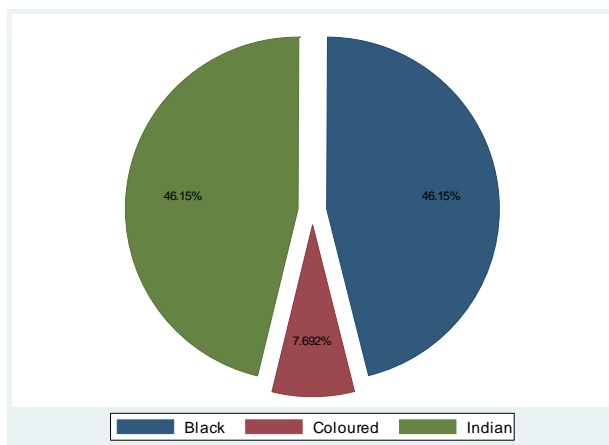
Table 4.14 Respondents by gender

Gender	Freq.	Percent	Cum.
Female	5	38.46	38.46
Male	8	61.54	100.00
Total	13	100.00	

Table 4.14 illustrates that out of the total of 13 respondents, the female students had the lowest representation of less than 39% and the male respondents had more than 62%. This was explained by the fact that the majority of students enrolled in BComm Accounting level 1 were male.

### 4.2.2 Respondents by ethnicity

Figure 4.2: Ethnicity representation for 2010 cohort



As suggested above, 8% of respondents in 2010 were Coloured; Black and Indian were equally represented with 46% each.

### 4.2.3 Respondents by age

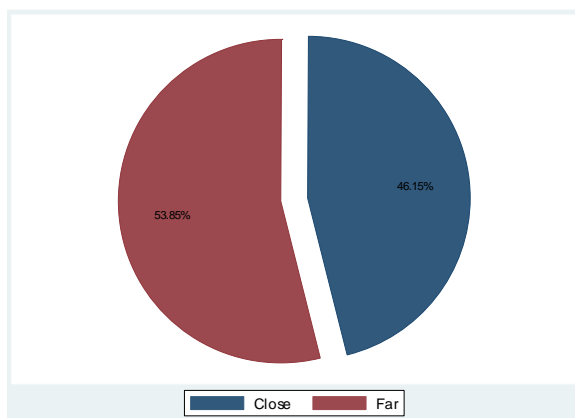
Table 4.15 Respondents by age

Age	Freq.	Percent	Cum.
21	2	15.38	15.38
22	9	69.23	84.62
23	2	15.38	100.00
Total	13	100.00	

Table 4.15 illustrates that the highest percentage of respondents (69.23%) were aged 22 years, and the least number of respondents were 21 and 23 years of age representing 15.38% each. All three groups of the respondents were below 25 years, which is the right age bracket of university students in South Africa. These respondents were surveyed in 2013 when this research was administered, so to get the respondents' age at the time of enrolment, three years must be deducted from the current age.

### 4.2.4 Respondents by distance travelled to school

Figure 4.3: Distance representation for 2010 Cohort



As illustrated in figure 4.8, the highest percentage of respondents travel over three kilometres from where they live to campus and vice versa (54%). The other 46% of respondents lived close

to campus. This is explained by the fact that CTI (Durban) does not have a student accommodation policy. The students have to find their own accommodation, which is too expensive in the area of Durban North; as a result students have to find affordable and cheaper places elsewhere.

#### 4.2.5 Respondents by parent level of education

Table 4.16 Respondents by parent level of education

Parent education	Freq.	Percent	Cum.
No Matric	8	61.54	61.54
Matric	5	38.46	100.00
Total	13	100.00	

Table 4.16 illustrates that the highest percentage of respondents' parents do not have a senior certificate or equivalent (about 62%). Only about 38% of students' parents have completed matric and no respondents have parents who went beyond matric and let alone have an academic degree.



#### 4.2.6 Respondents by average matric score

Table 4.17 Respondents by average matric score

Averagescore	Freq.	Percent	Cum.
52.3333	1	7.69	7.69
55.6667	1	7.69	15.38
56.6667	1	7.69	23.08
58.3333	1	7.69	30.77
58.6667	1	7.69	38.46
59.6667	1	7.69	46.15
60	1	7.69	53.85
61	1	7.69	61.54
64.3333	1	7.69	69.23
65.3333	1	7.69	76.92
67.3333	1	7.69	84.62
68	1	7.69	92.31
70.6667	1	7.69	100.00
<b>Total</b>	<b>13</b>	<b>100.00</b>	

Table 4.17 illustrates that the average percentage scores achieved by 2010 respondents were between 52.33% and 70.67%. No respondents had marks below 52% before enrolling at CTI in 2010. As mentioned above, matriculation results were measured in terms of the average score of the three subjects in consideration for the current study, namely English Language proficiency, Mathematics Proficiency and Accounting.

#### 4.2.7 Description of the dependent variable (DV)

This section describes the dependent variable (Academic Success). In this study, academic success was conceptualized to mean grades obtained in tests, in course work and in examination (please see formula in 4.1.2 above). The dependent variable was computed from the data collected at CTI in accordance with their evaluation criteria which requires a score of at least 50% as pass mark or success per module (Appendix A). For the purposes of this study respondents' academic success is represented by overall score computed from all first year's module assessments.

#### 4.2.7.1 Overall score of BComm 1 for the cohort of 2010

Table 4.18 Overall score of BComm 1 for the cohort of 2010

OverallScore	Freq.	Percent	Cum.
29.6	1	7.69	7.69
34.3	1	7.69	15.38
41	1	7.69	23.08
48.2	1	7.69	30.77
53	1	7.69	38.46
58.1	1	7.69	46.15
58.2	1	7.69	53.85
59.2	1	7.69	61.54
60.7	1	7.69	69.23
64.5	1	7.69	76.92
67.4	1	7.69	84.62
69.4	1	7.69	92.31
70.7	1	7.69	100.00
Total	13	100.00	

Table 4.18 illustrates that students' overall performance in tests, assignments and exams was fairly good considering the mean reflected with over 70% of respondents achieving marks between 53 and 71%. Since personal variables are said to have an effect on academic success, the researcher considered it important to relate background variables to the dependent variable academic success. For purposes of testing whether background of respondents impacted on academic success, all items in table 4.18 for the dependent variable (academic success) were combined into the table 4.19 to illustrate the overall mean score of the whole 2010 cohort.

Table 4.19 Summary of overall score of BComm 1 for the cohort of 2010

Variable	Obs	Mean	Std. Dev.	Min	Max
Overallscore	13	54.94615	13.18993	29.6	70.7

Illustrating the mean BComm Accounting 1 score for the 2010 cohort, Table 4.19 shows a mean overall score of 54.95% with a standard deviation of 13.19%. The lowest score for the cohort was 29.6, meaning that the student has to repeat the year and the highest score of 70.7 means the student passed all the first year modules with merit on average.

Spearman's correlation test between the Overall score of BComm 1 for the cohort of 2010 and their Gender.

```
Number of obs =      13
Spearman's rho =     -0.0423
```

```
Test of Ho: gender and overall score are independent
Prob> |t| =          0.8910
```

To examine the relationship between the first years overall score and the gender of BComm Accounting at CTI (Durban), a Spearman's correlation test was run using a sample of 13 participants for the 2010 cohort. The above results ( $\rho = -0.0423$  and  $p = 0.8910$ ) indicate that there was no significant difference between academic success of male and female students. This means that being a male or female did not have any impact on students' academic success at CTI for the cohort of 2010, contrasting once again with Mentz's (2012) findings that female students perform better than their male counterparts.

Spearman's correlation tests between the Overall score of BComm 1 for the cohort of 2010 their Ethnicity.

```
Number of obs =      13
```

```
Spearman's rho =     -0.3299
```

```
Test of Ho: ethnicity and overall score are independent
Prob> |t| =          0.2710
```

To investigate the correlation between the first year overall score and the ethnicity of BComm Accounting students at CTI (Durban) a Spearman's analysis was conducted using a sample of 13 participants for the 2010 cohort. It was suggested that there was no significant relationship between academic success of students and their ethnicity. This was statistically proved by the rho value of  $-0.3299$  and its calculated  $p = 0.2710$ . The conclusion therefore is that being Black, White, Indian or Colored student did not really matter as far as students' academic success was concerned at CTI for the cohort of 2010 thus confirming the results of 2009 cohort.

Table 4.20 Pearson's correlation test between the overall score and age.

	Age overall~e	
Age	1.0000	
	13	
Overallscore	-0.4673	1.0000
	0.1074	
	13	13

Results in Table 4.20, show that there is no significant difference between academic successes of different age group students at the 5% level of significance. The conclusion is that the age of students does not make significant difference in academic success at CTI for the cohort of 2010. This confirms the non-correlation between academic success of students and their age from the 2009 cohort (see table 4.9) as well as the findings of Kyoshaba (2009) suggesting the non-correlation between academic performance and mature age admission points of students.

Table 4.21 Pearson's correlation test between the overall score and distance

	Distanceoverall~e	
Distance	1.0000	
	13	
Overallscore	0.7272	1.0000
	0.0049	
	13	13

In order to assess the correlation between the first year overall score and the distance travelled by BComm Accounting students at CTI (Durban), a Pearson's test was run using a sample of 13 participants for the 2010 cohort. Table 4.21 indicates a significant positive correlation between academic success of students and the distance they had to travel to campus. The r value of 0.7272 and p = 0.0049 were statistically evident to support the hypothesis. This result is consistent with that found for the 2009 cohort in that students who stayed close to campus were more likely to succeed at tertiary level than those who lived far from campus for the cohort of 2010, supporting once again McInnis et al.(2000) and Pascarella & Terenzini's (2005) findings in this regards.

Table 4.22 Pearson's correlation test between the overall score and parent level of education.

	Pareduc overall~e	
Pareduc	1.0000	
	13	
Overallscore	0.0932	1.0000
	0.7620	
	13	13

Table 4.22 suggests an insignificant correlation between academic success of students and their parents' educational background. This is evidenced by the Pearson coefficient of 0.0932 and its calculated p value of 0.7620. This leads to the conclusion that being a first generation student did not affect the academic success of students at CTI for the cohort of 2010. This result is consistent with the finding for the 2009 cohort, which is in contradiction with Nel et al's (2009) findings.

Tables 4.23 Pearson's correlation between overall score and matric score for the cohort 2010.

