IDENTIFYING HIGHER EDUCATION STUDENTS AT RISK: GRADE 12 RESULTS

by

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ABSTRACT

Due to limited space and the fact that only a few learners can be admitted, higher educational institutions need to identify learners that will be able to complete the academic programs available at the higher education institution and identify students that are at risk of dropping out or failing. Higher education institutions therefore, make use of admission criteria to identify the learners who have the ability to complete the qualification enrolled for and the students that are at risk of not completing the program. These risk factors, predetermined by higher education institutions vary and even the means of measuring the risk differ. As a result a learner might be admitted for a specific academic program and be at high risk of not completing the program registered for. The main empirical objective of this study was to determine whether there was a difference on higher education success due to OBE. The secondary aim was to investigate broad trends on differences between the respondents with regards to the province they matriculated in, whether they receive instruction in their home language and their gender. The research paradigm was identified as post-positivist paradigm, quantitative research, *Ex post facto* research which utilised secondary data sets. The correlation analysis indicated a significant relationship between Grade 12 results and academic success on a higher education level. The analysis of variance identified province, home language instruction and Grade 12 results as significant predictors of academic success at higher education level. The analysis of variance also identified significant differences between the different provinces and between students that receive home language instruction and those that do not receive home language instruction.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The first chapter serves as an introduction to the research study. In this chapter the background for the research study and the context of the problem is discussed. The research problem and the purpose of the study is also stated and defined in the first chapter. The significance of the research as well as the research objectives, questions and hypothesis are identified. The research approach, delimitations and assumptions are discussed towards the end of the chapter. The definitions and abbreviations together with the overview of the research study conclude the first chapter.

1.2 BACKGROUND AND MOTIVATION

Every year thousands of learners from diverse backgrounds flood to higher education institutions in South Africa in the hope of acquiring knowledge from the best lecturers and professors these institutions can offer. This diverse group of learners differ in educational background, geographical location, race, gender, age and most importantly academic ability, to name only a few. Unfortunately only a handful of learners will be admitted to these higher education institutions due to limited space and educational resources.

A recent survey confirmed that the faculty of commerce at one of the largest universities in South Africa received 30 000 applications for the 2010 first year intake, while the institution could only accommodate 7800 learners (The South African Council on Higher Education, 2010). Therefore, higher education institutions need to determine which learners to admit and which to reject. Due to limited space and the fact that only a few learners can be admitted, higher educational institutions need to identify learners that will be able to complete the academic programs available at the higher education institution and identify students that are at risk of dropping out or failing. Higher education institutions therefore, make use of admission criteria to identify the learners who have the ability to complete the qualification enrolled for and the students that are at risk of not completing the program. These risk factors, predetermined by higher education institutions vary and even the means of measuring the risk differ. As a result a learner might be admitted for a specific academic program and be at high risk of not completing the program registered for.

The following questions present themselves when contemplating the concept:

- What measures should institutions utilise to determine which learners are at risk of not completing the program registered for? And;

- Are these measures good indicators of a learner's ability to cope with the challenges associated with an under-graduate academic programme at a higher education institution? And;

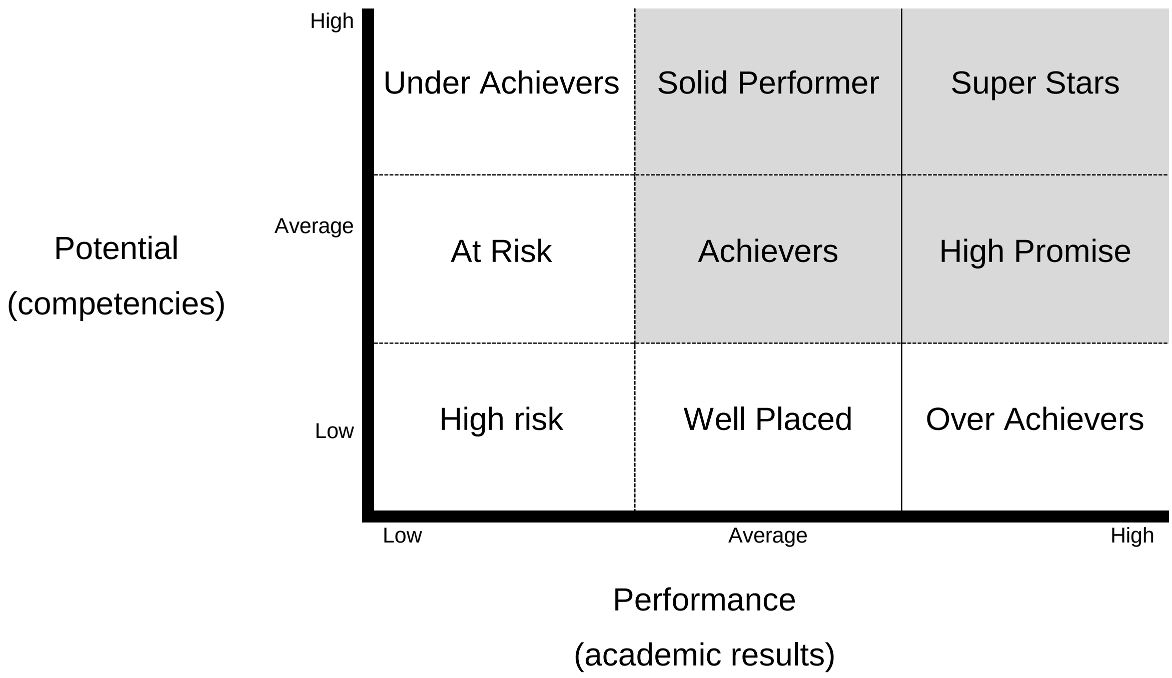
- Can these measures be utilised as indicators of students that might be at risk of not completing the program successfully.

A number of authors (Ahmadi & Raiszadech, 1997; Newton, Smith, & Moore, 2007; Sternberg, 2007) found that admission criteria have been utilised for over a century in order to determine which learners to admit to a specific academic program and higher education institution. The use of achievement-related requirements for admission criteria is a common and traditional practice within the higher education environment (Mountford, Elhert, Machell & Cockrell, 2007; Reisig & DeJong, 2005; Sampson & Boyer, 2001). An enquiry into the seven largest universities in South Africa's general admission criteria, confirmed that current admission criteria is still mainly based on one traditional indicator of academic success namely scholastic results (Roux, 2011; University of Cape Town, 2011; University of Johannesburg, 2011; University of Kwazulu Natal, 2009; University of Limpopo, 2007-2011; University of North West; University of Orange Freestate, 2011; University of Stellenbosch, 2011; University of Witwatersrand; 2010-2011).

Prof K. Stanz (personal communication, April 13, 2010) argues that learners with high scholastic results will not necessarily be successful at a higher education institution. Due to coaching from teachers and parents, some learners perform better academically, while learners with a balanced scholastic career (participation in sport, cultural activities, academics and a social schedule) may not deliver the same academic results as learners that focussed purely on academic achievement. However, learners with a balanced scholastic career might be more able to cope and even succeed at under-graduate level as opposed to learners who concentrated solely on academic achievement of the scholastic career.

Figure 1 illustrates Stanz's (personal communication, April 13, 2010) view of the current risk environment at higher education institutions in South Africa. Figure 1 depicts how learners with high performing potential can be excluded when admittance criteria is purely based on achievement-related results. Learners that fall within the grey highlighted section are learners that will not only cope with higher education challenges but will also succeed at that level.

Figure 1.1: Potential versus Performance



Regardless of meeting the institution's admission criteria, there are still numerous students failing to succeed and even cope with the challenges set at a higher education level by the various academic programs. Academic failure rates for first year students at a specific university in South Africa alone were 5.8% during the 2005 academic year (The South African Council on Higher Education, 2010). This raises the following questions:

- Are higher education institutions managing their attrition rate by admitting competent learners, with the right set of attributes and skills to succeed at furthering their academic careers?

- By admitting incompetent learners, are higher educational institutions not excluding potentially successful learners from achieving further educational excellence?

- What are higher education institutions doing to manage students that are at risk of failing the first year at higher education level?

To illustrate the extent of the situation the following table was compiled by The South African Council on Higher Education (2010) and encompass data pertaining to academic exclusions and readmissions at the end of 2005 and the beginning of 2006. When focussing on Commerce it is reported that the percentage of learners excluded and then readmitted in 2006 was 33.53%.

Table 1.1: Exclusion and Admission 2005/2006 at the University of Pretoria

Faculty	Number and % of students academically excluded (end 2005)			Number and % of students re-admitted in 2006		
	Under-Graduate	Post-Graduate	Total	Under-Graduate	Post-Graduate	Total
Commerce	343	172	515	115 33.53%	98 56.98%	213 41.36%
Total of all faculties at university	2328	600	2928	909	286	1195

Adapted from The South African Council on Higher Education (2010)

The majority of South African universities present an image of academic excellence while at the same time accommodating academic potential from disadvantaged student communities. In terms of academic excellence, more than 30% of South Africa's top Grade 12 achievers (those who obtained more than six distinctions) enrolled at a specific university in South Africa in 2006 (The South African Council on Higher Education, 2010).

According to The South African Council on Higher Education (2010) the attrition rates at the University of Pretoria where the study was conducted are comparatively low, but nevertheless high in social and financial cost to the students and the institution. For the 2006 first year student intake, 2.8% students have dropped out by August in the first year of study. If data form 2006 can be considered and used as predictive information, the failure percentage for students in their first year is disconcerting.

1.3 PROBLEM STATEMENT

The tertiary education environment in which higher education institutions have to operate have become and are becoming increasingly complex. Higher education institutions are faced with ever rising insecurity, turmoil and changes in the education environment. The motivation for these changes can be accredited to the changes in curricula, policies and legislation and the high unemployed rate. Should higher education institutions aim to cope with these changes they need to develop an acute awareness of the forces mentioned and utilise them to improve their own operations (The South African Council on Higher Education, 2010). In order to manage the effects caused by external change factors in the higher education environment, Industrial Psychologists in collaboration with tertiary institution management need to identify the risks associated with student attrition.

Although extensive research has been conducted, nationally and internationally on the various predictors and relationships between academic performance and a range of other constructs, very few research is available on the risks profile of learners that was exposed to the OBE curriculum from Grade 1 to Grade 12. . In order to comprehend the extent of the relationship between a few variables, quantitative statistical results will be utilised to interpret the data.

In ligth of the above, the research aims to answer the following questions in terms of the literature review and empirical study:

1.3.1 Research questions with regards to the literature review

The research questions determine the relationships among variables the researcher wants to investigate and is utilised in order to shape and direct the purpose for the research study (Creswell, 2009). The research questions for this specific study will therefore be:

Research Question 1:

What are the past and current trends in higher education internationally and in South Africa?

Research Question 2:

What impact do the current trends have on students' academic success?

Research Question 3:

What constructs explain the variance in the success of students at higher education level?

1.3.2 Research questions with regards to the empirical study

Research Question 1:

How does Grade 12 results relate to academic success?

Research Question 2:

To what extent do the various groups (province of origin, gender) explain variance in academic success?

Research Question 3:

To what extent does home language instruction explain academic success at higher education level?

- To establish whether race, gender, number of languages spoken or grade 12 results have a significant relationship with academic success.
- To utilise data that comes from the South African higher education student population.
- To compare various arguments from researchers with regards to the predictors of academic success of students at a higher educational level.

1.4 OBJECTIVES OF THE RESEARCH

Research objectives clarify and represent the specific sub-goals of the research study (Kotze, 2010). The following objectives were formulated based on the purpose statement:

1.4.1 Main Aim

Taking the research questions into consideration, the main aim of this study will be to identify the extent to which scholastic results, home language instruction, gender and province of origin significantly explains variance in academic performance. The a priori assumption for this study is that differences can be expected between commerce students with respect to academic performance, Grade 12 results, home language instruction, gender and province of origin.

1.4.2 Specific aims

Theoretical aims of the study

- To conceptualise academic success in the context of OBE curriculum learners.
- To identify variables that explain the variance in academic success.
- Investigate past findings on the relationship between academic success and Grade 12 results and home language instruction and gender.

Empirical aims of the study

- Compare theory with the findings of this research study.
- Investigate the relationship between Grade 12 results and academic success.
- Investigate the variance in academic success explained by home language instruction, gender, province of origin and Grade 12 results.

- Recommend future research in the field of identifying risk factors in first year students.

1.5 RESEARCH HYPOTHESIS

In order to specifically illustrate an outcome the following hypotheses were formulated for the study based on prior research conducted by Case and Richardson (1990); Beck and Davidson (2001) and Bothma, Botha and Le Roux (2004):

> **H_1: A significant positive relationship exists between students' grade 12 results and academic success.**
>
> **H_2: Home language as language of instruction significantly explains variance in academic success at higher education level.**
>
> **H_3: The province where a student matriculated significantly explains variance in academic success at a higher education level.**
>
> **H_4: A student's gender significantly explains variance in academic success at a higher education level.**

1.6 PURPOSE STATEMENT

The principle aim of this study is to determine whether a significant relationship exists between Grade 12 results from learners that matriculated with the OBE- curriculum as syllabus and their academic success as first year commerce students at a higher education level in a commerce faculty at a South African university.

The secondary aim is to explain variance in academic success at first year level, with home language instruction, province of origin, gender and Grade 12 results as independent variables.

1.7 PARADIGM PERSPECTIVE

To highlight the specific approach followed in the interpretation of the research process it is important to place the study within the particular disciplinary and paradigmatic context. Mouton and Marias (1990) view social sciences research as a “collaborative human activity in which social reality is studies objectively with the aim of gaining a valid understanding of it. Mouton and Marias (1990) identified five dimensions of social sciences research that the research model systematizes within the framework of the research process.

- The sociological dimension refers to social sciences research as a collaborative human activity.
- The ontological dimension refers to social sciences research as a study of social reality.
- The teleological dimension refers to the aim of social sciences research to understand social reality;
- The epistemological dimension refers to the aim of social sciences research to provide a reliable and valid understanding of social reality; and
- The methodological dimension refers to social sciences research as objective given that it is balanced, critical, unbiased, systematic and controllable (Mouton & Marais, 1990:p8)

The research model can additionally be divided into three subsystems that not only interact with one another, but also with the research area within a particular discipline. These subsystems are the intellectual climate of a specific discipline, the market of intellectual resources within each discipline and the research process itself (Mouton & Marais, 1990:p20). These disciplines will be elaborated on with reference to this study.

