TEACHING AND LEARNING CHALLENGES OF DISADVANTAGED STUDENTS IN THE CONTEXT OF ACCESS AND EQUITY IN SOUTH AFRICAN HIGHER EDUCATION: A CASE STUDY OF THE DURBAN UNIVERSITY OF TECHNOLOGY

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DEDICATION

I dedicate this thesis to my husband Raj, and my children Alishka and Rudhir for their patience, understanding and support throughout my studies. I also dedicate this to my parents Mr Kishore and Mrs Leela Radhakissoon, for their encouragement, patience and support.

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ABSTRACT

During the apartheid era, the higher education system was segregated according to ‘race’ and ethnicity. In this context, the legitimate concern of Historically Black Institutions (HBIs) was that, in the absence of strategies for institutional redress and institutional development, there would be a continuance of the historical patterns of disadvantaging HBIs and the advantaging of Historically White Institutions. Transformation was therefore necessary to ensure a better fit between an institution and the distinctive requirements of the rapidly changing environment. One of the major challenges facing transformation, is the issue of access, equity and quality. The increasing number of students accessing higher education in SA did not necessarily indicate an increased output.

This study will determine which challenges disadvantaged students are faced with in higher education, where teaching and learning are concerned, and it will also investigate the experiences of staff, in respect of measures implemented to address these challenges and promote student success. In an effort to redress inequalities of the past, access to higher education was necessary, which led to an increased number of students participating in higher education. Although higher education has made significant progress regarding the improvement of access, challenges still needed to be overcome in order to increase student success, as measured by graduation rates.

The aim of this study is to investigate the teaching and learning challenges faced by disadvantaged students that inhibit the achievement of access and equity of outcomes, and the experiences of staff in respect of measures implemented to address these challenges, to promote student success at the Durban University of Technology

A quantitative research design was used to conduct this study. Variables were tested using surveys in the form of questionnaires which were distributed to both staff and students to obtain data. A non-probability sample was used for questionnaires. A convenience sampling method was used for both the student

survey and staff survey due to easy accessibility and geographical proximity of the respondents. Data was analysed using the Statistical Package for Social Sciences (SPSS) software package and presented using graphs and tables. The results were interpreted.

Arising from the student survey, it is concluded that the respondents did not experience significant teaching and learning challenges. However, some of the respondents did indicate certain challenges facing disadvantaged students such as teaching challenges which were found to be related to large class size, e-learning, English language proficiency and student readiness for higher education, learning challenges were shown to include large class size, e-learning; English language proficiency and student readiness, as well as classroom participation. Other learning challenges include challenges relating to group work, increased workload and underprepared lecturers. The staff survey revealed a different result. Staff indicated that the students of higher education experienced significant challenges. Higher education institutions cannot therefore ignore that the disadvantaged student requires additional support as compared to those that are not disadvantaged. Therefore, added interventions to improve the performance of the student must be considered. Intervention strategies that were used to improve teaching and learning, included tutorials; writing centres; online tutorials; at risk measures; and SI. The study also found that challenges were experienced, in respect of the intervention measures.

The study confirms that social justice and equity of access is not only about giving access to the disadvantaged student, it is about achieving equity of outcomes. Teaching and learning of higher education students cannot therefore be taught in a general context. A student's disadvantage must be considered and analysed so as to provide a teaching and learning classroom that is conducive to all students.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

AD	Academic Development
CDs	Compact discs
DoE	Department of Education
DHET	Department of Higher Education and Training
DUT	Durban University of Technology
ECP	Extended curriculum programmes
HEA	Higher Education Act
HEIs	Higher Education Institutions
HESA	Higher Education South Africa
HAIs	Historically Advantaged Institutions
HAUs	Historically Advantaged Universities
HBIs	Historically Black Institutions
HDIs	Historically Disadvantaged Institutions
HDUs	Historically Disadvantaged Universities
HWIs	Historically White Institutions
ICT	Information and Communications Technology
KMO	Kaiser-Meyer-Olkin
LMS	Learning management systems
MLEs	Managed learning environments
NBT	National Benchmark Test
NCHE	National Commission on Higher Education
NPC	National Planning Commission
NPHE	National Plan for Higher Education
NQF	National Qualifications Framework
NSFAS	National Students Financial Aid Scheme
OSS	Open source e-learning software
PAL/PALS	Peer assisted learning strategies
SA	South Africa

SPSS	Statistical Package for Social Sciences
SI	Supplemental Instruction
TDG	Teaching Development Grant
UCDG	University Capacity Development Grant
VLEs	Virtual learning environments
WIL	Work Integrated Learning
WWW	World Wide Web

CHAPTER ONE

OUTLINE OF THE STUDY

1.1 INTRODUCTION

The higher education sector in South Africa (SA), as compared to many countries worldwide, can be described as a multifaceted system because, in addition to the widespread change and the driving forces that affect it, a different kind of motivation exists (Mapasela and Hay 2005: 712). SA's historical background is one of the main reasons why the higher education system has undergone major changes.

This chapter presents firstly, a background to the study; secondly, the problem statement, the aims and objectives are set out; next, a brief overview of the literature review is given, with the outline of the study and the conclusion completing this chapter.

1.2 BACKGROUND

According to Cloete, Pillay, Badat and Moja (2004: 2), during the apartheid era, the higher education system was segregated and expanded according to 'race' and ethnicity, to the detriment of Historically Black Institutions (HBIs). In this context, the legitimate concern of HBIs was that, in the absence of strategies for institutional redress and institutional development, there would be a continuance of the historical patterns of disadvantaging HBIs and advantaging Historically White Institutions (HWIs) (Badat 2010: 11). Transformation was therefore necessary to ensure a better fit between an institution and the distinctive requirements of the rapidly changing environment (Bainbridge 1996, cited in Viljoen and Rothmann 2002: 2).

Reconfiguration of the higher education landscape began taking place from 2004 onwards. Institutional restructuring resulted in 21 universities which were reduced to 11 institutions. The 11 institutions were made up of five independent institutions and six comprehensive institutions (combination of universities and technikons). One hundred and fifty technical colleges were combined to become 50 merged technical colleges, with 120 colleges of education incorporated into either universities or technikons (Mouton, Louw and Strydom 2013). The Durban University of Technology (DUT) came about as a result of the merger of two

institutions, viz. the M. L. Sultan Technikon and Natal Technikon. More than a decade later, one of the major challenges still facing transformation in higher education in general, is the issue of access, equity and quality (Le Grange 2011).

According to James (2012: 83), the three essential aspects of equity, quality and efficiency, are vital to the success of any public higher education system. Equity is especially important to those who have experienced living in a racially and socially segregated past. A study by Steyn (2009) revealed that, between the years 2001 and 2007, an increasing number of students had access to higher education in SA. However, this did not necessarily indicate an increased output. Further studies undertaken by Wangenge-Ouma (2013: 22) revealed that, although access to higher education by African students grew to 67 percent in 2010, pass rates still remained the lowest. It is evident from the studies undertaken that African students still face challenges preventing them from completing their qualification. Any investigation into such challenges must take the fact into account that many of these students come from disadvantaged backgrounds.

Bearing in mind the challenges mentioned above, the term “marginalised” is often used to describe students that come from disadvantaged backgrounds. Disadvantaged students will be differentiated from “marginalised students”, since they are students who do not necessarily come from the rural areas but face socio-economic challenges and lack basic facilities which inhibit a proper lifestyle. For the purposes of this study, the term “disadvantaged” students will be used. According to Smit (2012: 370), the term ‘disadvantaged’ refers to certain members of the population groups in SA who, during the period of apartheid government, were deprived of a satisfactory school education.

Odhav (2009: 51) proposes that historically disadvantaged institutions were disadvantaged because they did not have the research capacity, and their location in rural areas placed them at the borders of the SA economy. They also lacked financial and other networks.

Firifrey and Carolissen (2010: 991) agree that two of the most common reasons for student drop-out are, firstly, students not being adequately prepared for higher education, and secondly, that students experience financial anxiety and struggle to sustain themselves from month to month. The poor socio-economic status of people

exacerbates the problem, since parents cannot afford to send their children to study at places of higher education. Government has, therefore, made loans available to students in the form of National Students Financial Aid Scheme (NSFAS) funding. However, this is still not enough to see the students through (Jones, Coetzee, Bailey and Wickham 2008: 7). A Teaching Development Grant (TDG) was also made available by government to HEIs to enhance teaching and learning and improve throughput. A decision was undertaken by the Minister of Higher Education and Training in 2013 that a new version of the TDG be introduced., namely the University Capacity Development Grant (UCDG) (Yeld 2014).

This study will determine which challenges disadvantaged students are faced with in higher education, where teaching and learning are concerned, and it will also investigate the experiences of staff, in respect of measures implemented to address these challenges and promote student success.

1.3 PROBLEM STATEMENT

Pressures for universities in SA to restructure, gained significant momentum during the democratic era, with access to higher education in SA becoming necessary after the end of apartheid, in an effort to redress inequalities of the past. Consequently, this led to an increased number of students participating in higher education. Many of these students were from disadvantaged backgrounds and, although higher education has made significant progress regarding the improvement of access, challenges still needed to be overcome regarding student success, as measured by graduation rates (Motala 2005). In other words, although progress was noted, where equality of access is concerned, the result may not produce equality of outcomes (Machingambi 2011: 13). Improving access to higher education for disadvantaged students is not sufficient; it is equally necessary to ensure they achieve success.

The need for more graduates has been clearly stated in the National Planning Commission (NPC 2012) as well as the Green Paper for Post–School Education and Training (South Africa 2012). Targets set by the Green Paper and NPC for 2030, are respectively, a 1.5 million rise by 2030 in total university enrolment, and a further 400,000 graduates a year, in addition to asking for 1.62 million enrolments (CHE 2013: 32). For these goals to be met, HEIs need to be pro-active in finding ways to increase graduation rates and improve student success.

While the importance of student development and success is clearly important to the higher education sector, challenges faced by students once they complete the high school phase, and the subsequent move into the tertiary education phase, can be quite daunting, impacting student success. In dealing with the low student pass rates, the Department of Higher Education and Training (DHET) has implemented not only a new funding framework, as part of transforming teaching outputs, but also created a TDG, and resourced foundation programmes. However, the government has still not decided on appropriate ways to measure and monitor intervention effectiveness. In this regard, it is the responsibility of HEIs to co-operate with DHET, to find ways in which to establish whether the intervention programmes are having any impact on the student.

It is important for students to enjoy equality of access, opportunity, and outcomes. Tinto (2008) points out it is not enough to provide the disadvantaged student access to higher education and claim they are being provided with opportunity, when the environment they are in does not effectively support their efforts to learn and succeed, once access has been gained. By determining the challenges faced by students at the case study institution, viz. DUT, assistance can be provided to the institution in finding ways to curb this problem. This study aimed to identify the teaching and learning challenges faced by disadvantaged students of DUT.

1.4 AIM AND OBJECTIVES

The aim of this study is to investigate the teaching and learning challenges faced by disadvantaged students that inhibit the achievement of access and equity of outcomes, and the experiences of staff in respect of measures implemented to address these challenges, to promote student success at the DUT.

The objectives of the study are:

Objective 1 - To investigate, through a literature review,

- the access and equity challenges arising from transformation in higher education;

- the teaching and learning challenges experienced by disadvantaged students of HEIs and the possible strategies implemented to address such challenges;

Objective 2 - To investigate, through an empirical study, the learning challenges experienced by disadvantaged students at DUT; and

Objective 3 - To investigate, through an empirical study among academic teaching staff at DUT,

- the teaching challenges in respect of disadvantaged students;
- the nature of the measures implemented to address these challenge and
- their perceptions on the challenges and in respect of such measures.

1.5 RESEARCH HYPOTHESES

The following research hypotheses were formulated to guide this study based on the aims, objectives and the literature reviewed:

Ho1: The lack of English language proficiency does not play a significant role in selected teaching and learning challenges relating to the student (poor study skills; poor writing skills; poor comprehension skills; low confidence levels; and poor communication skills).

Ho2: Poor writing skills does not play a significant role in contributing to a student's poor study skills;

Ho3: Overcrowded lecture venues do not play a significant role in selected teaching and learning challenges experienced in the classroom (difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement).

Ho4: A lack of teaching methods for e-learning does not play a significant role in selected e-learning challenges of staff (the lack of training skills; lack of on-line technical support).

Ho5: A lack of understanding of student learning styles used in materials development by staff does not play a significant role in lack of quality e-learning facilities for on-line learning.

Ho6: Student under-preparedness does not play a role in selected learner challenges (lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning).

1.6 RATIONALE FOR THE STUDY

The effect of promoting the success of the student has far reaching consequences, insofar as developing the socio-economic status of the country is concerned. According to Scott (2009: 35), higher education faces two choices, firstly, to either accept the status quo of the country as something that cannot be avoided or, secondly, to pursue factors within the sector's control and purposefully address these. By changing and doing things differently, higher education can successfully close the gap between the challenges affecting access and equity on the one hand, and promoting the success of the student on the other.

In this context of the study, the students are considered to be disadvantaged due to circumstances such as, poor socio-economic backgrounds, poor schools, come from rural areas, and no finances, among others. Challenges of this nature are outside of the classroom yet impact on the challenges inside the classroom, which are related to teaching and learning. The need for this study arose partly from the paucity of previous studies investigating teaching and learning challenges of disadvantaged students specifically.

The approach used in this study, to establish the teaching and learning challenges, was firstly, to examine the teaching challenges experienced by staff and students, and secondly, to examine the learning challenges experienced by the student. This enabled the researcher to investigate, by means of a student survey and a staff survey conducted at the case study institution, the teaching and learning challenges experienced by disadvantaged students.

1.7 LITERATURE REVIEW

1.7.1 Introduction

Higher education has a very important role to play in society, allowing students an opportunity to expand their minds and broaden their knowledge. Those students who gain access to university and obtain a qualification, are more likely to find themselves highly-skilled careers and enjoy both good income and life quality and also contribute to the socio-economic development of society.

1.7.2 Higher education in South Africa

South Africa, during apartheid, upheld unequal systems of higher education that were racially based, with Black students catered for by substandard institutions (Sedgwick 2004). The term “Black” students generally refers to African, Coloured and Indian students. Following the new government taking office after the 1994 democratic elections, the prospect of transforming the then higher education system became a reality and vast disparities and inefficiencies could be identified and addressed (Odhav 2009: 44).

Since 1994, policy development was introduced when former President Nelson Mandela appointed a National Commission of Higher Education (NCHE). It was the NCHE’s role to transform SA’s higher education by developing a sector framework policy. The sector, at that time, comprised training colleges for nursing, agriculture and teachers, as well as technikons and universities, with the policy platform for development of SA higher education being the NCHE (2012).

Starting in 1995 in Parliament, the culmination of this policy framework development process was the Higher Education Act (HEA) of 1997. With the HEA’s (1997) main aim that of redressing past discrimination and ensuring equal access and representation, in the provision of optimal learning opportunities, fostering the creation of knowledge, in order for the potential of all students and employees to be developed, and by providing in the needs of both local and national communities. The Education White paper 3 (1997) details SA policy on higher education.

Included in the Education White Paper 3 (1997), are matters such as reparation funding and financial aid for students, while the necessity of encouraging adaptation and innovation, and building capacity in new areas, is also highlighted. Thus,

strategic goals were formulated for the system to ensure complete transformation of the higher education environment, compelling reparation for past higher education system inequalities and transformation of SA higher education.

1.7.3 Transformation in higher education

Transformation began from 2004, with reform of higher education conditions. By means of a merger and re-designation process, the 36 SA HEIs were trimmed down to 23 (Du Prè 2010: 1).

The DUT resulted from two technikons merging in April 2002; Technikon Natal and M.L. Sultan Technikon. Initially named the Durban Institute of Technology, on 15 March 2006, it became the Durban University of Technology (DUT).

According to Fourie (1999: 276), the country and its people are characterised by the SA higher education transformation having contributed to the wider context of socio-economic and political transition to democracy. The author defines the term “transition” in higher education as changes that, generally, take place nationally, over time.

Higher education has, since, made the transition from elite to mass higher education. However, arising out of massification (the influx of students into higher education) were challenges relating to access and equity.

1.7.4 Equity and access

The goal of higher education transformation in SA was for all students to have access to higher education, regardless of racial differences. This has since resulted in an influx of students into the sector. Where equity, access and equality concepts are concerned, these comprises issues of fairness, potential and opportunity (Machingambi 2011: 13).

1.7.4.1 Equity of access

Part of higher education equity, is the equality of provision and access (Machingambi 2011: 14), while it is elaborated by Cassim (2005, cited by Machingambi 2011: 14) that fair access to equal quality and value educational resources are suggested as equity, in enhancing educational attainment. This holds true, should outcome equity depend on access equity. Entry into higher education

and training could be expressed as affording learners the opportunity to gain access to high quality education and training at educational institutions, in priming for the working world (Strydom 2002). As explained by Scott (2009: 24), student equity can generate ongoing transformation that is sustainable, by utilising the talent in all communities and by way of individual empowerment. Moreover, equity of outcomes is additionally highlighted to be as important as access equity.

1.7.4.2 Equity of outcomes

It was only in 1997, when used in the Higher Education White Paper (DoE 1997) that the term “equity of outcomes” became current, nonetheless, access without success has long been recognised as a meaningless exercise. The manner in which educational development policy and practice should be conceived of and evaluated, is profoundly implicated by equity of outcomes and its importance.

Motola (2005) suggests, whilst significant development has been registered in the improvement of access, there are still many challenges regarding success as measured by graduation rates. The need for HEIs in SA to become more effective teaching institutions cannot be over-emphasised. Related to this, is the imperative to improve pass and throughput rates to acceptable levels (Price 2009). The challenges brought about by transformation have made it difficult for students from disadvantaged communities to move forward.

1.7.5 The Disadvantaged student

Generally, disadvantaged students are not fully equipped to handle challenges they are faced with, upon accessing higher education. According to Jones *et al*. (2008: 21-22), some of the key elements of being disadvantaged include geography (students from rural areas), financial resources, schooling (whether the school attended was under-resourced, low performance, typical of schools reserved for Black Africans under the apartheid dispensation), and language, as well as socio-cultural factors.

Mdepa and Tshiwula (2012: 24) further state that related factors, such as not having a quiet place to study, living far away from campus and pressure from family for financial support, have contributed significantly to student drop-out and poor pass rates. As mentioned above, for the purposes of this study, disadvantaged students

are those residing in rural or urban areas who face socio-economic challenges and lack basic facilities.

1.7.6 Challenges facing higher education

The National Plan for Higher Education (South Africa. NPHE 2001) outlines the transformation and restructuring of the higher education system, as outlined in the Education White Paper 3 (*A Programme for the Transformation of Higher Education*, DoE, July 1997). Its vision is, most importantly, that it seeks to redress past discrimination and inequalities, with a proposal that, by 2011-2016, the overall growth and participation rates would be increased from 15 to 20 percent. However, judging by the high drop-out rates, combined with poor throughput and graduation rates, improvement in equity of outcomes for Black students remains to be achieved.

The findings of Badat (2010: 11) indicate that a participation rate of 15 percent of students in higher education in 2001, had increased by only one percent in 2008. This posed a real challenge to the achievement of the NPHE goal, viz., to meet its target of 20 percent by 2011-2016. A negative consequence has been created for the country's social and economic development as, accompanying this low participation rate, are low pass and student graduation rates.

A study conducted by Letseka, Cosser, Breier and Visser (2010: 39), found HBIs have the highest proportion of students from very poor backgrounds. Cognisance needs to be taken of this, since poor schooling and poor background contribute to the student being underprepared for higher education. While this is another challenge that haunts higher education, resulting in poor pass rates, lack of finance was also recorded as an important issue. Findings of a study by Jones *et al*. (2008) indicated parents were the main source of funding for tuition and living expenses for most students, while other students gain support from NSFAS; however, this funding is not sufficient to cover all costs. In addition to the challenges mentioned above, students of higher education also experience challenges related to teaching and learning.

From the above discussion, it is clear there are challenges facing the disadvantaged student and an urgent need for HEIs to give special attention to challenges that may affect these students, thus ensuring quality graduates are produced. In addition to

the general challenges experienced by higher education students, the study focuses on the teaching and learning challenges of higher education for the disadvantaged student.

1.7.7 Teaching and learning challenges of higher education

Transformation in higher education resulted in many challenges due to the mergers and increased student access, with many new entrants from poor socio-economic backgrounds. As a result, these students, termed disadvantaged students, experienced many challenges, with one such challenge related to teaching and learning. While teaching and learning challenges were discussed separately, teaching and learning cannot be discussed as separate entities (Grösser 2007: 38). Teaching and learning challenges discussed are associated with large class size, e-learning and most importantly, English language proficiency. In order for these challenges to be addressed, strategies and measures need to be implemented.

1.7.8 Measures in place to promote student success

The university sector faces a very serious challenge in improving student success and throughput, making it imperative for this to become a priority for national policy focus as well as at institutions (DHET 2013). Regarded as producing relatively low success rates, for example 74 percent in 2010, compared to the 80 percent norm desired, SA Universities produced a 15 percent graduation rate for the same year, also less than the 25 percent national standard, for students undertaking a three-year contact education degree programme. Only one in three graduates at contact universities complete their courses within four years, while less than one third of students do so in the required time (South Africa 2012: 41).

The above statistics reflect very low success rates, with the Department of Higher Education having investigated ways in which to assist the disadvantaged student in overcoming the challenge of a low success rate. Funding, and teaching and learning, are just two of the many areas in which challenges are experienced by students. Two specific government initiatives deserve particular attention: The TDG; and the NSFAS.

1.7.8.1 The Teaching and Development Grant and the newly replaced University Capacity Development Grant

To improve pass rates and assist students, the government has rolled out a multi-million-rand initiative of the DHET, namely the TDG, which contributes to investment to the value of millions of rand, into SA universities. According to a DHET representative, Dr. Whitfield Green, when the grant is used effectively by universities, the public education system will benefit from better results. He also concurs with a systematic approach to advancing student success rates (Keating 2013). In 2018, the TDG grant was replaced by the UCDP grant which, according to the DHET (2013b), the UCDP transformation objectives for HE include access and success, quality and equity, as well as exploring alternative pedagogies. The grant, which is provided by government, is intended "to support the development of teachers, teaching and teaching material".

1.7.8.2 The National Students Financial Aid Scheme (NSFAS)

In a statement released by the former Minister of Higher Education and Training, Dr Blade Nzimande, on 30 January 2014, NSFAS funding issues were set out. The Minister indicated a number of initiatives put in place by the Government to alleviate the burden of fees for poor parents and students in higher education. The NSFAS was established to ensure access for poor students to post-school education which has, since its inception, helped 1.4 million students. The budget has almost tripled since 2009 and now stands at just over nine billion rand. However, 2014 saw a shortfall of 2.6 billion rand.

The Green Paper for Post-School Education and Training (South Africa 2012) has as its aim, to improve by the year 2030 the participation rate in universities, from the current 16 percent to 23 percent. The growth process will be fairly slow, as increasing throughput will require added attention, while also increasing alternative opportunities for study through other post-school avenues and the college system.

1.8 OVERVIEW OF THE RESEARCH METHODOLOGY

The research methods used in this study are discussed in chapter 4. The quantitative research methodology was used to conduct this study. A survey was carried out using questionnaires which were self-administered. A pre-test was conducted on 40 students and 20 staff to ensure reliability of the research

instrument. A sample size of 378 students and 200 staff was used to conduct the empirical study. A non-probability convenience sampling method was used. Data was collected and analysed using the SPSS Programme. The results from the study are presented using graphs and tables.

1.9 OUTLINE OF THE STUDY

Chapter 1- Introduction

This chapter seta out the background to the research problem, the problem statement, the objective of the research, the rationale and scope of the study and the delimitations.

Chapter 2 - Literature Review (part one): Overview of Transformation in Higher Education

The researcher provided an overview of the transformation of higher education in SA together with the issues of access and equity. Challenges in respect of student, staff and institutional challenges arising from transformation is discussed

Chapter 3 – Literature Review (part two)

This chapter discusses the teaching and learning challenges of the disadvantaged student and the intervention strategies to help promote student success.

Chapter 4 – Research Methodology

In this chapter an overview of the research methodology is presented. The research methodology shows how the research is designed. The methods of data collection are discussed, as well as the target population, the sampling techniques, sample size and sample selection method. The chapter also includes a discussion of the research instruments. A quantitative research design was used to conduct this study. Variables were tested using surveys in the form of questionnaires which were distributed to both staff and students to obtain data. A non-probability convenience sampling method was used for both the student survey and staff survey due to easy accessibility and geographic proximity of the respondents. Data were analysed using the Statistical Package for Social Sciences (SPSS) software package and presented using graphs and tables. Results were interpreted.

Chapter 5 – Analysis of results and discussion of the findings

An empirical study was conducted on both students and staff. Data obtained from both sets of questionnaires were presented and analysed and the findings are discussed.

Chapter 6 - Summary of findings, conclusion and recommendations

This chapter presents a summary of the findings of chapter 5. Conclusions are drawn and recommendations are presented based on the findings of the empirical study.

1.10 CONCLUSION

This chapter provided a brief background to the study. In undertaking this study, it is hoped that the outcome will contribute to the development of measures and policies that better equip the disadvantaged students in facing challenges at HEIs generally.

The next chapter provides a brief overview of transformation of the higher education sector in SA, together with the challenges of higher education in respect of the process of transformation.

CHAPTER TWO
TRANSFORMATION OF HIGHER EDUCATION AND CHALLENGES RELATING TO EQUITY AND ACCESS FOR THE DISADVANTAGED STUDENT

"Learning is a treasure that will follow its owner everywhere." Chinese Proverb

2.1 INTRODUCTION

A discussion on higher education in SA would be incomplete without comparing the state of education before and after apartheid, since the past history of the country and the higher education systems of that time, played an important role in defining and justifying HEIs in existence today.

Firstly, this chapter will provide a brief overview of higher education in SA before and after apartheid with the intention of revealing the inequalities enforced by the apartheid government. The inequalities are highlighted in order to show the dire need for transformation of this sector. Secondly, policy formulation is discussed with the aim of putting plans in place as part of the transformation and redress agenda. Although the process of transformation was a positive step towards making higher education equitable, it presented many challenges for HEIs. Thirdly, in light of the above, the next section briefly summarizes the transformation process and discusses the challenges arising therefrom. These challenges included the lack of preparedness of HEIs in dealing with the increased number of students into higher education, the impact of mergers on HEIs, students and staff, and the impact of declining funding to HEIs for disadvantaged students. Since this study focuses mainly on the disadvantaged student, this chapter will, as a fourth point, examine the definition of a disadvantaged student so that the challenges discussed, are better understood. Some of the challenges discussed will include sub-standard institutions, shortage of qualified staff, lack of institutional infrastructure and racial disparities, in terms of academic qualification. It is clear from the above that the issue of social justice is a matter of concern. This chapter therefore, concludes with a discussion on social justice in higher education.

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2.2 BACKGROUND

According to Pityana (2004: 2), the year 1994, when apartheid was demolished, was a time of hope and a time of change for SA. The reshaping of a new South African democratic society was necessary, with the change agenda featuring HEIs as essential mechanisms. Nelson Mandela stated in a speech on July 16 2003: “Education is the most powerful weapon which you can use to change the world”. This quote would signify how important it was for the country’s people to gain access to a better education system, an opportunity to educate themselves and be removed from the cycle of poverty; this meant better jobs and a better lifestyle for all. As stated by Gurria (2012, cited in Jordaan, Heerden and Jordaan 2014: 1269), investing in human capital, people skills and education, is important for job creation and growth of any country.

After the adoption of the new constitution in SA, new policies were created and implemented in order to start the transformation process. This process involved making higher education accessible to all people, more especially disadvantaged Black people, who were most affected by the apartheid government.

According to Gillard (2004: 13), in terms of the policy context, the transformation process followed a timeline, starting with the 1995 NCHE: Framework for transformation, to the 1996 Green Paper on Higher Education Transformation, to the 1997 White Paper on Higher Education Transformation, to the HEA of 1997, the NPHE 2001 and the subsequent Green Paper on Post-School Higher Education and Training of 2012. The main aim of the above documents was to address the inequalities in Higher Education through the process of transformation. An overview of the above policies will be highlighted in this chapter, in order to show government plans to redress past inequalities of higher education.

The transformation process involved crafting an up-to-date institutional environment. As stated by Badat (2010: 11), two elements were used in designing this new institutional environment. The first element involved higher education restructuring, in the form of mergers, while the second element involved the restructuring of curriculum to ensure diversity.

The transformation of higher education involved increased student access to higher education, consisting mainly of disadvantaged students (Cross and Carpenter 2009, cited in Mouton *et al.* 2013: 287). Both the above aspects of transformation, however, created many challenges for the disadvantaged student. As reported by Malele (2011), these challenges included lack of student funding and government funding, poor infrastructure in dealing with increased student intake, and the effects of institutional restructuring in the form of mergers, on staff and students.

The policy document, Higher Education White Paper 3 of 1997 and the subsequent Green Paper on Post Higher Education and Training (2012), aimed to bring about equity in higher education through the process of transformation, with equity of access, opportunity and outcomes determined as important areas for consideration. However, despite the increased participation of students in HEIs, statistics of universities throughout the country have presented low student throughput and success rates.

Jones *et al*. (2008:18) state that, to assist such students, a combination of increased access to higher education and increased participation by disadvantaged students, together with the need for intervention strategies, is required. Such strategies are vital should higher education wish to successfully increase the throughput and success rates of students. According to the White Paper (South Africa 1997), the main aim in increasing student participation was to ensure student success through increased participation, which has clearly not taken place, since statistics indicate low success rates. The key challenges to student access, as presented by Higher Education South Africa (HESA) (Heerden 2011), were the poor state of basic education in SA, and access to funding, both for individuals and for institutions.

Teaching and learning play a crucial role in the success of all students, from primary through to secondary education. For students of higher education, especially those from a disadvantaged background, effective teaching and learning may be a key element in passing.

Against this background, this chapter will begin by discussing inequalities in higher education, the need for transformation and the challenges that arose therefrom. This is followed by a discussion on teaching and learning challenges, and the interventions and strategies already in place.

2.3 INEQUALITIES IN HIGHER EDUCATION IN SOUTH AFRICA

South Africa is made up of various race groups, namely, White, Black, Coloured and Indian. The White population was considered to be more advantaged than other race groups because of the privileges and rights they enjoyed. During the period of apartheid, the so-called “non-white” people were discriminated against, based on race, gender, class and other such factors and consequently, faced hardships such as having no running water, and the lack of electricity and proper institutional facilities to study (Bharuthram and Kies 2012: 3). These inequalities contributed to poverty among these groups. According to Triegaardt (2006: 2), poverty in SA was clearly visible, depicted by shacks, vagrancy due to homelessness, escalating unemployment and informal labour, with inadequate infrastructure and little if any access to basic services.

These inequalities also extended to students in higher education, possibly contributing to the student’s disadvantage in higher education. As explained by Badat (2010: 4), apartheid era social inequalities were prevalent and reflected in all circles of society, including higher education. Letseka and Breier (2008: 83) affirm this view and state this created a negative impact on the students from poverty-stricken families, in debt to educational funding institutions responsible for their studies. This inequality meant a poor student had minimal chance of gaining access to HEIs.

In order to understand the challenges caused by the inequalities in higher education and as part of the process of transformation, this issue has to be placed in the historical context.

2.3.1 Inequality in Higher Education under apartheid

According to Reddy (2006), during apartheid, so called “non-whites” were severely discriminated against in higher education systems. Jansen (2004: 5) states that sub-standard institutions, with poor infrastructure, inadequate funding and capacity to teach, were provided for the Black student. These institutions were located in “underdeveloped and impoverished” rural areas, with no economic infrastructure to develop and expand. Inequality of this nature was a contributing factor to challenges experienced by the disadvantaged Black student. Bunting (2002, cited in Bozalek and Boughey 2012: 691) affirmed that HBIs were denied the opportunity to develop

the capacity to manage their own affairs and build their own financial resources. This would result in HBIs being negatively affected.

Bozalek and Boughey (2012: 690) found institutional infrastructure deficiencies, including minimal library facilities, poorly equipped teaching venues, and poor building designs contributed to the challenges of HEIs. In addition to poor infrastructure, there was a shortage of qualified teachers.

Inequality also prevailed in the academic sector. As stated by Odhav (2009: 38), racial disparities in terms of academic qualification offerings in the Science and Engineering fields, resulted in Black students being forced to register mainly for the humanities and social sciences programmes. Hence, an urgent need was evident, requiring transformation of the higher education system into a common system that would afford all students an equal opportunity to study a qualification of their own choice and free the system from inequalities.

From the above, it is clear that restrictions placed on HBIs created many inequalities in the higher education system. These inequalities, in turn, created many challenges, discussed later in the chapter. In order to eliminate the inequalities created by the apartheid system, change needed to take place. Efforts towards such change are outlined next.

2.3.2 Post-apartheid steps to address inequality in higher education

Since the 1994 democratic elections, South African HEIs had to undergo major changes due to past inequalities entrenched by the apartheid government. According to Bozalek and Boughey (2012), in the post-apartheid era, HEIs were divided into HWIs and HBIs. As a consequence of their historical background, many HBIs became known as Historically Disadvantaged Institutions (HDIs), maintaining past poor infrastructure and inherited inequalities of HBIs. Policy documents had to be revisited and recreated in order to redress past inequalities.

Universities play a vital role in the higher education agenda for change. As a means to address this change, a policy approach was used in dealing with the past, to reshape and prepare South Africans for the future of higher education in a global world (Arooj 2012: 16).

To better understand the aims of SA higher education policies, one needs to view this against a backdrop of the SA constitutional framework (South Africa, 1996). According to Section 29 (1) (b) of the Constitution, the state has to make further education increasingly accessible and available to every citizen, as their right, in realistic ways. The need for past discriminatory laws and practices to be recompensed is referred to in Section 29.2 (c). As stated by the South African Human Rights Council (2001: 79), this Section of the Constitution charges the state with the responsibility of making further education progressively available and accessible. In doing so, the state should move towards removing barriers that prevent students from studying in an environment free from discrimination. Policies were therefore, formulated with this in mind.

As Cloete *et al.* (2006: 53) explain, policy formulation was introduced by the NCHE in 1995, with the commission established to endorse a higher education system that was a single, co-ordinated mechanism, with which to improve student higher education access and ensure quality higher education for all South Africans (DoE 1997). It is held by the DHET (2014) that this would become one of the most influential policy formulation exercises, because it centred on increased participation and sets out the structure of the new higher educational framework, in dealing with increased student numbers. Increased participation took place in the form of increased access for students into higher education, as a means of addressing issues relating to equity redress and development (Mdepa and Tshiwula 2012: 22).

Arising from a report by the NCHE, the Higher Education White Paper 3 (DoE 1997) and the HEA of 1997 were adopted.

2.3.2.1 The Higher Education White Paper 3 of 1997

According to the DoE (1997: 12), developing a single, co-ordinated system is one of the main aims of the Higher Education White Paper 3 (DoE 1997), including new arrangements for funding, governing and planning .To ensure transformation in higher education, the Higher Education White Paper 3 (South Africa, Department of Education 1997) details values and principles that must be promoted, with regards to: democratisation, equity and redress, development, as well as quality, effectiveness and efficiency, in addition to academic freedom, institutional self-governance and public accountability.