	Matric score overall	
Matric score	1.0000	
	13	
Overall Score	0.6923	1.0000
	0.0087	
	13	13

The results from table 4.23 show a significant positive correlation between academic success of CTI (Durban)'s BComm Accounting1 students and their matric results for the 2010 cohort. This is proved by the Pearson's correlation coefficient  $r = 0.6923$  and its p value of 0.0087, which is significant at levels above 1%. The conclusion therefore is that the performance of students at high school determines their success or failure at tertiary level. This result is consistent with that for the 2009 cohort.

Figure 4.4: Scatterplot between overall score and matric score for the cohort 2010

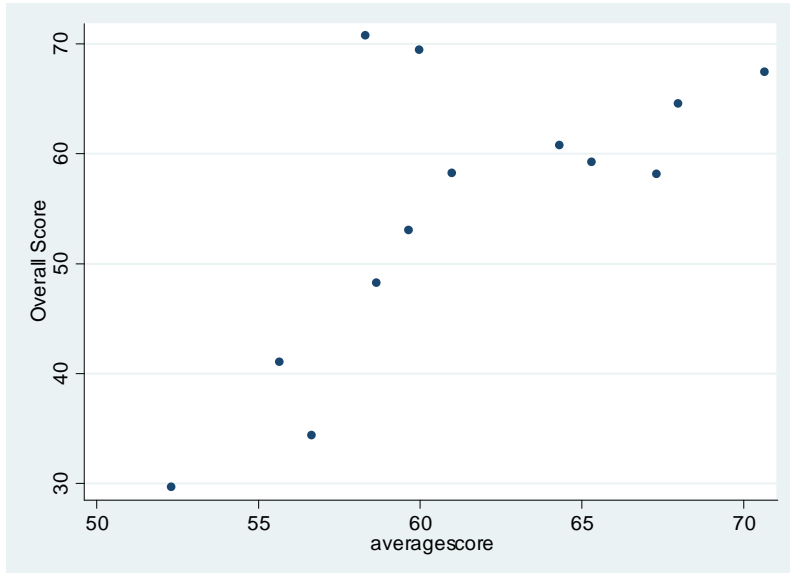


Table 4.24 Sequential OLS regression including quantitative and qualitative variables for 2010

Source	SS	df	MS			
Model	1454.86338	2	727.431691	Number of obs =	13	
Residual	632.828924	10	63.2828924	F( 2, 10) =	11.49	
				Prob> F =	0.0026	
				R-squared =	0.6969	
				Adj R-squared =	0.6363	
Total	2087.69231	12	173.974359	Root MSE =	7.9551	

overallscore	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
distance	13.26393	4.95034	2.68	0.023	2.233888	24.29398
Averagescore	1.122774	.4768495	2.35	0.040	.0602874	2.185261
_cons	-20.09673	28.40723	-0.71	0.495	-83.39198	43.19852

Table 4.24 suggests that the percentage of student success that can be explained by the average matric as well as the distance travelled to and from school is 64%. The large value for the standard error of estimate, again, is an indication of population variability in predicting the student success with the current set of variables. The individual contribution of each of the predictors was examined in this second regression model and the results reflected in the table once again suggest that the average matric score and the distance travelled to and from school are the only explanatory variables that explain a sizeable proportion of student academic success (a

direct relationship, which has been the outcome of the descriptive analysis). Therefore, it can again be concluded that matric average score and distance are predictors of student academic success at CTI (Durban). The results of a third regression model using the 2011 cohort/census data are reflected in Table 4.34

### 4.3. Background of the respondents for the 2011 cohort

This section examines the background of the respondents, according to gender, ethnicity, age, distance travelled to school, parent level of education average matric score and the overall results at the end of the first year of enrolment.

#### 4.3.1. Respondents by gender

Figure 4.5: Gender representation for 2011 cohort

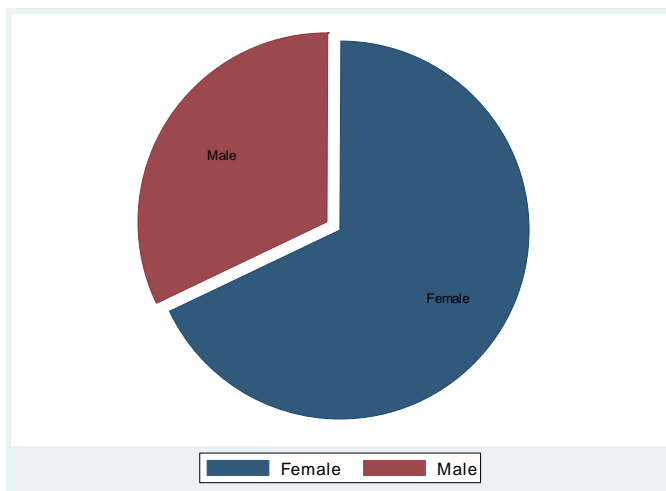
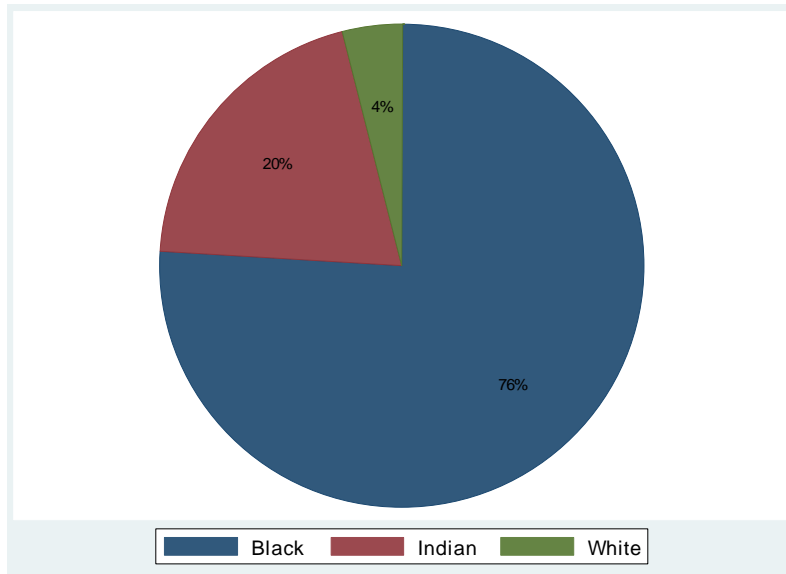


Figure 4.5 suggests that the majority (68%) of respondents in this sample were female and the minority (32%) were male students.

### 4.3.2. Respondents by ethnicity

Figure 4.6: Ethnicity representation for 2011 cohort.



The above graph indicates the representation of ethnicity in 2011, showing that majority of students for this cohort were Black (representing 76%), followed by Indian and White respondents representing 20% and 4% respectively.

### 4.3.3 Respondents by age

Table 4.25 Respondents by age

Age	Freq.	Percent	Cum.
20	5	20.00	20.00
21	10	40.00	60.00
22	8	32.00	92.00
23	1	4.00	96.00
24	1	4.00	100.00
Total	25	100.00	

Table 4.25 illustrates that the highest percentage of respondents (92%) were aged between 20 and 22 years, and the least number of respondents were 23 and 24 years of age representing just 4% each. All five age groups of the respondents were below 25 years, which is the right age bracket of university students in South Africa. These respondents were administered in 2013



when this research was conducted, so to get the students age at the time of enrolment, two years must be deducted from the current age.

#### 4.3.4 Respondents by distance travelled to school

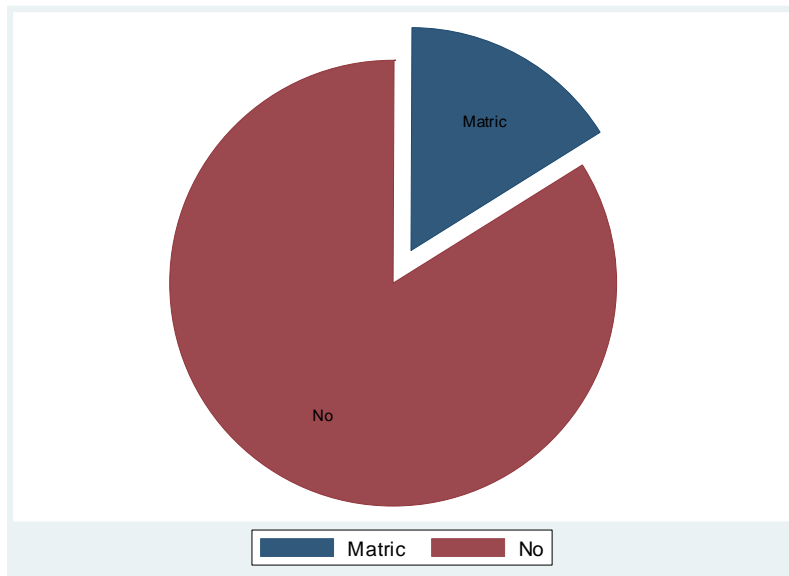
Table 4.26 Respondents by distance travelled to school

Distance	Freq.	Percent	Cum.
Close	3	12.00	12.00
Far	22	88.00	100.00
Total	25	100.00	

Table 4.26 illustrates that the highest percentage of respondents for the 2011 cohort travel long distances from where they live to school and vice versa (88%). Only 12% of respondents lived close to campus. As mentioned earlier, this is explained by the fact that CTI (Durban) does not have a student accommodation policy. Students are required to find their own accommodation, which is too expensive in the area of Durban North. Consequently students have to find affordable and cheaper places elsewhere which are a great distance from campus.

### 4.3.5 Respondents by Parent level of education

Figure 4.7: Parent Level of Education



The majority of respondents in this cohort had parents who did not study enough to get a matric certificate or equivalent. Out of 25 respondents for the 2011 cohort, only 31% of students' parents had at least a matric certification.

### 4.3.6 Respondents by average matric score

Table 4.27 Respondents by average matric score

Averagescore	Freq.	Percent	Cum.
34	1	4.00	4.00
46.6667	1	4.00	8.00
47.6667	1	4.00	12.00
48.3333	1	4.00	16.00
51.3333	1	4.00	20.00
52.3333	2	8.00	28.00
53.6667	1	4.00	32.00
54	1	4.00	36.00
54.3333	1	4.00	40.00
56	1	4.00	44.00
56.6667	2	8.00	52.00
57	2	8.00	60.00
57.3333	2	8.00	68.00
58	1	4.00	72.00
60	1	4.00	76.00
60.3333	1	4.00	80.00
61.3333	1	4.00	84.00
63	1	4.00	88.00
66	1	4.00	92.00
72	1	4.00	96.00
72.6667	1	4.00	100.00
<b>Total</b>	<b>25</b>	<b>100.00</b>	

Table 4.27 illustrates that the average matric score achieved by 2011 respondents ranged between 34% and 72.67%. Out of the 25 respondents, 84% had marks above 50% before enrolling at CTI in 2011. As mentioned previously, matriculation results were measured in terms of the average score of the three subjects in consideration for the current study, namely English Language proficiency, Mathematics Proficiency and Accounting.