1.7.1 The Intellectual Climate

The intellectual climate relates to the number of metatheoretical beliefs, assumptions and values held by individuals practising within a discipline at whichever point in time, including beliefs about the nature of social reality, beliefs about human beings and discipline-specific beliefs relating to amongst other things society and labour (Mouton & Marais, 1990:p20-21). In the context of this research, the intellectual climate of the empirical study will be based on the functional paradigm. The research is furthermore contextualized within the discipline of industrial psychology, with its sub-disciplines of Career Psychology and Training and Development.

1.7.1.1 Functionalist Paradigm

The functionalist paradigm is based on the assumptions that society has a real, tangible existence and is systematic in nature, whilst being focussed toward producing order and regulation. Social science activities are thought to be value free and objective, while the paradigm promotes a research process where the rigour of the scientific method distances the scientist from the subject matter. The paradigm furthermore is pragmatically orientated and emphasizes the analysis of society in a manner that generates useful knowledge (Hassard, 1991:p277). Functionalism focuses on the mind as it is functional to an individual's adaptation to his or her environment. The paradigm moreover focuses on pragmatism in industrial psychology through the application of tests, questionnaires and statistics.

In personnel selection, for example, the focus is on individual differences with regards to aptitude, skill, interest and other characteristics with the aim of identifying personal characteristics in individuals and making predictions with regard to their suitability for the job (Bergh & Theron, 2003:p6). The focus of the study is on identifying the relationship of variables with academic success and by doing so illuminating a method to identify students at risk of not completing the first year of higher education. The research was further more approached with the necessary rigour which relates to objectivity as far as is possible within social sciences research.

The research was therefore approached by way of the assumptions underlying the functionalist paradigm.

1.7.1.2 Discipline

The research was approached from the underlying discipline of Industrial and Organisational Psychology, which is anchored in the behavioural sciences, economics and physical science (Bass & Ryterband, 1979:p5).

a) Industrial psychology

Based on the work of others, Van Vuuren (2006:p3) defines industrial psychology as the "scientific study of human behaviour in the workplace, or the application of psychological facts, principles, theory and research to the work setting". Industrial psychology therefore studies the optimal functioning of humans in the workplace. The major sub-fields of industrial psychology are personnel psychology, organisational psychology, career psychology, consumer psychology, ergonomics and psychometrics (Barnard & Fourie, 2007:p45).

The role of an industrial psychologist is one of a professional that acts as either internal or external consultant to managers and human resource managers and operating from within one of the application fields of the science. The industrial psychologist's role is consequently mainly to diagnose and intervene by making use of theoretical knowledge and research proficiency (Schreuder, 2001:p5). Industrial psychology is therefore an applied science; in other words, scientific knowledge and its practical application are closely related (Barnard & Fourie, 2007:p45). The industrial psychologist's knowledge base furthermore lays primarily in general psychology, industrial psychology, personality psychology, social psychology, anthropology, sociology, and the economic sciences (Schreuder, 2001:p5). The major practical contributions of industrial psychologists, according to Pienaar and Roodt (2001:p29), relate to affirmative action, counselling, human resource management, psychometric testing, selection and placement, career management, training and development and labour relations.

Schreuder (2001:p6) contends that industrial psychologists must carry out the role of an agent of development for the individual, the group, and the organisation. In terms of the role of consultant for the individual, the industrial psychologist must promote career growth, which is the ultimate aim of this study.

b) Career Psychology

Career psychology deals with career and organisational choice, career issues that have an effect on individuals throughout their careers, and organisational changes that effect careers. It focuses on career counselling, career planning and development, and changes in career patterns (Bergh & Theron, 2003:p13). Greenhaus, Callanan and Godshalk (2000:p12-13) view career management as "…a process by which individuals develop, implement, and monitor career goals and strategies", and define career development as an on-going process by which individuals progress through a series of stages, each of which is characterized by a relatively unique set of issues, themes, and tasks". Within the context of this research, the focus is on the qualities that individuals should have in their early life or career stage (Schreuder & Coetzee, 2006:p177) that will make them employable. This will enable them to obtain career success despite major changes in the internal and external organisational environment and career field.

c) Training and Skills Development in the early career

Because each occupational field has an exceptional set of responsibilities, the skills and abilities needed to perform well can vary significantly from one occupation to the next. Therefore, one component of an effective career strategy is to acquire or develop occupationally related skills. Such skills can be developed by exposure to appropriate educational environments. The selection of an appropriate higher education institution, the choice of the right study program and the choice of the right ‘first job’ can aid an individual with enhancing their skills set (Greenhaus, Callanan and Godshalk, 2000:p146). Training and skills development are applicable to all career stages and assists employees to acquire the skills and knowledge to successfully fulfilling current and future job requirements (Cummings & Worley, 2008).

1.8 RESEARCH PROCESS

During the research process researchers internalize specific inputs from the paradigm(s) to which they subscribe in a selective manner, so as to enable them to interact with the research domain in a fruitful manner and to produce scientifically valid research” (Mouton & Marais, 1990:p23). In other words, researchers are apt to include certain paradigmatic beliefs in their approaches, and include only those beliefs (such as specific research models) that are viewed as applicable to the particular research problem and goals, amongst other things. The specific research strategies and goals chosen were the results of the interaction between the research study and particular beliefs about the phenomenon to be studied, in this case the risk profile of pre-graduates. These beliefs are present in every facet of the decision-making process, namely the choice of research topic, formulating the research problem, conceptualization and operationalization, data collection, and the analysis and interpretation of data (Mouton & Marais, 1990:p24).

The above discussion has highlighted the approach followed in interpreting the research process and delineated the study in terms of its paradigmatic and disciplinary context.

1.8.1 RESEARCH DESIGN AND METHODOLOGY

A research design refers to a plan or blueprint of how a researcher aims to conduct the research. It underlines the kind of study that is being planned and what type of results is intended (Babbie & Mouton, 2001:p75). According to Bergh and Theron (2003:p21), research design denotes a “specific, purposeful, and coherent strategic plan to execute a particular research project in order to render the research findings relevant and valid". Furthermore the research design uses the research question as a point of departure and focus on determining what type of evidence is necessary to address the research question satisfactorily. This section aims to briefly describe the research design followed and the research methods used to achieve the research objectives of the study.

1.8.1.1 Research Approach

The aim of research is to provide an unbiased, valid and reliable finding to the research questions and therefore an empirical research design is utilized. According to Goodwin (2005) an empirical research study is a means of acquiring knowledge observing directly or by experiencing it first-hand. In essence empirical research is centred on the foundation of evidence based research.

Quantitative research is a systematic and objective process that utilises numeric data from a selected sample of a population and generalises the findings (Maree, 2010). Quantitative research is an approach used to test objective theories by investigating the relationship amongst variables. These variables are captured on measuring instruments in order to analyse the numerical data by utilising statistics. This form of analyses supports a deductive style, focuses on testing theories, protects or illuminates bias, controls alternative explanations and generalises and replicates the findings (Creswell, 2009).

The study is quantitative in nature and aims to test hypotheses. The research design of the study can be classified as non-experimental and *ex post facto* in nature. According to Kerlinger and Lee (2000, p. 558), "*Non-experimental research is systematic empirical inquiry in which the scientist does not have direct control of the independent variable because the manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among the variables are made, without direct intervention, from concomitant variation of independent and dependent variables.*" According to Kerlinger (1973), despite its weaknesses, much *ex post facto* research must be conducted in the social sciences because many research problems therein do not lend themselves to experimental inquiry. Many of the research problems in the social sciences lend themselves to controlled inquiry of the *ex post facto* kind, which is also true for this study. Thomas (2004) identified two main categories of data sources; primary and secondary. Primary data is collected from new sources and for a specific purpose, secondary data on the other hand can include both raw data and published summaries (Saunders, Lewis & Thornwill, 2009). For the purposes of this research study secondary sources of data collection will be utilized. The statistical analysis that will be conducted will consist of descriptive statistics as well as correlation analyses to investigate the data received ex post facto.

For the purposes of this research study data was previously collected at one of South Africa's leading universities, based in Pretoria, Gauteng. The enrolment at the commerce faculty was 7800 students in 2010 and data was available for 1496 of the students.

Ethical standards will be confirmed through ensuring that students' personal details and identities will be kept confidential, as well as to ensure that the data gathering was standardised during all the administrative sessions.

1.8.1.2 Research Method

The research method comprises the individual steps in the research process and the types of procedures and tools chosen as the most objective or unbiased (Babbie & Mouton, 2001:p75). This section briefly describes the methods used to achieve the research objectives, including the selection of participants, the assessment measure, the research procedure and the statistical analyses employed. The reliability and validity of the research design will also briefly be discussed.

a) Research Participants

The target population was a random non-probability sample of first year undergraduates from a commerce faculty of a large higher education institution in South Africa during the 2010 academic year. This population was deemed appropriate because of its ease of access and because of the focus of the research focus. The unit of analysis was individual students and the point of focus was their attributes relating to academic success.

From a total population of 7500 students, a random sample of 1500 students was drawn. From the sample of 1500, 1496 usable profiles were obtained. This amounts to a response rate of 76% which is good given the total population. The data was collected on a prior occasion and was used secondary. The sample predominantly consisted of first year females students in the commerce faculty at a large higher education institution.

b) Statistical analyses

The statistical procedures utilized in this research were selected according to their relevance to the empirical nature of the research design. The data were analysed by means of descriptive and deductive statistics using the SAS Statistical Package. Correlation analysis and analysis of variances were conducted to determine whether there exists a relationship between the variables and whether the students' biographical variables differed. The analysis of variances was conducted after the data's normality and homogeneity of variance were ensured via a Blom Transformation.

c) Validity and Reliability

It is important to report the extent to which the instruments used in the study have reliable and valid scores and whether the research design is valid and reliable (Struwig & Stead, 2001:p130).

Validity in this context refers to the degree to which the broader research design is scientifically sound or satisfactorily conducted (Struwig & Stead, 2001:p136). Research studies must be externally as well as internally valid. External validity refers to the degree to which the study's results are generalizable to other research settings and people (Eysenck, 2000:p852; Saunders et al., 2009:p102; Struwig & Stead, 2001:p136) and is associated with the sampling procedures used, the time and place of the research, and the conditions under which the research was conducted (Graziano & Raulin in Struwig & Stead, 2001:p136). In the case of this research, the results only pertain to first year students, but all efforts were made to identify a representative sample and to minimise reactive effects and researcher effects (Brink, 2006:p101).

Internal validity refers to whether variations in the dependent variable can be attributed to the independent variable and not to extraneous or confounding variables related to for example maturation, history, testing or instrumentation (Struwig & Stead, 2001:p136). In this study, a possible threat to internal validity was events that take place during the study that may affect results (Brink, 2006:p99; Saunders *et a*l., 2009:p101; Struwig & Stead, 2001:p137). Another possible threat to validity is selection bias, which refers to differences in that manner that respondents are recruited for a study. Random selection decreased the possibility of selection threatening validity (Brink, 2006:p100). A large sample was chosen to offset the effects of extraneous variables (Struwig & Stead, 2001:p136).

Reliability pertains to the whole research process, namely, the overall research design used, sampling, data collection methods and procedures, issues related to measurement, and data analyses (Delport, 2002:p138). In this study every effort was made to deliver quality research and arrive at results that are meaningful and replicable, by minimising the various sources of error that may influence reliability.
Errors of measurement can generally be classified into random and systematic errors. Systematic measurement errors are errors that consistently affect the score

of an individual as a result if some specific characteristic of the person or the test that does not relate to the construct being measured (Crocker & Algina, 1986:p105).

In terms of the current study, the following sources of error were reduced as far as possible in order to increase reliability:

- Processing errors (Umbach, 2005) were kept to a minimum by employing statistical analyses to identify outliers.
- When considering reliability the sample also needs to be taken into consideration. According to Brink (2006:p125) reliability relates to sampling error or "the difference between a sample statistic and a population parameter". A large sampling error indicates that the sample statistic is not representative. Sampling error may occur because of chance, bias in the selection of samples primarily because of incorrect techniques (Brink, 2006; p126). These errors were reduced as far as possible by determining appropriate sample sizes and reporting confidence levels (Umbach, 2005:p96-97).

1.9 SIGNIFICANCE

From a theoretical perspective, the research will make at least one valuable contribution to the knowledge pool of higher education in the South African context. Firstly, previous research considered the various relationships between variables associated with academic success and variables predicting academic success were identified. This research study will take into consideration the predictability of academic success with race, gender, number of languages spoken and grade 12 results as variables. Secondly, this study will also make a contribution to the South African higher education environment, especially in the commerce environment as it is specifically conducted on students that registered in 2010 in the commerce environment.

From an Industrial and Organisation Psychology and career management perspective, the research will make at least one valuable contribution. This study will equip decision makers to determine whether scholastic results, gender, race, proficiency in language of instruction and province of origin has a relationship with academic success within first year commerce students.

The definitive objective of this research study is not selection. The objective of this study does include early identification of students who are more likely to experience academic challenges. The hope of the researcher is the diagnoses of the students' academic problems and/or challenges and establishing a counselling program to manage these challenges. As an initial step toward reaching these goals, the research study examined some of the factors which contribute to academic success in order to determine the profile of students at risk and offer the necessary support to empower them to complete their studies and therefore ensure better career opportunities.

1.10 DELIMITATIONS

An inventory of the study's delimitations has been identified and will be taken into account during the analysis of the results obtained:

- All data is applicable to the students at a specific large University in South Africa and is a convenience sample.
- All the data is faculty specific and relates to students that were assessed for admission purposes.
- The study has been undertaken to generate concise and meaningful results to be used in future research enquiries.
- Home language instruction, gender, grade 12 results and province will be utilised to compile possible profiles for at risk students.