In order to ensure that the aims of the Higher Education White Paper 3 of 1997 were carried out, the HEA of 1997 was adopted. As stated by Odhav (2009: 39), this was crucial to framing a new system, since the HEA of 1997 gave legislative authority to the White Paper 3 on transformation of HEIs.

2.3.2.2 The Higher Education Act of 1997

Odhav (2009: 54) explains the HEA (1997) was created to reconstruct the higher education system and its vision, keeping the aims of the Higher Education White paper 3 in mind on transformation in higher education, which was to create a single co-ordinated higher education system responsive to the new, democratic society values.

Seabi (2014: 68) states the purpose of the HEA was to ensure redress of past discrimination, and representativeness and equal access for all. In addition to the above, another intention of the Act, stated by Van der Merwe and De Beer (2006: 547), was to expand the right to higher education for students from disadvantaged backgrounds.

The Act would also allow for the establishment of institutions, in terms of redress and access, as well as consent to the merging and closing down of certain institutions. Odhav (2009: 40) maintains this was done, presumably, to cut costs. However, despite the positive methods used to assist in the transformation process, mergers caused much instability in higher education, as will be apparent from the discussion later in this chapter.

In accordance with the Education White paper 3 on Higher education of 1997, the HEA was used as the foundation for the transformation of the higher education sector. However, in order for the process to be followed, an implementation framework was necessary. The development of the NPHE in 2001 (DOE 2001) was therefore devised.

2.3.2.3 National Plan for Higher Education (2001)

According to the DoE, the NPHE (2001) outlined the practical steps the state had to take to change the Higher Education sector, keeping in mind the aims of the White Paper 3, which was the transformation of HEIs. It provided an implementation framework for the vision of the White Paper. The NPHE (2001) was responsible for

identifying strategies and interventions that became necessary to carry out the task of transformation.

One specific goal of the NPHE was that of increased student participation in higher education. The expanding of student numbers and improving access for disadvantaged Black people were seen as a means to compensate for the discriminations of apartheid.

According to Reddy (2006: 14), the many restrictions placed on Black people, in terms of what studies could be undertaken during the apartheid era, resulted in a lack of skilled Black people. Therefore, the NPHE was given the task of implementing a framework for Higher Education to produce skilled graduates who would meet the country's economic needs.

The policies described above all aspire to achieve one goal, that is, to redress past inequalities through the process of transformation. In the absence of proper policies and procedures, higher education would find it difficult to carry out the task of transformation.

2.4 TRANSFORMATION OF HIGHER EDUCATION INSTITUTIONS

Transformation, according to Norris (2001: 219), is a planned mode of enacted change, meant to generate substantial changes in the manner in which an institution is managed. Moreover, transformation is referred to by Viljoen and Rothman (2002: 3) as an event, intentionally planned to modify organisational relationships and structures and is considered to be a specific type of change where it not only implies a change of form but also the creation of something new.

Bozalek and Boughey (2012: 8) assert that, in the SA higher education context, transformation refers to the major restructuring of higher education, which was undertaken to redress past inequalities. In higher education terms, there are two types of redress namely, social redress and institutional redress. Institutional redress refers to the manner in which the institutions would change, in terms of the physical infrastructure in relation to the teaching and learning that would take place, and the way in which the campuses were managed (Bozalek and Boughey 2012). Social redress refers to funding initiatives undertaken that are targeted at specific individuals, mainly the disadvantaged students of higher education. In SA, the

NSFAS, established in 1996, was the main means of social redress (Barnes 2005: 210). This type of redress was brought about to ensure equality in the higher education society, in terms of the disadvantaged student who could not afford to study, by providing funds to deserving students that would cover tuition fees, accommodation, books and food.

As stated in the previous section, the process of transformation commenced with the policy document, Education White Paper 3: A Programme on the Transformation of Higher Education of 1997. This policy aimed to increase access of a diverse student population, creating so called “new students” and “new HEIs”. According to Bainbridge (1996, cited in Viljoen and Rothman 2002: 2), transformation of higher education became necessary to enable HEIs to adapt to the distinctive changing environment. The SA higher education environment post-apartheid was changing rapidly and this was necessary to address the imbalances inherited from the past. According to Moloi, Mkwanazi and Bojabotseha (2014: 469), included in these imbalances were gender and race, as well as educational and social inequalities that led to the numerous challenges that are still present in today’s higher education society.

The main reasons for transformation are listed in the Green Paper on Higher Education Transformation of 1996, and highlight two important factors of transformation. These include, firstly, the historical legacy of inequalities that prevented higher education from meeting its economic, social and moral mandates for the new SA, with secondly, the national and international opportunities that followed (DoE 1996).

The process of transformation began with the reshaping of the higher education landscape, which started to occur from 2004 onwards. Badat (2010: 10) suggests that two elements were used in the creation of the higher education landscape. These were described as, primarily, institutional restructuring that took place through the process of mergers, and secondly, the creation of new academic qualifications and programme mixes, such as the re-curriculation of existing programmes. These elements played a crucial role in the transformation of higher education and also led to some of the challenges in higher education and are discussed below.

2.4.1 Mergers

Azziz *et al.* (2017: 6) describes mergers as a combination of two or more separate institutions, to form a single unit operated and governed by a single body. Wyngaard and Kapp (2004, cited in Arnolds *et al.* 2013) describe mergers as the culmination of a stronger and more unified higher education system that would play a role in freeing the higher sector from past inequalities. Other reasons for mergers included increased access for students from the disadvantaged sector and to conform to national and international standards regarding new technologies, research and training and the changing environment (Mapasela and Hay 2005, cited in Arnolds *et al.* 2013). Pityana (2004: 5) further states the policy on mergers was established as a means of transforming the higher education landscape in SA, allowing the promotion of equity and increased access, while making full use of diversity and integration.

According to the CHE (2004), the merger process began with the 36 South African universities being reduced to form 23 universities. The 23 universities were further divided into 11 traditional universities that offer degrees, with six universities of technology and a further six comprehensive universities that offer both diplomas and degrees.

Wallis (2005) stated that one of the first completed mergers was undertaken by Technikon Natal and the ML Sultan Technikon, which later became known as the DUT. ML Sultan Technikon was a HDI catering predominantly for students of Indian origin, while Technikon Natal, a HAI, catered for the White population group. The merging of both these HEIs took place in 2004. Being considered a voluntary merger, with no pressure from the government, this merger itself took long to process, causing much instability along the way (Wallis 2005: 1). From the above and the fact that in 2018 Black students comprised approximately 98% of headcount enrolments, DUT may be considered as a HDI.

The second element of transformation of the higher education landscape involved the change in programme mixes and a change in curriculum to suit the needs of the new higher education system and as part of the restructuring process.

2.4.2 Re-curriculation

According to CHE (2013) re-curriculation or curriculum reform, as it is most commonly referred to, includes the development of new academic qualifications, the re-structuring of existing curricula and the introduction of new curricula of programmes offered by HEIs. This was undertaken as part of the redress of higher education and transformation of the higher education sector.

It is stated by Jansen (2004) that transformation at HEIs marked the start of change that included increased and broadened participation by Black people. The CHE (2013: 35) document on curriculum reform states that re-curriculation or curriculum reform was important to close the gap between the old colonial system and the new higher education system after apartheid. It was necessary therefore to, develop new courses or syllabi, provide rigid means of learning and teaching that included varied modes of delivery to ensure the “new student” entering higher education would start off on a level footing, and to provide for a more diverse student population.

Given some of the inequalities experienced by HEIs as part of the transformation process, there was no doubt that challenges would arise. According to De Wet (2013), the restructuring of higher education became one of the major factors that led to many challenges in higher education. The challenges were seen as a stumbling block to achieving a truly free and democratic higher education society. However, for transformation of higher education to be truly successful, it is imperative that the challenges be addressed immediately. The next section examines the nature of such challenges.

2.5 CHALLENGES RELATING TO TRANSFORMATION OF HEIs

As stated by Odhav (2009: 45), transformation was necessary in order to ensure the SA higher education system started out on a “level playing field”, free from inequalities. However, when policies were revisited and recreated to undertake such tasks, the effect and impact this would have on HEIs could not be predicted.

Hence, there were challenges arising from the transformation process. Such challenges impacted on all aspects of the Higher Education system, including the HEIs and teaching and learning of the disadvantaged student. Although the teaching and learning challenges are deemed more significant, in relation to the objectives of

this study, it is important to firstly unpack the institutional challenges, revealing their relationship with teaching and learning challenges. This section thus examines institutional challenges that lead to student challenges arising as a consequence of transformation. The teaching and learning challenges of disadvantaged students will be examined later in the chapter.

When the NCHE (1995) announced the increase of student participation in higher education, the undue pressure this placed on HEIs, due to the inequalities placed on HDIs in particular, was not envisaged.

As reported in the White Paper: A Programme on Transformation of Higher Education (South Africa, Department of Education 1997), increased access to higher education was a necessary goal in the transformation process. This not only led to a sudden increase in the number of matric students gaining access to SA universities, but also resulted in the entry of students from disadvantaged socio-economic backgrounds. The resulting challenges greatly affected both students and other stakeholders; staff and society at large.

The transformation of higher education placed undue challenges on HEIs. These include challenges presented by the increase of students in higher education; the lack of funding at institutional, government and student levels; and the merger challenges, which also resulted in challenges experienced by the institutions, the staff and the students. Each of these challenges are examined below in the context of previously disadvantaged HEIs.

2.5.1 Increased participation challenges

Progress in terms of transformation, involved increased access that resulted in the growing entry number of students into higher education. This phenomenon is termed massification. As stated by Reddy (2006: 7), the term “massification” is used in higher education to describe the increasing number of students that have entered into higher education, thereby changing it from an “elite” to a “mass” higher education system. The author further states that the mass intake of students involved opening access to more poor and Black students into universities. Therefore, it can be understood that disadvantaged students dominated enrolments in most public HEIs and this situation may still occur at present.

According to the Council of Higher Education: Monitor 9 (2010: 3), statistics have shown a significant increase in student enrolment since 1993. Enrolment figures indicated an increase of 40 percent in 1993 to 65 percent in 2002 (for both universities and technikons). More recently, according to DHET (2015: 11) statistics, an increase of up to 80 percent in 2013 was recorded, with suggestions of continued growth each year. Despite this positive outlook, HEIs were placed under immense pressure and suffered as a result of issues such as lack of infrastructure and the inability to accommodate the large number of students gaining access to Higher Education.

Furthermore, as highlighted by DHET (2015: 11), the institutions lack resources to adequately teach the large student numbers. Items such as audio visual equipment, air-conditioning units and proper materials were much needed. In addition, the lack of library facilities to provide support to large student numbers, increasing student demands and poor administrative support services all contributed to the challenges of students. Moreover, a lack of suitably qualified staff to teach the new kind of student entering universities placed pressure on HEIs, since this resulted in poor student performance and therefore, low student success rates, thereby impacting teaching and learning at HEIs.

Inadequate funding from government has left HEIs with challenges in terms of upgrades for increased student intake. According to (Badat 2010: 32), government funding to HEIs is insufficient. Should the funding issue not be addressed, institutions will be left without adequate resources, thus affecting the teaching and learning process, and contributing to poor student performance.

2.5.2 Funding challenges

Bitzer (2010: 303) finds, in dealing with the past inequalities of higher education, and the increasing number of disadvantaged students in higher education, funding received from government is insufficient in meeting the demands placed on SA universities by students.

In SA, universities rely heavily on DoE funding. Without this financial assistance, HEIs would not be able to function optimally. For the purposes of this study, funding challenges are divided into three funding challenge categories, namely institutional,

government and student. These are discussed to offer insight into the relationship with teaching and learning challenges, presented later in the chapter.

2.5.2.1 Institutional funding challenges

Macgregor (2012, cited in Jordaan *et al*. 2014: 1275) states that increased access of students in higher education requires academic infrastructure and this, in turn, requires substantial amounts of money. However, to date, the government's financial support in the education sector has not addressed issues relating to upgrading and refurbishing higher education infrastructure. This created challenges in terms of insufficient class space to accommodate the large number of students in a class and, which could in turn affect teaching and learning.

In building academic capabilities, Badat (2009: 11) asserts the necessary capacities should also be provided to institutions, specifically with regards to both infrastructure and equipment, to ensure teaching and learning is effective and quality graduates are produced. Schoole (2005, cited in Mouton *et al.* 2013: 137) further adds that, infrastructural integrations are the "most complex, messy and drawn-out component of mergers" in the transformation process. From the above, it is clear that HE infrastructure is important.

Funding provided by government was, however, deemed insufficient, with Badat (2010: 17) pointing out that, although infrastructure funding was provided to universities since 2008, there is still a shortage of funds for academic buildings, student accommodation and scientific equipment. In order to maintain a sustainable higher education environment, funding must be consistent and continuous. In 2013, government made R12 billion available to HEIs to address higher education infrastructure (SA Government Information 2013).

2.5.2.2 Government funding challenges

Institutions rely heavily on funding received from the government to sustain themselves. More so now, due to the increase of students in the Higher Education sector. Jordaan *et al.* (2014: 1270) state that, in 2014, there were over 900 000 students studying at 23 different public HEIs across SA. Government has set a 23 percent participation rate, which is expected to be achieved by 2030 (MacGregor 2012, cited in Jordaan et al 2014: 1270). However, statistics have shown that at

least 30 percent of students enrolled at HEIs drop out in their first year, with another 20 percent dropping out in the second and third years. This is alarming, given the expected turnaround time for the increase in student participation rates. Govender (2013a) attributes the high drop-out rates to a shortage of funding. While government has made funding available, in the form of NSFAS funding, to assist in improving the throughput rate of the disadvantaged student, only 28 percent graduated (Govender 2013b).

According to HESA (2014:3), there has been significant government support for higher education since 1994, reflected in funding of universities having risen from R11 billion in 2006, to R26 billion in 2013. This increase in budget was well received, however, the decrease in subsidies from government compels institutions to find second and third-stream income. Second-stream income in the form of tuition fees, and third-stream income in the form of research grants, contract income and donations and so on, had to be increased to accommodate the decline in government subsidies.

In order for higher education to take active measures to address the challenges experienced, adequate funding is required. In view of this, funding for interventions to address challenges have been made available to HEIs. According to DHET (2013: 23), state funding was allocated to public universities in 2003, through a new Higher education funding model substantiated by teaching and research outputs from academic activities.

Initially, TDGs were allocated to institutions to improve outputs, with the purpose of the TDG focused on enhancing teaching and curriculum design; however, this was not the only purpose of the grants, resulting in the grant being mismanaged. In 2008, a review of the TGDs was enabled, with the establishment of a new working group and it was decided all institutions, irrespective of their outputs, were to receive the grant. More funding was made available for more specific aspects of teaching and learning in a 3-year cycle. In the interim, it was decided the new grant would incorporate teaching and research development into, what is now known as the UCDG, which came into effect in 2018.

2.5.2.3 Student funding challenges

In meeting the ever-increasing demand for student funding, government has made NSFAS funding available. According to HESA (2014: 4), the NSFAS allocation for 2013 was R5.1 billion and set to be increased to R6.6 billion for the 2016/2017 financial year. However, NSFAS also experienced challenges, since not all students were able to repay the loans afforded to them.

Cloete (2016: 9) states it is the poor students who are unable to pay back student loans and they are described as going through a “revolving door”. Mouton *et al.* (2013: 292) add that the “revolving door” is when students from previously disadvantaged groups continue to drop out after one or two years due to poor academic performance, thereby also reducing throughput rates. Moreover, the opportunity to overcome poverty is not complete and the student is thrown back into poverty, creating a revolving door effect. Ongoing student protests all over the country bear testament to the continuing sad reality of inadequate student funding and ever-increasing student fees. As observed by Cloete (2016: 8), in 2015, both rich and poor students revolted against higher education fee increases. Boughey (2010: 20) maintains finances are critical to a student’s ability to study. It can therefore, be understood that inadequate funding for students will affect student performance.

2.5.3 Merger challenges

Mergers of HEIs started from 2004 onwards. According to Wyngaard and Kapp (2004, cited in Arnolds *et al.* 2013), the main purpose for mergers of HEIs was to close the gap between Historically Advantaged Institutions (HAIs) and HDIs, with the intention of putting an end to the inequalities that plagued the higher education system and institutions of the past. Baloyi and Naidoo (2016: 19) concur that mergers were undertaken as a means to ensure an easy transition to the transformation process, which included access, redress and equity as important variables.

Van Straaten Theron and Dodd (2011: 335) state mergers are stressful events that affect not only the organisation but its members. For higher education these would include the staff, students, and the institution itself. This section therefore discusses the challenges experienced by staff, students and the institution. This study focuses

on the disadvantaged student of higher education and therefore the merger challenges will relate to the effect of mergers, primarily on disadvantaged students.

2.5.3.1 Institutional challenges

According to Wallis (2005: 4-7), merged institutions lacked the infrastructure to deal with the new merged state. Funding provided to improve the infrastructure was inadequate, with shortage of funding in the infrastructure possibly resulting in buildings not being adequate to deal with the new students of the merged institutions. Larger classrooms would be required to teach large number of students, while departments would be required to be housed in suitable buildings and staff office spaces would need to be suitable. For the HDIs, upgrading of infrastructure would need to take place to ensure the needs of students were catered for. Student support services would need to be revisited to accommodate all students, but more especially the disadvantaged student, who would be more in need of the services (Wallis 2005: 4-7).

2.5.3.2 Staff and Student challenges

The higher education National Qualifications Framework (NQF) sets outs the requirement for academic staff to improve their qualifications in keeping with global standards (South Africa 2012). This has caused undue pressure on staff, in addition to having had to adapt to already merged environments that saw the increase of class size and a new diverse student, which contributed to the decrease of employee morale (Chetty 2010: 158). Staff dissatisfaction and lack of employee commitment and morale, when allowed to continue, may affect staff-student relationships and this may, in turn, affect students' ability to perform well in class, thereby resulting in poor student performance.

According to Van Straaten Theron and Dodd (2011: 335), in some cases, employee morale decreased to the extent that this resulted in a lack of employee commitment. A study carried out by Lalla (2009, cited in Arnolds Stofile and Lillah 2013), found the merger process at an individual HEI negatively impacted several areas, including that of management and collegial relationships, performance standards, communication, as well as job security and job position and promotion.

Another aspect of the merger process that negatively affected staff and students, was the mixing together of cultures and race groups, in other words “cultural diversity.” As explained by Wallis (2005: 6), historically, highly resourced and well maintained universities merged with disadvantaged poor universities, resulting in staff unhappiness. Staff that worked in HEIs felt they had to work in under-resourced institutions that catered mainly for Black students. The working conditions of academic staff have since changed, for example, their now having to teach large class sizes, which has resulted in a new teaching experience proving to be very difficult.

Due to the increased student enrolment, it would appear academic staff had to take on additional responsibilities, both administrative and managerial (CHE 2010; Ntshoe and De Villiers 2008). For students, the challenge of adapting to a different institutional culture and having to mix with other students of different race groups, posed a problem. Pressures on staff by higher education structures, policies and shortages would spill over to students, since these challenges could affect student performance in class.

In addition, under-resourced facilities would prejudice the student, while the inability to adequately improve support services, such as the library, could affect student’s abilities to gather information and affect performance in class. Furthermore, a poor admissions and registration process can also frustrate the student and affect student morale. While, on the one hand, an increase in student fees could result in student drop-outs, on the other hand, an increase in student enrolment has also resulted in large class sizes, which presented further challenges to the academic, in terms of teaching and learning.

The effect of mergers on staff and students was difficult, making it important for universities that have already come through the process of mergers and restructuring, to consider the challenges and act on it.

It is clear from the above discussions that challenges arising from transformation of higher education affected both the disadvantaged student and the staff. Nonetheless, it is important to unpack the definition of a disadvantaged student in order to better qualify the challenges experienced.

2.6 DISADVANTAGED STUDENTS IN HIGHER EDUCATION

As defined by the online Oxford English MiniDictionary (2007), being disadvantaged is to be put in a socially or economically deprived circumstance.

During the apartheid era, the highly unequal society and rules set by the apartheid government, disadvantaged Black people. Many lived in poverty and, due to the unfavourable circumstances that prevailed, HE students who came from such backgrounds, were termed “disadvantaged”. In some countries the disadvantage student is known as “disadvantaged youth”, which places the youth in “an umbrella category” embracing all of those young people that do not have as many opportunities as their peers. Bandit and Stokes (2013) find that, in some countries, the disadvantaged student is also referred to as “youth-at-risk, vulnerable youth, disconnected youth or socially excluded youth” in describing social inequality between young people A study undertaken by Jones *et al*. (2008: 6), focusing on the disadvantaged student of higher education, shows a student’s disadvantaged circumstances contribute to them dropping out of higher education. The authors also state that economic and geographic location plays a role in a student being disadvantaged in higher education.

It is held by Jones *et al* (2008: 6) that a disadvantaged student can be identified as: one who comes from a school that is under-resourced and from a rural area where homes did not have electricity and water; a student whose parents are poor and cannot afford an education for their child; a student that has never used a computer; been taught English as a second language, the medium of instruction in high school is isiZulu; and being taught by teachers that lacked good academic qualifications, amongst others.

When considering the above, one can understand how this would contribute to disadvantage for the student at a later stage, when gaining access to higher education. Hence, students identified as “disadvantaged” who come from a background as described above, are most at risk of dropping out or failing, and it is for these reasons higher education should find ways to best support the student. The socio-economic conditions described above certainly place challenges on the student.

Machika and Johnson (2014) find other challenges experienced by the disadvantaged student, may relate to the student's financial resources, since many of the families are unable to finance the students. The student is also affected by the kind of accommodation they occupy, the physical conditions under which they learn on campus, their access to health care, and their wellbeing, as well as the socio-cultural resources related to a student's academic background. These all play a role in poor student performance and the high drop-out rate. As stated by Boughey (2010: 20), poor learning conditions could lead to poor student performances.

2.7 ACCESS AND EQUITY

Reisberg and Watson (2010: 1) explain that access can be understood as "enrolling a larger percentage of the population who desire higher education and equity requires that these opportunities are equally available to all citizens". Given the history of SA, access means not only admitting more students into higher education, but incorporating a student population that truly reflects the demography of the country, as stated by Higher Education Monitor 10 (CHE 2010). According to Cross and Carpenter (2009: 7) access allows learners from an underprivileged environment, who are victims of an educational apartheid, the opportunity to access higher education. However, due to the learners "academic trajectory", they are under-prepared for higher education, as evident from low throughput rates, drop-outs and failures. Therefore, the need for equity that maintains an equal playing field, is vital.

In addressing the inequalities, access is described by policy documents, such as the White Paper 3 on Transformation (South Africa 1997), as the higher education system's principal goal in ensuring a democratic transition. To guarantee the transformation process was effective and placed students on an equal footing, it became necessary for these policy documents, such as the White Paper 3, to distinguish between equity of access, equity of opportunity and equity of outcomes, in order to ensure the equity process was rigidly followed. In this section, the concepts of equity of access, equity of opportunity and equity of outcomes will be highlighted, allowing a better understanding of the need for equity in higher education.

Historically disadvantaged schools and HEIs are still recovering from the negative effects of the past, according to Moloi *et al.* (2014: 471). Some of these schools and institutions, especially those situated in the most remote areas, suffered such negative effects more than others. In a study conducted by Jones *et al*. (2008: 6), it was reported that students who completed their schooling in rural areas, have had the most difficulty in adjusting to tertiary education and have experienced the most challenges, in terms of accessing higher education, due to a lack of informed persons and technology to assist these students.

The transformation of higher education in South Africa has allowed access to higher education for all students, without regard for racial differences. This included a large number of students from the rural areas of the country, with increased student enrolments into higher education having led to massification of higher education. Nonetheless, massification alone will not correct the imbalances in access to higher education. Concepts of equality, access and equity revolve around issues pertaining to fairness, potential and opportunity (Machingambi 2011: 13).

From the above it is clear that access alone means participation. However, this does not necessarily ensure the disadvantaged student is given the opportunity. Therefore, according to Akoojee and Nkomo (2007: 386), equity and redress are important requirements for a society in the state of transformation. Equity as a concept, including equity of access, equity of opportunity and equity of outcomes, is discussed in the next section.

2.7.1 Equity of access

Strydom (2002) views higher education access as, offering learners possible entry to high quality education and training at educational institutions. Scott (2009: 24) explains student equity in higher education as the manner in which progressive and sustainable transformation is brought about “through individual empowerment and bringing together the talent in all communities”. In order to maintain an equal and non-biased higher education sector, strategies need to be devised to increase student access to higher education. The increase in access of students to higher education, however, does not necessarily mean those students will successfully complete their studies. The quality of education also has a role in contributing to the success of the student.

2.7.2 Equity of Opportunity

For equity to remain significant, the concept has to also include equity of opportunity. Opportunity in equity here refers to a student environment where success is possible, by means of academic support, excellent mentoring and teaching and various initiatives. Beckmann (2008 :780) states meaningful equity will ensure access by learners to not only quality education, but also that they graduate with the necessary knowledge, relevant capabilities, skills and qualities needed by any profession and occupation. Furthermore, Scott (2009: 24) adds equity of outcomes as equally important, with a concern for equity of outcomes as a required complement to equity of access and opportunity.

2.7.2 Equity of Outcomes

The term “equity of outcomes” became popular only after it was used in the Higher Education White Paper 3 of 1997 (DoE 1997). HEIs became aware of the importance of equity of outcomes in realising that, as Tinto (2008) states, “Access without Support is not Opportunity”. It is further stated in the Higher Education White Paper 3 of 1997 (DoE 1997) that it has long been recognised in academic development that “access without success” could be a meaningless exercise. The way educational development policy and practice ought to be conceived of and evaluated, is profoundly impacted by the importance of equity of outcomes. Therefore, it must be acknowledged that equity of access does not necessarily translate into equity of outcomes. There is a need for measures to ensure that students who are given access to higher education are able to succeed. According to Geyser (2005:141), the NPHE (Ministry of Education 2001) places the throughput of graduates at the top of the priority list, together with the provision of academic support programmes, to improve the success of disadvantaged students.

Every student has been afforded a democratic right to attend higher education through increased higher education access. Although this is an important aspect of democracy, it also relates to social justice in higher education.

2.8 SOCIAL JUSTICE IN HIGHER EDUCATION

According to Adams *et al*. (2016:3) social justice means the reconstructing of society in accordance with the principles of equity, recognition and inclusion.

Social justice in higher education demands that access must translate into success. According to Tjabane and Pillay (2011: 10), social justice is an important mandate of higher education in SA as a developing democracy. Thus, social justice is all about ensuring an equal society for all its people. A lack of social justice in higher education would mean that the higher education student would suffer even greater disadvantages that affect their performance and success rates. Social justice takes place at all levels of society and, with students of higher education hailing from all cultural backgrounds they need to be able to study in an environment free of injustices.

Universities and teaching staff play an important role in fostering a good environment for social justice to take place. Sleeters (2009, cited in Zadja 2010) states that teaching for social justice includes supporting access for all students to high quality, intellectually rich teaching, which builds on their cultural and linguistic backgrounds. Social justice in higher education, therefore, refers to all actions and efforts of both university instructors and teachers in the schooling systems that embark on classroom teaching and learning activities. Ayers (1998: 1, cited in Francis and Le Roux 2011) states that students are engaged by teaching for social justice as it, involves identifying any hindrances to “their full humanity, to their freedom and then to drive, to move against those obstacles”.

One prominent theory of social justice is John Rawls’ Theory of Social Justice which deals with fairness. Rawls was in favour of a balance between social equality and individual freedom. According to Wenar (2017), Rawls constructs justice as fairness around specific interpretations of the ideas that citizens are free and equal and that society should be free. Rawls further holds that justice as fairness is the most egalitarian, most plausible interpretation of these fundamental concepts of liberalism.

From the above, it is clear students are fighting against a system of inequalities. For universities to make a contribution, in resolving the issues of social justice in higher education, a re-examination is needed of the manner and the environments, in which teaching and learning take place.

2.9 CONCLUSION

Since the advent of democracy in South Africa, there has been much change in higher education, which has resulted in some positive outcomes, such as increased student participation and student diversity in higher education. However, this has also resulted in many challenges. For higher education, the challenges still outweigh the positive changes that have taken place. As indicated in the literature reviewed above, funding remains a major challenge in higher education, and the increasing number of students requiring funding is overwhelming.

Disadvantaged students are most affected by the transformation process. The concept of a disadvantaged student was discussed in this chapter, in order to gain a better understanding of the challenges these students experience. Although challenges were experienced by all relevant stakeholders, including the HEIs, students and staff, those most affected were the disadvantaged institutions and students. Although the majority of students have been granted access to higher education, statistics show this has not translated into student success, due to challenges experienced by the disadvantaged student. Inequalities of the past have contributed to inequalities in the present higher education system. Issues of access and equity were therefore discussed, highlighting the equity concepts of access, opportunity and outcomes. Ensuring equity is achieved in higher education is crucial in ensuring a proper learning system, more especially for the disadvantaged student.

Student success and equity of outcomes are important ideologies of the DHET. However, the challenges created by an unequal society have placed the disadvantaged student in a difficult situation. For every student of higher education, teaching and learning plays an important role in their performance. Challenges experienced could impede the student's chances of good performance. Therefore, in order to contribute to resolving the difficulties of the disadvantaged student, there is a need to investigate the teaching and learning challenges of such students and to explore what measures HEIs have introduced, to help improve the situation. Teaching and learning challenges of the disadvantaged student, together with strategies and interventions, in the context of student success, will therefore be discussed in the next chapter.

CHAPTER 3

TEACHING AND LEARNING CHALLENGES OF THE DISADVANTAGED STUDENT AND INTERVENTIONS TO HELP PROMOTE STUDENT SUCCESS

“All students can learn and succeed, but not in the same way and not in the same day.”

-William G. Spady-

3.1 INTRODUCTION

With higher education rapidly expanding over the past years, a shift has been created from a more elite, to a massified higher education system (Shay 2017: 1). This effort in redressing the inequalities of the past, has resulted in an influx of students from previously disadvantaged schools, thereby increasing the number of disadvantaged students in higher education. This has created challenges for disadvantaged students in higher education. According to the Higher Education Skills report (Maluleka 2017), statistics on higher education have shown a decrease in pass rates, which is linked to poor academic performance by students.

As stated by DHET (2012), it is critically important, in promoting student success, to ensure improvement in teaching and learning. This study focuses on the teaching and learning challenges of the disadvantaged student. Therefore, this chapter discusses these teaching and learning challenges experienced by the disadvantaged students in the classroom, together with government and institutional interventions to improve student pass rates. However, before exploring such challenges, it is essential to firstly examine how teaching and learning takes place.

Academic staff in today's higher education environment, are encouraged to not only focus on current teaching content, but also to distinguish the most effective manner of engaging students in learning, frequently in tandem with other significant skills that are transferrable (Cleaver, Lintern and Mclinden 2014). According to Fallows and Steven (2000) the term transferable skills are skills that are developed in one unit such as an educational unit which becomes useful when transferred to another unit such as an employability unit. Cleaver *et al.* (2014) further add this has resulted

in an increased requirement that a scholarly approach needs to be adopted by staff where learning and teaching practice is concerned, and to carry out the 'scholarship of teaching and learning as an element of continued professional development. This chapter will also explore higher education teaching and learning, including how teaching takes place in higher education, the requirements for effective teaching and learning, the manner in which learning takes place and theories of learning.

Understanding how teaching and learning takes place provides the essential background to understanding the associated challenges faced by disadvantaged students and the intervention strategies needed to address such challenges.

3.2 TEACHING AND LEARNING

The Higher Education White Paper 3 of 1997 (DoE 1997) defines teaching in higher education as that which meets individual learning needs through developing their intellectual aptitudes and abilities. In doing so, higher education provides an opportunity for these individuals to accomplish self-fulfilment, whilst allowing for equity in opportunity and achievement distribution among SA citizens. According to the Centre for Teaching and Learning at the University of Stellenbosch (2013), teaching requires engaging with learners to assist their grasp and use of knowledge, processes and concepts. Teaching takes account of all elements in the process, namely design, selection of content, method/means of delivery, evaluation and deliberation.

The teacher's role in higher education is, as maintained by Dall'Albu (1994: 299), to develop the way their students think, act and approach a particular study and practice area. Learning, in this context, can be defined as "how to do something, by studying or by doing it often" (Oxford School Dictionary 2013: 346).

Transmitting information is not the only aim of teaching, it also aims to transform students, from being sedentary recipients of knowledge from other people, into constructors that actively pursue knowledge, their own and that of others. Students cannot be transformed by teachers without active student participation. Fundamentally, teaching concerns crafting the pedagogical, ethical and social circumstances wherein students agree to manage their own learning, collectively and individually (Elmore 1991, xvi). Hence, the process of teaching and learning is

fundamental to student success. This section therefore discusses how teaching and learning takes place in higher education and what are considered to be good teaching practices for student success.

3.2.1 How teaching takes place in higher education

Traditionally, teaching and learning in higher education took place by “chalk and talk”. Barrado (2016: 16) describes the traditional method of teaching, where the teacher was the only source of the information. The educational material was the message provided by the teacher and the student would be the only one receiving it. This unique method of teaching was referred to as the “chalk and talk” method, and took place together with the use of overhead projector transparencies, which made students adopt a more passive role. However, new technology has been introduced to enhance teaching in higher education such as the use of PowerPoint presentations. Teaching also takes place on higher levels, such as game-based teaching, assessment-based teaching, role-playing teaching and simulation-based teaching.

3.2.2 Essentials of good teaching

Although there is no definite agreed definition as to the meaning of the term “good teaching”, good teaching is viewed by researchers as one that results in a student experiencing effective learning of good quality (Nasser-AbuAlhija 2016: 4). According to the CHE (2017: 50), academics tend to view “good teaching” in comparison with their own teaching, what their students say about their teaching and possible outcomes of their teaching. Good teaching is seen, at a basic level, to entail aligned courses taught by well-prepared teachers. The term “teachers”, for this study’s purposes, is intended to mean academic teaching staff in higher education. There are those teachers who perceive good teaching as a means of giving back to society by making a difference in student lives.

A CHE (2017: 51) study found that, although the notion of good teaching was to transmit knowledge, it was also necessary for students to be actively engaged. This means students must not just be passive recipients of knowledge, but use this knowledge and create their own ideas. Good teaching leads to student success, resulting in good throughput rates, and also allows for students to transform their understandings of the world and of themselves (CHE 2017: 51).

According to the CHE (2017: 51), to be a good teacher in SA means it is important to be responsive to teaching challenges, such as large class size, a diverse student population and the articulation gap between school and university. Good teachers must be creative in their teaching methods, which includes the use of Information and Communications Technology (ICT) in classrooms, enabling learners to become actively involved. As stated by Subramani and Naga-Iyappan (2018: S20), other teaching methods practiced around the world include face-to-face learning and hybrid learning. In order to promote learning in higher education, positive feedback from teachers is necessary. Thus, a good teacher is one with good teaching practices. Due to ongoing changes in the higher education environment and challenges faced by the disadvantaged student, including poor pass rates, good teaching practices need to be discussed with a view to understanding its impact on higher education.