### 4.3.7 Description of the dependent variable (DV)

This section describes the dependent variable (Academic Success). In this study, academic success was conceptualized to mean, grades obtained in tests, in course work and in examination (Kyoshiba 2009). The dependent variable was computed from the data collected at CTI in accordance with their evaluation criteria which requires a score of at least 50% as pass mark or success per module. The respondents' academic success was represented by overall score for the purposes of this study.

### 4.3.7.1 Overall score of BComm 1 for the cohort of 2011

Table 4.28 Overall score of BComm 1 for the cohort of 2011

Ov. Score	Freq.	Percent	Cum.
38.7	1	4.00	4.00
41.4	1	4.00	8.00
43.7	1	4.00	12.00
49	1	4.00	16.00
51.9	1	4.00	20.00
55.2	1	4.00	24.00
55.7	1	4.00	28.00
56	2	8.00	36.00
56.1	1	4.00	40.00
57.3	1	4.00	44.00
57.8	1	4.00	48.00
58.2	1	4.00	52.00
59.1	1	4.00	56.00
60.3	1	4.00	60.00
61	1	4.00	64.00
63.4	1	4.00	68.00
64.7	1	4.00	72.00
64.8	1	4.00	76.00
66	1	4.00	80.00
68.6	1	4.00	84.00
71.7	1	4.00	88.00
71.9	1	4.00	92.00
73.4	1	4.00	96.00
79.1	1	4.00	100.00
Total	25	100.00	

Table 4.28 illustrates that students' overall performance in tests, assignments and exams was fairly good considering the mean reflected with over 84% of respondents achieving marks between 52 and 79%.

In the light of “personal variables being said to have an effect on academic success”, according to Kyoshiba (2009: 47), the researcher considered it important to relate background variables to the dependent variable academic success. For purposes of testing whether background of respondents impacted on academic success, all items in table 4.28 for the dependent variable (academic success) were combined into the table 4.29 to illustrate the overall mean score of the whole 2011 cohort.

Table 4.29 Summary of overall score of BComm 1 for the cohort of 2011

Variable	Obs	Mean	Std. Dev.	Min	Max
overallscore	25	59.24	9.859513	38.7	79.1

Illustrating the aggregated BComm Accounting 1 score for the 2011 cohort, table 4.29 shows a mean overall score of 59.2% with a standard deviation of 9.9%. The lowest score for the cohort was 38.7 requiring the student to repeat the year and the highest score of 79.1 means the student passed all the first year modules with distinction on average.

Correlation between the overall score and gender.

```
Number of obs =      25
Spearman's rho =      0.1784

Test of Ho: gender and overall score are independent
Prob> |t| =      0.3935
```

To analyse the relationship between the success and gender of BComm Accounting at CTI (Durban) in 2011, a Spearman’s correlation test was run using a sample of 25 participants. The above results indicate that there was no meaningful difference between academic success of male and female students. This was statistically evidenced by the coefficient of 0.1784 and its calculated  $p = 0.3935$ . Hence, there was no correlation between academic success and gender of students at CTI for the cohort of 2011. This is consistent with the previous results, contrasting once again with Mentz’s (2012) findings that female students perform better than their male counterparts.

Correlation between the Overall score and Ethnicity.

```
Number of obs =      25
Spearman's rho =      0.0000

Test of Ho: ethnicity and overallscore are independent
Prob> |t| =      1.0000
```

The correlation between the 2011 first year students’ overall score and their ethnicity was assessed through Spearman’s test using a sample of 25 participants. The results show no significant difference between academic successes of black, Indian and white students at all

levels. This was statistically proved by the rho value of 0.0000 and its calculated p-value = 1.0000. These results mean that ethnicity of students did not have a statistically significant impact on their academic success.

Table 4.30 Correlation between overall score and age

	age	overall~e
age	1.0000	
	25	
Overall score	-0.2532	1.0000
	0.2219	
	25	25

To examine whether there was a relationship between students' academic success and their age, a Pearson's correlation test was conducted. Evidence in Table 4.30 suggests that age of students did not play a major role in determining their academic success. This means that both old and young students performed the same way in terms of their academic success at CTI for the cohort of 2011. This confirms the non-correlation between academic success of students and their age from the 2009 and 2010 cohorts (see tables 4.9 and 4.14 respectively). It also confirms the findings of Kyoshiba (2009) suggesting the non-correlation between academic performance and mature age admission points of students.

Table 4.31 Correlation between overall score and distance in 2011

	Distance	overall~e
Distance	1.0000	
	25	
overall score	0.0800	1.0000
	0.7038	
	25	25

In 2011, a Pearson's analysis was conducted to examine whether or not there was a relationship between the first year overall score and the distance travelled by BComm Accounting students at CTI (Durban) with a sample of 25 participants. The results in Table 4.31 suggest a non-significant correlation between academic success of students and distance travelled to and from

school. Statistically this was proved by  $r = 0.08$  and  $p = 0.7038$ , which is higher than  $\alpha = 0.05$ . The conclusion therefore is that staying close to campus had no statistical significant impact on academic success of students at CTI for the cohort of 2011. These results are in contradiction with those of the previous cohorts as well as the findings from McInnis et al. (2000) as well as Pascarella & Terenzini (2005). This is resulted from the fact that most of students lived far from campus with just 12% living close to campus (see table 4.26).

Table 4.32 Correlation between overall score and parent level of education in 2011

	Pareduc	overall~e
Pareduc	1.0000	
	25	
overallscore	0.2309	1.0000
	0.2669	
	25	25

It was suggested in Table 4.32 that no significant correlation existed between academic success of students and their parents' educational background. The coefficient  $r = 0.2309$  and its calculated  $p$  value of 0.2669 confirm that the first generational status of students did not affect academic success of students at CTI for the cohort of 2011.

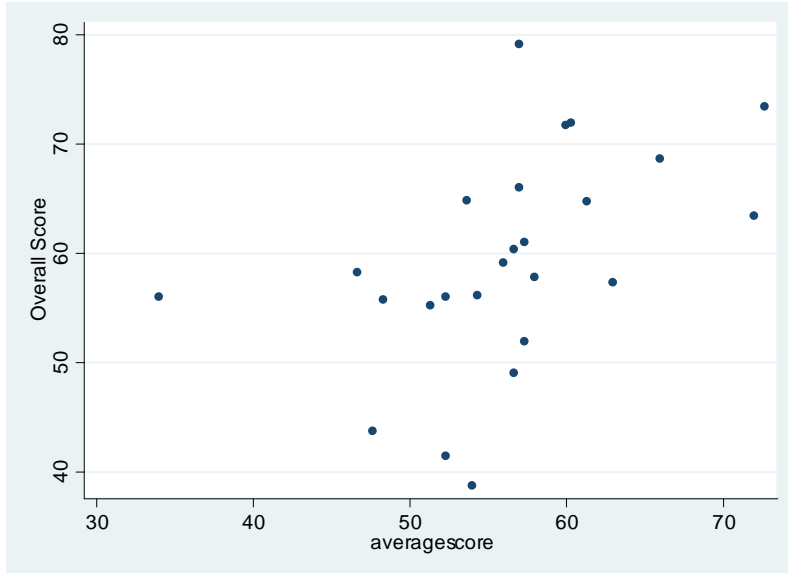
Table 4.33 Pearson's correlation test between the overall score of BComm 1 for the cohort of 2011 and matric results.

	averag~eoverall~e
averagescore	1.0000
	25
overallscore	0.4753*
	0.0163
	25

A Pearson's correlation was run to assess the relationship between the overall score of first year BComm Accounting and their average matric score for the 2011 cohort at CTI (Durban) using a sample of 25 participants. The results in the above Table 4.33 suggests a positive correlation

between both variables at  $\alpha = 0.05$  and above. This was statistically significant with  $r = 0.4753$  and  $p = 0.0163$ .

Figure 4.8: Scatter plot between Overall Score and matric score for the cohort 2011



The above graph is a confirmation that performance of students at high school determines their success or failure at tertiary level. This is in line with the results from the 2009 and 2010 cohorts.

Table 4.34 Sequential OLS regression including quantitative and qualitative variables for 2011

Source	SS	df	MS			
Model	665.189	2	332.5945	Number of obs =	25	
Residual	1667.8508	22	75.8114	F( 2, 22) =	4.39	
Total	2333.0398	24	97.2099916	Prob> F =	0.0249	
				R-squared =	0.2851	
				Adj R-squared =	0.2201	
				Root MSE =	8.707	

overallscore	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
distance	7.625554	5.650304	1.35	0.191	-4.09246	19.34357
averagescore	.6907293	.2358495	2.93	0.008	.2016075	1.179851
_cons	19.47832	13.60638	1.43	0.166	-8.739588	47.69622



Table 4.34 suggests that the percentage of student success that can be explained by the average matric as well as the distance travelled to and from school is only 22%. The large value for the standard error of estimate, in the context of employing regression analysis based on census data, is an indication of population variability in predicting the student success with the two variables. The individual contribution of each of the predictors was assessed and the outcomes reflected in the table suggest that both variables, consistent with the results produced by the previous regressions, are directly (although less impressively than the other cohorts) associated with student academic success. These results confirm that, in the cases of the 2009-2011 cohorts of CTI (Durban) students, average matric score and distance travelled to the campus are consistently, directly associated with academic success. The census regression technique employed in this study was strictly on a descriptive (and not inferential) basis given that it sought to describe census parameters. Accordingly, the claims made by the researcher as to the validity of the results produced is limited to the 2009 to 2011 cohorts of CTI (Durban) students.

#### **4.4 Student retention and throughput**

In the 2009 dataset, there were 8 (50%) students who failed to return in 2010 to carry on with their studies, 2 (12.5%) discontinued their studies and 6 (37.5%) did return. Among those who returned, 3 (50%) only completed part of their modules in order to complete their degree within 4 years and the other 3 (50%) did complete all their modules. They completed their BComm Accounting degree within three years and graduated in 2012. Given that there is no further information provided about the non-returning students, nothing further can be discussed about them.