1.11 ASSUMPTIONS

According to Leedy and Ormrod (2010:p5) an assumption is a provision that is taken for granted, without assumptions the research study will be pointless. A few fundamental assumptions underlie this research study. It is assumed that:

- all the results obtained were from students enrolled at a large University in South Africa and at the Faculty of Commerce;
- all students understood the difference between Asian/Coloured/White and Black races;
- all students were honest when completing the application forms;
- all Grade 12 results is the true reflection of the learners marks obtained and were not tampered with;
- All students are fluent in at least one of the two official languages of the university utilised for this specific study.
- All data is handled with the utmost confidentiality and care to guarantee the validity and ethics of the study.

1.12 DEFINITIONS

It is important to define some of the most important key terms to be used within this research. The following definitions will apply to the research study:

1.12.1 Academic Success

Graham's (1987) definition of academic success will be adopted in this study. Graham defined success at a higher education level as whether or not the student had received admission for the next academic year which means obtaining an average of 50% during the first year of study at the specific tertiary institution where the study was conducted.

1.12.2 Tertiary Institution

A tertiary institution is a large organisation that is influential in the community and offers education after high school or secondary education. According to the South African Government Services (n.d.) tertiary institutions are “public universities, universities of technology, private providers and public and private further education and training colleges. Universities offer academic and professional programmes, while universities of technology and further education and training colleges offer vocational-oriented programmes.”

1.12.3 Student

A student is an individual who studies at school, college or university (Encarta World English Dictionary (1998-2007).

1.12.4 Learner

A learner is an individual that studies or learns specific concepts at a secondary level in order to gain knowledge to apply a tertiary level or later in a career.

1.12.5 Higher Education

Higher education is education after the secondary level, especially education at college or university level (The American Heritage Dictionary, 2009).

1.12.6 Home Language Instruction

Home Language instruction refers to the language the students receives instruction in at a higher education level. If this language is the same as his home or first language the student will be receiving home language instruction.

1.12.7 Gender

Gender is the sex of an individual, or of a whole category of people. (Encarta World English Dictionary, 1998-2007).

1.12.8 Grade 12 Results

For the purposes of this research study grade 12 results can be regarded as the results as depicted on a learner's National Senior Qualification Certificate by the end of 2009. These learners would have been the first to have completed 12 years of the outcomes-based education curriculum called Curriculum 2005 introduced by the government in 1997.

1.12.10 Province of origin

Province of origin refers to the province where the student has written Grade 12 in 2009.

1.13 OVERVIEW OF THE RESEARCH STRUCTURE

The study contains five essential chapters. Firstly, an introduction to the study has been compiled, this is followed by an overview on the central concepts associated with the study, after which will follow a discussion of the methodological approach taken with regards to the research design and the methods. The last two chapters will be concerned with the results of the study and finally the conclusion, recommendations and limitations of the study.

1.14 CONCLUSION

Chapter one offers an introduction to the study and commenced with a background of the topic. The background is followed with the research problem, purpose statement, research question, hypotheses and research objectives. A brief overview of the methodology to be followed is discussed, with definitions for the key terms used in the study. A motivation and justification for the study precedes the overview of the study as the last discussion.

The following chapter will discuss the central concepts of this study as they were reviewed in different literature sources. The main concepts will be described and arguments will be made from different points of view and discussed comprehensively.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter one forms the introduction to the research study and establishes the background from which the research study will be approached. A background of the central research topic serve as the initial discussion and is followed by the research problem, purpose statement, research question, hypotheses and finally the research objectives. A motivation and justification for the study precedes the overview as the concluding discussion.

Chapter two will provide an overview of the available literature on the various relationships between academic success and known variables. A number of variables have shown a significant relationship with academic success. A widespread search was performed on the most relevant electronic databases for this purpose. The most recent literature and where applicable, more dated literature on this phenomenon will be reported and discussed.

2.2 ACADEMIC SUCCESS OR PERFORMANCE

"Uneducated and unskilled youth are a 'ticking time bomb' of pent-up emotions that will explode if not addressed soon", says Deputy President Kgalema Motlanthe in an address prepared for the sixteenth National Economic Development and Labour Council yearly summit in Johannesburg on 9 September 2011 (DefenceWeb, 2011). According to Motlanthe, South Africa have about 2.8 million young adults between the ages of 18 and 24 years that are currently unemployed and not registered at any higher education institution. According to Bernstein and Altbeker (2011) in an article for the BusinessDay, millions of the unemployed South Africans are the product of a dysfunctional educational system. Employment is a vital component of South Africa's economic, political, and social development. The government has identified five priorities which are improved education for all South Africans, improved health services for all South Africans, putting a stop to crime and corruption, creating jobs and developing rural communities. Education remains imperative to the government's developmental agenda and the goal of building a prosperous, stable and cohesive society. Consequently, education presents the foundation upon which government can realise the development objectives (DefenceWeb, 2011).

With the current National agenda in mind higher education institutions have a responsibility to be ready to accommodate learners, provided that the learners comply with the minimum admission requirements. Over the past years, the academic success or performance of students has been one of the priorities on all academic levels. Therefore, several research studies have been devoted to scrutinise and evaluate the concepts of schooling, learning and academic performance, not only on scholastic level but also on higher education level.

Academic Performance can be referred to as achievement or the level at which a person has learned to perform a particular skill (Jaeger, 2003). Diako (2004) argues that most students experience their first year of university as a transition phase in which social and academic challenges are encountered. The result of the challenges students are being faced with can result in achievement, disillusionment, disappointment or dropout from studies. Tinto (1975) is of the opinion that the first year is the most significant year in the general level of a student's progression. Students (75%) also indicate that they can attribute the reason for dropping out to challenges experienced in the first study year.

The history of academic success in South Africa has been filled with controversy between two rival methodological and hypothetical traditions. The initial tradition exhibits quantitative research concerned with assessing academic performance utilising appropriate indicators to examine and evaluate tendencies in students' level of performance within institutions as well as across institutions. This theory focuses on students' experiences in a specific academic context and argues that allowing open admission for higher education to learners from previously excluded groups often entails more elemental changes beyond the enhancement of student quantities. These studies and theories include national and institutional specific research on student registration and development, student and academic personnel surveys measuring campus climate, diversity on campus, culture of the institution and internationalisation of the university, to name only a few (Cloete & Bunting, 2000; Seepe, 1998; Makgoba, 1997).

The second tradition describes rather than measure with two identifiable schools of thought within this description. The first school of thought aims to describe academic success in terms of an attribute or characteristic of the student. These attributes or characteristics can include cognitive ability, motivation, aptitude, personality, reading or writing skills and time management to name only a few (Crous, 2004; Van Rooyen, 2001; Imenda, 1995; Mitchell, Haupt & Stephenson 1994; Mammen & Imenda, 1994; Hunter, 1989; Hartman, 1989; Moll & Slonimsky, 1989; Stanton, 1987). The second school of thought attempts to explain academic performance by placing attention on the student as part of a specific group described in terms of race, gender or class and which is frequently considered to be defined in cultural or stability terms. The students' socio-economic and educational environments are seen as essential aspects in accepting and illuminating their structure of performance (Cele, 2005; Broekman & Pendlebury, 2002).

In general, academic performance (failure or success) of the students is an important phenomenon to study. In particular, some researchers have studied students' performance and the relationship it has with certain conditions, predictors or determinants. This includes conditions such as family ties, social conditions and personal characteristics. Similarly, educational specialists such as teachers, assessors and researchers have used various variables for the prediction of undergraduate academic success. The results of these studies might be useful in quantifying criteria for identifying students at risk.

Educational and psychological theorists attribute academic failure on a higher education level to students' attitudes (lack of motivation and/or rejection of accepted academic values), lack of ability and personality characteristics. Variations or a connection between these attributes has an effect on students' behaviour patterns which categorizes students as successful or unsuccessful at higher education level.

The challenge has been to explain the total variance that has an impact on the completion of a higher education program. Aptitude (measured by an aptitude test) has an impact and student attitudes also had an impact on the academic success of students. Lavin (1965) reviewed and analysed 300 studies to compile a comprehensive report on the prediction of higher education academic success. Ability explains 35-45% of the variation on academic success. Even though more than half of the variation needs to be explained, no other single variable explains this considerable amount of variation. Attention has been given to variables of a non-intellective nature, on the recommendation of Lavin (1965), such as study habits, motivation and personality characteristics.

Numerous researchers confirmed that students who are not successful and drop-out at higher education do so in the first year of study (Oldham 1988; MacDonald 1992; Naher, Brabazon & Looney 2008). The initial year at a higher education institution is a time identified by adjustment and confusion for countless students, as some even experience challenges so severe that it may give them no other option than to discontinue their studies (Naher, Brabazon & Looney 2008).

Keeping this in mind, students may react to various causes to success and failure in the academic situation. Naher, Brabazon and Looney (2008) determined that students' responses are based upon the interpretations about the causes students have of their assessments and performances. Therefore, it can be determined that students are motivated by the necessity to comprehend the origins of learning outcomes (Kelley, 1967; Kelley, 1973). Numerous studies conducted on an international level established that humankind has the propensity to attribute failure to elements that is situational and success to internal elements (Baron and Byrne 1997; Deaux, Dane and Wrightsman 1993; Freedman, Sears and Carlsmith 1981; Hewstone, Stroepe, Codol and Stephenson 1988; Myers 1999; Rathus 1990; Rubin and McNeil 1987; Sabini 1995; Sampson 1991; Shaver 1987; Taylor, Peplau and Sears 1997; Tesser 1997). The statement was determined to be reliable across culture, age and gender. Earlier research on academic success discovered that students constantly attribute academic success to internal elements and academic failure to external elements (Rotter, 1966). The concept that justifications for academic success have a self-serving bias is consistent with the statement that success is attributed to internal elements (Watkins & Regmi, 1994). Self-serving bias is a prevalent form of self-improvement that refers to the inclination to take personal responsibility for successful outcomes than for unsuccessful outcomes (Deaux, Dane and Wrightsman, 1993). Therefore, individuals are more likely to receive and acknowledge recognition for behaviours that has positive results but are more likely to reject responsibility for behaviours that has negative outcomes (Baron and Byrne 1997).

Regardless of progressively increasing admission rates in higher education institutions, poor academic success and high attrition rates remain persistent challenges amongst students (Lloyd, Tienda & Zajacova, 2001; Tinto, 1994). High attrition rates makes enrolment planning for higher education institutions intricate and adds to the challenge of recruiting new students that is capable of achievement at a higher education institution. Failure, for undergraduate students, signifies unused potential and a low return on investment in higher education fees (Card and Krueger, 1992; Jaeger and Page, 1996). The significant question why some students struggle and even fail to attain a higher education qualification occurs. Particular researchers would reason that the students who are unsuccessful are not higher education "material". This reasoning has no grounds due to the fact that there is no argument, in higher education institutions admitting learners if there is no reasonable probability that the admitted learners has the ability to complete the higher education programme in which they are permitted to enrol, successfully (Killen & Fraser 2003). According to Killen and Fraser (2003) it is unethical to knowingly admit learners that may not be able to complete the academic program successfully, to a higher education institution.

2.3 FACTORS ASSOCIATED WITH ACADEMIC SUCCESS

After the dramatic increase in registration over the last fifteen years, at universities internationally as well as in South Africa, researcher interest in admission criteria and predictors of academic success increased (Hoefer & Gould, 2000; Council on Higher Education, 2010). A considerable number of research has been performed on admission criteria, regulations and procedures, especially in the fields of commerce, medicine and agriculture (Kirchner, Stone, & Holm, 2000; Garton, Dyer, & King, 2000; Kelman, 1982; Deckro & Woundenberg, 1977). These criteria pertaining to admission were grouped according to objective and subjective aspects. Applicants' qualities, such as motivation, leadership, interpersonal skills and work experience were categorized as subjective factors (Confer, Turnwald & Wollenburg, 1995), which were usually evaluated through interviews (Reichel & Milman, 1996). Whereas the most commonly used objective aspects included Grade 12 results and standardized test scores (Confer, Turnwald & Wollenburg, 1995). As mentioned in Subsection 2.2 there are two traditional schools of thought or theories regarding academic performance. The first one is focussed on the context of the higher educational institution and the second tradition focuses on the attributes or characteristics of the student.

Deci and Ryan (2000) identified the self-determination theory that each student has an inherent need to grow, a need to overcome challenges and to incorporate the incidents into a reliable sense of oneself. The theory's focus lies with the level to which individuals support their actions to the degree of maximum reflection and connect to those actions. Environmental support is critical in order for these actions to take place, in other words the social environment can either support or put a stop to the natural inclinations to develop (Deci & Ryan, 2000).

In support of the self-determination theory, Dweck and Leggett (1988) identified two categories of success objectives that influence students' academic success (cited in Heyman & Dweck, 1992):

a. *Performance goals* which are associated with the aspiration towards good academic results and the social acceptance that comes with it. Students with this motivation are characteristically more focussed on the results instead of the actual learning process and it can be expected that they will believe that intelligence is a rigid characteristic. Performance orientated students tend to achieve success on less-complicated tasks where positive assessment can be achieved but when faced with more challenging responsibilities, students with performance goals often become disheartened and give up easily, attributing their failure to an inability.

b. *Learning-goal* oriented students enjoy mastering new material and are interested in and tend to buy into the statement that intelligence is flexible. These learning-goal orientated students exhibit "mastery-oriented" behaviour, showing added determination when faced with challenging tasks, using different strategies to solve problems and not attributing failure to a lack of ability but rather a need to work harder (Heyman & Dweck, 1992).

Students sometimes lose courage when attempting to develop and master the challenges faced during the academic career and especially during the first year of the higher educational phase (Diako, 2004). According to Diako (2004) the following are some of the factors contributing to or hampering of students' academic success, namely:

- Limited social skills: Lack of exposure to different experiences curtails one's social skills;
- Financial difficulties: Living below the poverty line serves to de-moralize students and consequently affects their academic performance (Lloyd and Turale, 2001);
- Poor educational background: The current lack of quality education in South Africa is a real threat to the economic and developmental wellbeing of South Africa. Students who were educationally disadvantaged are underachieving, repeats classes and is frustrated with their academic performance on a higher educational level;
- Language Proficiency: Learning in a second language can contribute to underachievement (Ngwenya, 2004) especially if the student is not so proficient in that language;

- Adjustment problems:
- Teaching techniques; Lecturing as opposed to teaching can be a tremendous adjustment for some students and their inability to cope with the work load and course demand can attribute to their struggle to adjust to the new learning and teaching techniques;
- Peer pressure;
- Emotional intelligence: Sookhan Ho (2005) is of the opinion that challenges of a demanding curriculum, such as the curriculum in a higher education program, requires more than just intrinsic intelligence (cited in Ngwenya, 2004);
- Acquired Helplessness: When students perceive that they cannot manage their situation, this perceived lack of management ability harms the learning process, as a result confidence and thus decline in performance;
- Engagement: Students who are involved in various activities whether personal or academically, do better, despite of intelligence, financial status or other socio-economic factors (Diako, 2004);

In addition to the previous observations made by Diako(2004), Jaeger (2003, p.619) also notes that achievement at a higher education level has been linked to various other factors, such as the instructional environment; the effort of the student, inherent ability, the size of the classroom, teacher expectations, attitudes, the students' social economic status and finally school expenditure and resources.