The next section, therefore, describes what good teaching practice entails and its impact on higher education.

3.2.3 Good teaching practice and its impact on higher education

Arising from the above, a good teaching practice is thus a key influence on student learning, which is a desired outcome and primary goal of HEIs. As stated by the CHE (2017: 52), good teaching practices include the following:

- **Active student engagement**: This ensures the active student engagement in own learning areas; students must exhibit interest, curiosity, passion, and optimism when learning. This ought to include their motivation level and the progress in their education. According to Pather, Noordeen-Fataar, Cupido and Mkonto (2017: 161) student motivation and resilience to succeed, play a significant part in enhancing their engagement at university. Student engagement allows the student to feel involved in the classroom. Morton (2009: 64) suggests lectures must be carried out by the lecturers using techniques that help the students to learn.
- **Responding to student diversity**: According to Tennant (2010: 85), student diversity means different students from different levels, with differences including language, age, gender, and cultural background, as well as religion, learning preferences, abilities and disabilities, along with socioeconomic background, and

so on. The way in which higher education responds to diversity, impacts on the way students learn. It is further stated that a student with different perspectives and experiences will respond differently to classroom activities, and therefore, teachers must be mindful of this, since it may create challenges for students in the classroom; more especially the disadvantaged student.

- **Developing good relations with students**: In order to build good student relations, staff need to become more engaged with students in the classroom. According to Chickering and Ehrmann (1996, cited in Scott and Scott 2011), involvement in learning is often increased when working with others, with improved thinking and deeper understanding resulting from the sharing of ideas and by responding to others. This enhances a student's intellectual commitment and would be an important factor to consider for the disadvantaged student.
- **Teaching in ways that boost student confidence and ability**: As stated by Dincer and Yesilyurt (2017: 2), acquiring speaking skills is often more difficult than other skills, such as writing, listening and reading. For the majority of students at SA HEIs, English is a second language. This can result in a barrier and students feeling less confident, since they have a feeling of insecurity, embarrassment and anxiety for being given bad comments and errors in speaking (Tuan and Mai 2015).
- **Teaching students to be critical thinkers**: When critical thinking becomes more integral to the teaching process students will be able to engage in various social problems, their identification, understanding and analysis. There are many definitions of critical thinking. However, the one most relevant is described by Scriven and Paul (1987) wherein critical thinking is defined as:

  > "…the intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing, and/or evaluating information gathered from observation, experience, reflection, reasoning, or communication, as a guide to belief and action."

For good teaching and good teaching practices to take place, appropriate teaching approaches must be carried out to ensure the manner in which students learn is improved. Each of the aspects mentioned above are particularly relevant to disadvantaged students and their lecturers. The next section sets out various teaching approaches.

3.3 APPROACHES TO HIGHER EDUCATION TEACHING

A teaching approach is the manner in which teaching and learning is regarded. It gives rise to instruction practices that employ classroom activities or procedures to assist learners to learn.

According to Trigwell and Prosser (1993, cited in Richardson 2005: 676-677), the different approaches to teaching in higher education may be described as student-focused or teacher-focused respectively. A student-focused teaching approach is aimed at making a conceptual change in the student, whereas a teacher-focused approached is aimed at merely transmitting information to the student.

One of the advantages of a student-focused teaching approach, as indicated in a study by Trigwell *et al.* (1999, cited in Richardson 2005: 677), is that students exposed to this teaching approach tend to adopt a deep approach to learning, unlike the student exposed to the teacher-focused teaching approach that uses a more surface approach to learning. The types of learning approaches are discussed in the next section. Therefore, the type of teaching approaches used in higher education plays an important role in the way students learn.

The challenge, however, with teacher-focused teaching is that this type of teaching approach does not cater for teaching students that are different, such as students that access higher education from disadvantaged higher education institutions and who are considered to be disadvantaged. As Nyamupangedendu (2017: 115) states, this teaching style leads to a “one size fits all” approach and tends to over focus on teaching methods. This type of teaching style may further disadvantage an already disadvantaged student. It also does not cater for large class size.

Hence, from the discussion relating to teaching and how it takes place, the points mentioned above are clearly relevant to how teaching and learning takes place among disadvantaged students. The next section will discuss learning in higher education.

3.4 LEARNING IN HIGHER EDUCATION

3.4.1 The concept of learning

Learning, as described by Marton and Booth (1997, cited in Fry, Kettridge and Marshall 2009: 8), involves the manner in which we sense and become aware of the

world, and “about what makes sense”, which cannot be done on its own. In order for learning to take place, there needs to be methods, techniques, approaches, recognition, reasoning and being able to remember information. Understanding how student learning transpires in higher education, is therefore necessary. With the study focus based on the disadvantaged student, learning in HE must therefore, be considered in this context.

3.4.2 Student learning in higher education

As stated by Pretorius (2017: 7), in order to understand the basics of student learning, a lecturer or teacher needs to first understand how a student learns. The term ‘learning styles’ is used to describe student learning. According to Fry *et al.* (2009: 20), learning styles refer to student personality characteristics and traits. Coupled with this, the student’s approach or intention to undertake a certain task can also have a significant effect on their learning experience (Ramsden 2003: 47). Arising from the above, it is therefore vital that lecturers take cognisance of the different students they have when creating learning styles. This is particularly relevant to the disadvantaged student.

3.4.2.1. Approaches to learning

Two main learning approaches are relevant in this study, with the first referred to as the “deep approach”, described by Fry *et al*. (2009: 11) as” learning where the student learns with the intention to understand and seek meaning”, relating new concepts to existing knowledge, so that it is understandable. For example, a student learns facts in the context of the meaning and understands the facts. The second approach is the “surface approach”. This approach to learning is described as studying the facts but putting it to memory (Ramsden 2003: 47). Pretorius (2017: 9) explains this as “rote learning”, where there is no meaningful understanding of the work being studied. The author further states work is thus studied for the mere purpose of repeating it onto the examination paper, without intent to understand the work. From the above, it is clear that the appropriate approach to learning should therefore be the deep approach.

According to Ambrose *et al*. (2010: 68), another approach to learning is motivation. For a student, this is a personal investment to realising a chosen outcome or state (Maehr and Meyer 1997, cited in Ambrose *et al.* 2010: 68). Nevertheless, learning

behaviours that students engage in are influenced in quality, intensity and persistence through motivation, in the context of learning (Ambrose *et al.* 2010: 68). By implication, disadvantaged students must be motivated to engage in the learning process.

In addition to understanding learning approaches, learning theories will help to provide insight to student behaviour toward the learning process. In order to facilitate the learning process for a disadvantaged student, it is thus important to view learning theories in relation to the learning process. As highlighted by Piciano (2017: 166), a learning theory is meant to make us understand the way people learn. Learning theories are therefore applicable to all students of higher education, including the disadvantaged student. The next section briefly outlines the four learning theories of the 20th and 21st centuries.

3.4.3 Learning theories

Learning theories describe the way in which students , process, and remember knowledge during learning. Various influences play a part in the manner in which understanding is acquired. These include cognitive, emotional, and environmental influences, while previous experience also features in acquiring or changing a world view, and how skills and knowledge are preserved.

According to Harashim (2012: 9), three theories emerged in the 20th century, with one other in the 21st century, as follows:

- The Behaviourist Learning Theory;
- The Cognitive Learning Theory;
- The Constructive Learning Theory; and
- Online Collaborative Learning (OCL) - 21st century.

Behaviourist Learning Theory centres on the manner in which people behave and specifically by what means particular behaviour is changed or prompted. According to Piciano (2017: 167), in higher education, behaviourism emphasises observation of student response to particular stimuli that, can be quantified or evaluated, when repeated, and ultimately controlled, per individual. Kelly (2012) states that behaviourism is a concept based on operant conditioning. Skinner (1953) introduced operant behaviour, which described a method of learning that happens through a

system of reward and reprimand. This is viewed by theorists as learning that takes place when acquiring new behaviours or when behaviour changes as a result of associations between responses and stimuli. Association can thus be said to lead to behaviour change.

Cognitive Learning Theory realised the mind's significance in understanding the material world. According to Harashim (2017), this theory deals with technology capable of modelling the mind and representing knowledge. While it is a learning theory distinct from behaviourism, cognitivism assumes that the learner's primary role is to take in whatever is presented by the teacher. Cassidy (2004) explains the focus of cognitive-centred approaches as identifying styles according to individual dissimilarities in perceptual and cognitive function.

Constructive Learning Theory emerged in reaction to behaviourism and the cognitivism theory that argue it is not possible for human beings to be programmed as done with robots, nor are they able to respond to stimuli in a like manner, and that the mind performs a function in the manner in which people act during the process of learning. De Sousa (2017: 4) affirms that students are encouraged, through the constructivist approach to learning, to actively participate in the process of teaching and learning, where students learn through their own personal experiences with suitable learning materials. Accordingly, constructivist teachers need to adapt their teaching style, approach and content to students' developmental stage (Matthews 2003: 57).

Online Collaborative Learning Theory, according to Harashim (2012: 12), is the fourth learning theory for the 21st century. This theory is based on a new view and surfaced with the development of networked computers and the internet. For students of the 21st century, including the disadvantaged student, this is highly relevant, since this theory is associated with the socio-economic shift to the knowledge age from the industrial society.

The learning theories described above reflect the many ways learning can occur. Students learn differently. However, Piciano (2017: 167) points out that in the constructivists view, teaching is a social activity, where there is a physical presence of a teacher in the classroom that provides instruction. Students feel more comfortable with face-to-face contact. The author goes on to state that, in

collaborative learning, the use of various forms of electronic communication, such as mobile technology and electronic mail, lessens some of the challenges experienced by face-to-face contact in the classroom and encourages group work.

3.5 REQUIREMENTS FOR STUDENTS TO LEARN EFFECTIVELY

Understanding the requirements for learning to take place effectively will provide insight into understanding what is needed for learning to take place where disadvantaged students are concerned. There are many different ways for students to learn, one of which is for students to be conditioned to learn. According to Jenkins (2015), the fundamental conditions that must exist for people (in this case students) to learn are:

- **Awareness**: Students need to be made aware of the subject matter on hand. They must recognise that there is something that needs to be learnt before it is learnt. Sometimes, students know nothing of the subject and are even less aware of the extent of what they have to learn;
- **Interest**: After establishing the need to learn, students must be helped to understand why the information that is being taught to them is so helpful. If this does not happen then students will lose interest. They will feel demotivated and will not learn as much as they could. Ambrose *et al*. (2010: 83) agree that students feel motivated to engage with material that interests them;
- **Motivation**: There is a bigger likelihood for students to learn when they have an interest in the subject. However, gaining good results and a good academic standing can be motivators for learning;
- **Relevance**: When students understand the relevance of a topic they tend to learn more effectively and efficiently. Therefore, connecting the topic to the real world and showing its relevance, will allow the student to regard the subject as relevant and may encourage learning. Ambrose *et al.* (2010: 83) concur and maintain students must be assigned tasks and problems that allow them to see the relevance and value of what they are learning;
- **Engagement**: A relevant subject content allows the student to become engaged in the topic or subject matter. The term “engagement” can be used to describe a flipped classroom or service learning engagement, which refers

to students listening, participating in discussions in the classroom, reading course materials and carefully considering concepts;

- **Reinforcement**: This term refers to repetition, which is necessary for learning to take place. It involves repeating concepts over and again to ensure student understanding of what is being taught. This concept also includes assessments, which determine how well the concepts are being understood, with teaching then modified accordingly. Reinforcement learning can also be valuable through the use of articles, surveys, or even guest speakers; and
- **Support:** For a non-traditional or first generation student, lecturers have to go over and above their duty and expand their role of mere teacher, to be coaches, counsellors and/or even cheerleaders, as support may come in many forms. For example, giving students the intellectual tools to succeed, such as critical thinking skills, which are provided through for instance, organisational structures and mathematical formulae, or physical resources and/or taxonomies, such as course material, lab equipment and texts.

The above discussion clearly shows what students need to be able to do in order to learn, with the aspects mentioned quite relevant when considering the challenges of the disadvantaged student. When students do not receive support and are lacking in these areas, learning may be hindered. According to Jones *et al*. (2008:6), a disadvantaged student is one that is said to come from poor socio-economic backgrounds and poor schooling backgrounds. As explained by Crocker (2018:3), the extent to which disadvantaged Law students at the University of Kwa-Zulu Natal are challenged lies not in teaching students how to spell and engage in grammar or language skills but rather, the deep underlying problems students have with legal literacy and academic literacy skills, poor critical thinking skills and weak logical argumentation skills.

In order for teaching and learning to be successful, certain requirements need to be met for an effective teaching and learning environment. The next section discusses these requirements.

3.6 REQUIREMENTS FOR EFFECTIVE TEACHING IN HIGHER EDUCATION

According to Fry *et al.* (2009: 3), effective teaching is founded on being aware of the manner in which students learn. In order for effective teaching and learning to occur,

there has to be prior knowledge of what the learner needs for the teaching to be successful and this is equally significant (if not more so) in the case of disadvantaged students. The authors add these requirements include, but are not limited to, communication, student participation, student motivation, the innovative use of technology and supplemental teaching methods. Each of these areas are examined below.

3.6.1 Communication

Communication can be defined, according to Asrar, Tariq and Rashid (2018: 33), as the manner in which thoughts and ideas are transferred to other people, which could either be verbal or non-verbal. A teacher's skills and the ways in which they communicate in a classroom, inspire increased educational abilities by students. Prozesky (2000: 44) maintains that, when the communication process goes wrong at any stage, communication can become less effective. In the case of teaching in the classroom, it is therefore important to ensure there are no barriers to communication for effective teaching to take place.

The author further explains that barriers to communication can be overcome, when the information transmitted is clear, audible and understandable (Prozesky 2000). Moreover, regular feedback from students can determine whether proper communication is taking place. With many disadvantaged students, English is not their first language, hence, ensuring no communication barriers exist, is quite important in that context.

Both verbal and non-verbal means of communication employed by a teacher are echoed in student behaviour. According to Asrar *et al. (*2018: 33), a student who is not comfortable with a teacher may be made to feel even more uncomfortable by the teacher's non-verbal communication towards him/her. This is pertinent, when considering the case of disadvantaged students and the effect of lecturer communication on student performance. For effective teaching and learning to take place it is, therefore, important that the learning environment is enjoyable. The authors further add that a pleasant learning environment assist the students' mental approach, which may contribute to improved student performance.

3.6.2 Student participation

From the above, the importance of communication is evident, as when students participate in class; it is a form of communicating. Student participation can thus be described, as a process of active engagement involving not only preparation, but also contributing to class discussions, as well as group and communication skills, and being present in class (Dancer and Kamvounias 2005).

These forms of participation enhance class participation by students who are not only present in class but, by those who participate in oral presentation (Fritschner 2000), as well as students who ask questions and those who provide feedback. However, participation on its own, is not enough. The quality of student participation is important in determining how effective the student participation is in the teaching and learning process.

Cohen (1991: 69, cited in Debele and Kelbisa 2017: 1) state that, “Participation is a way for students to be actively involved in the educational process and to assist in enhancing the teaching and classroom environment”. Student participation allow students to become motivated and to learn and think better (Crone 1997; Garside 1996; Junn 1994; Dagett, 1997; Ganard, Hunt, Lippert and Paynton 1998; Weaver and Qi 2005, cited in Debele and Kelbisa 2017: 1). Hence, should disadvantaged students be encouraged to participate, there is a good chance they will be motivated and this will also improve learning.

3.6.3 Student motivation

Tokan and Imakulata (2019:1) state that, to improve the quality of education, the quality of student graduates needs to be developed. Aspects, such as motivation and learning behaviour are considered a key factor to achieve good outcomes. In addition, it is found by Tokan and Imakulata (2019) that students who show high levels of motivation and learning behaviour, tend to produce good results.

According to Asrar *et al.* (2018: 33), a teacher’s sympathetic stance can induce a healthy learning environment, which is vital in higher education. Studies have shown students are probably better motivated to participate in academic work when they feel they have lecturers who are supportive and caring (McCombs 2017).

It is asserted by Rubio (2010: 36) that, in order to produce an effective teaching environment, teachers need to know their students so they can be motivated to learn. Effective teachers motivate their students to become receptive and excited about learning more about the subject. Students need to be made aware of the value and importance of learning and developing a better attitude towards learning. Hence, student motivation is also a key factor to improving teaching and learning among disadvantaged students in higher education.

3.6.4 Adopting innovative use of technology

New and emerging technologies are prevalent in higher education and can have a tremendous impact on how teaching and learning take place. According to Govender (2015: 28), technology has the potential to encourage student interactivity and to provide immediate feedback on learning, especially when teaching large groups. The digital revolution includes the use of the internet, cell phones, emails, video games and social networking. This is especially important with disadvantaged students, particularly where formal contact time during lectures is inadequate.

Nyamupangedendu (2017: 125) indicates the use of PowerPoint presentations in class plays a role in increasing student participation and positively impacted on student learning. Visual aids are important for effective teaching to take place. Stephenson and Cortinhas (2013: 1, cited in Govender 2015: 24) agree, stating that lecturers can supplement their teaching by various methods and means, including lecture capture, audience response systems, mobile phones, and wikis, along with learning blogs, screen-casting and web-based textbook-linked electronic resources. Many of these aids would be vital for improving learning among disadvantaged students.

Having examined the teaching requirements for teaching, the following section will look at student learning requirements necessary for effective learning to take place.

3.6.5 Student learning requirements necessary for effective learning

According to the CHE (2017), in order for students to be able to learn, they must possess the following learner attributes:

- Communication skills, such as having the ability to communicate – learners must be able to express their own ideas and comprehend what others are communicating;
- A positive attitude towards learning;
- An adequate knowledge of note taking and summarising skills;
- The ability to understand verbal and written content, such as materials presented for the course. Understand the lectures and assessments presented;
- The ability to distinguish between inductive and deductive reading – in other words, cause to effect and effect to cause.
- Proper study skills or techniques;
- Confidence;
- Access to textbooks and other source of learning materials;
- Motivation;
- Be engaged in the learning process;
- Good memory; and
- The ability to make use of mind maps.

In order to enhance the changes of success, learner attribute implementation must be given time, and be entrenched as part of course development and processes of review (Hill, Walkington and France 2016: 156). In the absence of any one of these attributes, a student may experience challenges. The possession of learner attributes is essential for the success of the disadvantaged student.

The section above discussed what is required for teaching and learning to happen effectively in an ideal HEI. However, SA HEIs are not ideal, owing to the effects of apartheid and the many changes that have taken place during the post-apartheid transformation process. Challenges that arose from the transformation process were discussed in Section 2.4 of Chapter 2. This section focuses specifically on the teaching and learning challenges in higher education, with the disadvantaged student in mind.

3.6.6 The disadvantaged student of South African Higher Education

According to Mdepa and Tshiwula (2012: 20-22) SA's apartheid legacy gave rise to a racially divided higher education sector. Under the apartheid government, there were separate institutions for different race groups. Historically "white" institutions were favoured. The authors further state that, under the new government, higher education institutions had to admit students, regardless of race. The necessity of transforming the higher education sector arose from the need for redress of inequalities and prepare for student massification with many from backgrounds where poverty is the most significant, socio-economic factor. These students were referred to as "disadvantaged".

Some of the common sense assumptions stated by Boughey (2007: 5), regarding a student seen as disadvantaged or underprepared, is one who:

a) lacks skills;
b) experience gaps in conceptual knowledge areas;
c) requires language development; and
d) lacks the ability to think critically.

Boughey (2010: 5) further states that a student considered to be "disadvantaged" according to the elements addressed above, may require to be treated independently from the mainstream learning activities. This treatment may take place in the form of additional classes and tutorials, as well as special courses, as provided by the HEIs the student belongs to.

It is also understood that students experiencing problems in the area of language will be regarded as disadvantaged. This includes reading and writing, in comparison with students who speak English as an added language.

The need for this study arose partly from the paucity of previous studies investigating teaching and learning challenges, specifically of disadvantaged students. Therefore, the approach adopted was to examine the teaching and learning challenges experienced by students generally, through a review of literature in the next section, followed by possible intervention strategies. This will enable the researcher to determine, by means of a survey conducted at the case study institution, the challenges experienced by disadvantaged students.

3.7 TEACHING AND LEARNING CHALLENGES IN HIGHER EDUCATION

The teaching challenges and the learning challenges will be discussed separately to offer a better understanding of each of these aspects of higher education. Although, according to Nuthall (2004: 278, cited in Grösser 2007: 37), within the professional culture of teaching, it is believed that when something is taught, it is automatically learned. Thus, teaching and learning cannot be dealt with as separate entities, yet the relationship between the two is rather complex (Mayer 2002: 228-232, Oser and Baeriswly 2001: 1031; Munro 1999: 151, Shuell and Moran 1994: 3343, cited in Grösser 2007: 38). The next section will discuss classroom challenges experienced, firstly, by the lecturers, followed by the learning challenges as experienced by students.

3.7.1 TEACHING CHALLENGES

During the period of transformation, HEIs opened their doors to a large number of students, many of whom came from disadvantaged backgrounds. This resulted in challenges for the lecturer. Some of the teaching challenges include large class sizes, the use of e-learning technology and student readiness for higher education, as well as English language proficiency, class participation and first year student experience. For the purpose of this study, the section below will discuss the two challenges deemed important, namely large class size and the use of e-learning in higher education.

According to Wanjogu (2013), no clear indication exists in literature, where the actual number that constitutes a large class is specified. However, Maringe and Sing (2014: 764) view a class of more than 100 students as a large class, which is usually found in undergraduate programmes. The challenges are discussed as follows:

3.7.1.1 Large class size

The challenges associated with large class size include: overcrowding of lecture venues, increased workloads, poor infrastructure, and poor voice projection, in addition to poor student motivation, poor student interaction, disruptive student behaviour, and lack of motivation, as well as poor visuals and student under-preparedness. Each of these are discussed below.

3.7.1.1.1 Overcrowded venues

According to Mulryan-Kyne (2010: 177), overcrowded venues lead to the following challenges: poor engagement of students with course content, students appear to be less committed to courses, lack of motivation among students, and students are generally reluctant to participate. In such a learning environment, class discussions appear to be superficial. The author also maintains there is an informal exchange between the staff and the students, with the participation rates therefore low. This also leads to social isolation, where students are unable to communicate with each other informally in such a classroom setting. The author further indicates that overcrowding of venues additionally leads to a lack of lecture structure, while negating the opportunity for course discussion in class.

A study conducted by HESA among both Historically Disadvantaged Universities (HDUs) and Historically Advantaged Universities (HAUs) on learning at HEIs in SA, found that teaching in HDUs were noticeably more challenging than at HAUs, with increased student numbers resulting in overcrowded venues. The staff student ratio was 1: 500 (reflective report Historically Disadvantaged University no.DU5) and this impacted negatively on teaching and learning.

The challenge of large class size is experienced in many countries. According to Yelkpiere *et al*. (2012: 320), the challenge of large class size is linked to quality of teaching and learning and student assessment. A report by the Presidents Committee of Ghana states that teaching and learning is adversely affected by the high student-teacher ratio (The Republic of Ghana 2002: 19).

The study also found that HDIs lacked physical infrastructure and resources, with the increased class size resulting in increased workloads.

3.7.1.1.2 Increased workloads

Maringe and Sing (2014: 768) point out that student-staff ratios have risen, resulting in increased staff workloads that negatively affect the research productivity of staff. Ward and Jenkins (1992, cited in Mulryan-Kyne 2010) add that, in dealing with large volumes of marking in respect of assessments and student feedback, lecturers are burdened with a high administrative load. The author adds that this, in turn, impacts negatively on teaching and staff productivity.

3.7.1.1.3 Poor Infrastructure

Due to the increasing number of students in higher education, university infrastructure is unable to accommodate such students. This is a challenge for HDIs resulting in inadequate venues for teaching and limited room for staff movement and for group work to take place (Maringe and Sing 2014: 768).

3.7.1.1.4 Poor student motivation

Gibbs (1992, cited in Machika and Johnson 2014: 376) find academics are constantly faced with challenges relating to large class size, as students grappling with course content become less committed to their studies and appear to be less motivated. Further, academics find it difficult to give all the students attention and disadvantaged students may be the ones that actually require that attention. According to Wentling, Park and Peiper (2007: 36), a key element of successful teaching lies in the lecturer's ability to respond to individual student needs. Tokan and Imakulata (2019: 1) maintain motivation has a direct effect on student learning behaviour, and both motivation and learning behaviour have a direct effect on student achievement. Therefore, a large class size could result in the lecturer being unable to provide individual attention to the student, while poor student motivation could result in poor performance, which could be detrimental for disadvantaged students.

3.7.1.1.5 Poor student interaction

It is confirmed by Wentling *et al.* (2007) that, in an environment where there are large classes, student interaction is limited, due to factors such as student reluctance to participate in class. Consequently, they end up becoming spectators and may be afraid to ask seemingly irrelevant questions that may appear unnecessary to other students. This results in a low participation rate in such a classroom. Moodley (2015: 152) asserts that poor participation rates of students in the classroom lead to poor pass rates. As stated by Leufer (2007: 323), there is a link between class size and academic achievement.

3.7.1.1.6 Disruptive student behaviour

Where lecturers are faced with large numbers of students who become disruptive in class, they may not know how to manage such a large disruptive class. Morton

(2009: 67) alludes to the fact that one of the challenges of a large class size is this disruptive student behaviour. The author further adds that these disruptions can be caused, amongst others, by students walking late into the class; students talking to one another, which leads to a noisy class; and students using their mobile phones in class. These disruptions affect those student's intent on listening and who want to learn, while also contributing to teaching lessons starting late.

It is clear from the above that disruptive behaviour is not conducive to teaching or learning. Although disruptive behaviour is indicated here as a challenge in a large class, it is not suggested that student disruptions do not take place in smaller classes.

In a study by Matoti and Lenong (2018: 175), it was revealed that students are not co-operative in a disruptive class and that this has a great impact on delivering quality education.

3.7.1.1.7Lack of student interest leading to poor student engagement/interaction

It is found by Mulryan-Kyne (2010) that students exhibit a low level of engagement with materials, and show less commitment to courses. Maringe and Sing (2014: 768) argue that, because of this difficulty associated with student interaction, students taught in a large class may demonstrate limited thinking skills and will largely depend on their low level learning skills. This argument is also applicable to the disadvantaged student.

According to Morton (2009: 58), lectures are attended by students from various disciplines across the campus, each with different skills and knowledge bases. Hence, the challenge for the lecturer is being able to teach such a diverse group of students. It is more especially challenging when the lecturer is not aware of how to structure the lecture to accommodate different disciplines, so that all students are kept attentive and interested. Students who lose interest in the lecture may not engage in class discussions, thereby resulting in poor student engagement and also poor class interaction.

Baron and Corbin (2012: 763) add a lack of student engagement is reflected in a student's lack of preparation for classroom activities, resulting in less participation in class.

3.7.1.1.8 Poor visuals, voice projection and acoustics in a large venue

Poor visibility and acoustics in a classroom lead to students not paying attention (Mulryan-Kyne 2010: 177). The author further states that this results in lecturers having to draw up notes since students are not able to see the board or other visual aids used in class. This means that notes have to printed and handed out. The lecturer's time is spent compiling notes and having them printed for students. This further contributes to the challenge of less time being spent on academic professional development and more time on notes. A shortage of resources, such as textbooks, also makes it challenging for students to study.

Mulryan-Kyne (2010) further states that lecturing in a large venue results in poor voice projection and acoustics. Due to the large venue size, lecturers have to walk the entire lecture hall during lectures, so that all students may be given an opportunity to hear the lecture at some point. These challenges, associated with poor visibility and acoustics, will also affect disadvantaged students.

The above submits large classes do not create learning environments conducive to developing intellectual skills of a higher order, such as improving learning skills. The challenges arising from large classes also leads to disruptive student behaviour

3.7.1.2 E-learning technology

According to Mabusela and Adams (2017: 10221), the use of technological tools is termed as e-learning, with these tools predominantly comprised of those made available for education, through employing a network, such as the internet, while it is also an instruction type enabled by digital technology. E-learning tools that are used in higher education include Blackboard and Moodle.

Mabusela and Adams (2017: 10223) add that the general design of e-learning lessons is to assist students in performing specific tasks and also to guide students through information. In e-learning, the technology is not used to replace the teacher but rather to mediate the teacher-student relationship. However, teacher challenges arising from this technology may contribute to student learning challenges.

Challenges associated with e-learning technology include: inadequate ICT and e-learning infrastructure, not understanding the learning style and cultural challenges of students, teaching and e-learning methods and their associated challenges, as well as technological challenges. In addition, the shortage of e-learning technical skills, along with e-content development for teaching staff, were also identified as challenges, while a lack of interest and commitment in the use of the e-learning technology by teaching staff, insufficient time management skills and financial constraints in the implementation of the e-learning technology, were further challenges identified. Each of these are discussed below.

3.7.1.2.1 Inadequate ICT and e-learning infrastructure

Ali, Haolader and Muhammad (2013: 4062) state that the use of technology in the classroom is essential for providing opportunities for students to learn to operate in an information age. Certain infrastructure is required for the use of technology. However, such infrastructure is not adequate to ensure effective teaching and learning is carried out. According to Tarus and Muumbo (2015: 131), infrastructure, such as computers, network and internet connectivity, and computer labs, are inadequate in providing access to e-learning facilities that promote teaching and learning. A shortage of this technical infrastructure can be challenging for students, more especially those from a disadvantaged background who are not aware of how the technology works in the first place, and then learning to use the technology, only to be confronted by inadequate technical infrastructure, such as poor network connections, lack of computers and technical support.

3.7.1.2.2 Lack of understanding of student learning styles and cultural challenges

Academics must consider cultural aspects and individual learning styles to be able to understand students in an e-learning environment (Sywelem *et al*. 2012, cited in Islam, Beer and Slack 2015: 104). The challenge for lecturers include being able to understand the learning styles, as methods of learning by certain students takes place through interacting, others require visual presentation, while some learn through written notes and listening to instructions. Should learning styles be unclear, this has a serious implication on the e-learning environment.

3.7.1.2.3 Pedagogical e-learning challenges

This challenge assumes that when the pedagogy is not considered with e-learning, the learning outcomes of the students will not be achieved. This gives the lecturer a better understanding of how students learn and what design and course materials are appropriate for the student. Ellis, O Reilly and Debrecency (1998, cited in Islam *et al*. 2015: 105) suggest that, since e-learning is now widespread, and where academics lack the ability to fully equip themselves to handle developments of materials and delivering online modules, then this may affect teaching and learning. In the context of this study, knowing how disadvantaged students learn, is equally significant.

3.7.1.2.4 Technological challenges

Chua and Dyson (2004, cited in Islam *et al*. 2015: 106) state that the quality of e-learning systems is highly criticised in e-learning literature. According to Islam *et al*. (2015: 106), technological challenges refer to aspects including “bugs, speed, error messages, functions and features” not working properly or do not work accordingly, as required by academics. Challenges arising from technical errors, bugs and slowness, can create problems for academic staff who need to use the system and provides for a negative outlook, where the use of such technology by the student is concerned. This could have a major impact on institutions that have already invested in the software, should the students not make use of it (Islam *et al*. 2015: 106).

3.7.1.2.5 Deficiency of technical e-learning and e-content development skills for teaching staff

Academic staff are not properly trained in the use of e-learning technology. HEIs have been criticised for either not providing sufficient training, or the provision of inadequate training, while non user friendly training styles, absence of hands-on practice and the manner in which materials are created, as stipulated by the instruction method (Islam *et al.* 2015: 103). Tarus and Muumbo (2015: 133) add that teaching staff do not possess the necessary skills critical for effective e-learning to take place. Staff are also not fully equipped to develop e-content for e-learning; this can create a feeling of disinterest among teaching staff in the use of e-learning.

3.7.1.2.6 Teaching staff disinterest and absence of committed use of e-learning technology

According to Tarus and Muumbo (2015: 133), the lack of motivation in the use of the e-learning approach, could be due to it being perceived as additional work for no additional pay. Staff may also be of the opinion that e-learning could result in job losses due to new technology.

3.7.1.2.7 Lack of time management skills

Challenges regarding time management of online activity faced by academics, are characterised by Reeder (2004, cited in Islam *et al*. 2015: 108) as 'the speed at which the message is sent, whether the message reached the receiver, and the response time'. The lecturer must be able to visit the online discussion page daily in order to keep track of student postings. This has not been met favourably, with cyber culture values that state that academics must have a "vigorous" online presence, so they are able to control the discussion (Vonderwall *et al*. 2007; Mayes *et al*. 2011; Nandi *et al*. 2012, cited in Islam *et al.* 2015: 108). Tarus and Muumbo (2015: 133) also find that e-content takes too long to develop. Teaching staff need time to convert hard copies of materials to e-content.

3.7.1.2.8 Financial Constraints in the implementation of e-learning technology

Tarus and Muumbo (2015: 132) advise it is costly to implement ICTs. Inadequate finances to implement this teaching approach is a major barrier, which prevents effective teaching and learning to occur. Due to the lack of finances, activities such as staff training, maintenance, bandwidth and the internet, as well as e-content development, and e-learning infrastructure upkeep cannot be provided.

3.7.1.2.9 Lack of affordable and inadequate bandwidth

Tarus and Muumbo (2015: 132) maintain the cost of internet bandwidth is high and therefore universities in African countries cannot afford to procure adequate bandwidth. Academic staff and students require faster internet to ensure e-learning in support of teaching and learning is carried out efficiently.

As can be seen from the above discussion, e-learning places high demands on academics and if they are overworked, student teaching and learning will suffer,

which could lead to low staff morale that may affect learning, including learning among disadvantaged students.

A lack of staff programme team coordination and communication, where academic staff concentrate on their own modules only, results in students receiving a very high workload, leading to the wrong kind of engagement with student focus on “the next critical assessment or task” and not on the learning process (Bryson and Hand 2007: 358). The student learning process and considering the challenges thereof, is critical to graduate throughput and success.

Therefore, for successful e-learning to take place, challenges need to be addressed, since all these challenges are linked to one another (Aslam *et al.* 2015: 109).

3.7.1.3 English language proficiency

One major factor contributing to the high student drop-out, is language proficiency. Jones *et al*. (2008: 44) state the challenge of inadequate language skills is a common problem, faced by the majority of disadvantaged students of the world. Students are having to study in a second or third language. In SA, for example, students from rural areas are likely to suffer the most, since English is not their language of instruction at home or school. These students are also the first generation of students in their families or communities to study at a tertiary institution, and therefore, their families are unable to offer the student support when they enter university because of their educational incapabilities.

Van der Merwe (2018) explains that a lack of academic language proficiency results in students not being able to engage in course content across disciplines (Case 2013; Lamberti 2013). Some students struggle to cope with reading, studying and writing academic texts, since they have not learnt to do so at school (Van der Merwe 2018). In addition, public schools do not pay much attention to reading skills (Lamberti 2013). In SA, English is used as a second or third language in many schools with students, in addition to a lack of reading and writing skills, having to improve their grammar.