In the 2010 dataset, there were 3 (23%) students who failed to return in 2011 to carry on with their studies, 2 (15.38%) discontinued their studies and 8 (61.5%) did return. Among those who returned, 6 (75%) only completed part of their modules in order to complete their degree within 4 years for some and 5 years for others, and the other 2 (25%) did complete all their modules. They completed their BComm Accounting degree within three years and graduated in 2013. Again, given that there is no further information provided about the non-returning students, nothing further can be discussed about them.

In the 2011 dataset, there were 6 (24%) students who did not return in 2012 to continue with their studies, no students discontinued their studies in 2011 and 19 (76%) did return. Among those who returned, 7 (36.84%) only completed part of their modules and will probably complete their degree within 4 or 5 years and the other 12 (63%) did complete all their modules. Four students from this 2011 cohort have completed their BComm Accounting degree and graduated on May 02/2014. The rest will probably complete their BComm Accounting degree together with the 2012 cohort and graduate in the following year. Nothing can be discussed about the non-returning students in this study because there is no further information provided about them.

#### **4.5 Conclusion**

From the different tests run to verify the correlation between each predictor and academic success, the following can be concluded:

Being male or female was not associated with academic success of BComm Accounting students at CTI (Durban) from 2009 to 2011.

Ethnicity of students had no significant impact on their academic success for the three cohorts in consideration.

Living close to campus is associated with a positive impact on student academic success for the cohorts of 2009 and 2010, thus confirming the null hypothesis. However, in 2011 the results suggested that there was no correlation between the distance and academic success due to the fact that unlike in the previous cohorts, majority of students in 2011 lived far from campus, making it challenging to determine the impact of the distance on academic success.

The age of students did not have significant impact on the academic success of BComm Accounting students at CTI (Durban) from 2009 to 2011.

Parent level of education was shown to have no significant impact on student academic success of BComm Accounting students at CTI (Durban) from 2009 to 2011. These results are in contradiction with Nel et al's. (2009) findings

There was significant correlation between the average matric score of BComm Accounting students at CTI (Durban) from 2009 to 2011 at enrolment and their overall results at the end of their first academic year at this campus.

In terms of students throughput for the three cohorts, 3 of 2009 cohort have completed their degree and graduated in 2012; 2 of 2010 cohort have completed their degree and graduated in 2013 and 4 graduates came out of the 2011 cohort in 2014.

## **CHAPTER 5: DISCUSSION, LIMITATIONS AND CONCLUSION**

This chapter is the concluding chapter and summarises the outcomes of this study. It outlines the limitations of the current research project and makes recommendations for future research studies. It achieves this by revisiting each of the three research questions, presenting a summary of the key findings of the research and linking the outcomes of this study to findings from similar studies. Recommendations for future research studies have also been highlighted where applicable and the major limitations of this research study have been provided for the benefit of future studies. The chapter ends with concluding thoughts on the research study.

### **5.1. Discussion: Major Findings of the Study**

The overall research objective of the study was to use the CTI institutional data as well as the focus group discussions data for first year BComm Accounting students enrolled in 2009, 2010 and 2011 to investigate whether or not high school results, age, gender, ethnicity, distance and first generational status can influence student academic success and how this knowledge might be appropriately used by CTI in particular and higher education institutions in South Africa at an institutional and individual level to promote student success, in general.

This multi-disciplinary research study is at the intersection between higher education and BComm Accounting and, as such, offers some understanding of student success in South African private tertiary educational institutions. In the first instance, the study is one of only a few conducted in private higher education in South Africa. In the second instance, no studies using the BComm Accounting have been administered in SA in the private sector prior to the current research study, and thus the findings of this research offer a fresh perspective to stakeholders in the fields of both higher education and BComm Accounting in particular as the discussion in this chapter will illustrate.

The study was conducted over a three year period (2009-2011) at one of the leading private tertiary institutions in South Africa (CTI Education Group/Durban) amongst first-time entering degree-seeking undergraduate students. The samples on which the study was based were effectively censuses and so were very closely representative of the populations of first year

students in 2009-2011. The three research questions which guided this research serve as the framework for the discussion of the key findings provided below.

### **5.1.1. Research question one.**

The first research question for this research was stated as follows: What are the key indicators of academic success in the BComm Accounting degree programme for students enrolled at CTI Education group/Durban from 2009 to 2011? The predictive ability of the quantitative variables was examined using Pearson's bivariate correlation tests as well as a Scatter plot to verify correlation between matric score and academic success. In addition, the predictive ability of the qualitative variables were dummied and examined by means of Spearman's Rho bivariate correlation tests (with percentage of overall score passed in the first year as the outcome variable) in the three samples from 2009 to 2011. By analysing this question, the current research makes a unique contribution to the comprehension of factors influencing academic success in that no other studies in South Africa have directly investigated the relationship between matric score, age and other qualitative variables considered in this study and BComm Accounting student academic success. The outcomes of these analyses highlighted the conceptual and methodological complexities related to predicting success and are discussed below.

#### **5.1.1.1 The correlation between respondents' characteristics (qualitative) and academic success**

In all three samples, the first step of the model (Gender, ethnicity and first generational of students) did not explain a significant volume of the percent of student academic success at the end of the first-year for the three cohorts. However, from 2009 to 2011, the results suggested a significant difference between students who lived close to campus and those who travelled a long distance to campus.

### **1. Gender**

In the 2009 sample the gender variable did not have a significant impact on student academic success with  $\rho = 0.1609$  and  $p = 0.5517$ , this was consistent in 2010 and 2011 with  $\rho = -0.0423$  and  $p = 0.8910$  and  $0.1784$  and  $p = 0.3935$  respectively. These results were contradictory to Mentz's (2012) findings, which suggested that female students are more likely to outperform their male counterparts at school.

### **2. Ethnicity**

In the 2009 sample the ethnicity variable did not have a significant impact on student academic success with Spearman's  $\rho = 0.4100$  and  $p = 0.1148$ , this was consistent in 2010 and 2011 with Spearman's  $\rho = -0.3299$ ,  $p = 0.2710$  and  $\rho = 0.0000$  and its calculated p-value = 1.0000 respectively. These results are also contradictory to Harb and El-Saharawi's (2006) findings, which suggested that white students are more likely to outperform other races at University.

### **3. First generational status**

Parents' educational level did not have a significant impact on student academic success with  $r = -0.0085$  and  $p = 0.9750$ , this was consistent in 2010 and 2011 with  $r = 0.0932$ ,  $p = 0.7620$  and  $r = 0.2309$ ,  $p = 0.2669$  respectively. These results are incompatible with Kyoshaba's (2009) findings, which suggested that the socio-economic situation of parents had a significant impact on students' performance at University.

### **4. Distance**

In the 2011 sample the distance variable did not have a significant impact on student academic success with  $r = 0.08$  and  $p = 0.7038$ . This result was inconsistent with the finding that this relationship was significant in respect of the 2009 and 2010 cohorts. In general, though, it appears that staying close to campus is an advantage in terms of academic performance.

### **5.1.1.2 The correlation between respondents' characteristics (quantitative) and academic success**

#### **1. Age**

In all three samples the age variable did not explain a significant amount of the percentage of student academic success at the end of the first-year. In 2009, the Pearson's  $r$  value of 0.1207 and its calculated  $p$  value of 0.6561 suggest that there was no significant correlation between age of students and their academic performance. These results were consistent in 2010 with  $r = -0.4673$  and  $p = 0.1074$  as well as in 2011 where  $r = -0.2532$  and  $p = 0.2219$  suggesting that there was no significant correlation between the age of students and their academic success at all levels.

#### **2. Average matric score**

In all three samples average matric score proved to be a significant indicator of student academic success at the end of the first-year. In 2009, a score of 0.7842 and  $p = 0.0003$  suggests that there was a significant, strong positive correlation between average matric score of students and their academic performance. This result was consistent with that for the 2010 cohort ( $r = 0.6923$  and  $p = 0.0087$ ) and also with that for the 2011 cohort ( $r = 0.4753$  and  $p = 0.0163$ ) suggesting a moderate positive correlation between average matric score and academic success at tertiary level at 5% and above levels of significance. To verify these results, a Pearson's correlation test as well as a scatter plot graph, were run and the results are discussed below.

### **5.1.1.3 Pearson's correlation test and scatter plot graph**

In all the three samples it was confirmed that average matric score had a significant impact on students' academic success through Pearson's correlation tests and scatter plot graphs.

In 2009, a Pearson's correlation coefficient  $r = 0.7842$  and  $p = 0.0003$  revealed a strong positive correlation between the two variables. In 2010, a Pearson's correlation coefficient  $r = 0.6923$  and  $p = 0.0087$  showed a strong positive correlation between the two variables for this cohort. In 2011, a Pearson's correlation coefficient  $r = 0.4753$  and  $p = 0.0163$  suggested a moderate positive correlation between the two variables for this cohort at levels above 1%.

Furthermore, a scatter plot graph was run for the three cohorts and all have confirmed the correlation between average matric results and first year academic results. This is in line with the findings of Van den Berg and Hofman (2005) which suggested that high school overall results have direct effects on students' approaches to learning as well as their academic performance and progression.

#### **5.1.1.4 Sequential OLS regression including key indicators of student academic success**

Considering that the current study included the entire population in the sample, OLS regression was employed in a purely descriptive analytical capacity to further strengthen the investigation. The individual contribution of each of the key predictors was assessed and the outcomes reflected in the respective regression tables suggest that the average matric score and the distance travelled to and from school consistently explain a significant proportion of student academic success. It can therefore be concluded that matric average score and distance from campus are important predictors of student academic success at CTI (Durban) from 2009 to 2011. It was noted that the claims made by the researcher as to the validity of the results produced is limited to the 2009 to 2011 cohorts of CTI (Durban) students.

#### **5.1.2 Research Question Two**

The second question for this research was stated as follows:

Can matric scores be considered as key indicators of student academic success in the BComm Accounting degree programme for students enrolled at CTI Education Group/Durban from 2009 to 2011?

Considering their respective results, the analyses of the three cohorts suggest that matric score has a very significant impact on the CTI student success. Matric score was consistently indicated as significantly and directly correlated with student academic success at a tertiary level. Therefore, it can be concluded that matric score can be considered a key indicator of student academic success in the BComm Accounting degree programme for students enrolled at CTI Education Group/Durban from 2009 to 2011.