Students with well-developed social and emotional competencies have an advantage in all significant areas of life, including academic achievement (Pasi, 2001). These students are proficient at interacting with others and are prepared to accept new challenges, act responsibly towards others, even those different from themselves and are more inclined to appoint positive, health producing behaviour.

2.4 SCHOLASTIC RESULTS

2.4.1 Scholastic results background

Scholastic results as variable to determine higher educational success can be defined as the results obtained during the final academic year of high school, e.g. Grade 12. This final result is the average between a final exam result and the year's assessment as determined by a regulating academic body such as a Department of Education.

There are two key approaches of educational research that have focused on the degree to which high school grades amongst first year higher education students. The first approach developed from research bureaus and admission departments of universities. During a survey conducted in the year 2000 by the College Board, the Association for Institutional Research and the National Association for College Admission Counselling and the Educational Testing Service in the United States of America at 957 institutions offering at four-year academic program, high school results were regarded as the most important criteria used during the admission process (Breland, Maxey, Gernand, Cumming, & Trapani, 2002).

For almost a hundred years, efforts to predict higher education success have mainly concentrated on the predictive power of high school results (i.e., grades and class rank) and marks on standardized admission tests. When predicting first year success at a higher educational level, prediction models that include measures of high school results and admission test scores can be accurate to some extent in predicting first-year success at higher educational level, explaining between one fourth and one third of the variance in first-year academic performance (Mathiasen, 1984; Mouw & Khanna, 1993).

2.4.2 Scholastic results and academic success

Researchers have recognized, for almost seventy years that the high school's quality and effectiveness also has a significant effect on students' performance at higher education level (Lee, Bryk & Smith, 1993). Remarkably, comparatively few of the prediction models that were designed to identify at-risk students have included measures of high school quality and effectiveness.

The body of knowledge on the prediction of higher education success almost has a hundred years' worth of contributions and most of the earlier research conducted focussed on the results of ability measures and high school performance measures to determine a relationship between variables and higher education success (Fishman, 1957; Odell, 1927; Travers, 1949). Mathiasen (1984) concluded that test scores and high school performance were the best predictors of success at a higher education level. These findings were based on a review of research studies conducted prior to 1983 and since Mathiasen's review, a significant number of research studies have been conducted to assess the effects of student attributes on success at first year higher education level. These research studies have mostly found that standardized admission test scores and high school performance were related to first year success at a higher education level and could be used to make accurate and appropriate admission decisions and most importantly identify at risk students (Cabrera, Nora & Castaneda, 1993; Eimers & Pike, 1997; Mouw & Khanna, 1993; Noble & Sawyer, 1987, Noble & Sawyer, 1997; Pike, 1991; Willingham, 1985).

Adelman (1999) determined that to improve the accuracy of predicting academic success, measures of students' high school subject enrolment should be included. Adelman (1999) found that the high school curriculum utilised a more powerful effect on bachelor's degree attainment than test scores, high school class rank and high school results did. When measures of achievement, ability and high school curriculum were combined, it provided the best predictor of higher education success.

Research has shown support for the relationship between previous academic performance and university performance. Power, Robertson and Baker, (1987) reported that the correlation between secondary school grades and Grade Point Average (GPA) at university is generally about 0.5. However, they found that the predictive capacity of secondary school grades is different for different individuals and groups. Secondary school grades are not as good predictors for mature age student's performance as they are for school leaver's performance and female students with the same secondary school grades as male students consistently outperform their male counterparts.

In a study conducted by Keeve, Naude and Esterhuyse (2011) indicated that Grade 12 results from the OBE curriculum correlates with higher education success. Keeve *et al* (2011) determined that the higher the Grade 12 results is the higher the tertiary result will be

It can be confirmed that high school results correlate with future success at a higher education level (Arnold, Calkin & Willoughby, 1983; Gough, 1978; Roessler, Lester, Buttler, Ranking & Collings, 1978; Murden, Galloway, Reid & Colwill, 1978; Cullen, Dohner, Peckham, Samson & Schwarz, 1980). Taking the findings into account Sarnacki (1982) cautions in the use of first year higher education results, based on questions surrounding validity and reliability.

2.4.3 Comparing outcomes-based and content-based education

Education in South Africa, during the start of the last decade, was flooded by turmoil and major crisis. This crisis was characterized by, among other things, the delivery of equal access to schools, imbalance in educational opportunities, inappropriate curricula, insufficient financial and physical resources, unavailability of tuition supplies, an explosion in the enrolment of learners and incompetent teaching staff.
Major inequalities in South African society, high failure and attrition rates, and an orientation towards examination with an accent on learning by repetition, and insipid

teaching approaches were adding to this crisis. Taking all these characteristics into consideration, transformation was sought in the South African educational environment. As a consequence of the dissections that existed during the apartheid era and due to the values and attitudes of most of the adult South Africans of this decade, learners were not always taught to appreciate the diverse ambitions and perceptions of people different from them. Transformation in education was needed to offer equity in terms of the delivery of quality education and to promote a more balanced view of the South African society.

The democratically elected government, managed by the ANC political party, has been determined to eradicate education based on the apartheid model and to establish the new vision of empowered South African residents for the future of the country. Realized against this vision, outcomes-based education (OBE), as a curriculum, was identified as the most probable to address the crisis in South African education. OBE promised to develop South Africa's educational quality (i.e. to warranty academic accomplishment for all learners; to decentralize curriculum development and by doing so achieving buy-in; to promote a learner-centred philosophy; and ensure success and effectiveness by making schools more accountable and responsible)(DoE 1996: p.10). With the above in mind outcomes-based education seemed to establish an essential interruption with the former approaches to education of the apartheid era in South Africa.

The newly elected Ministry of Education under the ANC government, introduced outcomes based education as the most probable curriculum to address the matter of inequality in South African education at all levels at the start of 1997. This model was identified not only to liberate teachers and learners from a content-based mode of learning and teaching, but also to keep up with international developments in the educational environments. There are further motives for the employment of the OBE curriculum, but the aforementioned summarizes the school of thought behind the institutionalisation of an outcomes-based curriculum for South African education. Jansen and Christie (1999: p. 2) remarked on the significance of the transformation in South African education by stating: 'It goes right to the heart of the on-going process of transforming this country into a democracy and shedding the legacy of apartheid'.

This was a significant public breakthrough in a process that commenced two years previously and was planned to continue at least until the year 2005, with collective teacher contribution and comment as the new philosophies were implemented. The new legislation was regarded by numerous South Africans, which included politicians, citizens and educators as part of the greatest contentious changes in the history of education in South Africa, and probably is and will be the greatest significant reform in the history of South African education.

This new educational system was based on a variety of contemporary concepts and movements in the international educational sphere and adjusted it for the local educational market. The fundamental philosophy of Curriculum 2005, as baptised by the South African governing body at that time, was an outcomes-based approach to educating and teaching which, in essence, means directing outcomes clearly and forming all concepts in an educational model to focus on what is necessary for learners to be capable to master at the completion of the learning opportunities. This meant beginning with a vivid representation of what learners have to be capable of doing, then establishing the program, instruction, and finally assessment to make sure the learning takes place (Spady, 1994).

Despite the overall optimism regarding the new curriculum, South African education was slowly awakening to the fact that political ideals seldom match classroom realities. The most dramatic evidence of this realization came in the wake of the Chisholm Report of the Curriculum 2005 Review Committee (31 May 2000), which created a potential political crisis for a government that has made major ideological investment in the new curriculum. The response of the Minister of Education on receiving the report is insightful: 'It is our duty to review on an on-going basis the new curriculum and its implementation so that we can establish whether it truly results in learning gains for our learners and improve the quality of South African education' (Chisholm, 2000). The reality is that there are some major problems with the implementation process of the new curriculum in South Africa, of which the inadequate training of teachers to teach in an outcomes-based manner and the lack of financial resources to train these teachers efficiently and effectively are probably the most important (Chisholm, 2000:4–12). There are solutions to these problems. The essence of these solutions is that the curriculum must be indigenous rather than imported (making it easier to train teachers to implement the new curriculum) and that a long-term implementation strategy involving a series of smaller steps needs to be devised, all of which needs to be developed and researched according to a systematic and long-term framework, therefore awarding more time to train teachers effectively (Botha, 2002).

Christie (1997) and Lyster (1997) note that the context in which competency or outcomes based education developed internationally was considerably different from South Africa's. Overseas, developments have taken place in countries where education up to at least mid-secondary level has been compulsory for the whole population for several decades. In these countries it is assumed that adults (other than immigrants) have had at least a basic education and that further and higher education can build on this base. The situation in South Africa is different. Until recently, education was not compulsory for blacks, and large numbers of adults have little or no formal education. These adults are categorized as unskilled, semi-skilled or skilled, but not formally qualified. The only way they can enter a high skill economy and advance at work is through training and qualifications gained in the workplace. Organized labour's vision of a new outcomes-based system was based on the urgent needs of workers for basic education and training, rather than on the reform of schooling, vocational and higher education, which catered for a privileged minority.

Jansen (1997) is largely correct in his gloomy assessment of the difficulties associated with OBE from a philosophical perspective, from a political perspective and as far as its implementation is concerned. As far as problems of implementation are concerned, he suggests that the language and terminology of OBE are far too difficult for under-resourced teachers; that successful implementation depends on significant levels of in service development for South Africa's severely under-qualified teachers in order to prevent the outcomes from being trivialised into objectives typical of behaviourism; that OBE demands 'dramatic changes in social relations in the classroom', from a hierarchically structured transmission model of teaching to a meditational and facilitative role for teachers; and that the implementation of OBE will multiply the administrative demands on teachers, at a time of severe teacher rationalisation. He concludes, in other words, that the implementation of OBE requires innovations in the education system across the board and at all levels, but suggests that there is 'neither the fiscal base nor the political will to intervene in the education system at this level of intensity'(Mason, 1994).

Outcomes-based education had its roots in American pragmatism, in a desire for a rational model of curriculum planning that would result in improved learning and teaching. In its early stages, it was influenced by the behaviourist tradition in psychology, which focused on external, observable behaviour. OBE specifies beforehand what learners should be able to do at the end of a course of study, and departs from traditional models of education in which learners cover a set syllabus in a fixed period of time. OBE is a movement or philosophy rather than a coherent set of theories, and may be interpreted broadly or narrowly in curriculum. In South Africa, OBE is not limited to behaviourist concepts of visible performance, but includes knowledge, skills, attitudes and values which underlie performance (Cretchley & Castle, 2001).

2.4.4 The impact of OBE on academic success at higher educational level

In addition, there has been a steady decline in the Matriculation pass rate since 1994 due to the poor resources and procedures in many schools in formerly black areas. A worsening pass rate means that fewer school leavers qualify for admission to higher education institutions. For these reasons, one of the challenges facing universities is to revise admissions policies to include the recognition of prior learning, and to revise curricula so that experienced working adults may gain access to, and succeed in, tertiary education (Buchler, 1999)

2.5 HOME LANGUAGE AS LANGUAGE OF INSTRUCTION

2.5.1 Background to home language as language of instruction

First language education in higher education in South Africa is currently only available to two groups of students; English and Afrikaans speaking students. Such an option does not exist for students that has another first language, which comprises 60 percent of the current student population in South Africa (CHE, 2004;67). These students mostly receive tuition in English, even at the Historical Afrikaans Universities. Mother tongue education in higher education in the nine official languages is currently unavailable to students studying at a South African university. According to various researchers this inequality is the reason why numerous students' with another first language than English or Afrikaans under performs (Boughey, 1998; Brock-Utne & Holmarsdottir 2001; Evans 2001; Ramani & Joseph 2002; Webb 2002; Alexander 2003; Cele 2004; Foley 2004; Leibowitz 2004; Van der Walt 2004b; Prah 2005).

Even though the Department of Education are committed to maintain the status quo, with English and Afrikaans as languages of instruction and even to develop these languages, various initiatives are undertaken to develop other official languages academically and scientifically as apparent from the Language Policy for higher Education (MoE, 2002). Various universities already started initiatives in accordance with the Language Policy for Higher Education, for example the University of the North(now Limpopo) was one of the first universities to in initiate another official language into the study programmes in 2002 (Ramani & Joseph, 2002). The University of the Witwatersrand went one step further and changed their policy to develop Sesotho as language of instruction within the framework of a four phase plan which will be implemented as soon as Sesotho is developed as education language (Foley, 2004:68). The University of KwaZulu Natal wants to illuminate the uncertainty of such a statement by aligning the institution with the acquisition of isiZulu as second language of instruction within five years, where English stays the primary language of instruction. This is just a clear indication that not all South African universities are apathy towards accommodating other official South African languages as language of instruction.

The “first language in education policy” (DoE, 1997) for public schools in South Africa in the post-apartheid era is based on the language article from the Constitution (Article 6 Act 108 of 1996). The policy’s aim is to promote a mutli-lingual educational system which will lead to the development of a non-racial South Africa.

To establish these objectives learners and students have the right to choose which language they prefer to receive tuition and/or instruction in. The development of the official languages of South Africa is also one of the aims of the policy. Programmes for the development and preservation of the official languages that were previously disadvantaged are one of the priorities that were identified due to the policy.
The policy exhibits a clear move away from the prescriptiveness about languages of instruction and education during the apartheid era. For the first time being bilingual is defined as more than just being able to speak, read and write Afrikaans and English. The opportunity for children, teenagers and adults now exist to receive educational instruction in their language of choice.