According to Ucelli *et al*. (2013), in order for teachers to teach academic language, they themselves need to know it, and learn how it is to be taught, and how it is to be used by learners across disciples. The author adds that teachers themselves need

the appropriate training to be able to meet the learners' language needs and improve growth in academic language competence.

3.7.2 STUDENT LEARNING CHALLENGES

Students learn differently from one another (Fry *et al*. 2009: 19). No individual student is the same. When one considers student learning, one needs to consider factors that affect the student learning process. Such factors were discussed in the previous chapter. Arising out of this, and the fact of the majority of students in higher education coming from previously disadvantaged backgrounds (Steyn, Harris and Hartell 2014), consideration must be given to address the challenges experienced by the student. The next section examines these challenges, which include challenges of language proficiency, student e-learning, classroom participation, and a lack of student readiness, as well as absence of student support, shortage of study skills, insufficient of academic literacy skills and a lack of reading literacy skills:

3.7.2.1 Student E-learning challenge

Sife, Lwoga and Sanga (2007: 57) refer to e-learning as the use of ICT to enhance and support teaching and learning processes. E-learning is made up of educational technologies, including applications such as PowerPoint, virtual learning environments (VLEs) and managed learning environments (MLEs), which have significant impact on teaching and learning. To supplement the traditional way of teaching, e-learning is used in the classroom through blended learning, which comprises of face-to-face (traditional teaching) and online classroom activities (Sife *et al*. 2007: 58). The author further states that e-learning technologies are made up of ICT applications. The ICT applications used in tertiary education may include: Television and radio, compact disc (CDs), video conferencing, Mobile e-Learning, World Wide Web (WWW), and e-learning platforms sometimes referred to as learning management systems (LMS). The LMS are based on open source e-learning software (OSS), which is used to implement e-learning systems more widely used in the world. Examples of OSS software programmes students and teachers may be familiar with in HEIs, are Moodle and Blackboard. According to Paulson (2002, cited in Islam *et al.* 2015: 106), a study carried out in Australia found Blackboard to be the most popular e-learning technology. DUT has adopted Moodle

as its LMS, to be used by all students, since Blackboard technology will expire in April 2020 (Vooght 2019).

The use of e-learning in higher education is rapidly growing. As highlighted by Islam *et al* (2015: 102), this can be attributed to globalisation. In SA, e-learning has grown considerably in the past three decades (Bharuthram and Kies 2012: 2). However, arising from the nature of student disadvantage, challenges were experienced. These challenges include issues such as the absence of computer skills, lack of access to computers, and a shortage of technical skills.

3.7.2.1.1 Lack of computer skills

Students indicate that lack of computer skills made learning difficult as they are not comfortable with using computers in addition to the time they have to take to acquire computer skills. According to Takalani (2008: 70) the lack of familiarity with technology can hinder e-learning.

3.7.2.1.2 Lack of access to computers

Major factors bearing on technology are cost and availability of telecommunications infrastructure (Van Vuuren and Coetzee 2004: 898, cited in Takalani 2008: 59), with the majority of SA learners not having access to computers and the internet. One institution in SA reported the current ratio of learners to a computer as 1:100. The author further adds that access to internet connections, computer laboratories and printers is limited. In some institutions, there are practices such as laboratory operating hours and time limits and booking systems for computer use. This hinders the success of online learning in SA. Access to computer is a basic requirement for online learning to take place.

3.7.2.1.3 Lack of technical skills

Van Vuuren and Coetzee (2004, cited in Takalani 2008: 62) indicate technological skills are cited as a challenge or barrier to learning, especially when students are not familiar with how to operate, maintain and adapt such equipment to local conditions. As stated by Lautenbach and Van der Westhuizen (2002, cited in Takalani 2008: 62), being familiar with the computer is a pre-requisite for e-learning, with the lack thereof hindering e-learning and having a negative effect on a learner's confidence.

Whilst using e-learning in higher education is of utmost importance for teaching and learning, it must be considered that challenges, as mentioned above, can create problems for learners, by inadvertently losing contact with their lecturer and other learners (Takalani 2008).

3.7.2.2 The challenge of student classroom participation

According to the European University Institute (2019), there are three factors that may impede good classroom participation and pose a challenge for the student. These are teacher-centred, teaching inability to cope with different teaching styles and lack of structure that encourage class participation, discussed below:

3.7.2.2.1 A teacher fosters a one-way communication (teacher-centred): A teacher may ridicule a student who asks many questions (or shows initiative in a classroom); may make punishing remarks; use technical or specialised vocabulary that may create a distance between the teacher and student/learner. The teacher may further be too rigid on attendance requirements, overemphasise grades or there could be an absence of dialogue and discussion between students about course content. The challenge of a large class exacerbates the situation. Disadvantaged students are even more reluctant to participate where this is concerned.

3.7.2.2.2 Inability to cope with different learning styles: The different learning styles were discussed in Section 3.3.2. In order to create a more constructive, appropriate and stimulating learning environment, a teacher needs to understand that each student has different learning styles. A teacher's inability to cope with the different learning styles could result in students not understanding course content and thereby, contribute to poor class participation. The objective of a lecture is to foster dialogue and participation of all students. This is pertinent when considering the disadvantaged student.

3.7.2.2.3 Lecturers lack of specific structure which encourages class participation: Lecturers do not offer a clear and concise indication of what is expected of a student, with student rewards given to encourage class participation. Lecturers should, however, provide a peer-to-peer reward when possible, for example, after a presentation, a debate etc.

3.7.2.3 Lack of student readiness for higher education

According to Wilson-Strydom (2015: 4), the following list highlights the multi-dimensional readiness required for university, lacking in students, thereby creating challenges in teaching and learning, *inter alia*:

- **Lack of approach or apathy to learning** – the student lacks passion, curiosity and desire for learning skills required for university. Being able to ask questions and being more interactive in class discussions is imperative to effective teaching and learning;
- **Lack of social relations and social networks** – the student is unable to work in a team for learning and lacks the ability to form networks of friendships for learning support;
- **Lack of emotional health** – the student has not learnt how to be free from anxiety and fear. Being subjected to these emotions can diminish a student's learning ability;
- **Lack of language competence and confidence** – Students are unable to confidently read, write and understand the language of instruction. For effective teaching and learning to take place, a good understanding of English as the language of instruction is necessary;
- **Student apathy (Lack of student interest, enthusiasm)** - According to Alikuraira (2015: 639), in the higher education context, student apathy is defined as the lack of response to academic related matter or activities among students. These may include class attendance, timely response to academic activities, and ensuring that poor marks are improved. Students who do not show interest are underperforming and undertaking the bare minimum of work, which may hamper student success. Apathy may be also a challenge for disadvantaged students.

3.7.2.4 The challenge of the first year experience

A first year experience can be very overwhelming for students not fully aware of what lies ahead when they gain entry into higher education. According to Naong, Zwane, Magoshao and Fleischmann (2009: 170), a university environment can be a very frightening experience for first year students. A first year student needs support through the transition process in many areas (Angelo and Cross 1993, cited

in Naong 2009: *et al.* 171). Academic challenges students may experience in their first year include:

3.7.2.4.1 Students' lack of academic skills required for higher education

Cleeve (2018) asserts that some of the academic skills required for higher education may include critical thinking and note taking, effective communication, skills for analysing academic texts, and skills for understanding, as well as critically responding to lectures, effective academic writing, and understanding academic texts and lectures. As stated by Naong *et al.* (2009: 171), other academic skills required include time management, self-management and student independency. First year students struggle to manage the change. One way in which this challenge may be addressed, is to provide places where students can obtain assistance in these problem areas.

3.7.2.4.2 Absence of first year student class participation

Naong *et al.* (2009: 171) maintains that some students do not participate in class due to the fear of being embarrassed and perceived as being ignorant for providing a wrong answer. In some instances, certain students dominate the conversation in class and do not give others a chance to speak. Others may feel no need to attend classes as the course progresses. Adapting to a university environment, where class sizes are large, also impacts on class participation. Bahansal (2013: 50) finds students feel shy, weak and neglected in a large class size and therefore do not participate.

3.7.2.4.3 Insufficient student preparedness for higher education

According to CHE (2010a), students in their first year appear to be under-prepared to meet the demands of university study. This is evident in the display of poor academic literacy skills, poor study skills, and lack of confidence in the use of the English language, as well as the challenge of understanding study material and course content. Fomunyam (2019) maintains student under-preparedness for higher education stems from the political history of the country. Student under-preparedness is further based on poor learning-related matters and blamed on poor schooling and poor institutional preparedness, in dealing with the first year under-prepared student. When considering the under-preparedness of students of higher education, the disadvantaged student must also be borne in mind.

3.7.2.4.4 Lack of student support from higher education institutions

Arising from student under-preparedness discussed above, student support is vital for success. The transition from high school to university can be a very daunting task. Students need to be provided with institutional support to deal with the new environment. According to DHET (2010: 19) for many universities student services are fragmented and are not recognised as part of core business.

The challenges identified at this stage needs to be address so that students are supported and guided to ensure that a successful university environment is maintained and teaching and learning is improved.

3.7.2.4.5 Insufficient study skills

Study skills are skills that are meant to enable you to study and learn effectively. Good study skills are effective for academic success. According to Cottrell (2014) some study skills that students need to prepare for when accessing higher education include, reading and note taking, keeping materials organised, time management, information management, critical analysis and problem solving. In the context of SA higher education, the lack of preparedness in terms of study skills is notable. National Benchmark Test (NBT) results suggest student preparedness has been dropping over the last five years (Nkosi 2013 cited in Mayet, R. 2016: 2). For the improvement of study skills, students need to be made aware of the facilities offered at the university to improve their study skills, thereby improving teaching and learning.

3.7.2.4.6 Absence of academic literacy skills

Academic literacy refers the skill of learners to be able to locate, access and evaluate appropriate information sources to narrow the knowledge gap (Andrews and Patil 2007; Rychen and Salganik 2003). Students from a disadvantaged background lack the ability to understand academic reading and writing, quantitative, computer and information literacy, which is problematic as reading skills in higher education are vital to student success. According to Boughey (2010), proper academic reading skills allow for students to become critical thinkers and challenges a student with aspects in texts normally taken for granted. This lack of skills leads to poor results and therefore, poor pass rates.

3.7.2.4.7 Inadequate reading literacy skills

It is held by Bharuthram (2017: 50) that knowledge gained through reading is crucial for the learning process and an important task students need to engage with. Studies by national and international researchers (such as Chanock, Horton, Reedman and Stephenson 2012; Divoll and Browning 2013; Bharuthram and Clarence 2015, cited in Bharuthram 2017: 50) have found that students who enter university are inadequately equipped for reading literacy. As a result, students are struggling to meet the necessary academic requirements for their disciplines. Palani (2012: 92, cited in Bharuthram 2017: 51) reaffirms this statement, by stating that "reading habits determine the academic achievements of students to a great extent". In light of this fact, it can be stated that reading is an integral part of academic success.

An international study by Fook and Sidhu (2014: 604) found the following to be challenges for students in higher education: students who are cognitively challenged, students that found it difficult to become active learners, students unable to cope with reading materials, and students who found instructional problems a challenge. In addition, the language barrier made it difficult for students to communicate, created difficulty in time management, too many assignments were given in class, and students who found it difficult to cope with the cultural differences in higher education.

The combination of factors listed above represents a multiplicity of challenges relating to teaching and learning that must be considered when providing adequate support for the disadvantaged student in higher education. In order to address these challenges and improve pass rates, support is needed from the higher education sector in the form of intervention strategies. Such strategies, obviously critical as measures to improve the pass rates for disadvantaged students, are discussed in the next section.

3.8 INTERVENTION STRATEGIES TO PROMOTE STUDENT SUCCESS

Strategies are methods or plans used to accomplish a goal. The strategies in this study refer to possible actions or interventions used by HEIs to improve student performance by dealing with the challenges students are faced with, in and out of the classroom, in order to improve student success and reduce drop-out rates.

A report by DHET (2015) reveals that student graduation rates show 47.9 percent of university students did not complete their degrees. In addition, Black students were rated as having the highest drop-out rates, with 32.1 percent leaving in their first year of study. This raised a cause of concern for higher education and therefore, intensified the need for student success. Jones *et al.* (2008) define success in the academic sense as "a student's ability to progress through and adequately complete the intended course of study."

The focus of this study is on the disadvantaged student, since massification assisted a large number of black students from underprivileged rural backgrounds in gaining access to higher education. The challenges relating to teaching and learning are discussed separately and focus on the disadvantaged student. The two important challenges associated with teaching for this study included, teaching in large class sizes and challenges with e-learning. Student learning challenges, as identified in this chapter include, lack of language proficiency, e-learning challenges and lack of student readiness for higher education (commonly known as student "under-preparedness"), all challenging the first year student experience, with inadequate literacy skills identified as most significant to student success.

The various challenges stated above can create serious concerns for students, such as preventing students from passing and contributing to high drop-out rates. It is the view of Tinto (2014) that students who do not receive the necessary support, do not complete their programmes of study. Institutions are thus obliged to provide students with support, for the opportunity that access provides, to be translated into student success. One way of addressing the above challenges is to offer student support. This is done in the form of providing interventions and strategies.

As stated by the UCT Teaching and Learning Report (2016: 7), interventions are aimed at reducing and eventually eliminating the disparities in higher education student performance, as indicated above. Disadvantaged students in higher education were the ones who were most prejudiced by apartheid. Moreover, when these students enter tertiary institutions, they are found to be under-prepared, which has led to special educational interventions, designed to bring the poorly-prepared student up to standard, so that they can participate effectively in academic programmes. It is for this reason the Academic Development (AD) department was

created (Lewin and Mawoyo, 2014). AD support is co-ordinated centrally at HEIs within the AD units. This is where multiple interventions are developed to enhance student success.

Interventions undertaken by higher education to enhance student success, are discussed in the next section, under the theme of teaching and learning. The interventions discussed must be viewed in the context of the teaching and learning challenges already mentioned above. According to Lewin and Mawoyo (2014: 67), such intervention strategies include extended curriculum programmes (ECP); tutoring; Supplemental Instruction (SI); and support for writing, literacy and numeracy; as well as systems for early detection of students who are struggling academically.

3.8.1 Types of Intervention Strategies

The different types of intervention strategies available to address the challenges mentioned, are discussed below.

3.8.1.1 Extended curriculum programmes (ECP)

According to Leshoro and Jacobs (2019: 173), ECP is a government intervention initiative created, whereby disadvantaged students that obtain satisfactory results in matric, are given the opportunity to study at a university. This intervention is intended to close the articulation gap. Mayet (2016: 1) refers to the articulation gap as a lack of preparedness students are faced with when they enrol for studies in higher education. It is the gap between success at school and success at university.

Coleman and Garraway (2018: 3) affirm the aim of the extended curriculum programmed is to improve the academic performance of students at risk of academic failure, due to their educational backgrounds, thereby improving teaching and learning, and increasing student throughput rates. In this way, students, who would otherwise be excluded from university, are given the opportunity to be included, thereby feeding into the broader goals of higher education, which is social transformation and equity and access.

According to the University of Cape Town Teaching and Learning report (2016: 77) the ECP for students in the first year of study is spread over two years, after which the normal curriculum continues. ECP supports the student's transition to university

learning, enabling them to better cope with the mainstream teaching and learning and assessment context.

In a study conducted by Lewin and Mawoyo (2014: 73), the findings indicated the ECP enabled students to improve success rates of first-year student. This view is shared by Shay (2017: 5) who, in her study, found that seven of the nine universities examined had exceeded their expectations on the progression rates of ECP students in their first year of study. This does suggest that the programme is a success.

Lewin and Mawoyo (2014: 73) add that the ECP are added onto the mainstream programmes for undergraduate studies, making it a four year programme. The first year embeds specific developmental skills, such as writing, language and numeracy skills, all of which are important for effective teaching and learning. One characteristic of the ECP classes is that they are small and student participation is actively encouraged in the class.

This programme would be an ideal strategy to address the challenges of the disadvantaged student.

3.8.1.2 Tutoring

In response to student challenges and low pass rates, the government has made funding available for tutors to be employed to offer teacher and student assistance and improve pass rates. Universities in SA use tutors as a means to enhance student success. According to Lewin and Mawoyo (2014: 75), tutors are appointed at different levels of study and trained by the AD department to provide effective tutor pedagogy.

A study undertaken at the University of Western Cape in the Department of Psychology (Duran 2017: 4), indicates that tutorials were aimed at addressing the lack of academic support after normal lectures took place, and also at increasing pass rates, helping in preventing high drop-out rates, in motivating students to learn, and to promote student engagement, with the intention of increasing student success.

There are a number of ways in which tutorials can be conducted. According to Duran (2017: 4) tutorials can be in form of face-to face contact, online tutorials (e-tutors),

assisting lecturers with assignments and the administration of tests. Tutorials enable the students access to peers among students who understand the content better and therefore able to share challenges. Course material is provided to the tutor in the form of exercises and group activities, as well as content from the actual lectures. Lecturers can, in collaboration with tutors, also make use of audio-visual materials and quizzes in the class, to enhance the teaching and learning experience in the classroom.

From the discussion above it is apparent that tutorials offer an opportunity to assist the disadvantaged student with teaching and learning challenges.

3.8.1.3 Supplemental Instruction

According to Naidoo and Paideya (2015: 1), SI is a peer support group targeted at courses with a high risk aimed at developing subject specific learning skills, such as maths and science. It allows for learners to work independently and become more responsible for their learning.

Lewin and Mawoyo (2014: 76) state that “supplemental instructors” facilitate learning in small groups run by a SI leader. SI leaders are selected generally for subjects that are “at risk”. In SA, HEIs ensure that SI leaders are equipped with the adequate training and support in accordance with the programme as designed by the University of Missouri.

Naidoo and Paideya (2015: 2) further add that SI encourages contact between students and faculty, collaboration between students, while promoting study skills development and inspiring active learning, as well as giving feedback without delay regarding “what you think you understand”. SI, in addition, makes allowance for key concept explanations and discussions, incorporating a variety of questioning techniques useful for tests and exams where immediate feedback is provided. This intervention strategy would provide an opportunity to the disadvantaged student in addressing their challenges. For students to be successful in the class, they must engage with the teacher and the class. Therefore, student engagement can be described as a strategy to improve performance.

3.8.1.4 Student engagement

Lee (2014: 2) indicated that lack of student engagement is of serious concern to educational institutions. Enhancing student engagement may prevent poor student outcomes. According to Bryson and Hand (2007: 350), student engagement is viewed in many different ways and one view is that the emphasis of student engagement is on student behaviour in and around the classroom, such as, by students being active, and by students asking questions or participating in groups with other students (Ahlfeldt, Mehta and Sellnow 2005). This is referred to as “active learning”.

In addition to a simply more active participation in the classroom, Bryson and Hand (2007: 355) state that the other interpretation of engagement is orientation to learning, which includes student’s perceptions and experience about learning. Mann (2001, cited in Bryson and Hand 2007: 352) argues that true engagement means the student needs to play a more personal role in the learning process, in order for them to become active agents in society.

Defined as the level the student engages with activities associated with high-quality learning outcomes, as identified by higher education research; student engagement (Duran 2017: 1) can also be referred to as engaged learning.

According to Garcia and Wei (2014, cited in Mayaba, Ralarala and Angu 2018: 2), engaged learning occurs when students make meaning of what they are learning. This means making connections with what the student already knows and the new knowledge as well as new forms of thought. Literature indicates that student engagement is generally accepted as being connected to academic success, student retention, learning and the student experience.

However, as affirmed by Collaço (2017: 40), the challenge lecturers experience with student engagement, is the lack of effective teaching methods necessary for students to engage. Some new teachers are not prepared to use prescribed teaching methods but would rather use methods they have been exposed to. This influences the way they teach, which may negatively affect the performance of the student.

Findings from a study by Pather *et al*. (2017: 161) revealed that non-academic factors play a role in the way students engage in higher education. It is common understanding that higher education students in SA come from positions of inequality, in terms of schooling, race, class and socio-economic resources. Students are disadvantaged to the extent that they lack the self-confidence and self-esteem to be able to fit into the "new environment". In order for effective student engagement to take place, institutions of higher education must consider all circumstances of the disadvantaged student when planning activities to engage the student.

3.8.1.5 The creation of writing centres

According to Archer and Richards (2011: 5), the need for writing centres emerged to provide educationally disadvantaged students an opportunity to develop the necessary skills for success at university. Lewin and Mawoyo (2014: 76) add that writing centres were created to not only address the challenges of English language proficiency, but to assist students with literacy and writing classes. In addition, some writing centres have what is known as "language laboratories" that assist students with vocabulary development.

Higher levels of thinking, creativity, problem solving techniques, autonomy and responsibility, are requirements for effective teaching and learning to take place. Teaching staff take it for granted that students understand terms such as analysis, critical understanding, interpretation, evaluation and 'argument'. Therefore, AD in this area will help students gain a better understanding of terms, thereby understanding more of the course content and improving teaching and learning. According to Gosling (2009: 126), different subjects make different levels of demand on the student, in respect of their written and oral skills. All courses, however, demand that students develop their communication skills, both in writing and speaking. For those students where English is a second language, support is most needed and is crucial in developing the student's academic literacy and study skills.

Zuma, Popoola and Makonda (2016: 103) state that, as a strategy in a selected university of technology, writing centres were established in 2013 to improve students' academic writing skills, which is important for student success in higher education.

Writing centres are a place where students meet peer tutors and gain feedback on their writing skills. It is also a place where students are given the opportunity to ask questions, unlike in a large class where this is prevented from taking place. Given the challenges encountered by disadvantaged students, with regard to writing skills, writing centres do offer opportunities for improving the success rates of such students.

3.8.1.6 Creation of numeracy centres

Previous literature indicates that the articulation gap between high school and university has resulted in students being under-prepared for higher education, which has contributed to low pass rates. According to Scott, Yeld and Hendry (2007: 43, cited in Prince and Frith 2017), the reason for poor student performance across the higher education sector, is student under-preparedness for standard under-graduate programmes. They add further that the under-preparedness of students contributes to student challenges in the area of academic literacy, which includes numeracy.

According to Prince and Frith (2017: 86) quantitative literacy allows students to develop the ability to ask critical questions about the use of data and maths. This is essential for programmes that require maths and science. From the above it is clear that numeracy centres are necessary at universities, to assist in improving disadvantaged students' understanding of the subject matter.

3.8.1.7 Peer assisted learning

As explained by Sulistami, Pahamzah, Baratayaomi and Syafriza (2018: 53), peer assisted learning strategies (PAL/PALS) is a strategy used when the learning process involves asking students to teach others during learning. PALS is a system that encourages students from the year ahead, to support each other and to learn co-operatively. An important feature of the PAL process is that students are paired with a senior student. This allows for the tutor and the tutee to engage on challenges on a one-on-one basis (Greenwood *et al.* 1989, cited in Mcmaster, Fuchs and Fuchs 2006: 8).

Van Rooyen *et al*. (2017: 76) state the advantages of the PAL include increased competencies in communication, language transfer, teamwork and self-confidence,

all of which is very important for teaching and learning in higher education. It also provides the student with a safe and alternate way of learning, while motivating ongoing future learning to take place, which may include post-graduate studies. This strategy is useful when considering the disadvantaged student.

3.8.1.8 Early warning systems

The challenge of being identified as a student that is at risk of failing can be stressful. The early warning systems programme helps identify students who are “at risk” of failing in the early stages of the year and adequately provides support to them so they do not leave in the first year. According to Lewin and Mawoyo (2014: 75), the procedure for the “at risk” students is that, after the first five weeks of the course, students are identified as “at risk” and flagged. Students are issued with warning letters and thereafter, directed to areas where they can obtain help. Students are further monitored and tracked; should no progress be noted; the intervention measures may be changed. However, arising from this study, one challenge was noted. The authors further add that lecturers found the implementation of early warning systems as an added administrative burden (Lewin and Mawoyo 2014). There is simply not enough capacity to follow up on students who are at risk. Since the onus then rests on the student to seek the necessary help, students may decide not to seek the help they require, adding to high failure rates. Early warning systems are useful tools to measure student progress of the disadvantaged student, when properly administered.

3.8.1.9 Introducing Innovative teaching and learning approaches in the classroom

The use of innovative teaching and learning approaches in the classroom can improve the way students learn in higher education. One important type of innovative teaching approach, according to Subramani and Naga-Iyappan (2018: S20) is the incorporation of technology into teaching and learning methods. They add that, in addition to the traditional methods of teaching such as face to face and hybrid learning, where teachers work in a classroom within a space and time, the introduction of technology will allow for teaching and learning to be taken outside of the classroom, which motivates the learning process. The following are examples of technology prevalent in today’s higher education society and includes, but is not

limited to: voice thread, blogging, presentations, and asocial bookmarking, as well as podcasts in the classroom and screencasting, pooling to keep students engaged, smart boards, and Moodle. According to Bharuthram and Kies (2013: 415), challenges arising from the use of this intervention strategy, in relation to the disadvantaged student, is the limited knowledge the student arrives with regarding ICT. The disadvantaged student has inadequate computer literacy knowledge.

3.9 OTHER INTERVENTION STRATEGIES INCLUDING FIRST YEAR STUDENT STRATEGIES

Other strategies that may be used in the classroom by lecturers to improve student success, according to Morton (2009), can be described as generating and maintaining student interest, providing a well-organised and structured lecture, increasing student participation and dealing with a disruptive class; briefly discussed below:

- **Generating and maintaining student interest**: Lecturers have to generate and maintain interest at the start of the lecture, so that students are convinced the lecture is worth staying for or paying attention to.
- **Providing a well organised and well-structured lecture**: A well organised and structured lecture is carefully thought of and prepared and enables the student to understand and make sense of what is being taught.
- **Increasing student participation**: In a large class size this can be achieved by in many ways. These include having an interactive class session, listening to student feedback, getting students to attempt questions individually and then swopping answers, get students to answer multiple choice questions by the show of hands, showing video clips and then ask specific questions, use demonstrations that involve the students, ask students to complete a mini-test to check their progress. Shabiralyani, Hasan, Hamad and Iqbal (2015: 226) state that visual aids are those instructional tools used in the classroom to encourage the student learning process.
- **Dealing with a disruptive class**: a strategy in dealing with a large disruptive class, is to put pressure on the noisemakers to stop the disruption. However, if this does not work out, the lecturer then needs to take charge and one way of dealing with this problem, is to set out ground rules on the very first lecture, which

may be based on departmental rules and established customs and practice in the classroom.

- **Improving student induction programmes** or student orientation and introducing study skills programmes can be used to help students cope with first year challenges.

The strategies discussed above are specific to HEIs and provide a broad overview of what can be done to improve pass rates in SA higher education. These strategies, although not specifically designed for the disadvantaged student, will undoubtedly help all students, including the disadvantaged student.

3.10 CONCLUSION

Teaching and learning in higher education has been an on-going topic of discussion in recent times, due to the increasing number of challenges in the higher education sector. These affect but are not limited to, a large number of disadvantaged students. This chapter, therefore, largely dealt with teaching and learning in a general context and then focused on teaching and learning challenges in separate sections. An overview of teaching and learning was dealt with in the first section of the chapter followed by the definition of a disadvantaged student.

The two main aspects of teaching challenges, which included challenges associated with large class sizes and e-learning were discussed. The many challenges arising from these two fundamental characteristics of higher education, give a clear indication of the challenges students and lecturers experience arising therefrom. This shows that lecturing staff in higher education are struggling to maintain a conducive teaching environment, whilst also dealing with the above challenges. In the same way, learners as well, have experienced challenges, some of which include difficulties with teaching staff.

Challenges experienced by students, in respect of learning, include the lack of language proficiency, e-learning challenges, classroom participation challenges, and students not being ready for higher education, as well as the first year student experience, insufficient study skills, absence of academic skills and inadequate reading literacy skills. Taking the nature of the disadvantaged student into

consideration, the following teaching and learning challenges will add to the problems of the disadvantaged student.

It is clear from the discussion in this chapter that, should challenges not be addressed, this could impact the disadvantaged student negatively. The chapter, therefore, also presented strategies and interventions HEIs have put in place to promote student success. These intervention measures included programmes, such as the ECP, along with tutoring, SI, student engagement, and development of respective writing and numeracy centres, in addition to peer assisted learning, early warning systems, innovative teaching and learning approaches in the classroom, as well as online tutoring. Steps to improve the challenges experienced by first year students include student induction programmes or student orientation, as it is most commonly known, study skills assistance and the importance of maintaining academic integrity. The steps to advance teaching and learning of the disadvantaged student are pertinent to the improvement of student success rates.

The next chapter discusses the research methods and design, with an overview of how the study will be carried out.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

In the previous chapters, the literature review sets out the foundation for the study, which relates to the teaching and learning challenges of the disadvantaged student and intervention measures used to promote student success.

This chapter describes the research methods used to conduct the study. The study was conducted with both staff and students. The interaction between staff and students, and vice versa, is used to understand the main theme of this study, which is to identify the teaching and learning challenges of disadvantaged students and the intervention measures in place to deal with these, as well as to provide suitable recommendations for measures that could enhance student success.

In conducting the study, a research methodology needs to be followed. The various aspects of the research design, such as the case study approach, study population, data collection techniques, data analysis, as well as the pilot study, along with the sampling design, description of samples and sample size, in addition to validity and reliability, will be discussed in this chapter.

According to Kumar (2014: 10), research can be defined as a process for collecting, analysing and interpreting information to answer research questions and to increase our understanding of the phenomenon about which we are interested or concerned. Leedy and Ormrod (2013: 2) maintain that, in order to be called “research”, the process must have certain characteristics and fulfil some requirements, such as, it must be controlled, rigorous, systematic and valid, while also being verifiable, empirical and critical.

4.2 HYPOTHESIS TESTING

A hypothesis presents the researchers expectations about the relationship between variables within the research question. It is said to be a suggested answer to the question which upon investigation may either support the hypothesis or not (Ary *et al.* 2010:81). The author further states that the purpose of hypothesis testing is to

bring together information to enable the researcher to make a tentative statement about how the variables in the study may be related.

According to Ary *et al.* (2010:92) in testing a hypothesis, the following steps are to be followed:

1. State the research hypothesis, which is the relationship or the difference that should be observed if the research hypothesis is true;
2. State the null hypothesis;
3. Select a research method that will enable the hypothesis relationship to be observed if it exists;
4. Using appropriate measuring instruments, gather the empirical data and calculate the descriptive statistics for this data.
5. Calculate inferential statistics to determine the probability that the obtained results could have occurred by chance when the null hypothesis is true;
6. If the probability of the observed findings being due to chance is very small such as 1 in a 100 chance, then the researcher would have sufficient evidence to reject the null hypothesis.

In order for research to be conducted, there must be a research design.

4.3 THE RESEARCH DESIGN

The research design is a plan according to which the researcher obtains research participants (subjects) and collects information from them. The design describes how the researcher will be conducting the research, with a view to reaching conclusions about the research problem. According to Yin (2018: 26), a research design is a logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions. In addition, Yin (2009: 26) states the main purpose of the design is to help to avoid the situation in which the evidence does not address the initial research questions. Hence, a research design is meant to deal with a logical problem and a logistical problem.

In carrying out this study, a quantitative research design was employed in order to establish the teaching and learning challenges facing disadvantaged students in higher education.

As Kothari (2004: 5) explains, there are two basic approaches to research, namely, quantitative and qualitative. This study uses a quantitative approach. This type of approach involves the generation of data in a quantitative form, which can be subjected to rigorous quantitative analysis in a formal or rigid fashion. It is further sub-classified into inferential, experimental and simulation approaches to research.

4.4 QUANTITATIVE RESEARCH DESIGN

It is held by Kumar (2014: 14) that, in the quantitative or structured approach of enquiry, every item that forms the research process, such as the research design, sample and survey, is pre-determined. Creswell and Creswell (2018: 4) add that quantitative research is an approach for testing objective theories, by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analysed using statistical procedures. The participants in this descriptive study are the staff and students and the instrument used to collect the data, is a survey in the form of a structured questionnaire. The variables in this study are the teaching and learning challenges.

4.5 SURVEY RESEARCH

According to Cresswell and Cresswell (2018: 12), survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population, by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalising from a sample to a population (Fowler 2009).

The quantitative investigation was carried out using two different, structured questionnaires (open and closed ended questions), designed and disseminated to full-time staff and students from the six DUT Durban campus faculties. The purpose of the student questionnaire, was to determine the teaching and learning challenges they are faced with within the university classroom that prevent them from completing their qualification. The questionnaire to academic staff was designed to establish the challenges they experience in terms of teaching and their perceptions

of the effectiveness of the teaching and learning measures in place. Since the study focused on disadvantaged students, the biographical details incorporated questions to identify the disadvantaged student.

The first phase of the study involved understanding participant backgrounds, the influences on academic achievement and their ethnic identity. Potential participants were identified and after consent to participate in the study was obtained, questionnaires were handed out to them.

The literature review investigates the teaching and learning challenges experienced by the disadvantaged student of higher education, in terms of access and equity in higher education in SA. The study is a case study on the DUT and, therefore, a case study approach was used.

As stated by Mentz (2012: 100, cited in Wagner, Kawulich and Garner 2012), survey research is one of the most common types of quantitative social science research. In survey research, the researcher selects a sample of respondents from a population and administers a questionnaire to them. There are several data collection techniques employed in survey research, but questionnaires and interviews are the most prevalent. The questionnaire can be administered as a written document completed by the person being surveyed, an online questionnaire, or a standardised face-to face or telephonic interview.

Babbie (2013: 229) states surveys may be used for descriptive, explanatory and exploratory purposes. Survey research is probably the best method available to the social scientist interested in collecting original data for describing a population too large to observe directly. Hence, this study uses questionnaires as a method of obtaining information.

There are many advantages and disadvantages of using a questionnaire. According to Kumar (2014: 181), the advantages of using a questionnaire is that it is less expensive, since it does not involve interviews and therefore saves time, it is convenient and inexpensive, especially when administered collectively, while also offering great anonymity. The disadvantages to a questionnaire are that it is limited to a study population that can read and write. Participants can be either too young, too old or handicapped. A questionnaire can also have a low response rate.

Consideration of the participants used in this study allowed for more advantages than disadvantages.

4.6 QUESTIONNAIRE DESIGN

It is explained by Babbie (2013: 231) that the term questionnaire suggests a collection of questions, an examination of a typical questionnaire will probably reveal as many statements as questions. This is not without reason. Often the researcher is interested in determining the extent to which respondents hold a particular attitude or perspective, allowing for both questions and statements to be used successfully. Using both in a given questionnaire allows for more flexibility in the design of items and can make a questionnaire more interesting as well. In this study, both questions and statements were used.

The student questionnaire (Appendix B) was divided into three sections. The first section related to information on the student background. The second section dealt with the student learning challenges and the last section dealt with strategies and interventions to improve student performance and success.

The structure of the staff questionnaire (Appendix C) comprised two sections. Section A pertains to teaching challenges of the disadvantaged student and Section B to the strategies and interventions in place to promote student success.