### **5.1.3 Research Question Three**

Should CTI Education group continue to recruit students in BComm Accounting based on current admission requirements?

As mentioned above (see point 2.4.1.3), entry into degree studies is conditional on candidates being in possession of a South African National Senior Certificate (NSC) for degree purposes or an MGI approved equivalent, as well as the necessary points requirements according to the MGI point system. In addition students are required to pass two languages, one of which must be on the home language level and the other on the first additional language level (currently referred to as second language level). Faculties such as BComm (Accounting) and others require mathematics proficiency with a minimum of 50%, but Accounting is not among the basic requirements.

Given the outcomes of the analyses for the three cohorts, CTI should continue to recruit students in BComm Accounting based on current admission requirements with possibly the inclusion of basic Accounting Skills with a minimum of 50% in order to enhance the probability of academic success.

## **5.2 Limitations and Recommendations**

This section examines the primary limitations of the current study. The following points are discussed below: Data collection method, sample related limitations, single institution studies and selected quantitative and qualitative indicators.

### **5.2.1 Data collection method**

The limitations of collecting data through institutional as well as focus group discussion means for the three cohorts have been extensively discussed throughout this study. In light of these it is recommended that additional studies be administered to more extensively examine the reliability and validity of student responses captured in the CTI database, particularly in the context of the large number of students studying in their second language. Numerous research studies have been conducted on how survey participants respond to questions in an attempt to enhance the

accuracy of self-reported behavioural frequency (Mentz 2012) and some practical suggestions have emerged. These include devices such as time-use diaries and open ended questions which have been shown to yield more reliable data than coded response categories (Bradburn et al. 1987, cited in Mentz 2012: 123). Carefully designed experimental studies can be conducted to investigate the degree to which open response formats, time-use diaries and coding categories differ from responses obtained by the current research variable formulations. Results from studies such as this could then be used to argue for or against the need to adjust the current response categories in the survey.

Additionally, in light of the fact that focus group discussions have been administered with a very small number of students, as part of an extensive validity study related to the student academic success at CTI Education Group, it is recommended these are conducted among diverse faculties and groups of students to investigate at an in-depth level how diverse students are participating in the survey. Well-structured focus groups with adequate representation from various subgroups of interest (gender, race, first-generation and commuter students) may prove particularly useful in examining the existence of any systematic biases in terms of how various groups of students respond to different variables on the survey, and whether revisions should be made to the current survey in order to enhance its relevance.

### **5.2.2 Sample related limitations**

Well-planned and representative samples are a vital factor in ensuring valid research outcomes. The small number of students that could be captured in the 2009 data for the purposes of predicting student success highlights the importance of usefully designed sampling strategies in longitudinal studies.

Researchers involved with future studies of predicting student success at CTI Education Group should explore ways in which they can be more purposive in sampling the students who will participate in the study in order to maximise the representativeness of the entire population of students enrolled at this tertiary institution. One way of overcoming the problem of low representativeness is to ensure the inclusion of all 13 campuses entering students in the sample as

part of a systematic institutional assessment endorsed by institutional management structures. This will ensure adequate sample sizes when data is matched at a later point in time, and it will also permit for a more comprehensive and accurate understanding of an entering cohort on an annual basis.

A second limitation related to the sample, is that the relatively small number of students from Coloured and White ethnic groups who participated did not allow these groups to be adequately represented in the statistical analysis. Further studies should consider a more useful approach to over-sampling these groups to be able to include their responses in the statistical analyses to be conducted.

Thirdly, it is impossible to adequately investigate the “reliability” and “expectations” items of first-generational students in this research given the large amount of missing data on the items used to classify students as first-generation/not first-generation (some participants were not comfortable to reveal their first generational status). Due to the large number of first-generation students who are currently enrolled in South African tertiary establishments and the previous studies highlighting that this group of students represent an at-risk category which needs additional support, it would be significant for South African tertiary establishments to enhance their comprehension of this subpopulation of students. One of the ways to do so is to find more reliable means of identifying them.

Lastly, this study has mostly focussed exclusively on the experiences of degree seeking, first-time enrolling undergraduate students and has also emphasised the variables known to be correlated to academic success for traditional students. Nevertheless, as noted in the literature, it can no longer be assumed that students in tertiary education today fit into this category. Thus, there is a growing need for studies which focus on understanding student academic success to include multiple perspectives that incorporate the perspectives of mature age, distance and part-time students, especially given the fact that at least 60% of students in South Africa are enrolled in distance education and face even greater challenges than their campus based peers with respect to academic performance and degree completion (Mentz 2012).

### **5.2.3 Single institution studies**

The extent to which these findings can be generalised to the whole population of students - entering tertiary institutions for the first time in all South African tertiary institutions is limited, given the fact that the study was administered at a single institution. Research projects of a similar nature are essential at other South African institutions to establish to what extent similar and/or divergent patterns in student academic success emerge. After similar studies have been administered on multiple sites it will lead to better identification of which patterns of student success which transcend contextual influence and which are unique within single tertiary institutions.

### **5.2.4 Quantitative indicators and analysis methods**

The limitations linked to the quantitative indicators of student academic success employed for the data analysis have been highlighted both in the literature review and the discussion of the findings. It is further briefly highlighted in the following discussion.

Among the major limitations of the selected conceptualisation of student academic success is that only traditional quantitative measures of academic success were employed. While both retention and passing credits are important to the individual and the institution, the responsibility of tertiary education extends beyond these two quantitative results and includes the development of the individual on multiple levels. Hence, it is recommended that future studies take a broader approach to evaluating student academic success and considers including outcomes such as the SAQA critical cross-field outcomes, as indicators of student learning that can be measured at the end of the first year. This will help researchers to examine the influence of these explanatory variables on the achievement of a wider range of tertiary education goals.

Regarding the correlation analyses, the representation selected for academic success (overall first year's assessments passed) is limited in numerous ways. Firstly, only looking at the percentage of overall modules a particular student has passed as opposed to aggregate achievement, may lead to the perception that passing modules is of greater necessity than aggregate academic excellence. While passing modules is an important condition for degree achievement, it is not

sufficient proof that high quality learning and academic excellence has been attained. Additionally, using the percentage of overall modules passed as the proxy for academic success assumes that all modules are credited equally, and does not account for the unique challenges of the different modules students are passing to obtain the credits, or the variable workloads linked to modules in different faculties and programmes.

In light of the above discussion and the results of the tests, it is clear that there is a need to assess alternative measures of academic success in order to more comprehensively and accurately understand the correlation between explanatory variables and student academic success.

The low correlation between student academic success and the qualitative explanatory variables in all three samples indicates that alternative conceptualisations of student academic success should be considered in future studies exploring the relationship between student academic success and the explanatory variables in the private education sector.

### **5.3 Conclusion**

As suggested by HESA (2010), improving student academic success in the South African tertiary education sector is imperative to the success of individuals, tertiary institutions and the broader society. As the tertiary education sector in South Africa continues to grow in number and diversity (DHET, 2011) institutions are increasingly coming under pressure to take responsibility for creating the conditions conducive to student academic success. According to Altbach et al. (2009) and HESA (2010), the paradigm shift from an exclusive focus on access, to a focus on access with success has emerged both nationally and internationally (but to date has remained an elusive ideal (Scott et al. 2007). Particularly, the first year of study has been identified as a high risk transition period, and in SA most students drop out during this year (Scott, 2009b). In order to curb this trend and contribute to the comprehension of undergraduate student success it is necessary to systematically research and understand the pathways to academic success in the first year, especially in the South African context where comparatively little literature exists on student academic success (OECD, 2008b).

The multifaceted nature of the student success problem has thus required researchers to shift from a focus on single factors to a wider, more encompassing approach to researching success. Also, according to Reason (2009a), it is necessary for researchers to identify those factors that are within the institutions sphere of influence in order to move towards improved student success outcomes.

This study explored three research questions, which have been discussed at some length in this chapter. Based on these outcomes it is concluded that the study is a meaningful and useful instrument for understanding student academic success in the first year of study in the context of CTI Education Group. Out of six explanatory variables in consideration for this study, only the average matric score and distance variables have consistently proved to be key indicators of academic success for the three cohorts. The rest of the explanatory variables consistently failed to significantly predict academic success. Continued longitudinal research, both quantitative and qualitative, should be conducted in order to build on this and previous studies in order to enhance our current understanding of student success in South Africa at a tertiary education level thereby improving the responsiveness of tertiary institutions to tertiary education in South Africa.

## REFERENCES

- ACT. 2006. *Reading between the lines: What the (American College Testing) ACT reading test reveals about college readiness*. Iowa City: ACT Educational Services. Available: [www.act.org](http://www.act.org) (Accessed 23 October 2012).
- ACT. 2007. *The role of non-academic factors in college readiness and success*. Iowa: ACT Educational Services. Available: [www.act.org](http://www.act.org) (Accessed 23 October 2012).
- ACT. 2010. *National collegiate retention and persistence to degree rates*. Iowa: ACT Educational Services. Available: [www.act.org](http://www.act.org) (Accessed 23 October 2012).
- Altbach, P., Reisberg, L., and Rumbley, L. 2009. *Trends in global higher education: Tracking an academic revolution*. Report prepared for the UNESCO 2009 World Conference on Higher Education. Available: <http://unesdoc.unesco.org/images/0018/001831/183168e.pdf> (Accessed 23 March 2013).
- Amin, M. E. 2005. *Social Science research: conception, methodology and analysis*. Kampala: Makerere University Press.
- Baker, R. W., and McNeil, O. V., Siryk. 1985. Expectation and reality in freshman adjustment to college. *Journal of Counselling Psychology*, 32(1), 94-103. doi: 0022-0167/85/800.75
- Bean, J. P. 1985. Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal*, 22(1), 35-64.
- Bean, J. P., and Metzner, B. S. 1985. A conceptual model of non-traditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485-540. Available: <http://www.jstor.org/stable/1170245> (Accessed 03 June 2013).

Bitzer, E., and Troskie-De Bruin, C. 2004. The effect of factors related to prior schooling on student persistence in higher education. *South African Journal of Education*, 24(2), 119-125. ISSN1011-3487.

Bitzer, E. 2009. Academic and social integration in three first-year groups: A holistic perspective. *South African Journal of Higher Education*, 23(2), 225-245. ISSN 1011-3487.