Even though first or home language tuition is strongly recommended, learners and students are awarded the opportunity to develop a strong second language as well. An education system that produces multi-lingual South Africans is therefore part of the vision for the future.
The Department of Education therefore expects from the school management council to at least consider four alternatives for the implementation of such an education system:

- The use of more than one instruction language
- To offer additional language subjects as part of the curriculum
- To adhere to special programmes to maintain the various languages
- Any other method that is prescribed by law (DoE, 1997, section 6.1)

2.5.2 Home language as language of instruction and academic performance

2.5.2.1 Home language as language of instruction and academic performance pre-tertiary level

First language instruction results in (a) increased access and equity, (b) improved learning outcomes, (c) reduced repetition and dropout rates, (d) socio-cultural benefits and (e) lower overall costs.

a. Increased access and equity.

Bilingual programs have generally been instituted in rural areas, among more marginalized populations. They have been widely shown to help those children stay in school longer, reach higher levels of education overall and increase social mobility.

b. Improved learning outcomes.

In Mali, end-of-primary pass rates between 1994 and 2000 for children who transitioned gradually from a local language to French were on average 32% higher than for children in French-only programs. The use of a language that children understand allows teachers to use more active and more effective teaching methods. Supporting mastery of the first language promotes the cognitive development needed to more easily learn a second language. In Brazil, for example, first language teaching has been linked to better acquisition of literacy skills. Several independent studies with indigenous populations have demonstrated that the use of children's home language has been successful in raising levels of literacy in the local language and the national language (Portuguese), as well as raising achievement levels in a variety of academic subjects. In Burkina Faso, children with initial literacy in the Mooré language before beginning instruction in French achieved better results in French and mathematics than students who had only participated in French-language schooling. The use of local languages also ensures that the knowledge children bring to schooling is used as a basis for further learning.

c. Reduction of repetition and dropout.

In Mali, where about 10% of primary school children are in classrooms that use first languages as languages of instruction; these children are 5 times less likely to repeat the year and more than 3 times less likely to drop out of school. In bilingual schools in Guatemala, covering about 15% of the population, grade repetition is about half that of traditional schools, while dropout rates are about 25% lower. These results are all the more significant because children receiving instruction in first languages are often from more at risk populations.

d. Socio-cultural benefits.

The use of local languages for instruction often leads to inclusion of more local content in the curriculum and greater participation of parents and community members as classroom resources. Parents are better positioned to become involved in the school and to feel that their knowledge and their culture are valued. The legitimization of local languages that comes from their use in schooling can strengthen children's, families' and communities' sense of inclusion in schooling. The use of local languages in formal education has a positive impact on adult literacy as well. As parents see their children successfully learn to read and write in their own language, the parents are often motivated to attend literacy classes as well.

e. Lower Costs.

The financial benefits of the use of local languages in education derive largely from decreases in repetition and dropout. In the few cases where these benefits have been calculated, the savings have considerably outweighed the incremental costs of establishing and maintaining schooling in local languages (production of learning materials, teacher training, to name only a few). In Mali, for instance, a World Bank study found that French-only programs cost about 8% less per year than mother-tongue schooling, but the total cost of educating a student through the six-year primary cycle is about 27% more, largely because of the difference in repetition and dropout rates. Similar benefits have been found in Guatemala (The World Bank, 2005).

2.5.2.2 Home language as language of instruction and academic performance at tertiary level

In many developing countries where the language of instruction in the university is not the first language of its inhabitants, universities require their applicants to provide proof of sufficient proficiency in the language of instruction. South Africa has eleven official languages, of which two minority languages (Afrikaans and English) are utilised as the official languages of most South African Universities. As part of the current admission criteria at most South African Universities it is required to have achieved a specific grade for English and student are required to write a language aptitude test. Should the prospective student fail, the next requirement would be to enrol for a language module in order to assist the student with mastering the language.

Comparatively limited research studies have surveyed the relationship between English language proficiency of students with English as a second language and academic performance, mostly at either US or UK universities and colleges (Hale, Stansfield & Duran, 1984; Graham 1987; Light, Xu, Mossop, 1987; Bers 1994; Stoynoff 1997). Van Eeden, De Beer and Coetzee (2001), Graham (1987) and Seelen (2002) have found that a proficiency in the language of instruction does indicate a significant relationship with academic performance.

Although some researchers discovered statistically significant correlations, others found no relationship at all. Regrettably, many of the studies conducted were often limited to only one study course and most make no effort to control for overall academic performance.

Even if the medium of instruction beyond school is to remain English, for example, research all across the world seems to have proved that learners, once their cognitive skills are firmly rooted in their first language, find it relatively easy to acquire or switch to another language (like English) to which they have been exposed. This line of thought, i.e. a mother-tongue based bilingual education at school, is widely supported, inter alia also by Alexander (2003) who outlines the ideal system as follows: '…what we have to propagate immediately, intensively and continuously, is the rehabilitation of mother-tongue education within the context of a bilingual educational system where the other language in most cases will be English.' He therefore argues strongly for the retention of English, but as a second and supportive language to the mother tongue.

One should not forget that many inhabitants of South Africa are exposed to English daily through the mass media, particularly television with intensive audio input, hence an underlying base, even if passive and not productive, is established. With a sound first language education at school, this passive internalisation could be reasonably easily transformed into a productive mode. The current situation in the South African schools is not conducive to the implementation of the indigenous languages as mediums of instruction at institutions of higher learning. Unless the schools adopt an approach that supports mother tongue tuition, it is probably unlikely that the mediums of instruction at institutions of higher education will change.

2.6 GENDER

2.6.1 Background to Gender

Ethnographic research studies on minority groups in the US, which includes female youths', apprehension to education explained students' perception of class- and gender-related constraints in addition to race-related constraints. However, in contrast to the findings of Lao (1970) and Jorgenson (1971), Gurin and various associates (Gurin, Gurin, Lao & Beattie, 1969), were of the opinion that there was a consistent relationship between students' discernments of the opportunities available to their social groups and their orientation towards education. Although these research studies may have imitated the assumptions and findings exhibited by the majority of previously conducted research, it contributed to the body of knowledge by capturing students' precise perceptions of the barriers associated with mobility.

2.6.2 Gender and Academic Performance

Although a few research studies have indicated that gender can predict, to some extent, academic performance amongst first year students at a higher education institution (Case & Richardson, 1990; Norland, 2002; Robinson & Biran, 2006; Dayioğlu & Türüt-Aşik, 2007) not sufficient research exists in order to compile a concise review of the literature.

Women in higher education institutions are often found to outperform men. Hyde and Kling (2001) found this to be true regardless of the measure of success used. Betts and Morell (1999) report that gender remains a significant predictor of academic success at higher educational level after controlling for various individual characteristics such as ethnic background and high school attendance. Kim, Rhoades and Woodard (2003) found that Grade 12 results have a significant influence on academic success although at the individual level gender correlates significantly more with academic success than Grade 12 results. Correspondingly, females were found to attain better results than would be predicted from Grade 12 results (Bridgeman & Wendler 1991; Wainer & Steinberg 1992; Leonard & Jiang 1999; Hyde & Kling 2001). Many researchers were of the opinion that a significant part of the under-prediction for male's academic success can be contributed to the difference in course registration patterns of male and female higher education students. Ruling this out, Leonard and Jiang (1999) suggested that females have better study skills than male students. Other researchers were of the opinion that female students attain higher results than male students due to the fact that females worked harder and were more diligent with class attendance (Wainer & Steinberg 1992).

Exploring academic success in terms of study program success, Wainer and Steinberg (1992) determined that although women had lower academic results, female students received similar results than male students for first-year mathematical subjects. Female students continued to attain higher results at first year higher educational level than male students (Astin & Panos, 1969).

In contrast, Linn (1978) came to the conclusion that predicting academic success for both male and female students lead to methodical under-prediction for female students. This raised both legal and ethical concerns due to the use of a single predictor to select applicants for admission to the institution or to award scholarships may unfavourably influence female students' chances.

Alexander and Eckland (1974) found that among the white community, females were likely to obtain less education than males of similar family background and mental ability, regardless of better performance, academically.

At school-level, female learners are commonly found to achieve better results but were more inclined to perform worse than male learners in achievement tests (Lao,1970). This pattern was explained by the better study habits and better language abilities of females. Young and Fisler (2000) explained the enhanced performance of male learners in achievement tests by denoting to the different socio-economic backgrounds of learners. Young and Fisler (2000) found that male learners commonly came from homes where the socio-economic status is of higher rank. Some researchers have argued that the content of the achievement test and/or the administration thereof favours male leaners (Bridgeman & Wendler, 1991), yet other researchers explained the variance in performance by observing factors such as difference in subject taking behaviour, classroom experiences and cognitive processing (Byrnes, Hong & Xing, 1997; Young & Fisler 2000). The literature survey on gender differences in educational performance at different levels indicate mixed results. However, one common finding is that females outperform their male counterparts in higher education.

2.7 CONCLUSION

The above highlighted movements in the literature on predictors of academic performance indicates increased interest in the topic despite lack of theoretical clarity, inconsistencies and research gaps within the literature. These movements have hampered both academic progress on the topic and its functionality. These circumstances played an important role in justifying this research study which was necessary to determine a more focused approach for further research and improvement. The chapter 3 will elaborate on the research design and the methodology followed in analysing the data obtained for the research.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

Chapter 2 identified several research issues from the body of knowledge available in the field of succeeding in higher education. It also seemed that various methods were used to study higher educational success in previous research. This chapter outlined the empirical research part of the study. Since the research question is aimed at analysing the relationship between four variables, the quantitative ex post facto research approach was adopted in this study. Secondary Data were used from first year students studying at a faculty of commerce and inferential statistics were used to analyse the data. The appropriateness of these methods as well as their advantages and limitations for the current study were discussed.

3.2 RESEARCH PARADIGM

Creswell(2009) based his opinion of what precisely a research paradigm is on that of Guba(1990), who believes that it is “a basic set of beliefs that guide action”. Creswell(2009) believes that researchers’ paradigms are shaped by their own general orientation and the nature of the research. The paradigm is shaped by various factors such as the discipline area, beliefs and previous research experience.

Guba and Lincoln (1994) identified four paradigms that guide research, namely Positivism, Post-Positivism, Critical Theory and Constructivism. The more traditional form of research is represented by the assumptions made by post-positivists. Yeung (1997) describes the post-positivist paradigm as “all knowledge is fallible but not equally fallible”. The philosophy that governs the post-positivist paradigm is; “causes determine the effects or outcomes of a situation” (Creswell, 2009). Post-positivist researchers feel the need to investigate, test and verify the causes of certain phenomena governed by laws and theories that direct the functioning of the universe in order to better understand the universe. The knowledge that is acquired through the post-positivist paradigm is founded on careful observation and measurement of the objective reality that exists within the universe (Creswell, 2009) and is a useful paradigm for researchers who have an interest in some characteristics of positivism such as quantification (Seale, 1999). Thus, studying and observing the behaviour of individuals by using numeric measurements is of extreme importance in the post-positivist paradigm. The Post-positivist approach assume that reality is numerous, subjective and mentally constructed or created by the individuals involved in the research and this reality does not exist in a vacuum but is influenced by the context within which it exists.

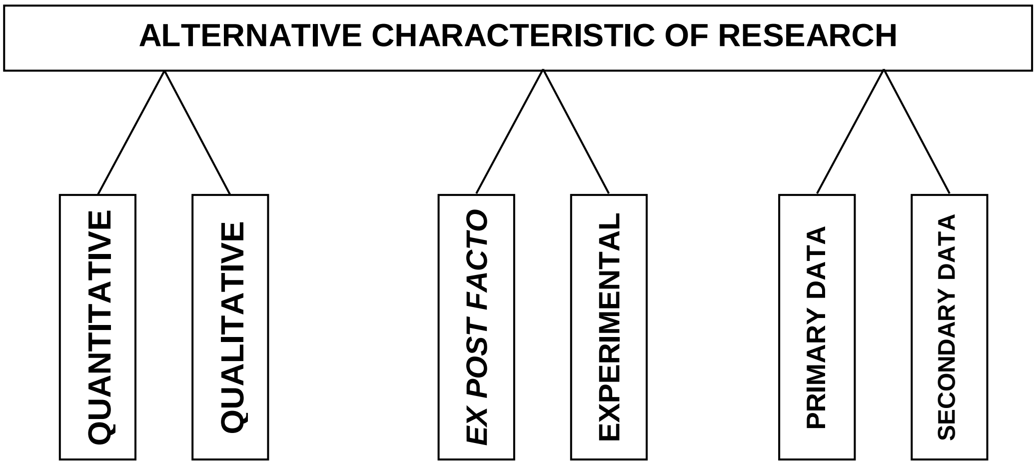
The interactive and participatory nature of qualitative and quantitative approaches is seen as limiting within the post-positivist paradigm (Maree, 2010). Because post-positivists utilise interactive and participatory approaches, positivists criticize the subjectivity and researcher bias based on the fact that it is only an assembly of anecdotes and personal impressions. Those in favour of conducting research from a more functionalist approach argue that the quantitative research approach could be used to strengthen the data gathering and analysis process.

Thus, post-positivism is based on observation and measurement, theory verification, determination and reductionism (Creswell, 2009) and is therefore the most appropriate paradigm to base this research study on.

3.3 RESEARCH DESIGN

The research design reveals the type of research study undertaken to provide acceptable answers to the research problem and questions (Mouton, 2001). According to Kerlinger (1973) the research design has two basic purposes, in other words to provide answers to research questions and to control variance. Research designs are developed to enable the researcher to answer research questions as validly, objectively, accurately, and economically as possible. The reliability of observations and conclusions made during the empirical study are significantly

Figure 3. 1 Alternative Characteristics of research



enhanced if the research design is meticulously planned and executed. In designing the research for this study the aim was to select a design that would satisfy the goals of the research question. Therefore the research questions dictate the research design. The fundamental choices leading to the final research design are shown in Figure 3.1**.**

Following is a brief discussion on each of the characteristics in order to put the study into perspective.