This study adopted a Likert scale as a means to rate the responses to the questions. Leedy and Ormrod (2016: 161) describe Likert scaling as one that refers to a questionnaire item containing response categories such as “strongly agree”, ‘agree”, “disagree”, and “strongly disagree”. Babbie (2011: 163) adds that Likert scaling is a type of composite measure developed by Renkis Likert, in an attempt to improve the levels of measurement in social research, through the use of standardised response categories in survey questionnaires, to determine the relative intensity of different items.

According to Wagner *et al*. (2012: 108), there are two types of questions that can be used in a questionnaire. These are open- and closed-ended questions respectively. The open-ended questions allow respondents to give any answers, in their own words. They are typically used to collect qualitative data. Closed-ended questions, which restrict responses to a list of options provided by the researcher, are typically

used to obtain quantitative data. Researchers often use a mix of open- and closed-ended questions, depending on various factors such as the amount of space available, the nature of the research question and logistical constraints (time, money, and so on), on capturing and analysing the data.

Sekaran and Bougie (2016: 146) explain, in open-ended questions, the respondent is allowed to answer the questions in any way they chose. The authors further state that, in closed-ended questions, the respondent is asked to make choices among a set of alternatives given by the researcher. Babbie (2011: 244) affirms that closed-ended questions provide a better uniformity of responses and are more easily processed than open-ended questions. There are advantages and disadvantages to these types of questions.

This empirical study used open- and close-ended questions. According to Mentz (2012: 108), the advantages to using open-ended questions are that it is easy and quick to answer, the answers are easy to compare and the response choices make the questions clearer to understand.

Closed-ended questions made up the majority of the questions in the questionnaire. Mentz (2012) adds that the advantages of the closed-ended questions are that it permits an unlimited number of answers, respondents can qualify and clarify responses, and reveals a respondent's thinking processes. The disadvantage, however, is that respondents provide answers with different levels of detail, answers can be irrelevant, require more time and effort from respondents, and may intimidate respondents, while requiring more time for data analysis.

One way to overcome some of the disadvantages of open-ended and closed questions, is to combine both and request a specific response, in the form of an open-ended question.

4.7 CASE STUDY APPROACH

A case study, as described by Yin (2018: 15), is an empirical method that investigates a contemporary phenomenon, which is the "case", in-depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.

In other words, one reason why a case study is chosen is because the researcher wants to understand a real-world case and assumes that such an understanding is likely to involve important contextual conditions pertinent to such a case (Yin and Davis 2007). Elman *et al*. (2016: 375) add that case studies are usually considered a qualitative method. However, some aspects of case study may be viewed through a quantitative lens, as in this study. A case study can be defined as a unit of human activity embedded in the real world, that which can only be studied or understood in context, that which is in the here and now, and that merges in with its context so that precise boundaries are difficult to draw. It can also be described as an individual or a group, such as a family, class, office or even an institution (Gilham 2004: 1).

This study suggests students of a selected higher education institution (viz., DUT), from a predominantly disadvantaged community, are experiencing challenges in higher education not encountered by other student groups. The study focus is on teaching and learning challenges, and measures put in place in addressing these challenges. Perceptions on the measures in place to enhance student success will also be analysed, to determine whether they have contributed to student success. The selected institution has a fairly large proportion of students that come from disadvantaged backgrounds.

A case study approach is used in order to determine the problem faced at the selected institution (Welman, Kruger and Mitchell 2009). In addition, Thomas (2016: 3) states a case study concentrates on one thing or looks at it in detail. When one conducts a case study, one is interested in that thing in itself, as a whole. The word “thing” is used to describe a person, a group, an institution, a country, an event, or a period of time, amongst others. This study is concentrated on a HEI, namely the DUT.

4.8 PRE-TEST

Sekaran and Bougie (2016: 155) state that pretesting involves the use of a small number of respondents to test whether the questions in the survey instrument are appropriate and easy to comprehend. This helps to rectify any shortfalls before administering the instrument. Leedy and Ormrod (2016: 169) further adds that pre testing an instrument is one step towards determining its validity. In other words, whether it truly measures what it sets out to measure.

Babbie (2013: 242) finds a sure way of ensuring there are no errors in the survey instrument, is to conduct a pre-test. In this study, a pre- test was conducted with a selected group of respondents, 10 percent of the total sub population (40 students and 20 academic teaching staff), to determine its quality of measurement and appropriateness, and to review for clarity. The pre-test was a crucial step in making the researcher aware that certain questions were ambiguous, which were then re-worded to facilitate easier understanding.

4.9 STUDY POPULATION, SAMPLING DESIGN, DESCRIPTION OF SAMPLES AND SAMPLE SIZE

4.9.1 Study population

Babbie and Mouton (2009) define study population as the aggregation of elements from which a sample is actually selected. The study population for this study consists of:

1. All full-time students (there were 30 915 at the time of the commencement of the study) at DUT from the six faculties of on the Durban campuses; and
2. Staff from academic departments (there were 573 at the time of the commencement of the study) involved with the implementation of teaching and learning measures at the Durban campuses from all six faculties during the 2018 academic year.

4.9.2 Sampling Design/Method

According to Kumar (2014: 230), sampling can be defined as a process of selecting a few (a sample) from a bigger group (the sample population). A sample is a subgroup of the population. The process of sampling, therefore, allows you to estimate what is likely to be the situation in the total study population.

There are different sampling designs and each one may be more or less appropriate in different situations, according to the study. Leedy and Ormrod (2013: 207) state there are two major categories of sampling viz., probability and non-probability.

For the student sampling design, non-probability sampling design was used. According to Kumar (2014: 229), in quantitative research, the sample is selected in such a way that it is unbiased and represents the population from which it is selected. In a study of this nature, it would be difficult to reach and obtain responses

from students selected through a probability sample, this study thus used a non-probability sampling design.

The author further states these designs are used for when either the number of elements is unknown or cannot be individually identified (Kumar 2014). A non-probability sample was used for both the student survey and the academic teaching staff survey. A convenience/purposive sampling was used for both the student and staff surveys, since a convenience sampling is guided by the convenience to the researcher, such as easy accessibility, geographical proximity and known contacts (Kumar 2014: 244). A sample of 400 full-time students and 200 full-time teaching staff was chosen from six faculties of the DUT Durban campus.

4.9.3 Sample Size

In considering a sample size, Leedy and Ormrod (2016: 216) indicate the size of an adequate sample depends on how homogeneous or heterogeneous the population is; in other words, how alike or different its members are, in respect of the characteristics of research interest. When the population is markedly heterogeneous, a large sample will be more necessary than when the population is fairly homogenous. The sample size of the 400 students and 200 academic staff is calculated as per Sekaran's (2003: 294) table on sample size. The total student population of between 22 000-25 000 students will require a minimum of 378 questionnaires to be disseminated to students from the six faculties of the university. A total of 400 questionnaires was sent out to students, with this study conducted on 400 students.

A convenience sampling of students was used which included all four levels of undergraduate students. All first level students that completed the questionnaire were used to determine challenges at entry level and the third year generally, and fourth year ECP students will be used to determine challenges experienced at the final year levels.

The questionnaires were distributed to students who frequented common areas, such as the clinic that services the faculties and students of that campus and the library at specific campuses. In some instances, prior arrangements were made with

academic staff in each of the faculties to address students in their classes and to hand out and collect questionnaires.

According to the Department of Management Information at the DUT, records state that, as for the 2018 academic year, the Faculty of Management Sciences registered 8 611 students, the Faculty of Accounting and Informatics 7 222 students, Engineering and the Built Environment 6 696, Health Sciences 2 851 students, Arts and Design 2 803 and Applied Sciences 2 732. A sample size of 100 was selected from Management Sciences, 80 from Accounting and Informatics, with the third largest faculty, Engineering, where 70 questionnaires were distributed. Student numbers for the other three faculties are smaller and more or less equal in number, therefore, 50 student questionnaires were allocated to each of these faculties. Of the 400 questionnaires sent to students, 343 questionnaires were returned, indicating a response rate of 86 percent. This was considered a good response rate.

For the academic staff, a sample of 200 full-time teaching staff was selected from a population of 573 academic staff at the Durban campus. However, in selecting the sample the researcher did not see the need for a proportionate representation of staff from each of the six faculties as it was not expected that teaching challenges would differ greatly across disciplines. Questionnaires were delivered by hand to academic staff and were self-administered. A total of 120 academic teaching staff responded to the questionnaire and a response rate of 60 percent was achieved.

4.10 DATA COLLECTION

Two types of data collecting methods may be used. The human method and the self-administered method. According to Berndt and Petzer (2011: 32), the human method involves the use of people, in the form of personal interviews or telephonic interviews. In the case of self-administered methods, the instructions to complete the questionnaire will be made quite clear, so that the respondent can complete it without the assistance of any person. Students and academic staff were asked to complete a questionnaire.

According to Mentz (2012, cited in Wagner *et al*. 2012: 100), questionnaires can be administered in groups. This requires that a group of respondents are brought together in one venue and asked to complete the survey individually on the spot

(Trochim 2006). Certain types of settings are particularly suited to group administrations, such as universities, schools or large corporations.

In this study the researcher, after obtaining permission from the academic staff concerned, entered class towards the end of a lecture, addressed the class and passed out questionnaires to those students who wished to complete them. When the students completed the questionnaire they were asked to leave it with the researcher, who waited for it to be collected. This data collection method, according to Trochim (2006), has various advantages including:

- It is convenient to gather data from a number of respondents simultaneously;
- It can help to save on some of the costs associated with postal surveys;
- By giving the questionnaire to those present the researcher can be fairly sure there will be a high response rate; and
- Should the respondents be unclear about the meaning of any particular question, they can be given feedback and clarification immediately.

Some of the disadvantages include:

- It is limited to situations in which a group of people can be brought together at one time;
- The sample is often not representative and thus, the results can seldom be generalised to the whole population;
- Respondents may be concerned that their handwriting will give a clue to their identities;
- The data have to be captured by hand prior to analysis being done, which takes time and may lead to transcribing errors; and
- The researcher is not able to probe respondents for more detailed information or clarification.

4.11 DATA ANALYSIS

Mentz and Botha (2012: 177 cited in Wagner *et al*. 2012) advise that, once the data is collected, it is normally typed into a spreadsheet or document. The data is then interpreted and analysed to obtain the most meaningful information. The quantitative data were analysed using the SPSS software package. The data was presented

using graphs and tables and the results were interpreted and analysed in the summary of finding and conclusions in chapter 6.

4.11.1 Descriptive Statistics

Descriptive statistics present quantitative data in a manageable form. It can be used to describe one or more variables. For more than one variable an association can be made to connect one variable to another (Babbie 2013: 460).

4.11.2 Inferential Statistics

According to Kothari (2004: 5) this allows for the researcher to make inferences about a larger population by collecting data on relatively small samples. More generally, inferential statistics involve using a small sample of population and then estimating the characteristics of a larger population for which the sample was drawn. Leedy and Ormrod (2005: 252) state the purpose of an inferential approach to research is to form a data base from which to infer characteristics or relationships of population. This usually means survey research where a sample of the population is studied (questioned or observed). This study drew inferences on a smaller sample of DUT students and staff, in order to estimate the characteristics of the larger population of DUT students and staff. A Chi-square test was carried out. Babbie (2013: 475) states that Chi square is a frequently used test of significance. It is based on a null hypothesis which is the assumption that there is no relationship between the two variables in the total population. Factor analysis was used. Pallant (2010: 181) affirms that factor analysis is used as a data reduction technique. This takes place when a large set of variables is taken and data may be reduced or summarised, using a smaller set of factors or components. Factor analysis can also be used to reduce a large number of related variables to a more manageable number.

4.12 VALIDITY AND RELIABILITY

Wagner *et al*. (2012: 80) describe reliability and validity tests as that which ensures the validity and reliability of the measure used for the data collection phase of research and help to ensure the overall quality of the research process and end product. Reliability estimates the consistency of the researcher's measurement. Validity on the other hand, involves the degree to which the researcher is measuring what he/she is supposed to (Greavetter and Forzano 2015).

Leedy and Ormrod (2013: 114) add that the validity and reliability of research measurement instruments influence the extent to which you can learn something about the phenomenon you are studying, the probability that you will obtain statistical significance in your data analysis, and the extent to which you can draw meaningful conclusions form your data. Furthermore, Leedy and Ormrod (2013: 92) state that validity and reliability reflect the degree to which researchers may have error in their measurements.

4.12.1 Validity

The validity of a measurement instrument is the extent to which the instrument measures what it is supposed to measure. According to Babbie (2011: 131), validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. For example, a measure of social class should measure social class, not political orientation. Moreover, that the instrument measures what it is intended to measure, and that it measures it correctly (Goddard and Melville 2001: 41). In this study, a factor analysis test will be used to confirm validity.

4.12.2 Reliability

Leedy and Ormrod (2016: 116) explain that reliability is the consistency with which a measuring instrument yields a certain result when the entity being measured has not changed. Babbie (2011: 129) adds that reliability is a matter of whether a particular technique, applied repeatedly to the same object, yields the same result each time.

The term reliability means that measurements made are consistent, in other words, when the same experiment is performed under the same conditions, the same measures will be obtained. In this study, the Cronbach's Alpha test will be used to confirm reliability.

4.13 ETHICAL CONSIDERATIONS

Thomas (2016: 78) implies that ethics are principles of conduct about what is right and what is wrong. However, deciding on what is right or wrong can be complex business in research. The author further adds that information provided by a respondent should be treated as confidential, taking care at all times not to breach

or compromise that confidentiality. Maintaining anonymity of the participants is a key part of this in everyday dealings and conversations with others, as well as in the storage of data and reporting.

In this study, a letter of consent was attached to each questionnaire that respondents were asked to complete. The letter of consent made participants aware of what their participation in the study means, what they are expected to do, and how it may affect them. Participants were made to understand what the study is about and how the results will be used. The questionnaire itself informed the participant of how the issue of anonymity and confidentiality would be undertaken. According to Dahlquist (2006: 449) every participant has the right to voluntary consent and participation. Some participants undertook to sign and others wished to remain anonymous, and therefore, all participants were advised that participation was not mandatory. The respondents and participants were informed that participation is voluntary and that they are free to withdraw from the study at any time. They were also informed that, with regard to their participation in the study, strict confidentiality will be maintained. Prior to interview or questionnaire administration, the participants and respondents were required to sign a letter of consent. The wording of the Letter of Consent is sanctioned by IREC, which checks that ethical requirements are met. Further, the researcher was granted permission to conduct the empirical study via a gatekeepers' letter from DUT which can be found in Appendix E

4.14 GATEKEEPING

For case study research, it is very important to firstly obtain the consent of the case study organisation before research is conducted. This is known as "gatekeepers' permission." As stated by Wagner *et al.* (2012: 64), gatekeepers are those people who enable researchers to gain entry into an organisation or community to conduct research. These people may be community or organisational leaders, elected officials, or heads of household. Culture is an important consideration in this process of gaining entry. An understanding of the culture of the organisation or the community is thus needed, including the knowledge of the unspoken rules of etiquette and protocol for interaction.

In this study, permission was requested from the DUT research office to conduct the research within the DUT environment, with the staff and students. Once permission was granted, questionnaires were handed out to students and staff to complete.

4.15 DELIMITATIONS TO THE STUDY

This study is limited to the academic teaching staff and students of the DUT Durban campus due to easy accessibility, geographical proximity and known contacts.

4.16 CONCLUSION

This chapter discussed the various aspects of the research design, research methods, study population, and sampling design, along with a description of samples and sample size, as well as validity and reliability. This study used a case study approach and also employed a quantitative approach to gathering data. Two structured questionnaires were used as a survey instruments to determine the teaching and learning challenges of the disadvantaged student and whether measures in place, implemented by academic staff, were adequate for improving student throughput and enhancing student success.

The next chapter focuses on collation, summarising, analysing and presenting of data and the discussion of findings generated using the different methods and approaches in the study.

CHAPTER 5

ANALYSIS OF RESULTS AND DISCUSSION OF THE FINDINGS

5.1 INTRODUCTION

In this chapter, the primary data obtained from the questionnaires in this study is presented and the findings are discussed. The two questionnaires (for students and staff, respectively) were the main tools used to collect data and were distributed to 400 students and 200 teaching staff at the DUT. The data collected from the responses was analysed with SPSS version 25.0. Statistics allow the researcher to summarize large numerical data sets, make predictions about future trends, and determine when different experimental treatments have led to significantly different outcomes (Leedy and Ormrod 2013: 270).

The results will present the descriptive statistics in the form of graphs, cross tabulations and other figures, for the quantitative data collected. Inferential techniques include the use of correlations and chi square test values; which are interpreted using the p-values. According to Leedy and Ormond (2013: 277), inferential techniques allow the researcher to draw inferences about large populations, by collecting data on relatively small samples. More generally, inferential statistics involve using a small sample of a population and then estimating the characteristics of the larger population from which the sample is taken.

This chapter consists of three sections. First, section presents the results and discussion of findings from the student questionnaire. Then the results and the discussion of findings from the staff questionnaire are presented in 5.2.2. The data gathered using the questionnaires will be analysed separately. Finally, a comparison of both questionnaires will be made in section C.

5.2 SECTION A: ANALYSIS OF RESULTS FROM STUDENT QUESTIONNAIRE

5.2.1 STUDENT BACKGROUND INFORMATION

5.2.1.2 The Research Instrument

The research instrument consisted of 18 questions, with a level of measurement at a nominal or an ordinal level. The questionnaire measured various themes, as illustrated (Table 5.1) below:

Table 5.1: Themes in the questionnaire

A	Biographical data
B7	Challenges associated with large class size
B8	Challenges associated with e-learning
B9	English language ability
B10	Student readiness for higher education learning
B11	Challenges relating to classroom participation
B12	Challenges that affect learning
B14	Challenges that relate to first year students
B17	Tutorials/tutors
B18	Other learning assistance measures on campus

5.3 SECTIONAL ANALYSIS

5.3.1 Biographical Data

In total, 400 questionnaires were despatched and 343 returned, which gave an 86 percent response rate. This is a relatively good response rate. This section summarises the biographical characteristics of the respondents.

5.3.1 Faculty to which the respondents belong

Figure 5.1 below shows the results relating to the faculty to which the respondents belong.

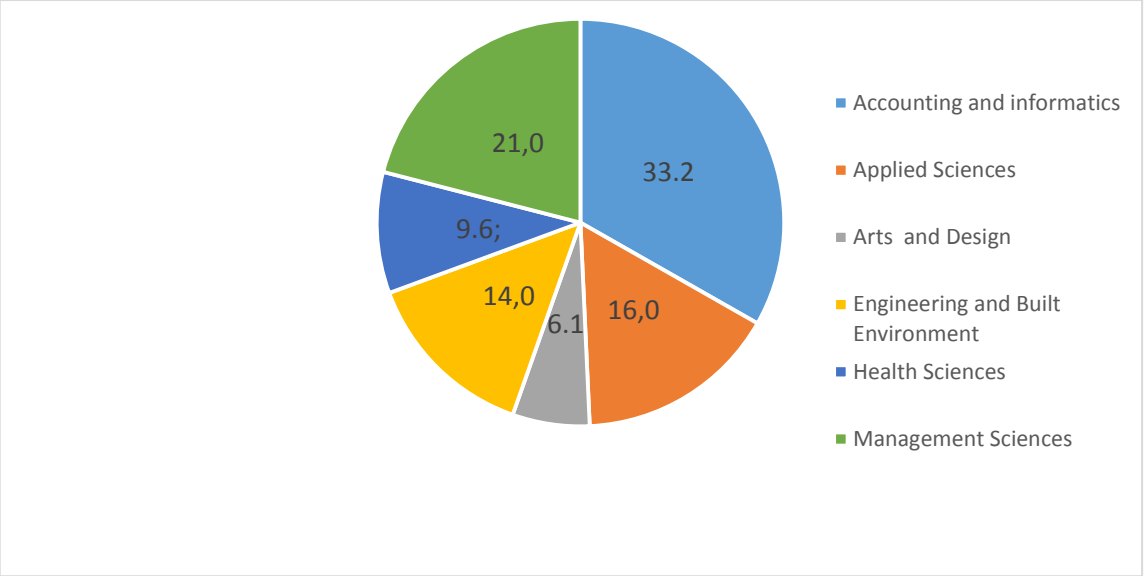

Figure 5.1: Faculty to which respondents belong

Figure 5.1 above reveals that one third of the respondents (33,2 percent) was from the Faculty of Accounting and Informatics, the smallest number (6.1 percent) being from Arts and Design. Results indicate that Management Sciences comprised 21 percent of the responses, 16 percent were from Applied Sciences, 14 percent from Engineering and the Built Environment and 9,6 percent from Health Sciences. Accordingly, all faculties have been adequately represented in this study. This analysis reveals that the responses received were more or less in proportion with the student population of each of the faculties. According to the Management Information Systems department of DUT, the Faculty of Management Sciences and Faculty of Accounting and Informatics are the first and second largest faculties at DUT with Engineering and the Built Environment being the third largest, while the remaining three faculties are very close in terms of student enrolment, with Faculty of Arts and design being the smallest faculty.

5.3.2 Year of study

Figure 5.2 below shows the results relating to year of study of the respondents.

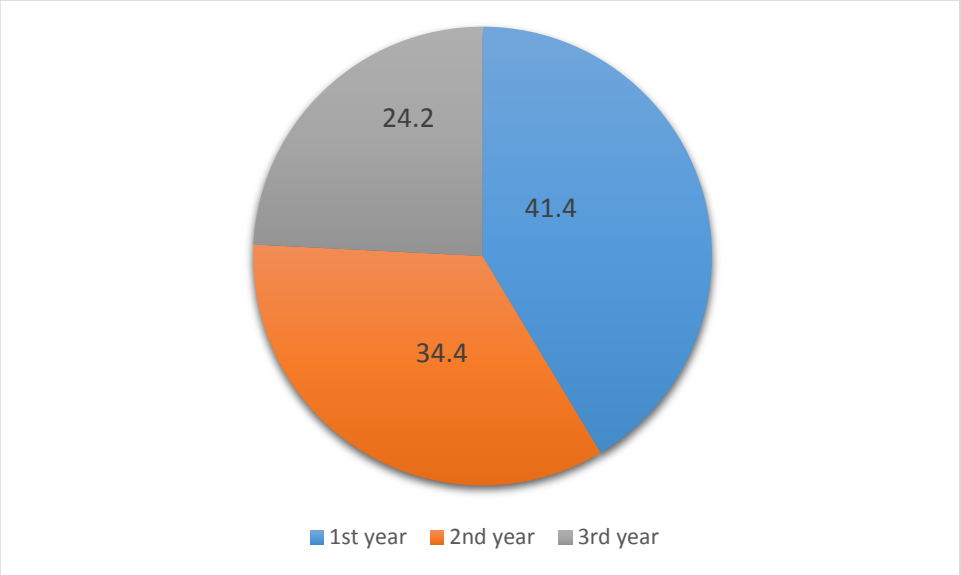

Figure 5.2: Respondent's year of study

Figure 5.2 above indicates that 41,4 percent of the respondents were first year respondents, 34,4 percent were in their second year and 24,2 percent were in the third year. Although this study was aimed at identifying challenges of all disadvantaged students, it is clear from this chart that there were more first year students, since they make up the largest cohort.

5.3.3 Racial composition

Table 5.2 shows the results relating to racial composition.

Table 5.2 Racial composition

	Frequency	Percent
African	315	91.8
Coloured	6	1.7
Indian	17	5.0
White	4	1.2
Other	1	0.3
Total	343	100.0

Table 5.2 indicates a significantly large number of African respondents (91.8 percent) in the sample ($p < 0.001$). Other racial groups are made up of Indian (five percent), Coloured (1.7 percent), White student (1.2 percent) and other (0.3 percent).

5.3.4 Home language

Table 5.3 shows the results relating to the home language of respondents.

Table 5.3: Respondents' home language

	Frequency	Percent
Isizulu	251	73.2
isiXhosa	47	13.7
English	33	9.6
Siswati	5	1.5
Afrikaans	2	0.6
Other	2	0.6
Sesotho	1	0.3
Setswana	1	0.3
Xithsonga	1	0.3
Total	343	100.0

There is a significant difference by language ($p < 0.001$). Table 5.3 above reveals that the majority of the respondents (73.2 percent) indicated isiZulu as their home language. A further 9.6 percent of the respondents have indicated English as their home language, whilst IsiXhosa makes up 13.7 percent. The other languages reveal a small percentage and range from 1-5 percent.

5.3.5 Combined average income of respondent's household

Figure 5.3 shows the results relating to the combined average income of respondent households.

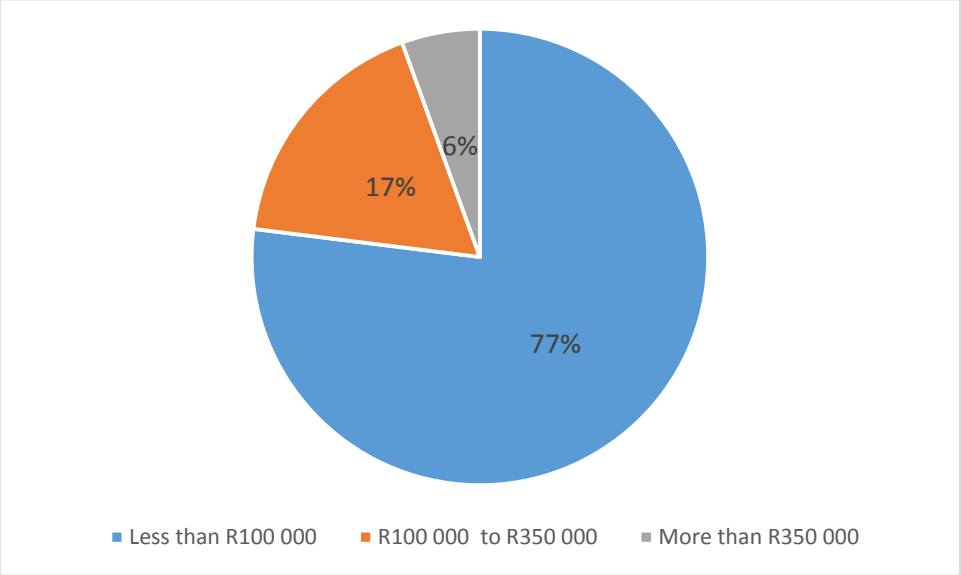

Figure 5.3: Combined average income of respondent's household for the year

Figure 5.3 above shows significantly more respondents (77 percent) who indicated the household income as less than R100 000 ($p < 0.001$), 17 percent indicated the combined household income between R100 000 and R350 000 and six percent indicated it was more than R350 000. This indicates that most of the respondents come from poor socioeconomic backgrounds, particularly in the category of less than R100 000 annual household income. According to Jones *et al.* (2008), a disadvantaged student is defined by the background they come from. For the purposes of this study, household income was one of the factors taken into account to determine disadvantage.

5.3.6 Type of school attended

Table 5.4 below indicates the results of the type of school attended by the respondents, viz. public, private or Ex Model C.

Table 5.4: Type of school attended

	Frequency	Percent
Public	303	88.3
Private	27	7.9
Ex Model C	13	3.8
Total	343	100.0

As indicated in Table 5.4, a significantly large number of respondents attended public schools (88.3 percent) ($p < 0.001$), while 7.9 percent attended private schools and 3.8 percent attended Ex Model C schools. This was one of the factors taken into account in determining whether the student was a disadvantaged student.

5.4 DESCRIPTIVE ANALYSIS

A descriptive analysis of the data allows the data to be presented by the use of graphs and tables. The section that follows analyses the scoring patterns of the respondents, per variable per section. The results are first presented using summarised percentages for the variables that constitute each section, after which results are then further analysed, according to the importance of the statements.

5.4.1 Learning Challenges of the Disadvantaged Student

This section deals with student learning challenges experienced by disadvantaged student of higher education. According to Wanjogu (2013), no clear indication exists in literature, where the actual number that constitutes a large class is specified. However, Maringe and Sing (2014: 764) view a class of more than 100 students as a large class, which is usually found in undergraduate programmes.

5.4.1.1 Learning challenges associated with large class size

The respondents were asked to comment on learning challenges associated with large class size that they experience. Figure 5 below shows the results.

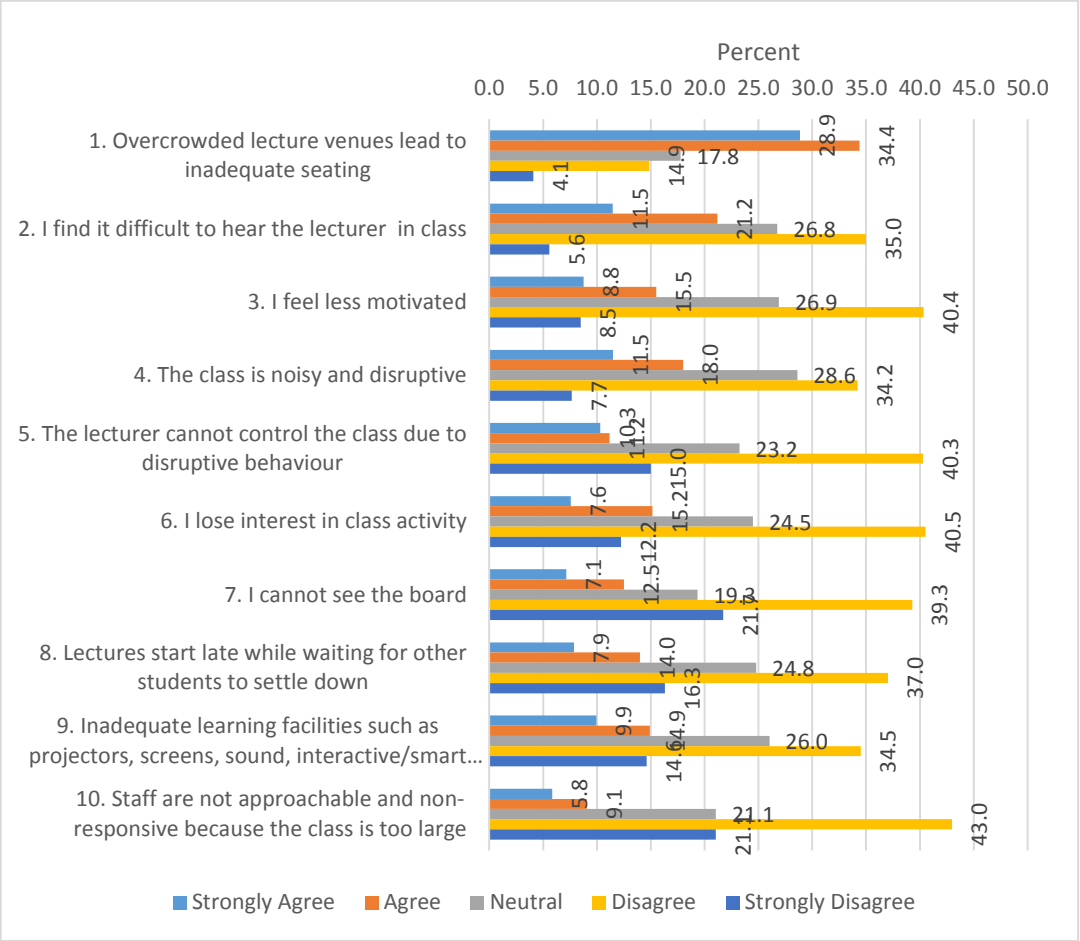

Figure 5.4: Learning challenges associated with large class size

From the results shown in figure 5.4 above, the following patterns are observed:

- Statement 2 to statement 10 indicate high levels of disagreement;
- Statement 1 indicates a high level of agreement; and
- All statements had a neutral response

The results shown in Figure 5.4 above indicate the highest level of disagreement (43 percent) was with statement 10, which indicates staff are not approachable and non-responsive because the class is too large. Further, Statements 3 (40.4 percent), 5 (40.3 percent) and 6 (40.5 percent) also reveal high levels of disagreement with the challenges that affect student motivation, lecturer student control in a large class and class activity. Respondents agreed that large classes do not affect student motivation, lecturer control in the class and class activity. Statement 2 (26.8 percent) and statement 4 (28.6 percent) indicated a neutral response.

The responses from the students, as shown in Figure 5.4 above, reveal that overcrowded venues leads to inadequate seating. This creates a challenge for the students. For the purpose of the findings, the responses have been categorised as “the majority” (50 percent and more), “some” (20 percent- 49 percent) and “few” (10 percent-19 percent). The rationale behind this approach is that, even where “some” or “few” students experience challenges, there is still a need for the institution to introduce strategies to address such challenges.

Hence, in respect of the theme “large class size”, apart from statement 1, where the majority of respondents indicated they did have challenges relating to the sub-theme: overcrowded classrooms lead to inadequate seating, the majority did not experience challenges related to the other nine statements. However, some respondents agreed they did experience challenges such as: difficulty in hearing; feeling less motivated; the lecturer cannot control the class due to disruptive behaviour; loss of interest in class activity; cannot see the board, lectures start late while waiting for other students to settle; and inadequate facilities, such as projectors, screens, sound and interactive/smart boards. Mulryan-Kyne (2010: 77) finds that overcrowded venues lead to challenges, such as lack of motivation.

Maringe and Sing (2014: 768) state that challenges associated with large class size are a lack of proper facilities, such as limited room for movement and group work to take place. According to Wentling *et al.* (2007), in a large class, student interaction is limited and this results in low participation. Morton (2009: 67) confirms that one of the challenges of a large class size is disruptive behaviour by students. Morton (2009: 58) further adds that students display less interest, since students from

various disciplines and knowledge bases sit together in the same class, with lectures becoming less interesting and students find it difficult to maintain interest.

5.4.1.2 Learning challenges associated with e-learning

Respondents were asked to comment on the learning challenges associated with e-learning that they experienced. Figure 5.5 shows the results.