Bloch, G. 2009. *The toxic mix: What is wrong with South Africa's schools and how to fix it*. South Africa: Tafelberg Publishers Ltd.

Bowen, W., Chingos, M., and McPherson, M. 2009. *Crossing the finish line: Completing college at America's public universities*. Princeton, NJ: Princeton University Press.

Braxton, J. M., Hirschy, A. S., and McClendon, S. A. 2004. *Understanding and reducing college student departure*. (ASHE-ERIC Higher Education Report, Volume 30, Issue 3). San Francisco: Jossey-Bass.

Breier, M., and Mabizela, M. 2007. Higher education. In A. Kraak and K. Press (Eds.), *Human resources development review 2008: Education, employment and skills in South Africa* (pp. 278-299). South Africa: HSRC Press.

Brown, S. 2011. *Measures of shape: Skewness and kurtosis*. Available: <http://www.tc3.edu/instruct/sbrown/stat/shape.htm#SkewnessInterpret> (Accessed 29 May 2013).

Bundy, C. 2006. Global patterns, local options? Changes in higher education internationally and some implications for South Africa. In Council on Higher Education (Ed.), *Kagisano: Ten Years of Higher Education under Democracy* (Issue 4, pp.1-20). Pretoria: Council on Higher Education. Available: <http://www.che.ac.za/documents/d000128/> (Accessed 16 October 2012).

Carey, K. 2004. *A matter of degrees: Improving graduation rates in four-year colleges and universities*. Washington, DC: Education Trust.



Carnoy, M., and Chisholm, L. 2008. *Towards understanding student academic performance in South Africa: A pilot study of grade 6 mathematics lessons in Gauteng Province*. HSRC with Stanford University, in partnership with a consortium of South African Universities and Jet Education Services

Center for Educational Performance and Information (CEPI).2012: *Understanding Michigan's Cohort Graduation and Dropout Rates*. Available: [www.michigan.gov/mde](http://www.michigan.gov/mde) (Accessed 30 July 2013).

Choy, S. P. 2002. *Access and persistence: Findings from 10 years of longitudinal research on students*. Washington, DC: American Council on Education. Available: [http://www.acenet.edu/bookstore/pdf/2002\\_access\\_and\\_persistence.pdf](http://www.acenet.edu/bookstore/pdf/2002_access_and_persistence.pdf) (Accessed 23 May 2013).

Cloete, N. (Ed.). 2009. *Responding to the educational needs of post-school youth: Determining the scope of the problem and developing a capacity-building model*. Cape Town, South Africa: Centre for Higher Education and Transformation.

Cooper, D.R. CEPI Schindler, P.S. 2006.*Business Research Methods*. 9th ed. Boston: McGraw Hill.

Council on Higher Education (CHE). 2004. *South African higher education in the first decade of democracy*. Pretoria, South Africa: Council on Higher Education.

Council on Higher Education (CHE). 2009. *The state of higher education in South Africa* (Higher Education Monitor No. 8). Pretoria, South Africa: Council on Higher Education.

Council on Higher Education (CHE). 2010. *Access and throughput in South African higher education: Three case studies* (Higher Education Monitor No. 9). Pretoria, South Africa: Council on Higher Education.

Crocker, L., and Algina, J. 2008. *Introduction to classical and modern test theory*. Ohio: Cengage Learning.

Cronbach, L.J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*.

Cronbach, L. J., and Shavelson, R. J. 2004. Current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement*, 64(3), 391-418.

CTI's Prospectus. 2013

De Jager, K. 2002. Successful students; Does the library make a difference in the Performance measurements and merits? *Journal of Educational Administration*. 3,140-144.

Department of Education (RSA). 1997, 15 August. Education White Paper 3: A programme for the transformation of higher education. *Government Gazette* (No.18207). Pretoria: Government Printers.

Department of Education (RSA).2001, February. *National plan for higher education*. Pretoria: Government Printers.

Department of Education (RSA).2007, 5 October. Higher education qualifications framework. *Government Gazette* (No. 30353). Pretoria: Government Printers

Department of Higher Education and Training (DHET). 2011. *Revised Strategic plan 2010-2015*.SouthAfrica: Department of Higher Education and Training (DHET).

DeVellis, R.F. 2003. *Scale Development* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage Publications.

Dyson, R., and Renk, K. 2006. Freshmen adaptation to university life: Depressive symptoms, stress and coping. *Journal of Clinical Psychology*, 62(10), 1231-1244. doi: 10.1002/jclp.20295

Eiselen, R., and 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. Available: [www.sajhe.org](http://www.sajhe.org) (Accessed 27 October 2012).

Fisher, S., and Hood, B. 1987. The stress of the transition to university: A longitudinal study of psychological disturbance, absent-mindedness and vulnerability to homesickness. *British Journal of Psychology*, 78, 425-441. Available:

<http://www.csufresno.edu/studentactivities/documents/homesickness.pdf> (Accessed 24 May 2013).

Foxcroft, C., and Roodt, G. 2006. *An introduction to psychological assessment in the South African context* (2nd ed.). Cape Town: Oxford University Press Southern Africa.

Foxcroft, C., and Stumpf, R. 2005, June. *Matric: What is to be done?* Paper presented at the “What is Matric for?” Umalusi and CHET seminar, Pretoria. Available:

<http://www.umalusi.org.za/ur/research/foxcroftstumpf.pdf> (Accessed 20 November 2012).

George, D., Dixon, S., Stansal, E., Gelb, S.L., and Pheri, T. 2008. Time diary and questionnaire assessment of factors associated with academic and personal success among university undergraduates. *Journal of American College Health*, 56(6), 706-715.

doi:10.3200/JACH.56.6.706-715.

Giddan, N.S. 1998. *Community and social support for college students*. Springfield, IL: Charles C. Thomas.

Golding, P. and Donaldson, O. 2006. *Predicting Academic Performance*, University of Technology, Jamaica, San Diego, CA

Greene, J., and winters, M. 2005, February. *Public high school graduation and college readiness rates:1991-2002* (No. Education working paper No. 8). Manhattan: Manhattan Institute for Policy Research.

Harb, N. & El-Shaarawi, A., 2006. *Factors Affecting Students' Performance*, United Arab Emirates University. Munich Personal RePEc Archive. Available: [http://mpra.ub.uni-muenchen.de/13621/MPRA Paper No. 13621](http://mpra.ub.uni-muenchen.de/13621/MPRA_Paper_No._13621) (Accessed 05 June 2013).

Hearn, J. C. 2006, November. *Student success: What research suggests for policy and practice*. Report prepared under contract for the National Symposium on Student Success, National Postsecondary Education Collaborative, US Department of Education. Washington, DC.

Higher Education South Africa (HESA). 2010. *Pathways to a diverse and effective South African higher education system*. Pretoria, South Africa: HESA. Available: [http://www.sauvca.org.za/hesa/components/com\\_booklibrary/ebooks/9016-HESAPATHWAYS-BOOKLET\\_WEB.PDF](http://www.sauvca.org.za/hesa/components/com_booklibrary/ebooks/9016-HESAPATHWAYS-BOOKLET_WEB.PDF) (Accessed 21 October 2012).

Hofstein, A. and Lunetta, V. N. 2004. The laboratory in science education; foundations for the 21<sup>st</sup> century. *Scientific reports Journal* 45.(4).23-34. Department of science technology, Institute of Science Education, Israel.

Howie, S. 1999. *Third international mathematics and science study (TIMSS) repeat*. South Africa: Human Sciences Research Council. Available: <http://webcache.googleusercontent.com/search?q=cache:http://www.hsrc.ac.za/Document-540.phtml> (Accessed 23 November 2012).

Hunt, K., Rankin, N., Schoer, V., Nthuli, M., and Sebastiao, C. 2009. *The ability of NSC maths to signal competence in university commerce courses as compared to the former SC Higher Grade math*. Available: [http://mpra.ub.unimuenchen.de/18075/1/MPRA\\_paper\\_18075.pdf](http://mpra.ub.unimuenchen.de/18075/1/MPRA_paper_18075.pdf) (Accessed 03 October 2012).

Huyshamen, G. K. 2003. Die verband tussen matriekprestasie en eerstejaarprestasie vir opeenvolgende innames aan dieselfde universiteit. *South African Journal of Higher Education*, 15(3), 142-149. Available: [www.sajhe.org](http://www.sajhe.org) (Accessed 15 October 2012).

Jansen, J. D., Herman, C., Matentjie, R. M., Pillay, V., Schoole, C., and Weber, E. 2007. Tracing and explaining change in higher education: The South African case. In Council on Higher Education (Ed.), *Review of Higher Education in South Africa: Selected Themes* (pp. 157-195). Pretoria: Council on Higher Education.

Johnson, N., Earnest, K., Huntley, H., Hensen, K., Reason, R., Saunders, K., and Schuh, J. 2004. Addressing persistence and retention issues of historically under-represented students [Special issue]. *Journal of College Student Retention: Research, Theory and Practice: Special Edition*, 6(1), 1-2. Available: <http://baywood.metapress.com/media/cmw75594tj4ruwb18eeq/contributions/u/3/m/r/u3mrmmp8d6llxr4t.pdf> (Accessed 26 January 2013).

Jones-White, D., Radcliffe, P., Huesman, R., and Kellogg, J. 2010. Redefining student success: Applying different multinomial regression techniques for the study of student graduation across institutions of higher education. *Research in Higher Education*, 51, 154-174.  
doi:10.1007/s11162-009-9149-4

Kennedy, G., Krause, K., Judd, T., Churchward, A., and Gray, K. 2006. First year students' experiences with technology: Are they really digital natives? Melbourne, Australia: University of Melbourne. Available: [http://www.bmu.unimelb.edu.au/research/munatives/natives\\_report2006.rtf](http://www.bmu.unimelb.edu.au/research/munatives/natives_report2006.rtf) (Accessed 20 May 2013).

Knapp, L., Kelly-Reid, J., and Ginder, S. 2011. *Enrolment in postsecondary institutions, fall 2009; Graduation rates, 2003 and 2006 cohorts; and financial statistics, Fiscal Year 2009* (No. NCES2011-320). Washington DC: Department of Education. Available: <http://nces.ed.gov/pubs2011/2011230.pdf> (Accessed 26 January 2013).

Koen, C. 2007. *Postgraduate student retention and success: A South African case study*. Cape Town: HSRC Press.