3.3.1 QUANTITATIVE RESEARCH VERSUS QUALITATIVE RESEARCH

According to Creswell (2009) a research approach can be considered as a structured plan, which includes the procedures by which data will be collected and analysed. There are two types of research approaches and these include qualitative and quantitative methods. Creswell (2009) described the two types of research designs as follows:

- Quantitative research: This research approach is a means for discovering and understanding the meaning individuals or groups, link to a social or humanistic problem. This method poses a more inductive style of enquiry.
- Qualitative research: This research approach tests objective theories by examining the relationship among variables. This method of enquiry poses a more deductive research style.

According to Maree (2010) quantitative research can be described as “a process that is systematic and objective in its ways of using numerical data from only a selected subgroup of a population to generalise the findings to the population that is being studied”. Therefore quantitative research is a method used to test objective theories by examining the relationship amongst variables. These variables can be captured with the help of instruments and the numerical data can be analysed by utilising statistical procedures. This form of analysis sustains a deductive style, focuses on testing theories, protects or illuminates bias, control alternative explanations and generalise the findings (Creswell, 2009). The aim of this research study is to provide an unbiased, valid and reliable finding to the research question. By employing a quantitative approach for this research study, this can be achieved.

3.3.2 STRATEGY OF INQUIRY

Creswell (2009) identified two inquiry strategies relevant to quantitative studies, namely: Non-Experimental and Experimental Research. The first mode of inquiry, Non-Experimental (Survey) research, provides a quantitative description of the concepts measured in a population. According to Leedy and Ormrod (2010) survey research entails acquiring information about a single or multiple groups of individuals by asking questions and tabulating the results. The aim of this inquiry strategy is to discover something about a population by surveying a sample group of individuals from the population. This is also called a descriptive or normative survey (Leedy and Ormrod, 2010).

The choice of strategy of inquiry is determined by the philosophical paradigm, research question and the purpose statement (Creswell, 2009). Therefore the strategy was to investigate and observe data obtained from a previously designed questionnaire that provides factual information on student’s school results, whether they are instructed in their first language, gender, and the province they originate from.

3.3.3 EX POST FACTO RESEARCH

According to Kerlinger (1973*) "ex post facto research is a systematic empirical inquiry in which the researcher does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables*".

In contrast Kerlinger (1973) sees experimental research as the "*ideal*" of science. In his words "*an experimental design is one in which the investigator manipulates at least one independent variable*" and adds "*In ex post facto research one cannot manipulate or assign subjects or treatments, because the independent variable or variables have already occurred, so to speak"*. He points out that "*the main reason for the pre-eminence of the controlled experiment is that the researcher can have more confidence that the relations he discovers are the relations he thinks they are, since he discovers them under the most carefully controlled conditions of inquiry. The unique virtue of experimental inquiry, then, is control*".

While Kerlinger (1973) contrasts *ex post facto* research with experimental research, he concludes that it would be unwarranted to infer that *ex post facto* research is inferior to experimental research, especially in the social sciences context. It can easily be concluded that *ex post facto* research is merely correlational. However, such a statement would be an oversimplification. It is imperative to come to a balanced understanding of the strengths and weaknesses of both kinds of research.

Kerlinger (1973) asserts that *ex post facto* research has three major weaknesses:

- The inability to manipulate independent variables;
- The lack of power to randomise; and
- The risk of improper interpretation.

In other words, compared to experimental research, *ex post facto* research lacks control; this lack is the basis of the third weakness: the risk of improper interpretation. The danger of improper and erroneous interpretations in *ex post facto* research is grounded in the credibility of many explanations of complex events. However, when guided by proper hypotheses the results of such research studies can be more valid.

Kerlinger (1973) pointed out that despite the weaknesses much *ex post facto* research must be done in the social sciences because many research problems in the social sciences do not lend themselves to experimental inquiry. Many of the research problems in the social sciences lend themselves to controlled inquiry of the *ex post facto* kind, which is also true for this study.

3.3.4 THE USE OF SECONDARY DATA

Secondary data are data that have already been collected for some other purpose. It refers to data collected using a survey strategy, usually by questionnaires that have already been analysed for their original purpose. The data are made available as compiled data tables or as downloadable matrix of raw data for secondary analysis (Saunders *et al*., 2009). Secondary data were used in this study.

3.3.4.1 Advantages

Saunders *et al* (2009) draws on the work of others by stating that secondary data saves enormously on resources, in particular time and money of the researcher and research facility. Secondary data is also discreet and very confidential as the data has already been collected by a third party. Analysing secondary data may also result in unforeseen new realisations. The final and last advantage of using secondary data is that the data can be accessible to more researchers that can scrutinize the research study’s findings.

3.3.4.2 Disadvantages

The disadvantages of making use of secondary data may mean that the data were collected for purposes other than the aim of the research, which may result in biased data. A last disadvantage is that access to the data may be challenging or there might be a cost involved and ethical issues may arise if not taken into consideration and managed appropriately.

3.3.5 RESEARCH DESIGN CHOICE

With the above in mind the research design was constructed to reflect the following characteristics:

- It falls within the quantitative research paradigm;
- It is the *ex post facto*;
- Secondary data is used.

3.4 THE SAMPLE

This section describes the considerations taken into account in sampling respondents, including the sampling method, how the sample size was determined, and the sampling procedure followed. The composition of the sample is additionally described in terms of gender, province, home language, preferred language of instruction, first year results.

3.4.1 SAMPLING

When collecting data for quantitative studies it is impractical or impossible to assess all individuals, or the population, that belongs to the specific group identified by the research project. A sample of the population therefore needs to be selected

(Saunders *et al,* 2009; Struwig & Stead, 2001). With a sample, time, money and effort can be focussed to generate higher quality research (Strydom & Venter, 2002). Sampling can therefore be defined as "the process of choosing, in a systematic fashion, a sub-set of cases from which data will be collected, from the pool of all those potentially relevant to the research being conducted. The sub-set selected is the sample, and the pool is the target population" (Aldridge & Levine, 2001).

There are two types of sampling techniques, that is, probability or representative sampling and non-probability or judgmental sampling (Saunders *et al*, 2009). In non-probability sampling there is no means of predicting or guaranteeing that each element of the population will be represented in the sample. This type of sampling is also characterised by the fact that some members of the population may never be sampled. In this study the non-probability technique of convenience sampling were used. A sample of convenience takes members of the population as they become available. The students' data which were analysed were already enrolled at the university and therefore a sample of convenience.

Determining the sample size needed to conduct a study effectively can be challenging and is influenced by various factors. Strydom and Venter (2002) warn that the effect of the sample size has an impact on the statistical analysis as it may results in either insensitive or overly sensitive data. The recommended sample size for a population of 1000 is 278, which is approximately 28% of the population (Johnson & Christensen, 2000). Therefore this sample size (n=1496) is deemed to have the sufficient number of participants for a population of 7500 enrolled students at the university as mentioned in Chapter 1.

In this research the total population consisted of students at a first year level that reached the end of their first year studies at university in the commerce faculty. All the results from modules enrolled for, formed part of the first year results to determine the success or failure of the student. A total of 1960 respondents' data were obtained of which 464 were corrupted or incomplete and therefore 1496 students' data could be used.

3.4.2 UNITS OF ANALYSIS

This study utilised a sample of students registered for the 2010 academic year in the commerce faculty in a higher education environment at a university in South Africa. The students' first year results were used as the indicator of academic success. These first year results included all subjects registered for in the first year across all programs in the commerce faculty. Success were achieved when a student passed the first academic year, thus receiving a final result of 50 percent for all subjects registered for in the first year.

3.4.3 SAMPLING METHOD

Students admitted for a study programme in the academic year of 2010 in the Faculty of Commerce at a large University in South Africa, will be used as the data source for this research study. Previously completed records were analysed and utilised for the purposes of this study. Therefore the data will be secondary and the statistical analysis was conducted on the cohort.

3.5 COMPOSITION OF SAMPLE

Frequency distributions of the sample in terms of biographical data are indicated below.

Table 3. 1 First year results distribution of sample

First Year Results	Frequency	Percent
<50%	294	19.7
50% - 74.9%	1131	75.6
>75%	71	4.7
Total	1496	100.0

Table 3.1 indicates that 19.7% of the students received less than 50% which means that 19.7% of the students that registered at the commerce faculty in 2010 failed their

first year. Table 3.1 also indicates that 75.6% of first year students achieved between 50% and 74.9% at the end of their first year and only 4.7% passed their first year at the a large University in South Africa cum laude. In essence 80.3% of students passed their first year in 2010.

Table 3. 2 Race group distribution of the sample

Race	Frequency	Percent
1 (White)	825	55.1
2 (Coloured)	39	2.6
3 (Indian/Asian)	97	6.4
4 (Black)	533	35.5
Total	1496	100.0

The data further reveals in a frequency table in Table 3.2 that the largest number of students enrolled at the university in the commerce department is predominantly white(n=825), black students represents the second largest percentage of the students enrolled (n=533), Indian(n=97) and Coloured(n=39) students are the least represented with 6.4% and 2.6% respectively.

Table 3. 3 Gender distribution of the sample

Gender	Frequency	Percent
1 (Male)	602	40.2
2 (Female)	894	59.8
Total	1496	100.0

Table 3.3 indicates the frequency of male versus female students enrolled for the 2010 academic year. The percentage of enrolled males(n=602) is 19.6% less than the percentage of enrolled females(n=894).

Table 3. 4 Home Language Instruction distribution of the sample

Home Language	Frequency	Percent
Yes(1)	884	59.09
No(2)	612	40.91
Total	1496	100.0

Table 3.4 indicates that a frequency of 59.09% of students received tuition in their first or home language (n=884), whereas 40.91% of students enrolled at the university did not receive instruction or tuition in their first or home language(n=612).

Table 3. 5 Frequency distribution for Home Language instruction of the sample

Home Language	Frequency	Percent
Afrikaans - J	458	30.61
English - K	426	28.48
English - K(no)	17	1.14
Unknown - N	1	0.07
Sesotho sa Leboa- A	104	6.95
Setswana - B	41	2.74
Zulu - C	24	1.60
Xitsonga - D	34	2.27
Xhosa - E	97	6.48
IshiVenda - F	32	2.14
IsiNdebele - G	47	3.14
Sesotho - H	100	6.68
SiSwati - I	11	0.74
Afrikaans – J(no)	62	4.14
Swahili - L	4	0.27
German - M	7	0.47
Unknown - N(no)	31	2.07
Total	1496	100.0

Table 3.5 indicates that the sample consist of 30.6% students with Afrikaans (n=458) as first language and 28.48% for the sample consists of students with English (n=426) as first language. An interesting fact is that 4.14% of students with Afrikaans as first language (n=62) and 1.14% of the sample with English as home language(n=17) do not receive instruction in their first language, although the university's official tuition languages at that specific time were English and Afrikaans.

Table 3. 6 Province here student wrote matric distribution

Province	Frequency	Percent
Eastern Cape	21	1.4
Free State	26	1.74
Gauteng	821	54.88
International	232	15.1
Kwazulu Natal	85	5.68
Limpopo	121	8.09
Mpumalanga	122	8.16
Northern Cape	18	1.2
North West	50	3.34
Total	1496	100.0

From Table 3.5 it is apparent that most of the students that enrolled at the university wrote matric in Gauteng (n=821) with 55% representation, with 15%, the second largest group, coming from another country (n=232). Mpumalanga (n=122) and Limpopo (n=121) both produced 8% of the enrolled students for 2010.

3.6 DATA COLLECTION

Making use of secondary data, utilising record analysis, is the favoured data collection method for the research study due to the economic advantages that is associated with it as well as the swift turnaround time. The disadvantages of such a data collection method is that in-depth knowledge of the phenomena stays undiscovered as qualitative methods is not utilised for data collection.

3.7 DATA ANALYSIS

This section deals briefly with the statistical analysis employed in the study. It covers the fundamental distinction between descriptive statistics and inferential statistics with a greater focus on inferential statistics. More specifically the following statistical methods will be employed:

3.7.1 DESCRIPTIVE STATISTICS

Struwig and Stead (2001) were of the opinion that descriptive statistics provide statistical summaries of data in order to provide a broad, rational and direct overview of a large number of data. Prior to conducting the statistical analyses, it is imperative to determine whether any of the assumptions of the analyses were not violated, which involves obtaining descriptive statistics on the variables, including the mean and the standard deviation (Pallant, 2005). In this study the descriptive statistics used for biographical variables were frequencies. Frequencies indicate how many individuals gave each response, for example how many males and how may females (Pallant, 2005). Frequencies were used to indicate province of matriculation, gender, race, home language and tuition language preference. The descriptive statistics were also used for the first year academic results and the Grade 12 results.

Descriptive statistics were used as the analysis to investigate the quality of the data as the data were secondary data and collected by other individuals. A frequency analysis was conducted in order to illuminate the type of data collected. Outliers and coding errors were identified during the frequency analysis. An outlier is considered "...an observation very different from most others" (Field, 2005). Field (2005) suggests that outliers have the ability to render statistical bias, for example by affecting the mean score. Once the outliers were removed the spread of scores, mean and standard deviation of the scores were investigated.

With the aid of the frequency analysis, it could be determined whether the data met the assumptions for parametric statistics. When considering the parametric requirements it is imperative to look at the distribution of the data, the sample size, whether the variances are equal, as well as whether the data can be considered as interval data. The parametric assumptions that should be met in order to be able to utilise parametric statistics are provided in table 3.1.

Table 3. 7 Assumptions required for Parametric Statistics.

Requirements for Parametric Statistic	Description
Normally distributed data	It is assumed that the data is from one or more normally distributed population.
Homogeneity of variance	This assumption means that each of the samples utilised comes from populations with the same variances.
Interval data	This means that the distance between points on the scale is equal at all parts of the scale.
Independence	This means that the behaviour of one participant does not influence the behaviour of another.

Extracted from Discovering Statistics Using SPSS, 2005

3.7.2 CORRELATION ANALYSIS

Correlations are used to describe a relationship between variables (Wellman, Kruger & Mitchell, 2007) and to estimate whether a change in one variable correlates with the changes in another variable. Babbie (2010) defines a *correlation* as "an empirical relationship between two variables that changes in one are associated with changes in the other or particular attributes of one variable are associated with particular attributes of another". The coefficient can take on a value between -1 and +1 (Saunders *et al*., 2009). A +1 value signifies a perfect positive correlation, which indicates that the two variables are precisely related. Therefore, as the one variable increases, the values of the other variable will also increase (Saunders *et al.,* 2009).