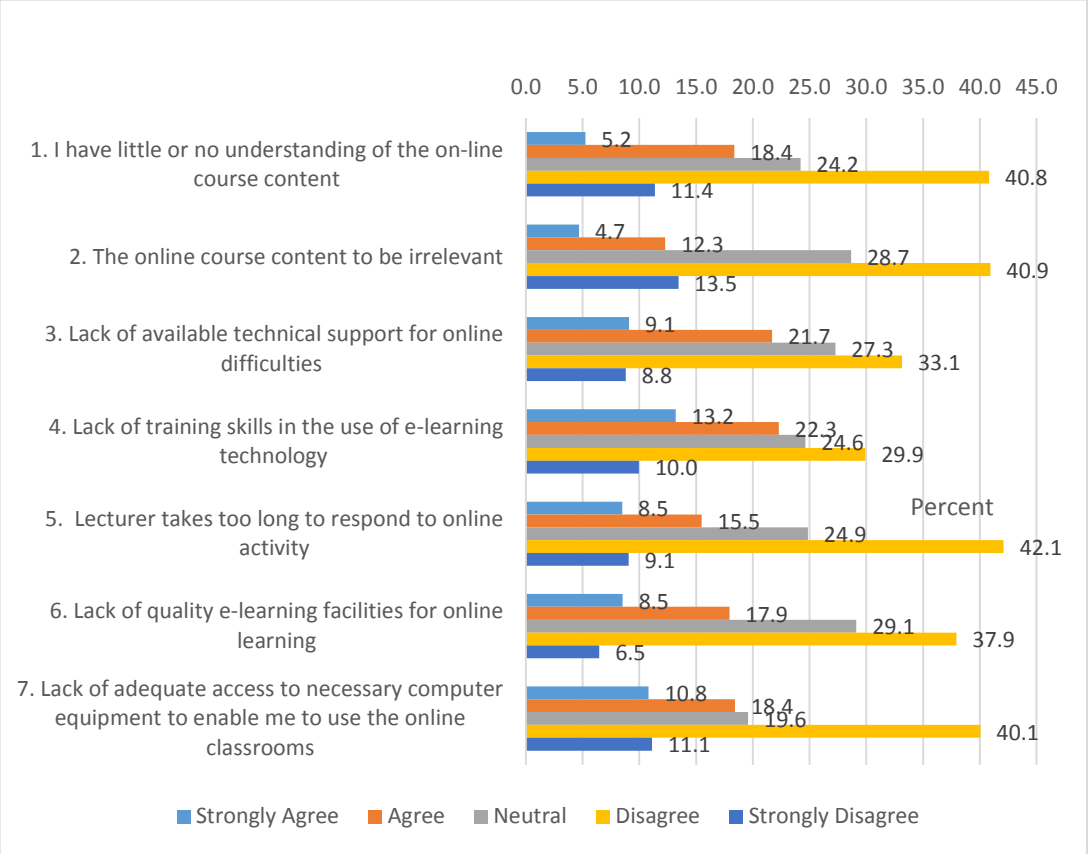

Figure 5.5: Learning challenges associated with e-learning

From the results shown in Figure 5.5 above, the following patterns are observed:

- All seven statements show high levels of disagreement;
- Statement 4 indicates a higher level of agreement; and
- All statements show a high level of neutral response.

The results show that 42.1 percent of the respondents disagreed that lecturers take too long to respond to online activity. The results for statement 1 (40.8 percent), statement 2 (40.9 percent) and statement 7 (40.1 percent) also reveal high levels of disagreement. Hence, the respondents believe online course content is adequate, that technical support for online difficulties is available and there is adequate access

to computer equipment for online classroom use. Further, results for statement 3 (33.1 percent), statement 4 (29.9 percent) and statement 6 (37.9 percent) also reveal high levels of disagreement. Respondents feel they have adequate technical support for online difficulties, training skills are provided for the use of online technology and there are quality e-learning facilities for online learning.

The results shown is Figure 5.5 above for the individual sub-themes, for the learning challenges associate with e-learning, reveal that:

- **Statement 1 - I have little or no understanding of the on-line course content:** Collectively, 52.2 percent of the respondents disagreed (40.8 percent) or strongly disagreed (11.4 percent) that they have little or no understanding of the on-line course content, while 18.4 percent agreed and 5.2 percent strongly agreed with the statement. The rest of the respondents (24.2 percent) remained neutral in their response.
- **Statement 2 - The online course content to be irrelevant:** A combined response of over half of the respondents (54.4 percent) either disagreed (40.9 percent) or strongly disagreed (13.5 percent) that online course content is irrelevant, while 12.3 percent agreed and 4.7 percent strongly agreed. Further, 28.7 percent of the respondents chose to remain neutral.
- **Statement 3 - Lack of available technical support for online difficulties:** 33.1 percent of the respondents disagreed and 8.8 percent strongly disagreed that there is a lack of available technical support for online difficulties. Further, 21.7 percent of the respondents agreed and 9.1 percent strongly agreed with the statement. The remaining 27.3 percent of the respondents are neutral in their response.
- **Statement 4 - Lack of training skills in the use of e-learning technology:** Almost 40 percent of the respondents disagreed (29.9 percent) or strongly disagreed (10 percent) that training skills in the use of e-learning technology is lacking, while 22.3 percent agreed and 13.2 percent strongly agreed with this statement. The rest of the respondents (24.6 percent) remained neutral.
- **Statement 5 - Lecturer takes too long to respond to online activity:** Collectively, more than half of the respondents (51.2 percent) either disagreed (42.1) or strongly disagreed (9.1 percent) that the lecturer takes too long to

respond to online activity, while 15.5 percent agreed and 8.5 percent strongly agreed with the statement. Further, 24.9 percent of the respondents remain neutral in their response.

- **Statement 6 - Lack of quality e-learning facilities for online learning:** About 44 percent of respondents disagreed (37.9 percent) or strongly disagreed (6.5 percent) that the e-learning facilities for online learning is lacking, while 17.9 percent agreed and 8.5 percent strongly agreed with the statement. In addition, 29.1 percent of the respondents remained neutral.
- **Statement 7 - Lack of adequate access to necessary computer equipment to enable me to use the online classrooms:** A combined response of 51.2 percent of the respondents disagreed (40.1 percent) or strongly disagreed (11.1 percent) that access to necessary computer equipment for online classroom use is inadequate, while 18.4 percent agreed and 10.8 percent strongly agreed with the statement. Further, 19.6 percent remained neutral in their response.

Hence, in respect of the theme, challenges associated with e-learning, the results shown in Figure 5.5 indicate that the majority of the students do not experience any learning challenges in respect of the sub themes: I have little or no understanding of the on-line course content and the course content is irrelevant. However, some respondents agreed they experience the following challenges related to the sub themes: lack of available technical support for online difficulties; lack of training skills in the use of e-learning technology; lecturer takes too long to respond to online activity; lack of quality e-learning facilities for online learning; and lack of adequate access to computer equipment to use the online classrooms.

Tarus and Muumbo (2015: 131) found in their study that infrastructure, such as computers, network and internet connectivity, and computer labs, are inadequate to provide access to e-learning facilities. A lack of these facilities is a challenge for the disadvantaged student.

5.4.1.3 Learning challenges in respect of English language proficiency

The respondents were asked to comment on the learning challenges in respect of English language proficiency. Figure 5.6 below reveals the results.

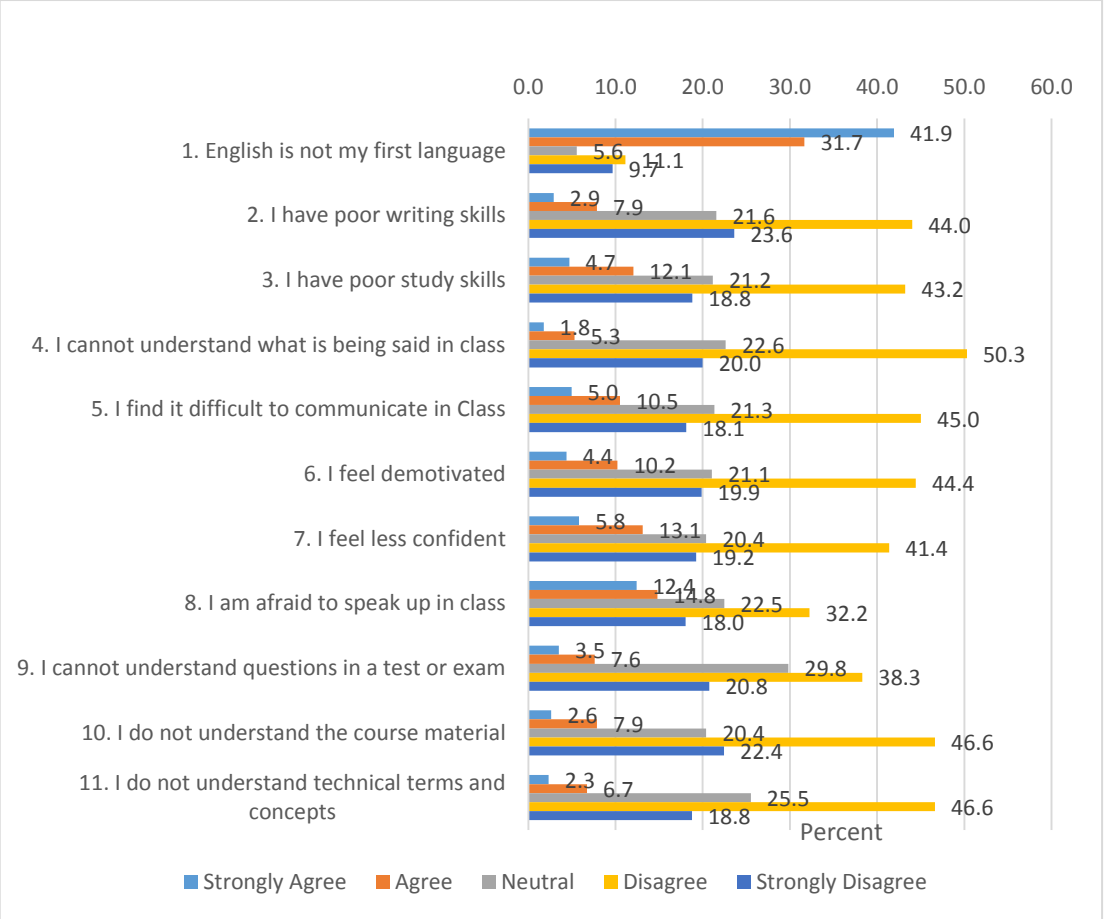

Figure 5.6: Learning challenges in respect of English language proficiency

From the results shown in Figure 5.6 above, the following patterns are observed:

- Ten of the 11 statements indicate high levels of disagreement.
- Statement 1 indicates a high level of strongly agree
- Ten of the 11 statements indicate a more or less equal level of neutral response.

The results indicate that 41.9 percent of the respondents agreed that English is not their first language. A significant number of respondents disagreed with majority of the statements. Statement 4 (50.3 percent) reveals the highest level of disagreement. Respondents disagreed that they cannot understand what is being said in class. Further, results show that statement 8 (32.2 percent) and statement 9 (38.3 percent) indicate the respondents disagreed that they are afraid to speak in class and cannot understand questions in a test or an exam.

Results of statement 2 (44 percent), statement 3 (43.2 percent), statement 5 (45 percent), statement 6 (44.4 percent), statement 7 (41.4 percent), statement 9 (46.6

percent) and statement 10 (46.6 percent), reveal that respondents disagreed that they have poor writing skills, poor study skills, they cannot communicate in class, feel demotivated, feel less confident, cannot understand the course material, cannot understand technical terms and concepts.

The results shown in Figure 5.6 above for the individual sub-themes for the learning challenges, in respect of the English language proficiency, reveal that:

- **Statement 1 - English is not my first language:** Collectively, a vast majority of the respondents (73.6 percent) agreed that English is not their first language, while 11.1 disagreed and 9.7 strongly disagreed.
- **Statement 2 - I have poor writing skills:** A combined response of 67.6 percent indicates that the respondents disagreed (44 percent) or strongly disagreed (23.6 percent) that they have poor writing skills, while 7.9 percent agreed and 2.9 percent strongly agreed with the statement. The rest of the respondents (21.6 percent) remained neutral in their response.
- **Statement 3 - I have poor study skills:** Collectively, 62 percent of the respondents disagreed (43.2 percent) or strongly disagreed (18.8 percent) that they have poor study skills, while 12.1 percent agreed and 4.7 percent strongly agreed with the statement. Further, 21.2 percent of the respondents remained neutral.
- **Statement 4 - I cannot understand what is being said in class:** A combined response of 70.3 percent revealed that more than half of the respondents disagreed (50.3 percent) or strongly disagreed (20 percent) with the statement that they cannot understand what is being said in class, while 5.3 percent agreed and 1.8 percent strongly agreed. The rest of the respondents (22.6 percent) remained neutral in their response.
- **Statement 5 - I find it difficult to communicate in class:** Collectively, 63.1 percent of the respondents disagreed (45 percent) or strongly disagreed (18.1 percent) that they find it difficult to communicate in class, while 10.5 percent agreed and five percent strongly agreed with the statement. The rest of the respondents (21.3 percent) remained neutral in their response.
- **Statement 6 - I feel demotivated:** A combined response of 64.3 percent reveals that 44.4 percent disagreed and 19.9 percent strongly disagreed that they feel

demotivated by their lack of English language proficiency, while 10.2 agreed and 4.4 percent strongly agreed with the statement. The remaining respondents (21.1 percent) indicated neutral in their response.

- **Statement 7 - I feel less confident:** A combined response of 60.6 percent reveals that 41.4 percent disagreed and 19.2 percent strongly disagreed that they feel less confident by their lack of English language ability, while 13.1 percent agreed and 5.8 percent strongly agreed with this statement. In addition, 20.4 percent of the respondents remained neutral in their response.
- **Statement 8 - I am afraid to speak up in class:** 32.2 percent of the respondents disagreed or strongly disagreed (18 percent) that they are afraid to speak up in class due their lack of English language ability while, 14.8 percent agreed and 12.4 percent strongly agreed with this statement. Further, 22.5 percent of the respondents remained neutral in their response.
- **Statement 9 - I cannot understand questions in a test or exam:** Collectively, a vast majority of the respondents (59.1 percent) disagreed (38.3 percent) or strongly disagreed (20.8 percent) with the statement that they cannot understand questions in a test and an exam while 7.6 percent agreed and 3.5 percent strongly agreed with this statement. A significant percentage of respondents (29.8 percent) preferred to remain neutral in their response.
- **Statement 10 - I do not understand the course material:** A combined response of more half the respondents (69 percent) disagreed (46.6 percent) or strongly disagreed (22.4 percent) with the statement that they do not understand the course material provided to them, while 7.9 percent agreed and 2.6 percent strongly agreed with this statement. Further, 20.4 percent of the respondents remained neutral in their response.
- **Statement 11 - I do not understand technical terms and concepts:** Collectively, 65.4 percent of the respondents disagreed (46.6 percent) or strongly disagreed (18.8 percent) with the statement that they do not understand technical terms and concepts in the classroom, while 6.7 percent agreed and 2.3 percent strongly agreed with the statement. In addition, 25.5 percent of the respondents indicated a neutral response.

The results shown in Figure 5.6 reveal that, the majority of the respondents agreed with Statement 1, i.e. English is not their first language, but the majority indicated

that they did not have challenges with the other sub-themes associated with theme: English language proficiency. However, a few of the respondents had challenges with the following sub themes: poor writing skills; poor study skills; poor communication skills; feeling demotivated; feeling less confident; not understanding tests and exam questions; cannot understand course material; and not understanding technical terms and concepts, while some respondents had a challenge with being afraid to speak up in class. Dunstan and Frescura (2001) indicate that, although academics felt a lack of English proficiency may be considered a major cause of student academic difficulties, students on the other hand felt they experienced few problems. This suggests that many students are not aware they have a specific problem with regard to English language proficiency. Chetty and Pather (2016: 3) further indicate that Black students are faced with the challenge of English language proficiency and have difficulties with lectures in English. In addition, the authors stated that students who lacked English language proficiency were not able to write essays, while some students indicated they are afraid to speak up in class due to their lack of language proficiency.

5.4.1.4 Learning challenges relating to student readiness

The respondents were asked to comment on the learning challenges relating to student readiness in higher education. Figure 5.7 below shows the results.

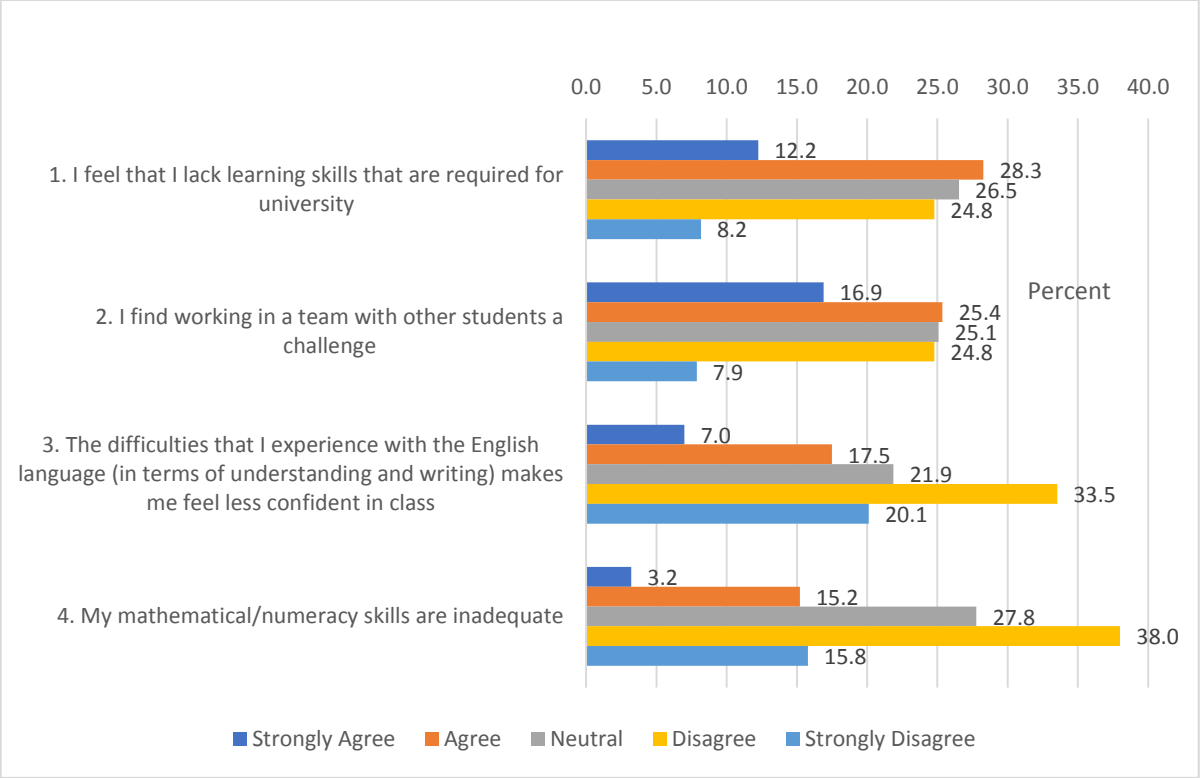

Figure 5.7: Learning challenges relating to student readiness

From the results in Figure 5.7 above, the following patterns are observed:

- Statement 3 and 4 reveal a high level of disagreement.
- Statement 1 and statement 2 indicate a high level of agreement
- All statements show a more or less equal level of neutral response

The results indicate that 38 percent of the respondents disagreed their mathematical or numeracy skills are inadequate. In addition to this, 33.5 percent of the respondents further disagreed that they feel less confident in the class due to not understanding the English language. Results also show 28.3 percent of the respondents agreed that they lack the necessary learning skills required for university, and 25.4 percent of the respondents also agreed that working in a team is challenging.

The results shown in Figure 5.7 above for the individual sub-themes, for the learning challenges relating to student readiness, reveal that:

- **Statement 1-I feel that I lack learning skills that are required for university:** a combined response of 40.5 percent show that 28.3 percent agreed and 12.2

percent strongly agreed that they lack learning skills required for university while 24.8 percent disagreed and 8.2 percent strongly disagreed with the statement. A significant percentage of 26.5 percent of the respondents remain neutral in this statement.

- **Statement 2-I find working in a team with other students a challenge:** Collectively, 42.3 percent of the respondents agreed (25.4 percent) or strongly agreed (16.9 percent) that they find team work challenging, while 24.8 percent disagreed and 7.9 percent strongly disagreed with this statement. A significant number of respondents (25.1 percent) remain neutral in their response.
- **Statement 3-The difficulties that I experience with the English language (in terms of understanding and writing) makes me feel less confident in class:** A combined response of 53.6 percent disagreed (33.5 percent) and strongly disagreed (20.1 percent) that they feel less confident in class due to the difficulties they experience with the English language in regards to understanding and writing, while 17.5 percent agree and seven percent strongly agree with this statement. In addition, 21.9 percent of the respondents remain neutral in their response.
- **Statement 4-My mathematical/numeracy skills are adequate:** Collectively, 53.8 percent of the respondents disagreed (38 percent) or strongly disagreed (15.8 percent) that their maths or numeracy skills are adequate while 15.2 percent agreed and 3.2 percent strongly agreed with this statement. A significant number of respondents (27.8 percent) remain neutral in their response to this statement.

The results shown in Figure 5.7 above indicate that in respect of themes, student readiness for higher education, the majority agreed that the lack of learning skills required for university is a challenge (Statement 1) and almost half of the respondents have a challenge with working in teams (Statement 2). The majority of the respondents disagreed with Statements 3 and 4. However, some respondents experienced challenges with understanding and writing the English language, and a few also felt mathematical and numeracy skills are inadequate. Wilson-Strydom (2016: 176) states that learning skills and social relations and social networks, such as teamwork, is necessary for student readiness of higher education. Naidoo and Paideya (2015: 1) indicate that academics in higher education noticed first year

students in higher education experiencing difficulties with high-risk courses, such as Maths and Science.

5.4.1.5 Learning challenges relating to classroom participation

Respondents were asked to comment on learning challenges relating to classroom participation in higher education. Figure 5.8 below reveals the results.

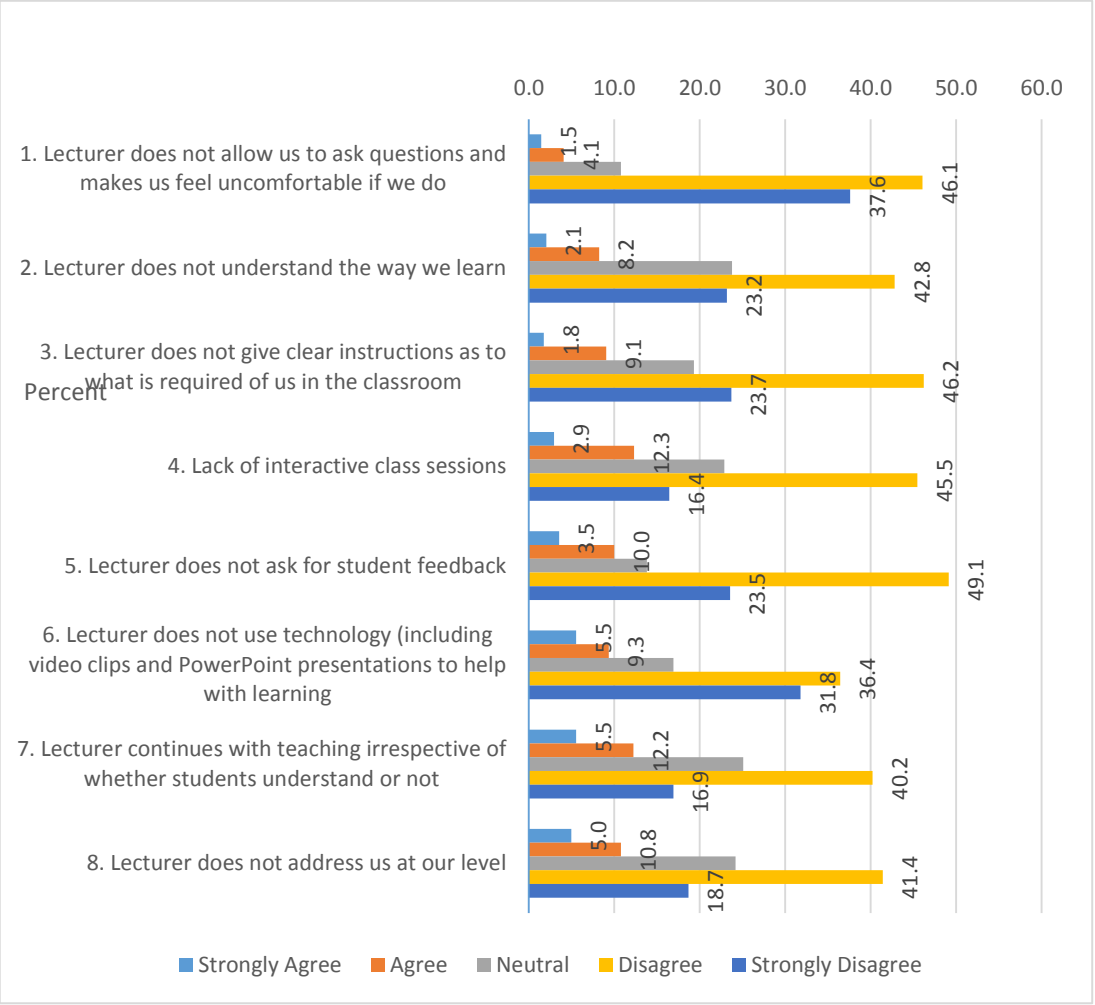

Figure 5.8: Learning challenges relating to classroom participation

From the results shown in Figure 5.8 above, the following patterns are observed:

- All statements show high levels of disagreement on all statements
- Respondents also show high levels of strongly disagree on all statements, with statement one showing a higher level of strongly disagree.

The highest recorded result of 49.1 percent indicates that respondents disagreed that lecturers do not ask for feedback. A further 46.2 percent of the respondents,

disagreed that the lecturer does not give them clear instructions in the classroom. Statement one revealed that 46.1 percent of the respondents disagreed that lecturers do not allow them to ask questions and makes them feel uncomfortable.

The results shown in Figure 5.8 above for the individual sub-themes, for the learning challenges relating to student readiness, reveal that:

- **Statement 1- Lecturer does not allow us to ask questions and makes us feel uncomfortable if we do:** Collectively, 83.7 percent of respondents disagreed (46.1 percent) or strongly disagreed (37.6 percent) that the lecturer does not allow questions in class and makes them feel uncomfortable if they do ask questions, while 4.1 percent agreed and 1.5 percent strongly agreed with this statement. Further, 10.8 percent of the respondents remained neutral on this statement.
- **Statement 2- Lecturer does not understand the way we learn.** A combined response of 66 percent of the respondents revealed that 42.8 percent disagreed and 23.2 percent strongly disagreed with the statement that lecturers do not understand the way they learn, while 8.2 percent agreed and 2.1 percent strongly agreed. In addition, 23.8 percent remained neutral in this statement.
- **Statement 3- Lecturer does not give clear instructions as to what is required of us in the classroom:** Collectively, 69.9 percent of the respondents disagreed (46.2 percent) or strongly disagreed (23.7 percent) with the statement that lecturers do not give clear instructions for what is required in the classroom while 9.1 percent agreed and 1.8 percent strongly agreed. In addition, 19.3 percent remained neutral in this statement.
- **Statement 4- Lack of interactive class sessions:** A combined response of 61.9 percent of respondents disagreed (45.5 percent) or strongly disagreed (16.4 percent) with the statement that there is a lack of interactive class sessions while 10 percent agreed and 3.5 percent strongly agreed with this statement. Further, 22.9 percent of the respondents remained neutral in their response.
- **Statement 5- Lecturers do not ask for student feedback:** A combined response of 72.6 percent showed that respondents disagreed (49.1 percent) or strongly disagreed (23.5 percent) with the statement that lecturers do not ask for

feedback in class while, 10 percent agreed and 3.5 percent strongly agreed with the statement. Further, 13.8 percent remained neutral in their response.

- **Statement 6- Lecturer does not use technology (including video clips and power point presentations) to help with learning:** Collectively, 68.2 percent of the respondents disagreed (36.4 percent) or strongly disagreed (31.8 percent) with the statement that lecturers do not use technology to help with learning, while 9.3 percent agreed and 5.5 percent strongly agreed with this statement. In addition, 16.9 percent remained neutral in their response.
- **Statement 7- Lecturer continues with teaching irrespective of whether students understand or not:** Of the respondents, 40.2 percent disagreed that lecturers continue with teaching irrespective of whether students understand or not and 16.9 percent strongly disagreed, while 12.2 percent agreed and five percent strongly agreed with this statement. The results also show that the rest of the respondents (25.1 percent) remained neutral in their response.
- **Statement 8- Lecturer does not address us at our level:** Disagreement was indicated by 41.4 percent of the respondents and 18.7 percent strongly disagreed with the statement that lecturers do not address them at their level, while 10.8 percent agreed and five percent strongly agreed with this statement. 24.2 percent remained neutral.

In respect of the theme “classroom participation”, the results indicated in Figure 5.8 above show that, the majority of the students believe that lecturers allow questions in class, which makes them feel comfortable; lecturers understand the way they learn and give them clear instructions as to what is required of them in the classroom; there are also interactive class sessions; sufficient student feedback; lecturers use technology such as video clips and PowerPoint to help them learn (for which “strongly agree” was the highest); lecturers ensure that students understand the lecture before continuing, and lecturers teach at the student’s level.

The results indicate, however, that a few of the respondents’ experience challenges in respect of lack of interactive class sessions; lecturers not asking for student feedback; lecturer does not use technology such as video clips and PowerPoint to help with learning; lecturer continues to teach irrespective of whether students understand or not; and the lecturer does not address students at their level.

Accordingly, Naong *et al.* (2009: 171) indicate that students do not participate in class, due to fear of being embarrassed by the lecturer and the class for giving an incorrect answer. According to the European University Institute (2019), lecturers do not give a clear and concise indication of what is expected of a student, which leads to student challenges in the classroom.

5.4.1.6 Factors that affect learning

The respondents were asked to comment on the factors that affect learning in higher education. Figure 5.9 below reveals the results.

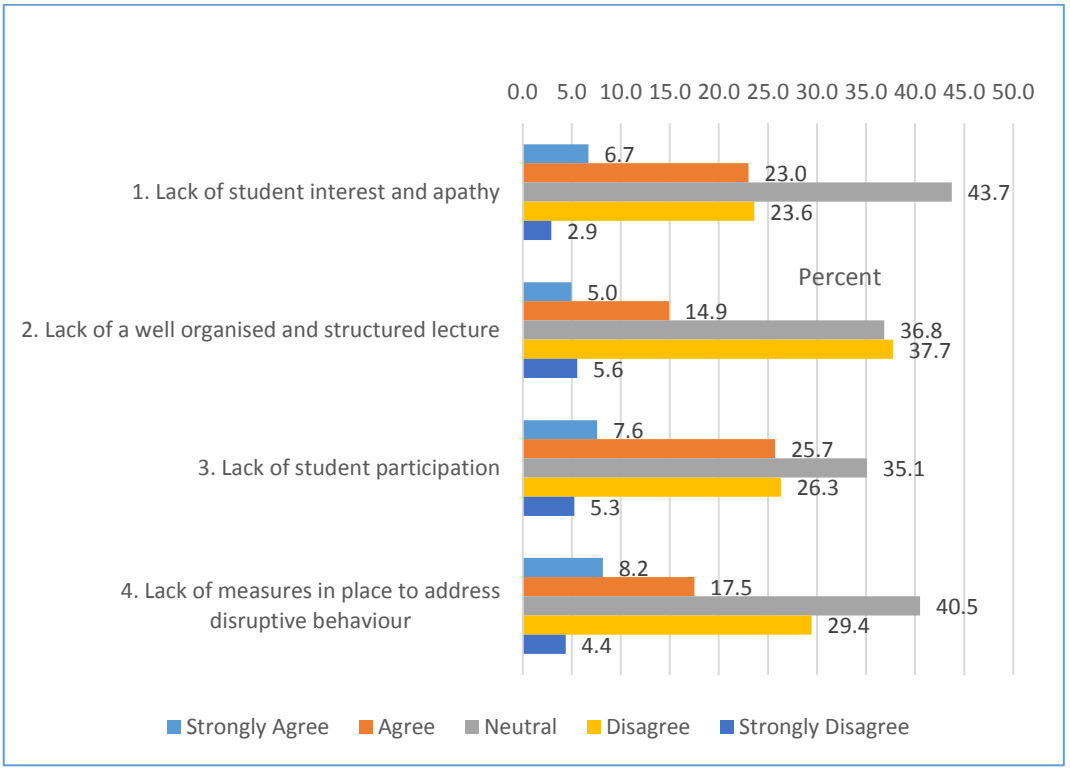

Figure 5.9: Factors that affect learning

From the results shown in Figure 5.9 above, the following patterns are observed:

- All statements reflect that respondents prefer to remain neutral in their response.
- Statement 2 shows a high level of disagreement.

The results illustrate that 37.7 percent of the respondents indicated a high level of disagreement with Statement 2. Respondents believe that lectures are well organised and structured and therefore their learning is not affected. A general trend in Figure 5.9 reflects that respondents remain neutral on all of the statements in their levels of agreement, regarding the challenges that affect their learning.

The results shown Figure 5.9 above for the individual sub-themes, for the factors that affect learning, reveal that:

- **Statement 1- Lack of student interest and apathy:** Agreement was indicated by 23 percent of respondents and 6.7 percent of respondents strongly agreed that a lack of interest and apathy is a factor that affects learning while, 23.6 percent disagreed and strongly disagreed (2.9 percent) with this statement. Nearly half of the respondents (43.7 percent) remained neutral in their response to this statement.
- **Statement 2- Lack of a well organised and structured lecture:** Collectively 43.3 percent of the respondents disagreed (37.7 percent) or strongly disagreed (5.6 percent) that the lack of a well organised and structured lecture is a factor that affects learning while 14.9 percent agreed and five percent strongly agreed with the statement. A further, 36.8 percent of the respondents remained neutral in their response.
- **Statement 3- Lack of student participation:** A combined response of 31.6 percent of the respondents revealed that 26.3 percent disagreed and 5.3 percent strongly disagreed that a lack of student participation is a factor that affects learning while, 25.7 percent agreed and 7.6 percent strongly agreed with the statement. A further, 35.1 percent of the respondents remained neutral in this statement.
- **Statement 4- Lack of measures in place to address disruptive behaviour:** Almost half of the respondents (40.5 percent) remained neutral with the statement that a lack of measure to address disruptive behaviour in the classroom is a factor that affects learning. A further, 29.4 percent of the respondents disagreed and 4.4 percent strongly disagreed while, 17.5 percent agreed and 8.2 percent strongly agreed with the statement.

Regarding the factors that affect learning, the results depicted in Figure 5.9 above show that some of the respondents believe the following factors affect learning: lack of student interest and apathy; insufficient student participation; absence of a well-organised and structured lecture; the lack of student participation and a deficiency in measures to address disruptive student behaviour. Morton (2009: 59) indicates

the challenges experienced, in respect of lack of student interest and apathy, lead to poor classroom performance.

5.4.1.7 Student response to open-ended question relating to the most challenging learning experience

Respondents were asked to describe the learning challenges that they experienced, and the responses are stated according to the following sub-themes: student e-learning challenges; overcrowded classrooms; English language proficiency; group work; high work load/increased work load; lack of student readiness and underprepared lecturers.

Student e-learning challenges: the following challenges were indicated in respect of student e-learning challenges:

- Online classrooms (lack of knowledge, poor connections, slow wifi, no technical support, no access to e-books);
- Insufficient computer labs, too many students using the computers, and computer labs are always full;
- Do not know how to use the computer; and
- Lack of technology.

Overcrowded classrooms: The respondents noted the following challenges in respect of overcrowded classrooms:

- Cannot hear the lecturer properly in class which results in students losing interest;
- Cannot communicate in class;
- Cannot participate in class activity;
- Difficulty in seeing the board;
- Cannot concentrate due to large class size; and
- Classrooms are very disruptive.

Lack of English language proficiency: The following challenges were indicated:

- Difficulty in understanding the course material which is in English;
- Communicating in English language;
- Understanding the lectures;

- Language barrier; and
- English is difficult to understand.