- Krause, K., Hartley, R., James, R., and McInnis, C. 2005. *The first-year experience in Australian Universities: Findings from a decade of national studies*. Melbourne, Australia: Centre for the Study of Higher Education, University of Melbourne. Available: [http://www.griffith.edu.au/\\_data/assets/pdf\\_file/0006/37491/FYEReport05.pdf](http://www.griffith.edu.au/_data/assets/pdf_file/0006/37491/FYEReport05.pdf) (Accessed 27 March 2013).
- Kuh, G. D. 2006. Making students matter. In J.C. Burke (Ed.), *Fixing the fragmented university: Decentralization with direction*. (pp. 235-264). Bolton, MA: Jossey-Bass.
- Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., and Hayek, J. C. 2007a. *Piecing together the student success Puzzle research, propositions and recommendations* (ASHE Higher Education Report Series No. 32-5). San Francisco: Jossey-Bass.
- Kumar, R. 1999. *Research Methodology: A step-by-step guide for beginners*. London: Sage.
- Kyoshaba, M. 2009. *Factors affecting Academic Performance of Undergraduate Students at Uganda Christian University*. Makerere University, Uganda.
- Lee, D., Olson, E. A., Locke, B., Michelson, S. T., and Odes, E. 2009, May-June. The effects of college counselling services on academic performance and retention. *Journal of College Student Development*, 50, (3) 305-319. ISSN: 1543-3382.
- Leibowitz, B., Van der Merwe, A., and Van Schalkwyk, S. (Eds.). 2009. *Focus on First-year Success: Perspectives emerging from South Africa and beyond*. Stellenbosch, Western Cape, South Africa: African Sun Media
- Leppel, K. 2002. Similarities and differences in the college persistence of men and women. *The Review of Higher Education*, 25, 433-450. doi 10.1353/rhe.2002.0021.

Letseka, M., and Breier, M. 2008. Student poverty in higher education: The impact of higher education dropout on poverty. In S. Maile (Ed.), *Education and poverty reduction strategies: Issues of policy coherence* (pp.83-101).Cape Town: HSRC Press. Available:

[http://www.hsrc.ac.za/Research\\_Publication-20834.phtml](http://www.hsrc.ac.za/Research_Publication-20834.phtml) (Accessed 26 January 2013).

Letseka, M., Cosser, M. Breier, M., and Visser, M. 2010.*Student retention and graduate destination: Higher education and labour market access and success*. HSRC Press: Cape Town.

Letseka, M., and Maile, S. 2008, March. *High university drop-out rates, a threat to South Africa's future: HSRC Policy Brief*. Available: <http://www.hsrc.ac.za/Document-2717.phtml> (Accessed 26 January 2013).

Lourens, A., and Smit, I. 2003. Retention: Predicting first-year success. *South African Journal of Higher Education*, 17(2), 169-176. Available: [www.sajhe.org](http://www.sajhe.org) (Accessed 29 January 2013).

Lowe, H., and Cook, A. 2003. Mind the gap: Are students prepared for higher education. *Journal of Further and Higher Education*, 27(1), 53-76. doi: 10.1080/0309877022000031044

Macfarlane, D. 2013, August 20.*Damning CHE report into University performance*. Mail and Guardian. Available: <http://mg.co.za/author/david-macfarlane> (Accessed 06 November 2012).

MacGregor, K. 2007, October 28. Student drop-out rates alarming. *University World News*. Available: <http://www.universityworldnews.com/article.php?story=20071025102245380> (Accessed 03 February 2013).

MacGregor, K. 2009a, March 15. Debate moves from access to success. *University World News*. Available: <http://www.universityworldnews.com/article.php?story=20090313111607177> (Accessed 03 February 2013).

MacGregor, K. 2010, February 17. Universities face more underprepared students. *University World News*. Available:

<http://www.universityworldnews.com/article.php?story=20100114190733824> (Accessed 03 February 2013).

McGlynn, A. P. 2007. Millennials in college: How do we motivate them? *The Hispanic Outlook in Higher Education*, 17(25), 34-36. Available: [http://findarticles.com/p/articles/mi\\_hb3184/is\\_200709/ai\\_n32189634/](http://findarticles.com/p/articles/mi_hb3184/is_200709/ai_n32189634/) (Accessed 29 October 2012).

McInnis, C., James, R., and Hartley, R. 2000. *Trends in the first year experience: In Australian universities*. Canberra, Australia: DETYA Higher Education Division. Available: [http://www.dest.gov.au/archive/highered/eippubs/eip00\\_6/fye.pdf](http://www.dest.gov.au/archive/highered/eippubs/eip00_6/fye.pdf) (Accessed 30 January 2013).

Mortimore, P. 2002. High performing schools and school improvement. *Journal of Educational Administration* 53, (6).47-49.

Mentz, M. 2012. *Measuring and Using Pre-University Levels of Student Engagement at a South African University*. University of the Free State, Bloemfontein

Mora, M. 2010. *A Survey Expert Google search*

Mulis, I., Martin, M., Gonzalez, E., and Chrostowski, S. 2004. *Findings From IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades*. Chestnut Hill, MA: TIMSS and PIRLS International Study Center, Boston College. Available: [http://timss.bc.edu/timss2003i/intl\\_reports.html](http://timss.bc.edu/timss2003i/intl_reports.html) (Accessed 03 February 2013).

Murtaugh, P. A., Burns, L. D., and Schuster, J. 1999. Predicting the retention of university students. *Research in Higher Education*, 40, 355–371. doi: 0361-0365/99/0600- 0355\$16.00/0

National Commission on Higher Education.1996.*Report: A Framework for Transformation*. Pretoria: Human Sciences Research Council Publications.



National Research Foundation (NRF). 2007. *The South African PhD Project*. Available: [http://hicd.nrf.ac.za/SAPhd/saphd\\_overview.html](http://hicd.nrf.ac.za/SAPhd/saphd_overview.html). (Accessed 19 June 2013).

National Student Financial Aid Scheme Review Committee (NSFAS). 2010. *Report of the ministerial committee on the review of the National Student Financial Aid Scheme*. South Africa: Department of Higher Education and Training (DHET).

Nel, C., and Kistner, L. 2009. The National Senior Certificate: Implications for access to higher education. *South African Journal of Higher Education*, 25(5), 953-973. ISSN 1011-3487.

Nel, C., Troskie-De Bruin, C., and Bitzer, E. 2009. Students' transition from school to university: Possibilities for a pre-university intervention. *South African Journal of Higher Education*, 23(5), 974-991 Available: [www.sajhe.org](http://www.sajhe.org) (Accessed 02 February 2013).

Nipcon, M. F., Huser, L., Blanks, E. H., Sollenberger, S., Befort, C., and Kurpius, S. E. R. 2006-2007. The relationship of loneliness and social support with college freshmen's academic performance and persistence. *Journal of College Student Retention: Research, Theory, and Practice*, 8, (3) 345-358.

Available: <http://www.metapress.com/content/a465356m7652783r/fulltext.pdf> (Accessed 21 October 2012).

O'Brien, C., and Shedd, J. 2001. *Getting through college: Voices of low income and minority students in New England*. New England: Institute for Higher Education Policy.

Okemwa, E. 2000. Training needs of practicing professional librarians in the Kenyan Public University libraries: A critical analysis. *Journal of Library Management*. 21.(5). 257-268

Organisation for Economic Co-operation and Development (OECD).2008a. *Higher education to 2030*(Vol. 1). Centre for Educational Research and Innovation

Organisation for Economic Co-operation and Development (OECD). 2008b. *Reviews of National Policies for Education: South Africa*. OECD Publishing.

Parker, J. D. A., Summerfeldt, L. J., Hogan, M. J., and Majeski, S. A. 2004. Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and Individual Differences*, 36, 163-172. doi: 10.1016/S0191-8869(03)00076-X.

Pascarella, E. T., and Terenzini, P. T. 2005. *How College affects students: A third decade of research* (Vol. 2). San Francisco: Jossey-Bass.

Petersen, I., Louw, J., and Dumont, K. 2009. Adjustment to university and academic performance among disadvantaged students in South Africa. *Educational Psychology*, 29(1), 99-115. doi:10.1080/01443410802521066.

Pillay, A., and Ngcobo, H. (2010). Sources of stress and support among rural-based first-year students: an exploratory study. *South African Journal of Psychology*, 40(3), 234-240. ISSN: 00812463.

Prince, R., and Yeld, N. 2010, September. *The National Benchmark Tests Project: Informing appropriate higher education curriculum design*. Paper presented at the SAAAIR forum, University of Johannesburg, South Africa. Available: <http://general.uj.ac.za/saair/> (Accessed 27 January 2013).

Reason, R. 2009a, November/December. An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, 50 (6), 658-682. doi:10.1353/csd.0.0098

Reason, R. D., Terenzini, P. T., and Domingo, R. J. 2006. First things first: Developing academic competence in the first year of college. *Research in Higher Education*, 47 (2). doi: 10.1007/s11162-005-8884-4

Republic of South Africa. 1996, 18 December. The Constitution of the Republic of South Africa 1996, No. 108 of 1996. *National Gazette* (No. 17678). Pretoria: Government Printers.

Rumberger R.W. 1995. *The Distribution of Dropping out of Middle School: A Multilevel Analysis of students and schools*". *An American Research Journal*, 32 (1995): 583-625.

Ryan, M., and Glenn, P. 2002-2003. Increasing one-year retention rates by focusing on academic competence: An empirical odyssey. *Journal of College Student Retention: Research, Theory and Practice*, 4(3), 297-324. Available:  
<http://baywood.metapress.com/link.asp?id=kunna2wwrfqtpy3h> (Accessed 27 January 2013).

Schilling, K. M., and Schilling, K. L. 2005. Expectations and performance. In L. M. Upcraft, J. N. Gardner, and B. O. Barefoot (Eds.), *Challenging and supporting the first-year student: A handbook for improving the first year of college* (pp. 108-120). San Francisco: Jossey-Bass.

Scott, I. 2009a. Academic development in South African higher education. Bitzer, E. (Ed.), In *Higher education in South Africa: A scholarly look behind the scenes* (pp. 21-51). Stellenbosch, South Africa: Sun Media.

Scott, I. 2009b. First-year experience as terrain of failure or platform for development? Critical choices for higher education. In B. Leibowitz, A. van der Merwe, and S. van Schalkwyk (Eds.) *Focus on First-year Success: Perspectives emerging from South Africa and beyond* (pp. 17-37).