A value of -1 represents a perfect negative correlation, which indicates that the two variables are precisely related; however, as the value of the one variable increases, the other will decrease.

The software programme employed for the statistical analyses of this study was SAS Version 9.2. In essence SAS is a computer software programme used for the statistical analysis of data. By using this programme, statistical analyses could be conducted and objective, sound conclusions could be deduced by eliminating human error and bias.

Within this study a Pearson correlation analysis was conducted between grade 12 results and first year academic success, to determine whether a relationship exists.

Where relationships within the data transpired, the direction, strength, size and statistical significance of the correlation were determined. Statistical significance is when the attained result is significant and can therefore be used to generalise to the population (Field, 2005). Statistical significance is usually calculated at the following levels:

- $p<0.05$ (one tailed test)
- $p<0.01$ (two tailed test)

Therefore if the p-value is discovered to be less than 0.05 or 0.01, depending on the study, then the result is significant for the study.

The effect size had to be noted, whilst analysing the data. According to Field (2005) the effect size represents the objective and standardized measure of the extent of the observed effect. The use of the effect size found in the sample would normally be used to estimate the likely effect that the variable would have on the population in general. Cohen's convention (*r*) was used for interpreting the effect size of the correlation coefficients. Cohen's (1988) *r* is an index of linear relationships with limits between -1 and +1. His suggestions for analysing the correlation coefficients is summarised in bullet point form (Field, 2005):

- *r* = .10 (small effect): the effect explains 1% of the total variance.
- *r* = .30 (medium effect): the effect explains 9% of the total variance.
- *r* = .50 (large effect): the effect explains 25% of the total variance.

By conducting the above statistics it was possible to reject or accept the hypotheses formulated in Chapter 1.

An analysis of variance (ANOVA), were used to determine whether province, gender, home language instruction and Grade 12 results significantly explained variance in first year academic success.

3.7.3 INFERENTIAL STATISTICS

Inferential statistics are utilized to infer observations regarding a population from the sample that was drawn (Salkind, 2006). In other words, interpretations can be made about the characteristics of the population, based on the sample that was drawn from that population. Inferential statistics can accordingly be used to generalise findings from the sample to the larger population (Struwig & Stead, 2001). Inferential statistics were used to compare different groups in terms of gender, province of matriculation, home language instruction and grade 12 results. Various studies have examined the relationship between social-demographical variables and academic success (Mountford, Elhert, Machell & Cockrell, 2007; Reisig & DeJong, 2005; Sampson & Boyer, 2001) but very few studies have examined the impact of home language instruction, grade 12 results and province on academic success.

3.8 SOURCES OF BIAS

Bias is the manifestation of an influence or condition that can distort the data or the interpretation thereof. Reliability and validity errors can manifest in the proposed study design (Creswell, 2009). Reliability (dependability) means that similar results of the study must be able to be replicated by other researchers. Two reliability factors could be of concern, namely internal bias and external bias. Internal bias can manifest in the form of questionnaire constructs. External bias can be found when data is interpreted and the wrong results are analysed and presented as the truth (Maree, 2010). Another external bias factor could come in the form of sample selection as only students that have access to internet and that know how to use a computer would be able to complete the questionnaire. Another external bias factor can come in the form of language, as for most students English would be their second language of educational choice. The final form of bias could have manifested in the form of being unable to control the quality of data collected.

3.9 QUALITY, CREDIBILITY AND RIGOUR

The quality of research reliability was assured by being conscious of all possible errors and bias in order to avoid and eliminate it; triangulation of data where various data sources are compared; informant verification of data where interpretation of results are verified; proper preparations were done (Saunders *et al,* 2009). The researcher ensured that the participants and their institution's rights, and confidentiality were protected during the research process (Creswell, 2009).

3.10 CONCLUSION

This chapter outlined the research paradigm, design and methodology used for this research study. The methods utilised to determine the sample, data collection and data analysis techniques and ethical considerations were discussed in this chapter. In the next chapter the results of the statistical analysis will be revealed and discussed.

CHAPTER 4: RESULTS OF THE STUDY

4.1 INTRODUCTION

Chapter 3 outlined the research design and methodology used for this research study. The research paradigm was identified, the research approach and strategy of inquiry was identified and discussed and led to the conclusion that the research design reflected:

- A quantitative research paradigm
- *Ex post facto* characteristics, and
- Secondary data were utilised

The purpose of chapter 4 was to report, integrate and interpret the results based on data collected from undergraduate students enrolled at a university in South Africa at the beginning of 2010. Data analyses were performed to determine whether the independent variables (grade 12 results, gender, province and home language instruction) statistically significantly explained variance in the dependent variable (academic success) during the first academic year. Conclusions related to academic success were based on the findings of the analyses.

The data collected were analysed using the SAS software, version 9.2. This chapter, as mentioned in the Methodology Section, Chapter 3, included the presentation of correlation analysis, ANOVA analysis, summary of the main findings and conclusion in order to assist with the interpretation of the data obtained. By performing the analyses it was possible to either prove or reject the hypotheses that were identified in Chapter 3.

The research hypotheses for this research study were as follows:

> **H_1: A significant positive relationship exists between students' grade 12 results and academic success.**

H_2: Home language as language of instruction significantly explains variance in academic success at higher education level.

H_3: The province where a student matriculated significantly explains variance in academic success at a higher education level.

H_4: A student's gender significantly explains variance in academic success at a higher education level.

4.2 DATA ANALYSIS

All the data collected from the sample were quantitative and were captured electronically on an excel spread sheet which was exported to the SAS program for data analyses. Data were screened for errors such as missing data, erroneously entered data, asymmetrical distributions, and outliers (scores with extreme values) that may result in distorted statistics and incorrect conclusions (Struwig & Stead, 2001). This was done using the SAS program.

This study made use of quantitative data analysis, which is defined by Babbie (2005,p.414) as "the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect". The data were analysed by making use of correlation analysis, descriptive statistics and inferential statistics. These analyses are described in more detail below.

4.2.1 CORRELATIONAL STATISTICS

A Pearson correlation analysis were utilised in order to calculate whether there was any relation between Grade 12 results and First year results. It is imperative to keep in mind that the sample consisted of 1496 students and therefore statistical significance is most likely to occur and should be considered with caution.

First, a Pearson correlation analysis was done to investigate the relationship between First year academic success and Grade 12 results. The results of the correlation analysis between Academic Success (dependent variable) and Grade 12 results (independent variable) are reported in Table 4.1 below:

Table 4. 1 Correlation analysis of first year academic results and Grade 12 results

	First Year Academic Success (Term 1)
Grade 12 Results (Grade 12)	0.618*

*Significant at 1% level (p<0.0001)

The correlation between First year academic results, as indicated in Table 4.1, correlated significantly with Grade 12 results (r=.62, p<.0001), and therefore indicates that should Grade 12 results increase First Year academic results will increase proportionately.

4.2.2 DESCRIPTIVE STATISTICS

Descriptive statistics provide statistical summaries of data in order to provide a general, logical and straightforward picture of a large amount of data (Struwig & Stead, 2001). This section therefore describes the basic characteristics of the data in the study. A frequency, mean and standard deviation analysis were conducted. Frequency distributions are often organised tabulations of the number of individuals located in each category on the scale of measurement (Gravetter & Wallnau, 2009).

To continue the analysis descriptive statistics were conducted to investigate the quality of the data. Through the descriptive statistics a frequency analysis was conducted to give a comprehensive framework of the data collected. At that stage outliers and coding errors were identified. An outlier is considered as "...an observation very different from most others" (Field, 2005). According to Field (2005), outliers have the ability to make statistics bias, for example by affecting the mean score. Once the outliers were removed the spread of scores, mean and standard deviation of the scores were investigated.

The descriptive statistics indicated that 1959 student's records were received. A number of 463 candidates needed to be excluded due to faulty information as part of the data set. The descriptive statistics and comparisons between gender, province, and home language instruction are presented in Table 4.2.

In Table 4.2 it is apparent that students from the Eastern Cape, Free State, Gauteng, KwaZulu Natal, Limpopo, Mpumalanga, Northern Cape and North West, first year academic results do not differ significantly from each other. Students from KwaZulu Natal and Limpopo first year results did not differ significantly from each other but international students differed from most of the other provinces' students except Northern Cape students.

Table 4. 2 Descriptive Statistics of Province and Academic success

Province	N	Academic Success	
		Means	Standard Deviation
Eastern Cape	21	56.62[a]	9.57
Freestate	26	56.15[a]	8.58
Gauteng	821	58.51[a]	10.02
International	232	60.93[c]	9.73
Kwazulu Natal	85	57.98[ab]	8.62
Limpopo	120	57.56[ab]	9.49
Mpumalanga	123	57.32[a]	9.68
Northern Cape	18	62.06[ac]	8.97
North West	50	57.11[a]	9.74

Means with different superscripts differ significantly at the 5% level

The mean scores for gender types, as depicted in Table 4.3, did not indicate any significant difference between the first year academic success of male and female students as stated by H_4.

Table 4. 3 Descriptive Statistics for Gender and Academic success

Gender	N	Academic Success	
		Means	Standard Deviation
Male 1	602	57.55	10.41
Female 2	894	59.32	9.36

According to Table 4.4 it is apparent that there was a significant difference between students' academic success that receive instruction in their home language and students' that do not receive instruction in their home language.

Table 4. 4 Academic success means for Home Language Instruction

Language	N	Academic Success	
		Means	Standard Deviation
Yes	884	59.2	10.17
No	612	57.75	9.26

By conducting a frequency analysis, deductions could be made as to whether the data met the assumptions for parametric statistics. When considering to use parametric statistics it is important to look at the distribution of the data, the sample size, whether there is equal variances, as well as whether the data is considered as interval data.

The data within this study violated the assumptions for parametric statistics. In particular the assumption for normal distribution of data was violated. In order to prove normal distribution descriptive statistics were conducted and analysed for looking at the Skewness and Kurtosis results obtained. Table 4.5 indicates the skewness and kurtosis scores of the sample in the study.

The descriptive statistics for the Grade 12 results and First Year Results are shown in Table 4.5 and discussed below.

Table 4. 5 Descriptive statistics for Grade 12 Results and First Year Results

	N	Min	Max	Mean	SD	Skewness	Kurtosis
Grade 12 Results	1496	50.28	94.85	69.94	7.69	0.31	-0.33
First Year Results	1496	23.33	85.55	58.61	9.83	-0.06	-0.09

In Table 4.5 the mean score for the Grade 12 Results were 69.94, while the minimum score was 50.28 and maximum score was 94.85, with a standard deviation of 7.69. For the First Year Results the mean score was 58.61, while the minimum score was 23.33 and maximum score was 85.55, with a standard deviation of 9.83. With regards to the skewness and kurtosis of the assessment data for the First year results, the descriptive statistics indicated that assessment results are slightly negatively skewed and therefore a Normal Blom Transformation were done in order to accommodate the violation for parametric statistics.

4.2.3 INFERENTIAL STATISTICS

Inferential statistics are utilized to infer observations regarding a population from the sample that was drawn (Salkind, 2006). In other words, inferences can be made about the characteristics of the population, based on the sample that was drawn from that population (Struwig & Stead, 2001). Inferential statistics can furthermore be divided into parametric and non-parametric statistics. Parametric statistics is a broad term for statistical procedures that calls for the sample data being analysed to be drawn from a population with a recognized form, usually the normal distribution. Parametric techniques also require that various assumptions be met before they may be used. Non-parametric statistics, on the other hand, are a class of statistical procedures for establishing relationships between variables without making assumptions regarding specific distributions or parameters, although each specific procedure is dependent on particular criteria. Parametric procedures are favoured over non-parametric statistics as they have more statistical power and are more apt to detect statistically significant effects (Reber & Reber, 2001).

A secondary objective of this study was to determine whether there are statistically significant differences in the means of the different subgroups of the sample regarding the province they matriculated in, their gender or whether they received instruction in their home language during their first year a university. In order to determine whether the independent variables explained significant variance in the dependent variable (first year results), a between-groups analysis of variance (ANOVA) was conducted. ANOVA compares the variance between the different groups. An F-ratio is computed that signifies the variance between the groups divided by the variance within the groups, and a significant F test suggests that the null hypothesis can be rejected which indicates that the population means are equal (Pallant, 2005). An ANOVA analysis was deemed appropriate as it reduces the probability of a Type-I error since multiple comparisons increase the probability of rejecting the null hypothesis when it should be supported. The data was accordingly analysed by means of the SAS Statistical program 9.2.

In order for the data to comply with the ANOVA assumptions for normality and homogeneity of variance, a normal Blom transformation (SAS, 9.2) was conducted.

In order to determine whether the variables significantly explained variance in academic success at the 0.01 level, ANOVA was conducted and the results are presented in Table 4.6.

Table 4. 6 Analysis of variance for Province, Gender, Home Language Instruction, Grade 12 Results.

	df	F Value	Sig	Eta-Squared
Province	8	10.03	<.0001*	0.0317
Home Language Instruction	1	36.56	<.0001*	0.0144
Gender	1	0.43	0.5126	0.0002
Grade 12 results	1	984.58	<.0001*	0.3887

*Significant at the 1% level (p<0.001)

There was a statistically significant difference at the p<0.001 level for province [F(8,1496)=10.03, p<0001] with no significant difference between results of the students from the Eastern Cape(M=56.62, SD=9.57) , Free State (M=56.15, SD=8.58), Gauteng (M=58.51, SD=10.02), KwaZulu Natal (M=57.98, SD=8.62), Limpopo(M=57.32, SD=9.49), Mpumalanga(M=57.32, SD=9.68), Northern Cape(M=62.06, SD=8.97) and North West (M=57.11, SD=9.74). Students from KwaZulu Natal (M=57.98, SD=8.62) and Limpopo (M= 57.32, SD=9.49), first year results did not differ significantly from each other but international students' results (M=60.93, SD=9.73) differed from most of the other provinces' students except Northern Cape students. The effect size was 0.03, indicating a small effect size according to Cohen (1988). There was also a significant difference between the two groups in home language instruction on higher education level [F(1, 1496)=36.56), p<0.0001] with a significant difference between students receiving instruction in their first or home language (M=59.20, SD=10.17) and students not receiving instruction in their first or home language (M=57.75, SD=9.26) statistics were also significant for the home language instruction. The effect size was 0.01, indicating a small effect size. There seems to be no significant difference between the first year academic performance of men (M=57.55, SD=10.41) and women (M=59.32, SD=9.36).