Challenges in respect of group work: As far as group work was concerned, the following challenges were noted:

- Poor team work and challenges with studying as a team and participating in a group;
- Group work is difficult for first year students;
- Discrimination by group members with group work;
- Others do not participate;
- Students are not dedicated to work in groups; and

High work load/ increased work load: the following challenges were noted on this sub-theme:

- Cannot cope with the increased work load;
- Lecturers are not sympathetic; and
- Due dates for assessments are too close to teach other.

Lack of student readiness: the following challenges were noted on this sub-theme:

- Lack of communication skills;
- Lack of computer knowledge;
- Lack of computer skills;
- Lack of confidence;
- Inability to engage in class discussions; and
- Time management.

Underprepared lecturer: the following challenges were noted on this sub-theme:

- Lecturers are not approachable;
- Lecturers do not do enough revision before exams;
- Lecturers do not teach much; and
- Lecturers are too lazy to write on the board and rely on PowerPoint.

5.4.1.8 Learning challenges relating to the first year experience

Respondents were asked to comment on their learning challenges and the effect on their first year experience. Figure 5.10 below reveals the results.

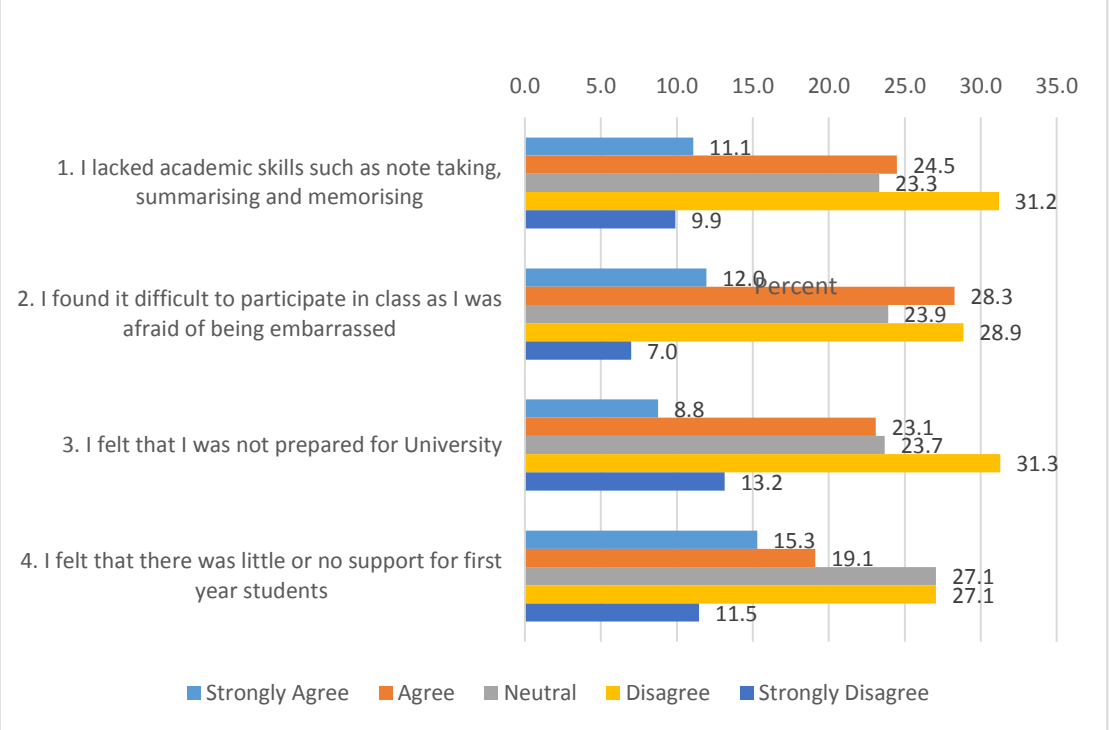

Figure 5.10: Learning challenges relating to the first year experience

From the results in Figure 5.10 above, the following patterns are observed:

- All statements reflect more or less equal results on levels of agreement, remaining neutral and disagreement.
- Statement 3 and Statement 4 have a high level of disagreement.

The results indicate respondents reflect a high level of disagreement that they lacked academic skills such as note taking, summarising and memorising. A significant number of respondents (31.3 percent) believe that they are well prepared for university. A general trend in figure 5.10 is that respondents agree with statements 1 to 4. Statement 1 (24.5 percent) indicate that respondents agreed that they lack academic skills, 28.3 percent find it difficult to participate in class since they feel embarrassed, 23.1 percent feel they are not prepared for university and 19.1 percent feel there is little or no support for first year students. Figure 5.10 further reveals that students also find all statements neutral, when asked about classroom challenges for first year students.

The results shown in Figure 5.10 above for the individual sub-themes, for the learning challenges experienced by first year students that affect learning reveal:

- **Statement 1:** 'I lacked academic skills such as note taking, summarising and memorising'. Collectively, 41.1 percent of the respondents disagreed (31.2 percent) or strongly disagreed (9.9 percent) that a lack of academic skills such as note taking, summarising and memorising in their first year of study affects learning, while 24.5 percent agreed and 11.1 percent strongly agreed with this statement. The remainder of the respondents (23.3 percent) were neutral in this response.
- **Statement 2: I found it difficult to participate in class as I was afraid of being embarrassed.** A combined response of 68.6 percent of the respondents revealed that 40.3 percent agreed (28.3 percent) or strongly agreed (12 percent) that they found it difficult to participate in class owing to embarrassment in their first year of study while 28.9 percent disagreed and seven percent strongly disagreed with this statement. The rest of the respondents (23.9 percent) preferred to remain neutral on this statement.
- **Statement 3- I felt that I was not prepared for university:** Collectively, 44.5 percent of the respondents disagreed (31.3 percent) or strongly disagreed (13.2 percent) that they were underprepared for university while 23.15 percent agreed and 8.8 percent strongly agreed with this statement. The remaining 23.7 percent chose to remain neutral on this statement.
- **Statement 4- I felt that there was little or no support for the first year students:** Respondents equally disagreed and remained neutral (27.1 percent) on this statement that there is little or no support for first year students while 11.5 percent strongly disagreed, 19.1 percent agreed and 15.3 percent strongly agreed with this statement.

The results illustrated in Figure 5.10 show that the majority of respondents, who were first year students, do not experience learning challenges in respect of academic skills, such as note taking, summarising and memorising, class participation, and under-preparedness, as well as university support. However, some respondents in first year indicated that they experienced challenges in respect of lack of academic skills, finding it difficult to participate in class due to a feeling of

embarrassment, feeling of being underprepared for university, and lack of university support. This is consistent with the views expressed by the CHE (2010), that first year students seem to be under-prepared to meet the demands of university study, which is evident in their lack of academic literacy skills.

5.5 STRATEGIES AND INTERVENTIONS TO IMPROVE STUDENT PERFORMANCE AND SUCCESS

5.5.1 Intervention measures that are used to improve student learning

The respondents were asked to comment on intervention measures used to improve student learning. Figure 5.11 below reveals the results.

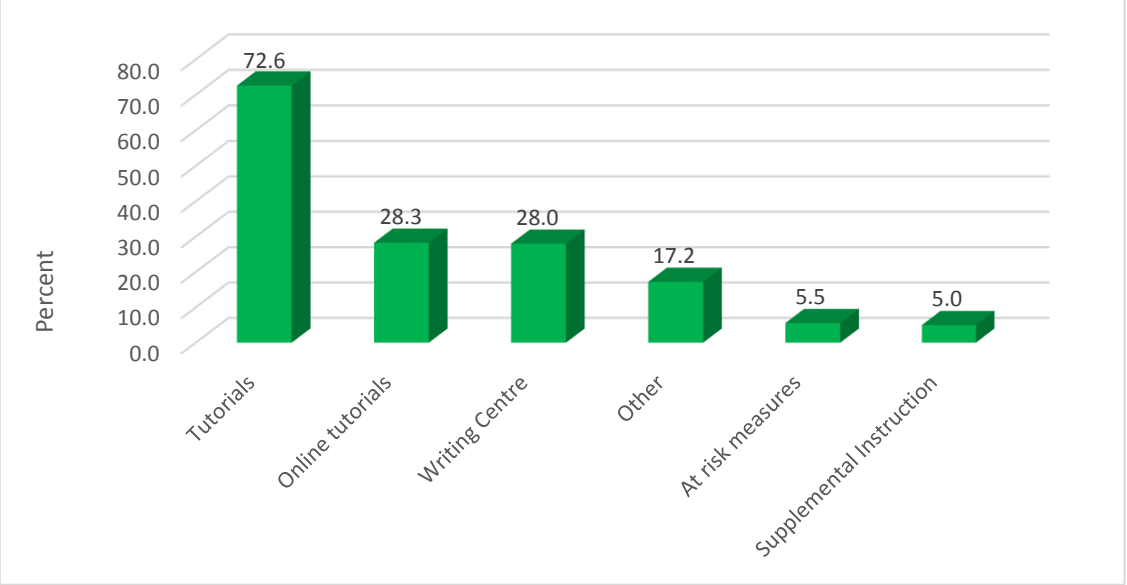

Figure 5.11: Intervention measures used to improve student learning

The results depicted in Figure 5.11 shows the response to the question on the intervention measures respondents have used to improve learning. The majority of the students indicated that they attend tutorials (72,6 percent) to help improve their learning experience, while online tutorials and the writing centre faired evenly with 28,3 and 28 percent, respectively. This reveals that online tutorials and writing centre are not a popular form of intervention, when compared to tutorials. The least used intervention measures are “at risk” measures (5.5 percent) and SI (five percent).

5.5.2 Respondents views on other interventions that could assist in the learning process

Respondents were asked to indicate what other intervention measures, in addition to the ones mentioned above, may be used to enhance their pass rates. Responses are indicated below:

- **Computers**: Provision of computers in student residences; increase the number of computer labs;
- **Practical exercises:** Increase the number of practical work sessions; make past year exam papers and marking memorandum easily available to students;
- **Group work:** Group work for field work; group discussions in class;
- **Study groups:** Increase the study periods; creation of study groups;
- **Peer Support:** Peer support and assistance from older students to help with problem subjects;
- **Laptop:** All first year students to be provided with laptops for online access;
- **Tutorials and SI:** Additional tutorial classes; increase in online tutorials and visual learning; introduce evening tutorial classes at the residences; after hour classes for problem subjects; increase the SI programmes; and
- **Other measures:** Introduce pop quizzes in class to revise the previous day's work.

5.5.3 Level of Agreement relating to Tutorials/Tutors

Question 17 of the student questionnaire found in Appendix C asked the respondents to comment on their level of agreement on statements relating to tutorials and tutors. Figure 5.12 below reveals the results.

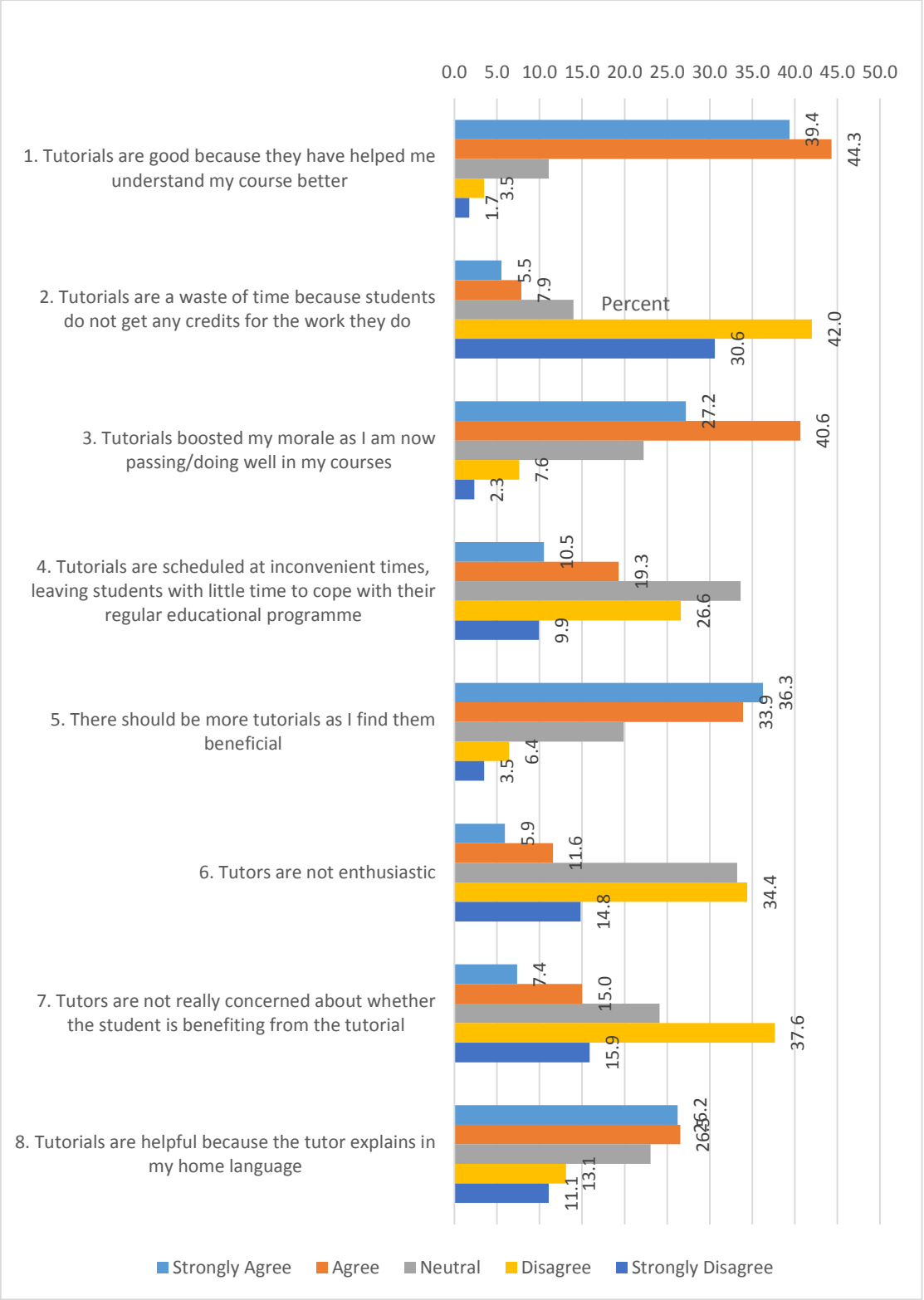

Figure 5.12: Level of agreement relating to tutorials/tutors

From the results in Figure 5.12 above, the following patterns are observed:

- Statement 1 (Tutorials are good because they help me understand my course better) and 3 reflect high levels of agreement;
- Statement 2 shows a high level of disagreement and strongly disagree;
- Statement 7 reflects a high level of disagreement; and
- Statement 5 reflects a nearly equal level of agree and strongly agree and therefore, a high level of agreement.

The results in Figure 5.12 above indicate that 39.4 percent strongly agreed and 44.3 percent of the respondents agreed that tutorials are good, since it helps to understand the course better. Statement 5 indicates that 36.3 percent of the respondents strongly agreed and 33.9 percent agreed that there should be more tutorials since they find them very beneficial. Further, 40.6 percent of the respondents indicate that tutorials boosted their morale and improved their pass rates. In addition, statement 2 further reveals that 42 percent of the respondents disagreed that tutorials are a waste of time. A general trend in regards to the above Figure 5.12 indicate that respondents consider tutorials to be a beneficial intervention or strategy tool.

The results shown in Figure 5.12 above for the level of agreement relating to tutorial/tutors reveal that:

- **Statement 1- Tutorials are good because they help me understand my course better:** Collectively, 83.7 percent of the respondents agreed (44.3 percent) or strongly agreed (39.4 percent) that tutorials are good and help them understand the course better while 3.5 percent disagreed and 44.3 percent strongly disagreed with the statement. Further, 11.1 percent of the respondents remained neutral on this statement.
- **Statement 2- Tutorials are a waste of time because students do not get any credits for work they do:** A combined response of 72.6 percent of the respondents disagreed that tutorials are a waste of time while 7.9 percent agreed and 5.5 percent strongly agreed with this statement. A further, 14 percent of the respondents remain neutral on this statement.
- **Statement 3- Tutorials boosted my morale as I am now passing/doing well in my courses:** Collectively, 67.8 percent of the respondents agreed (40.6 percent) or strongly agreed (27.2 percent) that tutorials boost morale and assist

in passing or doing well in their courses while 7.6 percent disagreed and 2.3 percent strongly disagreed with the statement. In addition, 22.2 percent of the respondents remained neutral on this statement.

- **Statement 4- Tutorials are scheduled at inconvenient times, leaving students with little time to cope with their regular educational programme:** A response of 33.6 percent of the respondents remained neutral and 26.6 percent disagreed that tutorials are scheduled at inconvenient times which leaves student little time to manage with regular educational programme while 9.9 percent strongly disagreed, 19.3 percent agree and 10.5 percent strongly agreed with the statement.
- **Statement 5- There should be more tutorials as I find them beneficial:** Collectively, 70.2 percent of the respondents agreed (33.9 percent) or and strongly agreed (36.3 percent) that tutorials are beneficial while 6.4 percent disagreed and 3.5 percent strongly disagreed with the statement. A further, 19.9 percent of the respondents remained neutral in their response.
- **Statement 6- Tutors are not enthusiastic:** Disagreement was indicated by 34.4 percent of the respondents that tutors are not enthusiastic and 14.8 percent strongly disagreed, while 33.2 percent remained neutral on this statement. A further, 11.6 percent agreed and 5.9 percent strongly agreed.
- **Statement 7- Tutors are not really concerned about whether the student is benefitting from the tutorial:** A combined response of 53.5 percent disagreed (37.6) or strongly disagreed (15.9 percent) that tutors are not concerned whether the students' benefits from the tutorial while 15 percent agreed and 7.4 percent strongly agreed. The remaining respondents (24.1 percent) chose to be neutral in their response.
- **Statement 8- Tutorials are helpful because the tutor explains in my home language:** Collectively, 52.7 percent of the respondents agreed (26.5 percent) or strongly agreed (26.2 percent) that tutorial are helps since the tutor explains in the respondents' home language, while 13.1 percent disagreed and 11.1 percent strongly disagreed. Further, 23 percent of the respondents remained neutral in their response.

The results of the above responses from Figure 5.12 show that the majority of the respondents believe that tutorials are beneficial in terms of understanding the course better Statement 1); that tutorials boost morale since students are passing their courses (Statement 3); that there should be more tutorials as they find them beneficial (Statement 5); and that tutorials are helpful because the tutor explains in the home language of the student (Statement 8).

The majority felt that tutorials are a waste of time because students do not get any credits for work they do (Statement 2) and that tutors are not really concerned about whether the student is benefitting from the tutorial (Statement 7). However, some respondents believe that tutorials are scheduled at inconvenient times; students are left with little time to cope with the regular educational programme; tutors are not enthusiastic; tutors are not really concerned with whether the student is benefitting; and that tutorials are helpful because the tutor explains in the home language.

5.5.4 Level of agreement relating to other learning assistance measures that enhance teaching and learning

The respondents were asked to comment on their level of agreement relating to other learning assistance measures that enhance teaching and learning. Figure 5.13 below reveals the results.

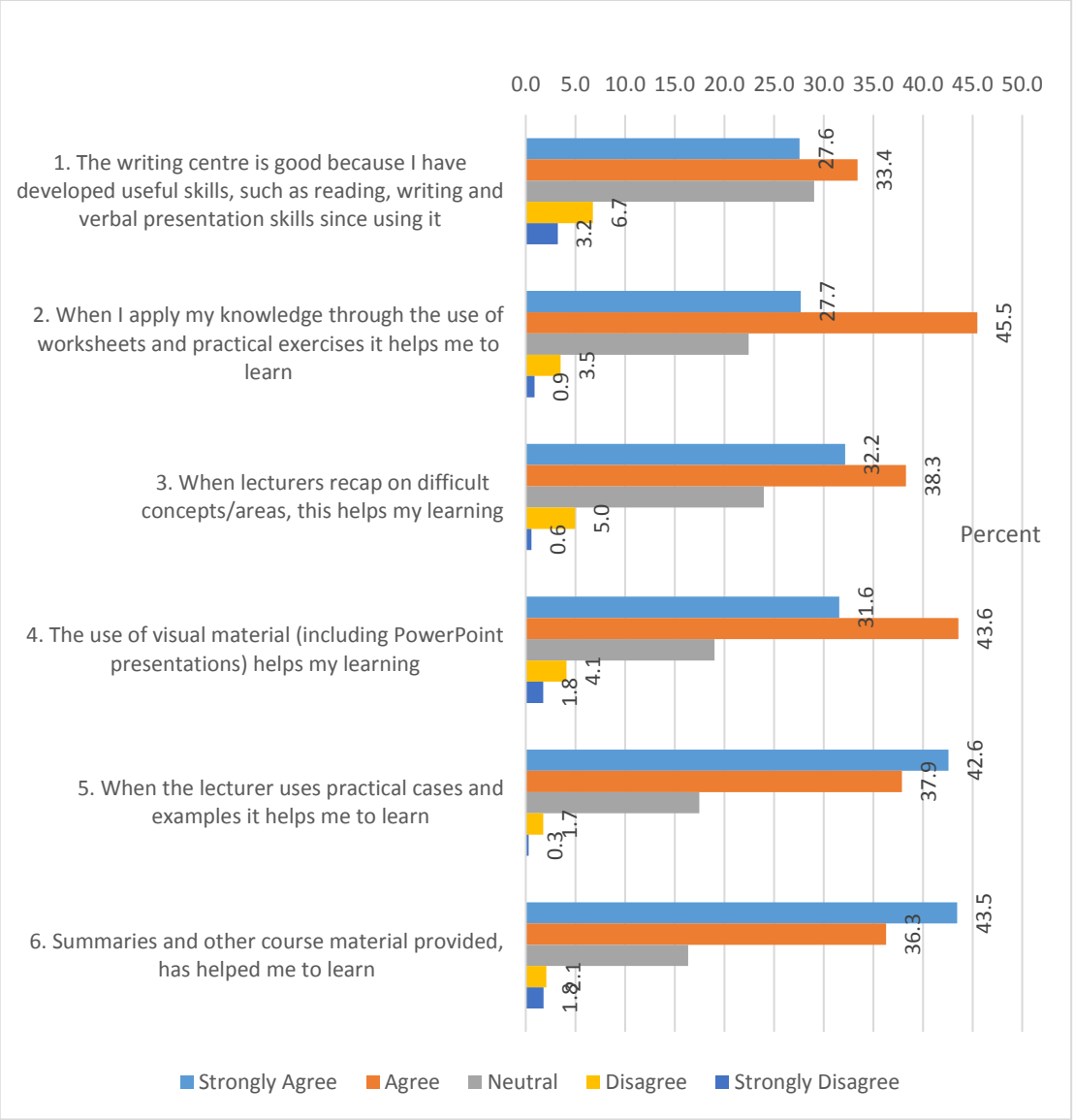

Figure 5.13: Level of agreement relating to other learning assistance measures that enhance teaching and learning

From the results in Figure 5.13 above, the following patterns are observed:

- Statement 2 and Statement 3 reflect high levels of agreement
- Statement 5 reflects a high level of strongly agree

The results indicated that 42.6 percent of the respondents strongly agreed the use of practical cases and examples helps them to learn. Respondents agreed with statement 2 (45.5 percent) and statement 4 (43.6 percent) on the use of worksheets and practical exercises and visual material, such as PowerPoint presentations helping to improve the learning process. A further, 43.5 percent of the respondents

strongly agreed that summaries and course material are helpful in the learning process.

A general trend in Figure 5.13 reflects that respondents strongly agree that the use of other strategies such making use of the writing centre, use of worksheets and practical exercises, recapping of concepts and difficult areas, the use of visual materials such as power point presentations, the use of practical cases and examples, summaries and course materials helps in the learning process.

The results shown in Figure 5.13 above for the individual sub-themes, for other learning measures that enhance teaching and learning, reveal that:

- **Statement 1- The writing centre is good because I have developed useful skills, such as reading, writing and verbal presentation skills since using it:** A combined response of 61 percent agreed (33.4 percent) or strongly agreed (27.6 percent) that the writing centre is good since it develops useful skills such as reading, writing and verbal presentation skills while 29 percent remained neutral on this statement. Further, 6.7 percent disagreed and 3.2 percent strongly disagreed with the statement.
- **Statement 2- When I apply my knowledge through the use of worksheets and practical exercises it helps me to learn:** Collectively, 73.2 percent of the respondents agreed (45.5 percent) or strongly agreed (27.7 percent) that the use of worksheets and practical exercises helps them to learn while 22.4 percent remained neutral on this statement. Further, 3.5 percent disagreed and 0.9 percent strongly disagreed with this statement.
- **Statement 3- When lecturers recap on difficult concepts/area, this helps my learning:** A majority of the respondents (70.5 percent) agreed (38.3 percent) or strongly agreed (32.2 percent) that recapping of difficult concepts and areas helps them to learn while 24 percent remained neutral. Further, five percent disagreed and 0.6 percent strongly disagreed with the statement.
- **Statement 4- The use of visual material (including power point presentations) helps my learning:** A vast majority of the respondents (75.2 percent), agreed (43.6 percent) or strongly agreed (31.6 percent) that visual material including, power point presentations helps with learning while 19

percent remained neutral in their response. A further, 4.1 percent disagreed and 1.8 percent strongly agreed with the statement.

- **Statement 5- When the lecturer uses practical cases and examples it helps me to learn:** Collectively, a vast majority 80.5 percent of the respondents agreed (37.9 percent) or strongly agreed (42.6 percent) that the use of practical cases and examples helps in the learning process while 17.5 percent remained neutral. In addition, 1.7 percent disagreed and 0.3 percent strongly disagreed with the statement.
- **Statement 6- Summaries and other course material provided, has helped me to learn:** A combined response of 79.8 percent, more than half of the respondents agreed (36.3 percent) or strongly agreed (43.5 percent) that summaries and other course material helps in the learning process while 16.4 percent remained neutral in their response. Further, 2.1 percent disagreed and 1.8 percent agreed with the statement.

The results of the above responses depicted in Figure 5.13 show the majority of the respondents find the following measures enhance learning:

- The writing centre is helpful in developing skills such as reading, writing and verbal presentation skills;
- The use of worksheets and practical exercises helps in the learning process; and
- The use of visual material, practical cases, examples, summaries and course material, helps in the learning process.

According to Lewin and Mawoyo (2014: 76), writing centres were created to not only address the challenges of English language proficiency, but to assist students with literacy and writing classes. Shabiralyani *et al.* (2015: 226) state that visual aids are those instructional tools used in the classroom to encourage the student learning process.

5.6 Reliability Statistics

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.70 or higher is considered as “acceptable”.

5.6.1 Cronbach's Alpha scoring

Table 5.5 below reflects the Cronbach's alpha score for all the items that constituted the questionnaire.

Table 5.5: Cronbach's alpha and research instrument reliability

		N of Items	Cronbach's Alpha
B7	Challenges associated with large class size	10	0.857
B8	Challenges associated with e-learning	7	0.855
B9	English language ability	11	0.894
B10	Student readiness for higher education Learning	3	0.603
B11	Challenges relating to classroom participation	8	0.870
B12	Challenges that affect learning	4	0.848
B14	Challenges that relate to first year students	4	0.789
B17	Tutorials/tutors	4	0.734
B18	Other learning assistance measures on Campus	6	0.786

The reliability scores for all sections exceed the recommended Cronbach's alpha value. This indicates a degree of acceptable, consistent scoring for these sections of the research. However, B10 is a little low (since the recommended level is 0.7 or higher). This could be attributed to the fact that there are only four items under this theme.

The matrix tables are preceded by a summarised table that reflects the results of Kaiser-Meyer-Olkin (KMO) and Bartlett's Test. The requirement is that the KMO Measure of Sampling Adequacy should be greater than 0.50 and Bartlett's Test of Sphericity less than 0.05. In all instances, the conditions are satisfied, which allows for the factor analysis procedure. Table 5.6 clearly shows the values of the KMO and Bartlett's test meets all criteria.

5.7 INFERENTIAL STATISTICS

Shaughnessy *et al*. (2009: 385) state that statistical inference is inductive and indirect. It is inductive because we draw general conclusions about the population on the basis of the specific samples we test in our experiments. Statistical inference is indirect because it begins by assuming the null hypothesis that is the independent variable, has no effect. The following section used statistical tests to lend credibility to the study. The SPSS computer software, version 24 for Windows, was used to analyse the data using factor analysis, correlation analysis and Pearson's Chi-square statistical test. For the study, SPSS was used to determine the correlation between the independent and dependent variable, with tests conducted at a 95 percent level of confidence. Thus, p should be < 0.05 or $p < 0.001$, for statistically significant relationships.

5.7.1 Factor Analysis

Factor analysis is a statistical technique with the main goal of data reduction. A typical use of factor analysis is in survey research, where a researcher wishes to represent a number of questions with a small number of hypothetical factors.

- The principle component analysis was used as the extraction method, and the rotation method was Varimax with Kaiser Normalization. This is an orthogonal rotation method that minimizes the number of variables that have high loadings on each factor. It simplifies the interpretation of the factors.
- Factor analysis/loading show inter-correlations between variables.
- Items of questions that loaded similarly imply measurement along a similar factor. An examination of the content of items loading at or above 0.5 (and using the higher or highest loading in instances where items cross-loaded at greater than this value) effectively measured along the various components.

5.7.2 KMO and Bartlett's Test

Table 5.6 shows the results for the KMO and Bartlett's test.

Table 5.6: KMO and Bartlett's test

		KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity		Sig.
			Approx. Chi-Square	Df	
0B7	Challenges associated with large class size	0.874	1153.416	45	0.000
B8	Challenges associated with e-learning	0.847	994.179	21	0.000
B9	English language ability	0.891	1950.056	55	0.000
B10	Student readiness for higher education learning	0.638	171.946	6	0.000
B11	Challenges relating to classroom participation	0.870	1128.849	28	0.000
B12	Challenges that affect learning	0.761	585.036	6	0.000
B14	Challenges that relate to first year students	0.773	383.979	6	0.000
B17	Tutorials/tutors	0.751	661.147	28	0.000
B18	Other on campus learning assistance measures	0.824	586.997	15	0.000

Factor analysis is undertaken only for the Likert scaled items. Certain components divided into finer components. This is explained below in the rotated component matrix.

Factor analysis is a statistical technique whose main goal is data reduction. A typical use of factor analysis is in survey research, where a researcher wishes to represent a number of questions with a small number of hypothetical factors. With reference to the tables below:

The statements that constituted the following themes, such as: Challenges relating to student readiness for higher education; challenges relating to classroom

participation; challenges that affect learning; challenges that relate to first year students and other learning measures, all loaded perfectly along a single component.

This implies the statements that constituted these sections perfectly measured what was set out to measure.

5.7.2.1 Rotated Component Matrices

Table 5.7: Rotated Component Matrix: Challenges associated with large class size

	Component 1	Component 2
Overcrowded lecture venues lead to inadequate seating	0.263	0.493
I find it difficult to hear the lecturer in class	0.722	0.214
I feel less motivated	0.807	0.084
The class is noisy and disruptive	0.705	0.440
The lecturer cannot control the class due to disruptive behaviour	0.678	0.316
I lose interest in class activity	0.691	0.352
I cannot see the board	0.334	0.648
Lectures start late while waiting for other students to settle down	0.198	0.704
Inadequate learning facilities such as projectors, screens, sound, interactive/smart boards	0.101	0.761
Staff are not approachable and non-responsive because the class is too large	0.249	0.596

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Large class size affects student behaviour

Large class size affects student learning

It is noted that the variables in Table 5.7 above that constituted the section on challenges associated with large class size, loaded along two components (sub-themes). This means that respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend of component 1 was identified as “large class affecting student behaviour” which reflected the sub theme “I feel less motivated” as having the highest score of 0.807 and component 2 was identified as “inadequate learning facilities such as projectors, screens, sound and interactive/smart boards” (although this is more external/infrastructure related). This implies a respondent feels less motivated due

to inadequate learning facilities, such as projectors, screens, sound and interactive/smart boards, which is considered a significant challenge for large class size.

Table 5.8: Rotated Component Matrix: Challenges associated with e-learning

Rotated Component Matrix[a]		
B8	Component	
	1	2
I have little or no understanding of the on-line course content	0,306	0,830
The online course content to be irrelevant	0,150	0,886
Lack of available technical support for online difficulties	0,751	0,346
Lack of training skills in the use of e-learning technology	0,824	0,200
Lecturer takes too long to respond to online activity	0,742	0,122
Lack of quality e-learning facilities for online learning	0,846	0,159
Lack of adequate access to necessary computer equipment to enable me to use the online classrooms	0,647	0,282

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Challenges with online technology

Challenges with online course content

It is noted that the variable in the above Table 5.8 that constituted the section on challenges associated with e-learning, loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend as indicated on component 1 was identified as “challenges with online technology” which reflected the sub theme “Lack of quality e-learning facilities for online learning “as having the highest score of **0.846** and component 2 was identified as “challenges with online course content” which reflected the sub-theme” The online course content to be irrelevant” as having the high score of **0.886.** This implies that the “lack of quality e-learning facilities” and “irrelevant online course content” are significant challenges associated with e-learning.

Table 5.9: Rotated Component Matrix: Challenges associated with English Language Proficiency

Rotated Component Matrix		
	Component	
	1#	2#
English is not my first language	-0,011	0,787
I have poor writing skills	0,336	0,738
I have poor study skills	0,530	0,601
I cannot understand what is being said in class	0,757	0,254
I find it difficult to communicate in Class	0,794	0,143
I feel demotivated	0,858	0,043
I feel less confident	0,779	0,154
I am afraid to speak up in class	0,696	0,217
I cannot understand questions in a test or exam	0,775	0,214
I do not understand the course material	0,746	0,233
I do not understand technical terms and concepts	0,656	0,262

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Poor academic skills
Poor language skills leads to poor performances

It is noted that the variable in Table 5.9 above, that constituted the section on challenges associated with English language proficiency, loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend as indicated on component 1 was identified as “poor academic skills” which reflected the sub-theme “I feel demotivated” as having the highest score of **0.858** and component 2 was identified as “poor language skills leads to poor performance” which reflected the sub-theme “English is not my first language as having a high score of **0.787**. This implies that since English is not the first language for the respondent this leads to poor language skills which in turn leads to poor performance

Table 5.10: Rotated Component Matrix: Level of agreement regarding intervention methods

Rotated Component Matrix	Component	
	#1	#2
Tutorials are good because they have helped me understand my course better	0,817	-0,107
Tutorials are a waste of time because students do not get any credits for the work they do	-0,224	0,725
Tutorials boosted my morale as I am now passing/doing well in my courses	0,855	-0,074
Tutorials are scheduled at inconvenient times, leaving students with little time to cope with their regular educational programme	0,110	0,713
There should be more tutorials as I find them beneficial	0,763	-0,169
Tutors are not enthusiastic	-0,079	0,753
Tutors are not really concerned about whether the student is benefiting from the tutorial	-0,101	0,739
Tutorials are helpful because the tutor explains in my home language	0,574	0,041

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Tutorials boost performance in the class

Effect of tutor behaviour on tutorials

It is noted that the variable in Table 5.10 that constituted the section relating to intervention measures to improve student performance, loaded along two components (sub-themes). This means that respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend as indicated on component 1 was identified as "tutorials boost performance in the class" which reflected the sub theme "tutorial boosted my morale as I am now doing well in my courses" "as having the highest score of **0.855** and component 2 was identified as "the effect of tutor behaviour on tutorials" which reflected the sub-theme" Tutors are not enthusiastic" as having the high score of **0.753**. This implies that although tutors are not enthusiastic tutorials have boosted the morale of the respondents since they are now doing well in their courses.