Scott, I., Yeld, N., and Hendry, J. 2007. *A case for improving teaching and learning in South African higher education* (Higher Education Monitor No. 6). Pretoria, South Africa: Council on Higher Education.

Shaughnessy, J., Zechmeister, B., and Zechmeister, S. 2009. *Research Methodology in Psychology*, Eighth Edition, McGraw-Hill, New York, 2009

Sibanda, N. 2009. *Quantitative Research*. Victoria University, Wellington. Available: <http://www.victoria.ac.nz/postgradlife/downloads/quantitative%20seminar18Aug09.pdf> (Accessed 03 September 2013).

Smith, L. 2009. Measuring the success of an academic development programme: A statistical analysis. *South African Journal of Higher Education*, 23(5), 1009-1025. ISSN 1011-3487.

Soudien, C. (2008a). The intersection of race and class in the South African university: Student experiences. *South African Journal of Higher Education*, 22(3), 662-678. Available: [www.sajhe.org](http://www.sajhe.org) (Accessed 27 January 2013).

South African Qualifications Authority Act. 1995. Available: <http://www.saqa.org.za/show.asp?include=docs/legislation/acts/act58-95.html> (Accessed 24 January 2013).

South African Qualifications Authority (SAQA).1998. *SAQA Bulletin*, 1(2). Pretoria: Government Printers.

South African Qualifications Authority Act (SAQA). 2006. *National Qualifications Framework: An overview*. Available: <http://www.saqa.org.za/show.asp?include=structure/nqf/overview01.html> (Accessed 24 January 2013).

Spady, W. G. 1970. Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1, 64-85.

Spady, W. G. 1971. Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38-62.

Stephen, D.F., Welman, J.C. and Jordaan, W.J. 2004. *English Language Proficiency as an Indicator of Academic Performance at a Tertiary Institution*. Department of Human Resource

Management and Afrikaans University: SA Journal of Human Resource Management, 2 (3), 42-53

Steyn, A. G. W., and De Villiers, A. P. 2007. Public Funding of higher education in South Africa by means of formulae. In Council on Higher Education (Ed.), *Review of higher education in South Africa: Selected themes* (pp.11-52). Pretoria, South Africa: Council on Higher Education.

Strydom, J. F., and Mentz, M. 2010. *Focusing the student experience on success through student engagement*. Pretoria, South Africa: Council on Higher Education. Available: [http://www.che.ac.za/documents/d000208/SASSE\\_2010.pdf](http://www.che.ac.za/documents/d000208/SASSE_2010.pdf) (Accessed 27 June 2013).

Subotsky, G. 2003. Public Higher Education. In A. Kraak and H. Perold (Eds.), *Human resources development review 2003: Education, employment and skills in South Africa* (p. 353-379). South Africa: HSRC Press.

Swaner, L. E., and Brownell, J. E. 2008. *Outcomes of high impact practices for underserved students: A review of the literature*. Washington, DC: Association of American Colleges and Universities. Available: [www.aacu.org/inclusive\\_excellence/Research.cfm](http://www.aacu.org/inclusive_excellence/Research.cfm) (Accessed 24 January 2013).

Terenzini, P. T., Rendon, L. I., Upcraft, M. L., Millar, S. B., Allison, K. A., Gregg, P. L., and Jalomo, R. 1994. The transition to college: Diverse students, diverse stories. *Research in Higher Education*, 35, 57-73. doi: 0361-036519410200-0057507.00/0

Torres, V., Gross, J., and Dadashova, A. 2010-2011. Traditional age students becoming at-risk: Does working threaten college students' academic success. *Journal of College Student Retention*, 12(1), 51-68. doi:10.2190/CS.12.1.d

Trochim, W. M. K. 2006. *Research methods knowledge base*. Available: <http://www.socialresearchmethods.net/> (Accessed 23 January 2013).

Umalusi. 2004. *Investigation into the Standard of the Senior Certificate Examination*. Pretoria: Umalusi. Available: <http://www.umalusi.org.za/ur/research/SC%20Research%20Summary.pdf> (Accessed 27 November 2012).

Umalusi. 2008. *Directives for certification National Senior Certificate*. Pretoria: Umalusi. Available: <http://www.umalusi.org.za/ur/publications/20081204DirectivesforcertificationNSC.pdf> (Accessed 25 November 2012).

Van Bragt, C., Bakx, A., Bergen, T., and Croon, M. 2010. Looking for students' personal characteristics predicting study outcome. *Journal of Higher Education*, 61, (1), 59-75. doi: 10.1007/s10734-010-9325-7

Van Koller, R. 2010, September. *Report on student dropout during 2007 at TUT*. Paper presented at the SAAIR Forum, University of Johannesburg, South Africa. Available: <http://general.uj.ac.za/saair/> (Accessed 29 January 2013).

Visagie, A. 2010. *Research Methodology for Psychology students (SRSM 211)*. Midrand Graduate Institute: Johannesburg.

Wessels, P., and Steenkamp, L. 2009. Generation Y students: Appropriate learning styles and teaching approaches in the economic and management sciences faculty. *South African Journal of Higher Education*, 23(5), 1039-1058. ISSN 1011-3487.

Wilkinson, K. 2014. *Why the matric pass rate is not a reliable benchmark of education quality*. Africa Check: Sorting fact from fiction. Available: <http://africacheck.org/reports/why-the-matric-pass-rate-is-not-a-reliable-benchmark-of-quality-education> (Accessed 27 August 2014).

Wisconsin Council on Children and Families (WCCF). 2010. *Wiskids Count Publications*, Available: [www.wccf.org/kidcount\\_pub.php](http://www.wccf.org/kidcount_pub.php) (Accessed 27 November 2012).

[www.cti.ac.za](http://www.cti.ac.za) (Accessed 05 July 2013).

# APPENDICES

**UNIVERSITY OF TECHNOLOGY**  
**School of Public Management & Economics**

**MTech Research Project**

**Researcher:** Maurice KS Ntemo (083 467 5712)

**Supervisor:** Dr Alexander Dawid Van Der Merwe ([alexvdm@dut.ac.za](mailto:alexvdm@dut.ac.za))

**HSS Research Office contact:**Ms. Nicola Angelosante (031 564 0570)

**Gatekeepers Letter: CTI Education Group (MGI)**

This is to certify that Maurice Ntemo is a registered MTech/Public Management student by research at DUT.

With regard to his research project entitled **KEY INDICATORS OF STUDENT SUCCESS AT A TERTIARY INSTITUTION – A CASE STUDY OF CTI EDUCATION GROUP’S ACCOUNTING PROGRAMMES**, and he would like to be given access to the following student record data at the Cti Education Group (MGI) Department/Durban Campus:

- Biographical Data, Matric Results and Academic Results as well as the progression of each student on the graduation for three cohorts from 2009, 2010 and 2011.
  
- In addition, three focus groups will be organised.

Note that student record data will be coded to protect students’ identities. All information collected via focus groups will remain private and confidential. No one will be able to trace an individual student’s opinion back to him/her as a respondent.

Supervisor’s signature: .....

Date: 14/08/2013



**UNIVERSITY OF TECHNOLOGY**  
**School of Public Management & Economics**

**MTech Research Project**

**Researcher:** Maurice KS Ntemo (083 467 5712)

**Supervisor:** Dr Alexander Dawid Van Der Merwe ([alexvdm@dut.ac.za](mailto:alexvdm@dut.ac.za))

**Research Site:** CTI Durban Campus/MGI

**Contact:** Ms. Nicola Angelosante (031 564 0570)

**CONSENT FORM**

I, **Maurice KS Ntemo** am a Master student in the School of School of Public Management & Economics at Durban University of Technology. You are invited to participate in a voluntary discussion as part of a focus group for a research project entitled “**Key Indicators of Student Success at a Tertiary Institution – A Case Study of CTI Education Group’s Accounting Programmes**”.

The aim of this study is to: identify key indicators of success in higher education.

If you do take part, your responses will be treated in a confidential manner. What you say in this focus group will remain private and confidential. There will be no monetary gain from participating in this focus group and no one will be able to trace your opinion back to you as a participant or respondent.

I confirm that I understand the content of this document and the nature of the research project, and I consent to participating in the project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I ..... (full names of participant) hereby consent to participate in the research project entitled “**Key Indicators of Student Success at a Tertiary Institution – A Case Study of CTI Education Group’s Accounting Programmes**”.

Participant’s signature: ..... Date: .....

**UNIVERSITY OF TECHNOLOGY**  
**School of Public Management & Economics**

**MTech Research Project**

**Researcher:** Maurice KS Ntemo (083 467 5712)

**Supervisor:** Dr Alexander Dawid Van Der Merwe ([alexvdm@dut.ac.za](mailto:alexvdm@dut.ac.za))

**Research Site:** CTI Durban Campus/MGI

**Contact:** Ms. Nicola Angelosante (031 564 0570)

**Focus Group questions for BCom Accounting students at CTI/Durban**

Gender: Male/Female

Age:

Below 15	15-22	23-30	Above 30

Ethnicity:

White	African	Indian	Coloured

1. What are the biggest challenges you face as a CTI Student?
2. Are you happy to be studying BCom Accounting?
3. Was it your own decision or somebody influenced you to study Accounting?
4. Do you feel that studying Accounting, Mathematics and English at higher school can make a difference in your studies? How?
5. How often do you read your notes/textbooks on your own?

Frequently	Moderate	Not at all

6. Is English your first/home language? Yes / No. If No, does it affect your academic performance? If your answer is yes to this, how does it affect your performance?

7. Do you live close to Campus ( $\leq 3$ km)? Yes/No

8. Does the distance from your residence to the campus affect your academic performance?  
Yes / No. If your answer is yes to this, how does it affect your academic performance?

9. Please rate your parents' level of education:

Level of Education	Degree	Diploma	Certificate and below
Father			
Mother			

10. Please rate the monthly income level of your parents/guardian:

Income Level	Low (R0.00-R10000.00)	Medium (R10000.00-R20000.00)	High (R20000.00-Above)
Father			
Mother			

11. Do you get enough support from your community? Yes / No. If your answer is yes to this, how does it affect your academic performance?

12. Do you get enough support from CTI (from Academic staff and others)? Yes / No. If your answer is No to this, how does it affect your academic performance?

13. Do you get enough support from CTI regarding academic resources? Yes / No. If your answer is No to this, how does it affect your academic performance?

14. Do you have any suggestions about what CTI can do to improve students' performance?

**Thank you for taking time to participate in this study.**