4.3 SUMMARY OF THE RESEARCH FINDINGS

The main empirical objective of this study was to identify measures of higher education students at risk at a higher education institution in the South African context.

- Students' province of origin has a significant relationship with the student's academic success at a higher education institution.
- Students from the Eastern Cape, Free State, Gauteng, KwaZulu Natal, Limpopo, Mpumalanga, Northern Cape and North West provinces differ with regard to their ability to succeed at a higher education institution.
- The higher education academic success between students' from KwaZulu Natal province and students from Limpopo differs significantly from each other.
- Students' Grade 12 results are significant when determining whether or not they will be successful at a higher education institution.
- There seems to be no significant relationship between gender and academic success.
- A significant relationship exists between home language as language of instruction and academic success.

Based on the above, Hypothesis 1, which states there exists a significant positive relationship between students' grade 12 results and academic success; Hypothesis 2, which states that home language instruction significantly explains variance in academic success; Hypothesis 3, which states that the province where a student matriculated significantly explains academic success were supported. Hypothesis 4, which states that gender significantly explains academic success were rejected.

4.4 CONCLUSION

The main empirical objective of this study was to determine whether there was a difference on higher education success due to OBE. The secondary aim was to investigate broad trends on differences between the respondents with regards to the province they matriculated in, whether they receive instruction in their home language and their gender.

The correlation analysis indicated a significant relationship between Grade 12 results and academic success on a higher education level. The analysis of variance identified province, home language instruction and Grade 12 results as significant predictors of academic success at higher education level. The analysis of variance also identified significant differences between the different provinces and between students that receive home language instruction and those that do not receive home language instruction.

This chapter reported, integrated and interpreted the findings of the data analysis conducted. The next chapter will yield an interpretation and a discussion of the results as well as a review of the research study will be conducted and recommendations will be made for future research projects.

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CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

5.1 INTRODUCTION

Incessant changes in the educational environment the last decade have had major implications for the qualities a student need to exhibit in order to be able make a success of a first year at a higher education institution. Being able to succeed at higher education level will be extremely beneficial for a student's future career aspirations. Numerous studies have recognised the significance of identifying the factors that influence academic success amongst first year students at a higher education level. Factors such as personality, locus of control, gender, language proficiency, mentorship, cognitive ability, racial background, culture, high school results, access tests, motivation, social factors, to name only a few have been identified by past research to have a relationship with academic success.
Given the importance of the construct to students, higher education administration and student support programs alike may find the results from this study informative. The overall purpose of the study is to determine the relationship between academic success and a number of variables in order to better identify students at risk
.
With this in mind the following research questions and hypotheses are constructed in order to aid with the explaination of variance in academic success in order to identify the characteristcs associated with students at risk. The hypotheses are as follows:

H_1: A significant positive relationship exists between students' grade 12 results and academic success.

H_2: Home language as language of instruction significantly explains variance in academic success at higher education level.

H_3: The province where a student matriculated significantly explains variance in academic success at a higher education level.

H_4: A student's gender significantly explains variance in academic success at a higher education level.

In order to be able to investigate these relationships a research study had to be conducted in order to determine which variables significantly explained variance in academic success.

The first chapter served as an introduction to the research study. The background for the research study, the research problem, the purpose statement, the research questions, hypotheses, motivation and a brief overview of the study was also stated, defined and discussed. The research was conceptualised from a South African perspective.

Chapter 2 provided a summary of the available and relevant literature on the various relationships between academic success and known variables. Definitions, main themes, perspectives, approaches as well as different variables with a relationship with academic success were examined. Some variables have shown a significant relationship with academic success. A widespread search investigation was performed on the most relevant electronic databases and the most recent literature on this phenomenon was categorised according to variables and reported.

In Chapter 3 the research design and methodology that were utilised outlined and in this research study. The research paradigm was identified, the research approach and strategy of inquiry was identified and discussed. Data were collected from first year students studying and regression analysis was used to analyse the data.

The purpose of Chapter 4 was to reveal the results based on secondary data from undergraduate students enrolled at a university in South Africa during the year of 2010. A Pearson Correlation was used to determine the relationship between Grade 12 results and academic success. Analysis of variance (ANOVA) was used to determine if race, gender or the number of official languages of instruction a student is comfortable with have any influence on academic success. The results of the analysis indicated that there was a significant relationship between grade 12 results and academic success with a large effect size and therefore hypothesis 1 is approved. Hypothesis 2 is also supported with a significant relationship between race and Academic success of all the variables, which could be an indication that there may be a possibility that academic success can be predicted by taking all variables into account.

The current chapter specifies how the empirical, in addition to the theoretical goals of the study were achieved. The results of the study are discussed and a conclusion is drawn from both the literature review and empirical research. Recommendations are made based on the results of the research study. The value and the limitations of the study are identified and opportunities for future research are proposed.

The aim of this concluding chapter is to contextualise the research within the literature review ant to draw final conclusions regarding the theoretical and empirical objectives of the study. The implications of the research for the academic community, industrial psychology, organisations and higher education are discussed, followed by the limitations of the research. Recommendations are accordingly made with regards to future studies on the topic and the chapter concludes with closing remarks regarding the research findings.

5.2 ACHIEVEMENT OF THE OBJECTIVES

This section discusses the key findings in respect of the objectives of the study, both the literature objectives and the empirical objectives. Conclusions will be drawn taking into account the literature review, the empirical study and the research statement.

5.2.1 Findings regarding the Literature review Objectives

Following is a summary on the key findings of the study in respect of the primary and secondary objectives of the literature research.

The primary objective of the literature review was to conceptualise academic success in the context of OBE curriculum learners. The secondary objective of the literature review was to identify the variables that explain the variance in academic success from past studies conducted on an international and national level. The tertiary and final objective of the literature review was to investigate past findings on the variables mentioned in this study.

With regards to the constructs that defines and influences the success of students at higher education level, it can be mentioned that over a decade, various researchers have identified a number of variables that influence academic success. In Chapter 2 different variables that has a relationship with academic success has been identified from the body of research which included personality, cognitive ability, emotional intelligence, locus of control, approaches to learning, sleeping patterns, dietary, health and leisure habits, high school education.

In Chapter 2 a conceptualisation of the construct "academic success" were undertaken. A discussion of the construct revealed that academic success can be defined as the achievement or the level at which a person has learned to perform a particular skill. Academic failure were attributed to students' attitudes (lack of motivation and/or rejection of accepted academic values), lack of ability and personality characteristics. Two schools of thought have been identified and the first school of thought examined and evaluated affinities in academic performance. This school of thought argues that open admission is necessary in order to develop a student beyond registration and enrolment at the academic institution (Crous, 2004; Van Rooyen, 2001). The second school of thought argued that academic performance can be defined in terms of an attribute or characteristic and as part of a specific group (Cele, 2005; Broekman & Pendlebury, 2002).

A review of the literature revealed that although the concept of determining the relationship between a variable and academic success amongst first year students at a higher education level has been thoroughly investigated, there still has not been consensus regarding a correlation model for academic success nor a model to explain the variance in academic success. Few research studies have been dedicated in determining student success and in other words students at risk on a higher education level.

5.2.2 Findings regarding the Empirical Research Objectives

An empirical aim of the study was to determine the correlation between Grade 12 results and academic success of first year students at higher education level in a South African university. The secondary data were collected on a previous occasion after the students were admitted. Statistical analysis of the data involved correlation analysis and analysis of variance. Following is a discussion on the findings in respect of the primary and secondary objectives of the empirical research.

With regard to the correlation analysis, the aim of the study was to determine how well Grade 12 results correlate with the academic success variable. The Pearson correlation analysis determined the significance of the relationship between grade 12 results and academic success at 0.01% level and it explained 38% of variance in first year academic performance. This is congruent with the findings of Wilcox (1975), Lee, Bryk and Smit(1993) and Mathiasen (1984) which found that high school results has a significant relationship with academic success at a higher education level.

With regards to the analysis of variance, the aim was to determine which independent variable explains a significant variance with academic success. The analysis of variance was conducted in order to determine the significance of the variance between Province of origin, gender, home language instruction and academic success. A normal Blom transformation was conducted because the assumptions for parametric data were not met. From the analysis it was evident that

Province of origin, home language instruction and Grade 12 results significantly explained variance within academic success. This is supported by research conducted by Wilcox (1975), Lee, Bryk and Smit(1993) and Mathiasen (1984). The descriptive statistics suggest that students from the Northern Cape (M=62.06, SD=8.97) tend to be more successful in the first year of study and that their Grade 12 results has a significant relationship with the first year academic success. The empirical findings also suggest that home language as language of instruction explained a significant variance in academic success at a higher education level .
Gender had no significant relationship with academic success as supported by the findings by Norland (2002), Robinson and Biran (2006) and Dayioğlu and Türüt-Aşik (2007).

The objectives of the empirical research were to explain the variance in academic success on a higher education level by taking into account 4 variables. The empirical findings do not support the expectations of the study. It was expected that a significant positive relationship would exist between all variables.

The results of the empirical research suggested that there are significant relationships between Grade 12 results and academic success with a large effect size.

The final conclusion that can be drawn from the analysis is that academic success is an intricate construct that can correlate with numerous variables and the variance there-in can be explain by various variables. In order to identify students at risk in the first year of study it is imperative to take into consideration not only Grade 12 results but also other variables. If at risk students can be identified early in the academic career interventions can be administered in order to prevent high attrition rates during the first year of study.

5.3 IMPLICATIONS OF THE FINDINGS

This research provides valuable insight into the factors that determine academic success for first year students at higher education level. These results may assist to identify students at risk that received education on the OBE curriculum, early in the academic career and implement various interventions in order to prevent high student turnover within the first year. This in turn will assist faculty management to develop appropriate programs to support, guide, tutor, mentor and coach at risk students through the most difficult year of higher education. Specific contributions of the research include:

5.3.1 Theoretical Value

- The research serves as a building block for future research in identifying students form the OBE taught generation that might be at risk.
- The research assesses a part of the theory by Crous (2004) and Van Rooyen (2001).
- The research illustrates the gaps in the admission and retention strategy of the higher education industry.
- The research provides an overview of the variables that explain variance in academic success and the one that significantly correlates with academic success.

5.3.2 Practical Value

- The research provides support to the framework and criteria for assessing and determining student academic success for the purpose of identifying students at risk.
- The research enables a higher education institution to better understand the factors that may or may not influence student success at first year level and therefore manage student attrition rates better.

- The research lends support to the very important role student support departments play in student performance and retention.
- From a career counselling and career guidance perspective, the findings can be used to identify students that might be at risk of not succeeding at the study course enrolled for, which will have a devastating effect on a student's academic and professional career.

5.3.3 Methodological Value

- The research supports the value of quantitative methods in assessing academic success of students at a higher education level.
- The research reinforces the principles of ex post facto method according to Kerlinger (1973).

5.4 LIMITATIONS OF THE STUDY

Although this study has provided insights into the correlation between Grade 12 results and academic success as well as explained certain variances in academic success within the South African context, it is important to recognise limitations associated with this study:

- The findings of this research study are limited to the first year of a student's academic career.
- The findings do not allow for definite causal conclusion due to the empirical design methodology utilized and the ex post facto nature of the study. The correlation findings as well as the analysis of variance are only applicable to the sample that includes students from the commerce department at a specific university in South Africa, therefore generalisation can only take place after including students from other higher education institutions in South Africa.
- Unequal group sizes within the different categories resulted in data that initially violated the assumptions for normality and homogeneity of variance.

- Another limitation is the sample size of 1496 students which can easily render statistical significance due to the large amount of data.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

Future research studies could be conducted to analyse the variables through a qualitative enquiry or mixed method enquiry in order to obtain more in depth knowledge and understanding about the variables and the constructs that influence the outcome. A measurement that is able to assess more constructs when aiming to determine the characteristics of students at risk might be developed. Other constructs measured in conjunction with these measured in this research study can yield in-depth results that can be utilised for identifying characteristics of students that might be at risk of dropping out or failing. This would enable higher educational institutions to manage and assist students that might fall in that category. Studies linked to the regression analysis of more constructs that correlates with student academic success would be a recommendation for future research.

Another possible study would be to investigate the effect of range restriction on the data. The ex post facto inquiry strategy is very limiting towards identifying the precise correlations with academic success. The secondary data consisted of students that were already subject to selection criteria, this study therefore does not take the results into account of students/learners not enrolled at the university and subjected to the universities selection criteria. Also as part of this study, specific subjects associated with academic success can be identified.

Lastly an exploratory study looking into other possible factors that could be affecting academic success and in effect influencing a student’s ability to perform and succeed on a higher educational level can be investigated. This would enable researchers to identify factors that could be affecting the attrition rate of students dropping out in South African higher educational institutions in their first year.

5.6 CONCLUSION

In combination of the literature review and empirical studies conducted in the past, as well as those performed within this study, it was possible to meet the objectives set out in Chapter 1. Various predictors of academic success and performance on a higher education level were discussed in the literature. Numerous debates between researchers were discussed and utilised in the argument of results.

The relationships between race and academic success, gender and academic success, language and academic success and finally Grade 12 results and academic success were investigated and reported by utilising data obtained within a South African environment. Following the investigation of the results the hypothesis were either approved or rejected and evidence to support the findings were provided.

The final results indicated that there exists a significant correlation between a student's Grade 12 results and academic success. Province of origin and home language instruction also explained significant variance within academic success although gender was not significant. The results from this study were found to be replicated separately in one other study conducted by Beck and Davidson (2001) where the researchers indicated that in general the predicting validity between all four variables were found to be significant the slight difference is that the Grade 12 results utilised in this study are from learners educated by the OBE curriculum.

The results of this study have therefore made a contribution to the academic community, higher education and to psychological practice by providing insight into the conceptualisation and effective identification of academic success at higher education level and therefore identifying students that might be at risk in higher education, a construct that has become increasingly important in a race towards equipping young talent for a career.

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