The statements that constituted the following themes such as: Challenges relating to student readiness for higher education; challenges relating to classroom participation; challenges that affect learning; challenges that relate to first year students and other learning measures loaded perfectly along a single component. This implies that the statements that constituted these sections perfectly measured what it set out to measure.

It is noted that the variables that constituted the remaining sections loaded along two components (sub-themes). This means that respondents identified different trends within the section. Within the section, the splits are colour coded.

5.7.3 Cross tabulations

The traditional approach to reporting a result requires a statement of statistical significance. A p-value is generated from a test statistic. A significant result is indicated with "$p < 0.05$".

A second Chi square test was performed to determine whether there was a statistically significant relationship between the variables (rows vs columns).

The null hypothesis states that there is no association between the two. The alternate hypothesis indicates that there is an association.

5.7.3.1 Cross tabulation between who provides financial support for respondent studies and who is the household provider

Table 5.11: Cross tabulation between who provides financial support and who is the household provider

			Who in your family is the household provider?				Total
			Mother	Father	Both	Other	
Who provides the financial support for your studies?	Parents	Count	12	17	17	3	49
		% within Who provides the financial support for your studies?	24.5%	34.7%	34.7%	6.1%	100.0%
		% within Who in your family is the household provider?	7.7%	35.4%	34.7%	3.5%	14.5%
		% of Total	3.6%	5.0%	5.0%	0.9%	14.5%
		Count	2	1	0	5	8

	Guardians	% within Who provides the financial support for your studies?	25.0%	12.5%	0.0%	62.5%	100.0%
		% within Who in your family is the household provider?	1.3%	2.1%	0.0%	5.8%	2.4%
		% of Total	0.6%	0.3%	0.0%	1.5%	2.4%
	Extended Family	Count	0	0	1	4	5
		% within Who provides the financial support for your studies?	0.0%	0.0%	20.0%	80.0%	100.0%
		% within Who in your family is the household provider?	0.0%	0.0%	2.0%	4.7%	1.5%
		% of Total	0.0%	0.0%	0.3%	1.2%	1.5%
	Bursary	Count	8	2	6	7	23
		% within Who provides the financial support for your studies?	34.8%	8.7%	26.1%	30.4%	100.0%
		% within Who in your family is the household provider?	5.2%	4.2%	12.2%	8.1%	6.8%
		% of Total	2.4%	0.6%	1.8%	2.1%	6.8%
	NSFAS	Count	133	28	25	67	253
		% within Who provides the financial support for your studies?	52.6%	11.1%	9.9%	26.5%	100.0%
		% within Who in your family is the household provider?	85.8%	58.3%	51.0%	77.9%	74.9%
		% of Total	39.3%	8.3%	7.4%	19.8%	74.9%
Total		Count	155	48	49	86	338
		% within Who provides the financial support for your studies?	45.9%	14.2%	14.5%	25.4%	100.0%
		% within Who in your family is the household provider?	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	45.9%	14.2%	14.5%	25.4%	100.0%

Table 5.11 above reveals a significant number of respondents (52.6 percent) have indicated that NSFAS is responsible for providing the financial support in terms of their study and that their mothers (85.5 percent) are the primary household providers in their family. The results show that 34.8 percent of the respondents have indicated that they get a bursary and that both their parents are responsible. Interestingly, the results further show that 25 percent of respondents indicated that their guardians

provide more financial support to respondents, while 14.5 percent indicated that their parents provide financial support.

An analysis of the results of the tables reveals the following significant cross tabulations. Tables are attached as **Appendix G.**

The p-value between “Faculty” and “Overcrowded lecture venues lead to inadequate seating” is **0.002**. This means that there is a significant relationship between the variables highlighted in yellow, that is, the faculty to which the respondent belonged did play a significant role in terms of how respondents viewed overcrowded venues leading to inadequate seating.

The p-value between “home language” and “I have poor writing skills” is **0.026**. This means that there is significant relationship between the variables highlighted in yellow, that is, home language plays a significant role in the respondent having poor writing skills.

The p-value between “the type of school you attended” and “I do not understand the course material” is **0.043**. This means that there is a significant relationship between the variables highlighted in yellow, that is, the type of school attended plays a significant role in respondents not being able to understand the course material. The school attended reflects the degree of English language proficiency, since most students are from disadvantaged schools, where there is a lack of English language proficiency it can be understood that students will have a problem with understanding the language.

The p-value between the “level of study” and “I feel that I lack learning skills that are required for university”, is **0.014**. This means that there is a significant relationship between the variables highlighted in yellow, that is, the level of study and lack of learning skills, that is, the level of study of the respondent, and the lack of learning skills for higher education, are linked. According to CHE (2010), first year students appear to be underprepared for higher education. This is clear in their lack of academic skills.

All values without an * (or p-values more than 0.05) do not have a significant relationship.

5.7.4 Correlation Analysis

Correlation analysis was performed on the ordinal data and SPSS version 24 for Windows was used to determine the bivariate correlations related to the study. The complete results of this study are is found in Appendix H.

The results indicate the following patterns:

Positive values indicate a directly proportional relationship between the variables and a negative value indicates an inverse relationship. All significant relationships are indicated by a * or **.

For example, the correlation value between “I feel less motivated” and “I feel less confident” is 0.408. This is a directly related proportionality. Respondents indicate that the more motivated they feel, the more confident they are, and vice versa.

An analysis was conducted on statements deemed significant to the study for correlation purposes and is indicated according to sub-themes as follows:

All significant correlations are indicated as follows:

Analysis 1: The correlation value between “overcrowded venues lead to inadequate seating” and “I find it difficult to hear the lecturer in class”, is **0.394**. There is a significant relationship between these variables. The respondents indicated that, in an overcrowded venue, they find it difficult to hear the lecturer.

Analysis 2: The correlation value between “I find it difficult to hear the lecturer in class” and “the class is noisy and disruptive” is **0.512**. There is a significant relationship between these variables. Respondents indicated they find it difficult to hear in a noisy and disruptive class.

Analysis 3: The correlation value between “the class is noisy and disruptive” and “I lose interest in class activity is **0.524.** There is a significant relationship between these variables. The respondents indicated that, when a class is noisy and disruptive, they lose interest in class activity.

Analysis 4: The correlation value between “Lack of quality e-learning facilities for online learning” and “Lack of adequate access to necessary computer equipment to enable me to use the online classrooms” is **0.520.** There is a significant relationship between these variables. The respondents indicated that, since there is a lack of

access to computer equipment for the use of online classrooms, this contributes to a lack of e-learning facilities for online learning.

Analysis 5: The correlation value between “I have poor writing skills” and “I have poor study skills” is **0.635.** There is a significant relationship between these variables. The respondents indicated they have poor study skills because they have poor writing skills.

Analysis 6: The correlation value between “I cannot understand what is being said in class” and “I find it difficult to communicate in class”, is **0.631.** There is a significant relationship between these variables. Respondents indicated they find it difficult to communicate in class because they cannot understand what is being said.

Analysis 7: The correlation value between “I cannot understand what is being said in class” and “I feel demotivated”, is **0.675.** There is a significant relationship between these variables. The respondents indicated, since they cannot understand what is being said in class, they feel demotivated to learn.

Analysis 8: The correlation value between “I feel less confident” and “I am afraid to speak up in class” is **0.642.** There is a significant relationship between these variables. The respondents indicated that, since they are less confident, they are afraid to speak in class.

Analysis 9: The correlation value between “I have poor study skills” and “I feel that I lack learning skills that are required for university” is **0.444.** There is a significant relationship between these variables. The respondents indicated that, as they lack learning skills required for university, they have poor study skills.

Analysis 10: The correlation value between “I have poor writing skills” and “The difficulties that I experience with the English language (in terms of understanding and writing) makes me feel less confident in class”, is **0.563.** There is a significant relationship between these variables. The respondents indicated that because they experience difficulties with the English language (in terms of understand and writing), this leads to poor writing skills and less confidence in class.

Negative values imply an inverse relationship, that is, the variables have an opposite effect on each other that is, as one increases, the other decreases. For example,

the correlation value between “The lecturer cannot control the class due to disruptive behaviour” and “The use of visual material (including PowerPoint presentations) helps my learning” is **-0.111**. In other words, the more effective presentations are, the less disruptive classes are.

The results indicate the following patterns of inverse relationships.

Analysis 11: The correlation value between “I cannot understand what is being said in class” and “The writing centre is good because I have developed useful skills, such as reading, writing and verbal presentation skills since using it”, is -0.115. There is a significant relationship between these variables. This means the use of the writing centre, to develop reading writing and verbal skills, will help respondents understand what is being said in class.

Analysis 12: The correlation value between “I feel less motivated” and “When lecturers recap on difficult concepts/areas, this helps my learning”, is **-0.220.** There is a significant relationship between these variables. The respondents indicated that when lecturers recap difficult concepts/areas, the more motivated the respondent feels.

Analysis 13: The correlation value between “I cannot understand what is being said in class” and “When lecturers recap on difficult concepts/areas, this helps my learning” is **-0.121.** There is a significant relationship between these variables. The respondents indicated that when lecturers recap difficult concepts/areas, the more respondents understand what is being said in class.

Analysis 14: The correlation value between “Summaries and other course material provided, has helped me to learn” and “I feel less motivated” is **-0121.** There is a significant relationship between these variables. The respondents indicated that, when summaries and other course materials are provided, this increases the respondent’s motivation to learn.

Analysis 15: The correlation value between “The use of visual material (including PowerPoint presentations) helps my learning” and I lose interest in class activity” is **-0.110.** There is a significant relationship between these variables. The respondents indicated that, in the use of visual presentation such as PowerPoint, improves the student’s interest in class activity.

5.8 Hypothesis testing

The traditional approach to reporting a result requires a statement of statistical significance. A p-value is generated from a test statistic. For all values with an *, a significant result is indicated with "p < 0.05". For all values with an **, a significant result is indicated with "p < 0.01".

A second Chi square test was performed to determine whether there was a statistically significant relationship between the variables (rows vs columns).

The null hypothesis states that there is no association between the two variables. The alternate hypothesis indicates that there is an association between the variable.

A Chi-square test was conducted on the following aspects and the results are indicated below:

5.8.1 English is generally not the first language of the student versus poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills

This section examines the relationship between English is generally not the first language of the student and selected learning challenges of the student (poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills). The p-values as indicated in Table 5.12 below, shows that there is a significant relationship between the variables. This means that English not being a first language of the student, plays a significant role in poor study skills (p-value = 0.000); poor writing skills (p-value = 0.000); poor comprehension skills (p-value =0.001); low confidence levels (p-value =0.019) and poor communication skills (p-value =0.011).

Table 5.12: Chi-square test: English is generally not the first language of the student versus poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills

	English is generally not the first language of the student.	
	Pearson's Co-efficient	P-values
Poor study skills	.238**	0,000

Poor writing skills	.294**	0,000
Poor comprehension skills	.184**	0,001
Low confidence levels	.127*	0,019
Poor communication skills	.138*	0,011
**. Correlation is significant at the 0.01 level (2-tailed).		
*. Correlation is significant at the 0.05 level (2-tailed).		

5.8.2 Poor writing skills versus poor study skills

This sections examines the relationship between poor writing skills and poor study skills. Table 5.13 below shows that the p-value for the relationship between poor writing skills and poor study skills is 0.000. This shows that there is a significant relationship between the two variables which means that poor writing skills plays a significant role in contributing to a student's poor study skills.

Table 5.13: Chi-square test: Poor writing skills versus poor study skills

	Poor writing skills	
	Pearson's Co-efficient	P-Value
Poor study skills	.635**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

5.8.3 Overcrowded lecture venues versus selected difficulty of hearing in class; less motivated students

This sections examines the relationship between overcrowded lecture venues and selected teaching and learning challenges experienced in the classroom (difficulty of hearing in class; less motivated students). The p-values as indicated in Table 5.14 below show that there is a significant relationship between the variables. This means that overcrowded lecture venues plays a significant role in difficulty of hearing in class (p-value = 0,000); less motivated students (p-value = 0,000)

Table 5.14: Chi-square test: Overcrowded lecture venues versus selected difficulty of hearing in class; less motivated students

	Overcrowded venues	
	Pearson's Co-efficient	P-Value
Difficulty in hearing	.394**	0,000
Less motivated students	.192**	0.000
**. Correlation is significant at the 0.01 level (2-tailed).		

The following research hypotheses were formulated to guide this study based on the aims, objectives and the literature reviewed:

Ho1: The lack of English language proficiency does not play a significant role in selected teaching and learning challenges relating to the student (poor study skills; poor writing skills; poor comprehension skills; low confidence levels; and poor communication skills).

Ho2: Poor writing skills does not play a significant role in contributing to a student's poor study skills;

Ho3: Overcrowded lecture venues do not play a significant role in selected teaching and learning challenges experienced in the classroom (difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement).

Ho4: A lack of teaching methods for e-learning does not play a significant role in selected e-learning challenges of staff (the lack of training skills; lack of on-line technical support).

Ho5: A lack of understanding of student learning styles used in materials development by staff does not play a significant role in lack of quality e-learning facilities for on-line learning.

Ho6: Student under-preparedness does not play a role in selected learner challenges (lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning).

The first 3 hypotheses (Ho1, Ho2, Ho3) related specifically to the student survey and the results pertaining to the others (Ho4, Ho5, Ho6) are discussed in the analysis of the staff survey:

5.9 SECTION B: ANALYSIS OF STAFF QUESTIONNAIRE

5.9.1 Sample

In total, 200 questionnaires were despatched and 120 were returned which gave a 60 percent response rate. This is considered to be a good response rate.

5.9.2 Research Instrument

The research instrument consisted of 9 closed-ended questions and 4 open-ended questions, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 7 sections which measured various themes as illustrated below:

Table 5.15: Various themes in the questionnaire

A1	Teaching and learning challenges of disadvantaged students associated with large class size
A2	Challenges associated with e-learning that affect teaching and learning of the disadvantaged student
A3	Challenges in respect of English language proficiency
A4	Challenges relating to the first year disadvantaged student experience that affect teaching and learning
A5	Challenges relating to disadvantaged student readiness for higher education that affect teaching and learning
B9	Intervention measures that have been successful in enhancing teaching and learning especially among disadvantaged students
B10	Challenges experienced in implementing measures that hinders improvement of student performance

5.9.3 Descriptive Analysis

A descriptive analysis of the data allows the data to be presented by the use of graphs and tables. The section that follows analyses the scoring patterns of the respondents, per variable per section. The results are first presented using summarised percentages for the variables that constitute each section, after which results are then further analysed, according to the importance of the statements.

5.10 SECTIONAL ANALYSIS

5.10.1 Section A: Teaching Challenges of the Disadvantaged Student

This section deals with academic staff teaching challenges, in respect of the disadvantaged student of higher education.

5.10.1.1 Teaching challenges of the disadvantaged student associated with large class sizes

Respondents were asked to comment on the teaching challenges associated with large class sizes. Figure 5.14 below shows the results.

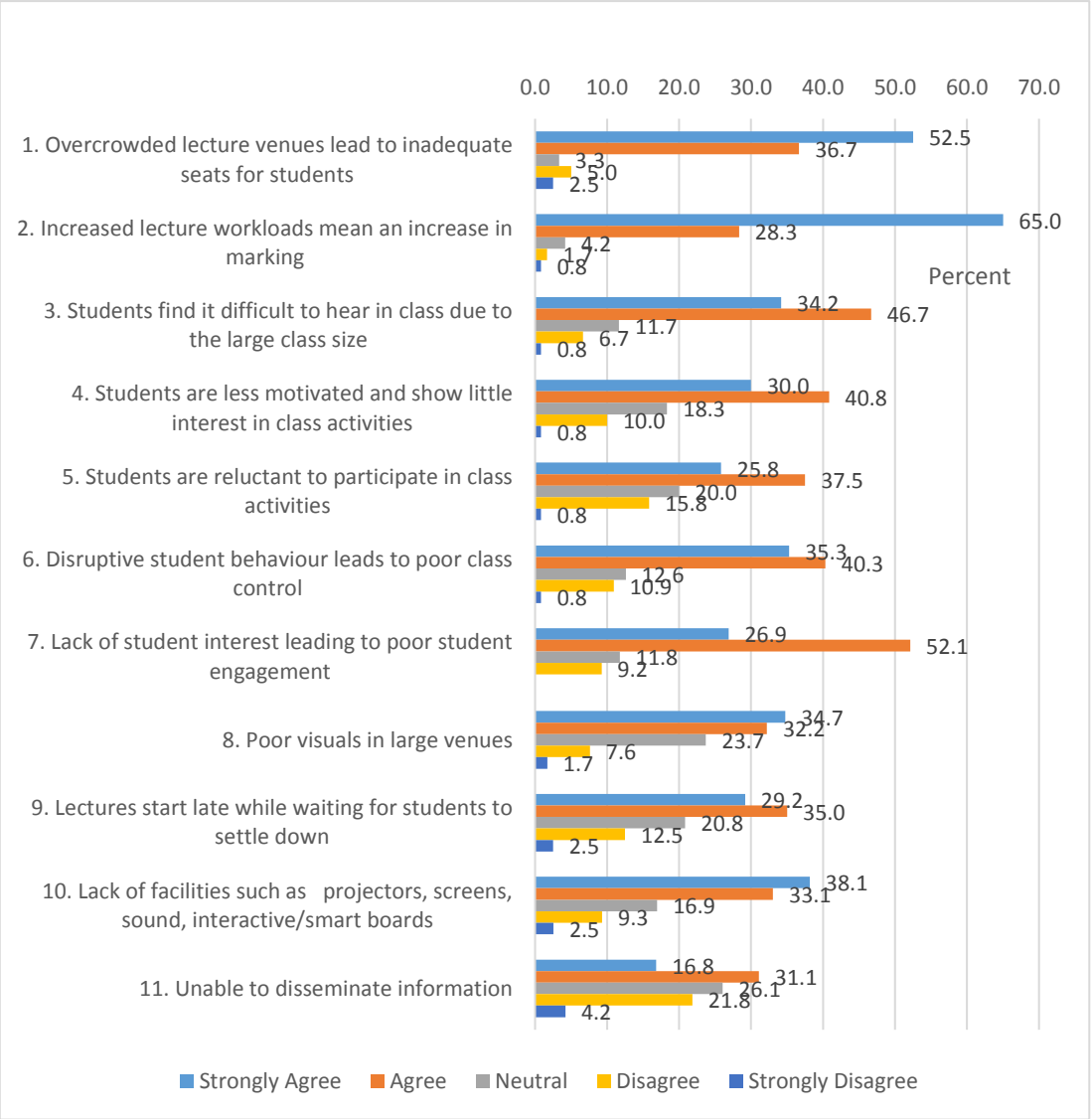

Figure 5.14: Teaching challenges of the disadvantaged student associated with large class sizes

From the results shown in Figure 5.14 above, the following patterns are observed:

- Statements 1 and 2 reveal a significant number of respondents have a high level of agreement.
- Statements 3,4,5,6,7 and 9 reveal that a significant number of respondents agree overall with low levels of disagreement with these statements.

The results reflect that respondents agreed on all statements that large class size has an overall negative effect on teaching and learning for the students of higher education. The results show that statement 1, saw 52.5 percent of the respondents and statement 2 saw 65 percent of the respondents, strongly agreed that overcrowded venues lead to inadequate seating for students and that an increased work load, due to large classes, leads to an increase in marking.

Statements 3 to statement 11 indicated a high level of agreement, and 46.7 percent of the respondents felt that students find it difficult to hear in a large class, 40.8 percent felt students are less motivated, 37.5 percent of the respondents indicated that, in a large class students feel reluctant to participate in class activities, while 40.3 percent of respondents believed large classes lead to disruptive student behaviour, which results in poor class control. A significant number of respondents (52.1 percent) indicated that lack of student interest in a large class leads to poor student engagement. A general trend in this question, is a high level of agreement by respondents in relation to the challenges associated with large class sizes.

Wentling *et al.* (2007), indicate student interaction in a large class is limited, resulting in low participation. Morton (2009: 67) confirms further that one of the challenges of a large class size is disruptive behaviour by students. Morton (2009: 58) affirms students display less interest, since students from various disciplines and knowledge bases sit together in the same class and lectures become less interesting, with students finding it difficult to maintain interest.

5.10.1.2 E-learning technology used for effective teaching and learning

Respondents were asked to indicate the type of e-learning technology they used for effective teaching and learning. The responses received were as follows:

The results indicate the vast majority (93 percent) of academic staff 112 respondents of 120 respondents indicated that they use Blackboard, seven of the respondents

indicated that they use Moodle. In addition to using Blackboard and Moodle, respondents also used other e-learning technology such as:

- Smartboard;
- Internet;
- SMS;
- WhatsApp groups;
- Social media;
- E-mail; and
- You-tube videos.

5.10.1.3 Teaching challenges associated with e-learning that affect teaching and learning of the disadvantaged student

The respondents were asked to comment on the teaching challenges associated with e-learning that affect teaching and learning. Figure 5.15 below shows the results.

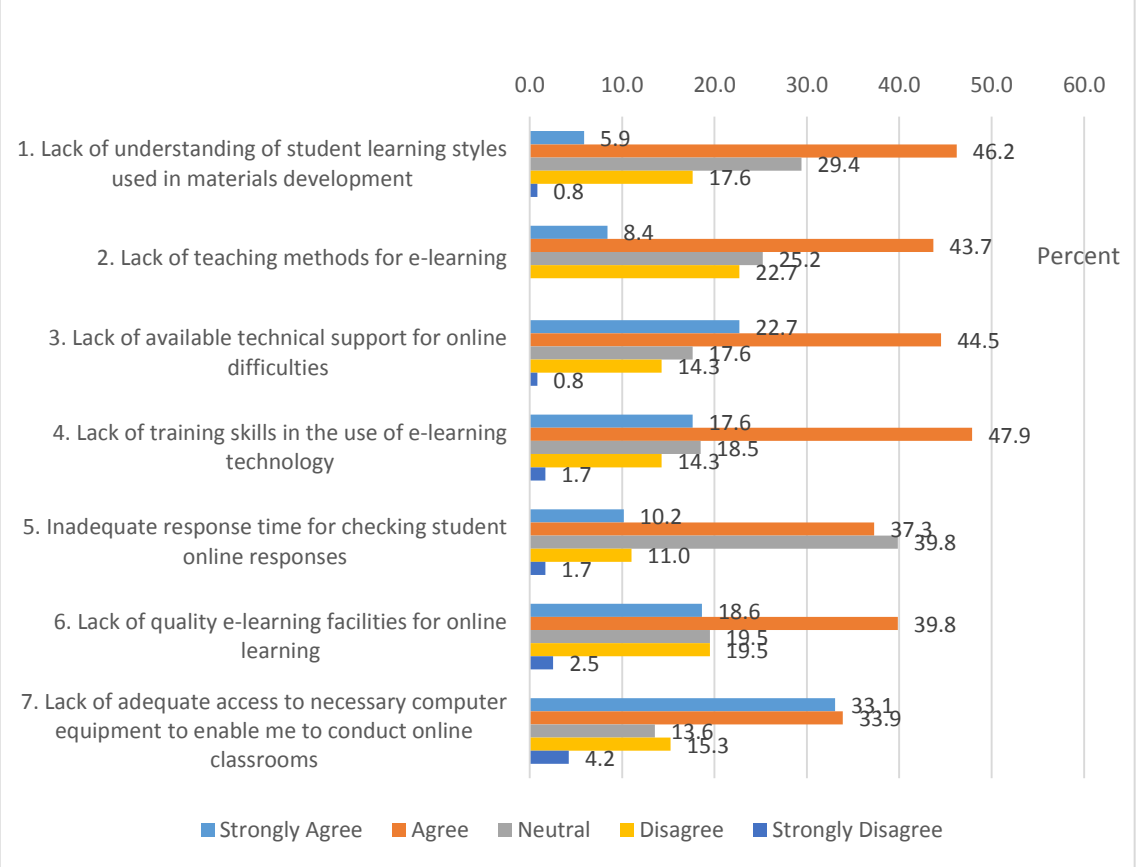

Figure 5.15: Teaching challenges associated with e-learning that affect teaching and learning of the disadvantaged student

From the results shown in Figure 5.15 above, the following patterns are observed:

- All statements show a high level of agreement; and
- All statements show an average level of disagreement.
- Statement 5 shows a high neutrality score

The results indicate that the majority of respondents agreed with all statements with exception of #5 which indicates a high level neutrality score of 39.8 percent. Statement 4 indicates the highest level of agreement, with 47.9 percent of the respondents indicating that they lack training skills in the use of e-learning technology. Accordingly, statement 1 (46.2 percent), statement 2 (43.7 percent), statement 3 (44.5 percent), statement 4 (47.9), statement 5 (37.3 percent), statement 6 (39.8 percent) and statement 7 (33.9 percent), Further, respondents agreed in general that a lack of understanding of student learning styles in materials development 46,2 percent, lack of teaching methods for e-learning 43,7 percent, lack of available online technical support 44,5 percent, and insufficient time for attending to online student responses 47,9 percent, along with a lack of quality e-learning facilities for online learning 37,3 percent and insufficient access to computer equipment for online classroom, affects teaching and learning in higher education. A general trend is that respondents are indicating an overall lack of e-learning knowledge, facilities and training, which affects teaching and learning. Tarus and Muumbo (2015: 133) state staff are not fully equipped to develop e-content for e-learning. In addition, Sywelem *et al.* (2012, cited in Islam *et al.* 2015: 104) believe the challenge lies in understanding student learning styles, since students learn in different ways, such as visual presentation, interaction, written notes or given instructions.

5.10.1.4 Teaching challenges of the disadvantaged student in respect of English language proficiency

The respondents were asked to comment on the teaching challenges in respect of English language proficiency. Figure 5.16 below shows the results.

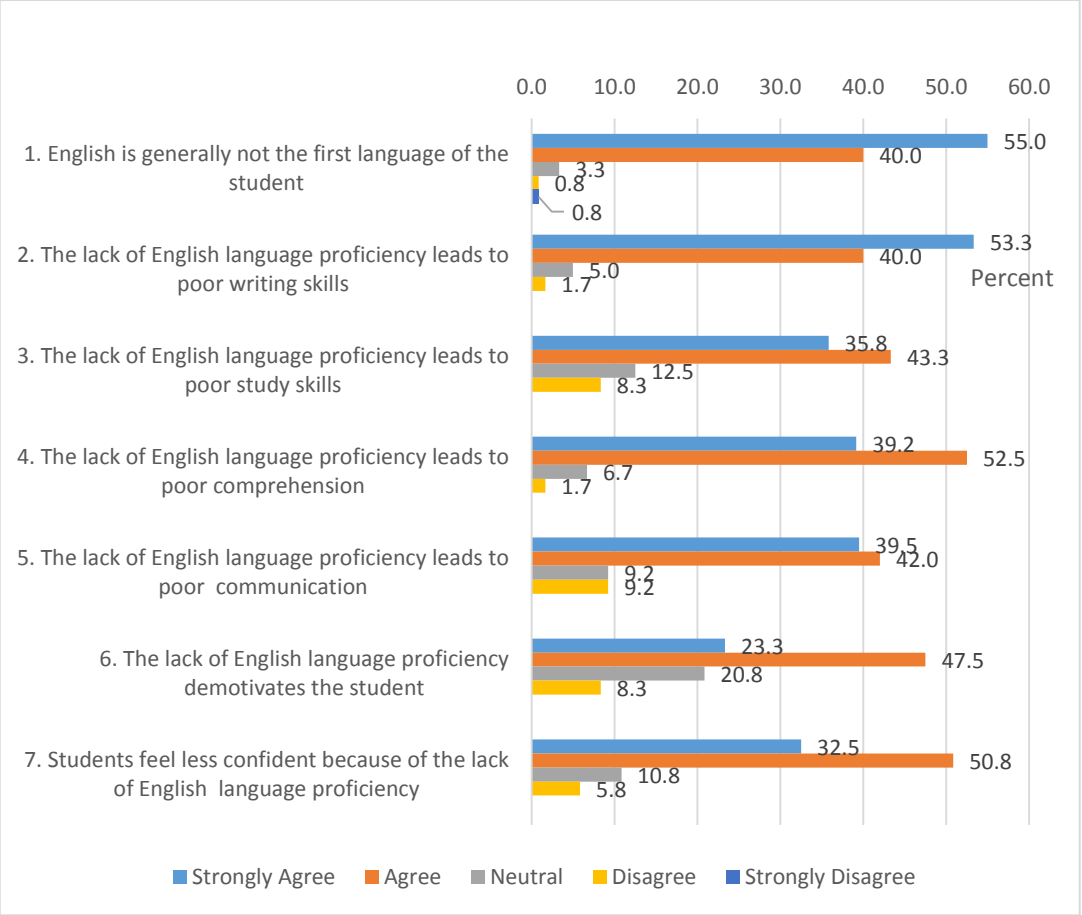

Figure 5.16: Teaching challenges of the disadvantaged student in respect of English language proficiency

From the results shown above in Figure 5.16, the following patterns are observed:

- All statements reflect high levels of agreement in regards to challenges that disadvantaged students experience with English language proficiency.

The results indicate that respondents agreed with all statements. However, statements 1 and statement 2 revealed a higher level of agreement. It is indicated that a significant percentage of respondents, statement 1 (55 percent) and statement 2 (53.3 percent) of the respondents strongly agreed that English is not the student's first language and that a lack of English language proficiency leads to poor writing skills. Statement 4 (52.5 percent) shows a high level of agreement with respondents agreeing that poor English language leads to poor comprehension, while statement 7 (50.8 percent) showed students feel less confident in class due to the lack of English proficiency. The general trend is that respondents agreed that a

lack of proficiency in the English language leads to poor academic literacy skills and affects students' ability to communicate, student motivation and confidence levels.

The results from the above responses depicted in Figure 5.9, show the majority of the respondents experienced the following teaching challenges in respect of lack of English language proficiency: English is not the students first language and therefore this leads to poor writing skills, poor study skills, poor comprehension skills, and poor communication skills, demotivating students, and making students feeling less confident. Stephen, Welman and Jordaan (2004: 4) indicate that Black students are not adequately proficient in English, resulting in communication difficulties. Students struggle with the language barrier and this affects academic writing.

5.10.1.5 Teaching challenges relating to the first year experience that affect teaching and learning of the disadvantaged student

Respondents were asked to comment on the teaching challenges relating to first year experiences that affect teaching and learning of the disadvantaged student. Figure 5.17 below shows the results.

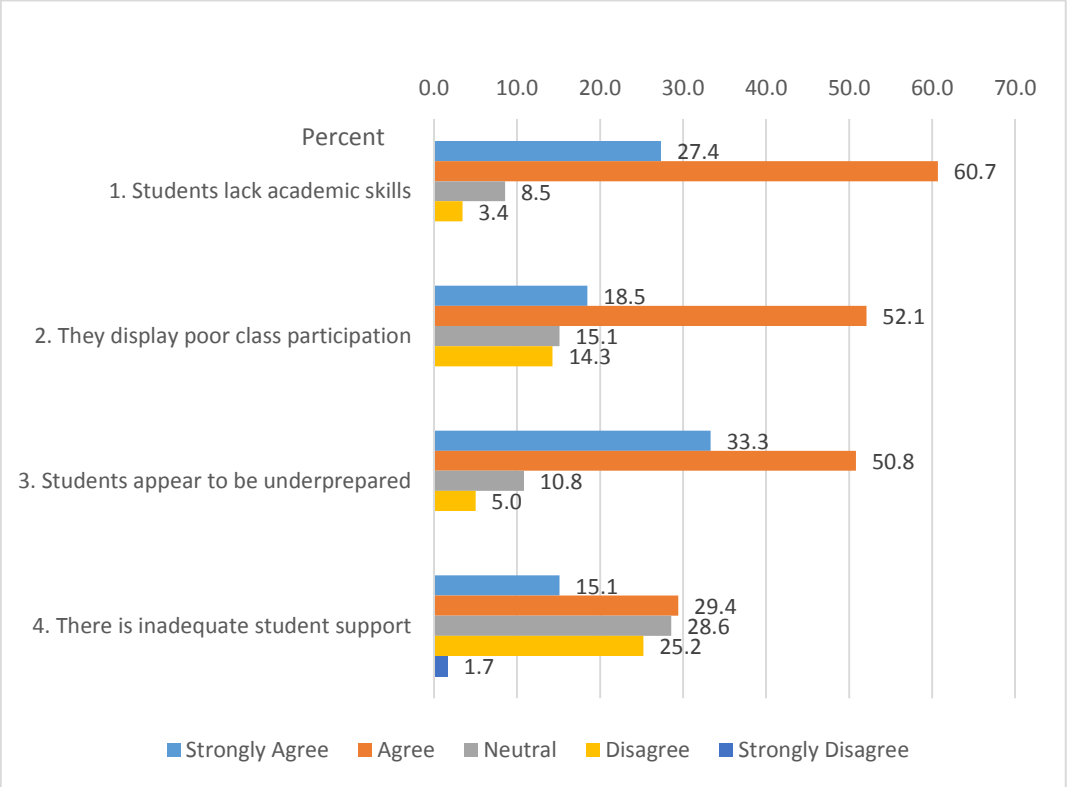

Figure 5.17: Teaching challenges relating to the first year experience that affect teaching and learning of the disadvantaged student

From the results shown in Figure 5.17 above, the following patterns are observed:

- Statement 1 to statement 3 reflect high levels of agreement; and
- Statement 4 reflects a high level of agreement, disagreement and also a high level of neutrality

The results indicate that responses to statement one (60.7 percent), statement 2 (52.1 percent) and statement 3 (50.8 percent) showed the respondents agreed that first year students lack academic skills, display poor class participation and appear to be underprepared. Results relating to statement 4 are split (29.4 percent) agreed there is inadequate first year student support, 25.2 percent disagreed with this statement and 28.6 per cent remained neutral. A general trend that can be seen from the results, is that staff find first year students are under-prepared for higher education.

The results from the above responses, as depicted in Figure 5.17 above, show the majority of the respondents indicated the following as challenges relating to first year disadvantaged students: lack of academic skills, poor class participation, underprepared students, and inadequate student support affect teaching and learning in higher education. Only some of the respondents agreed there is inadequate student support. This is consistent with the findings of the CHE (2010), which state that students appear to be under-prepared, due to their display of poor academic skills.

5.10.1.6 Teaching challenges relating to student readiness for higher education that affect teaching and learning

The respondents were asked to comment on the teaching challenges relating to student readiness for higher education. Figure 5.18 below shows the results.

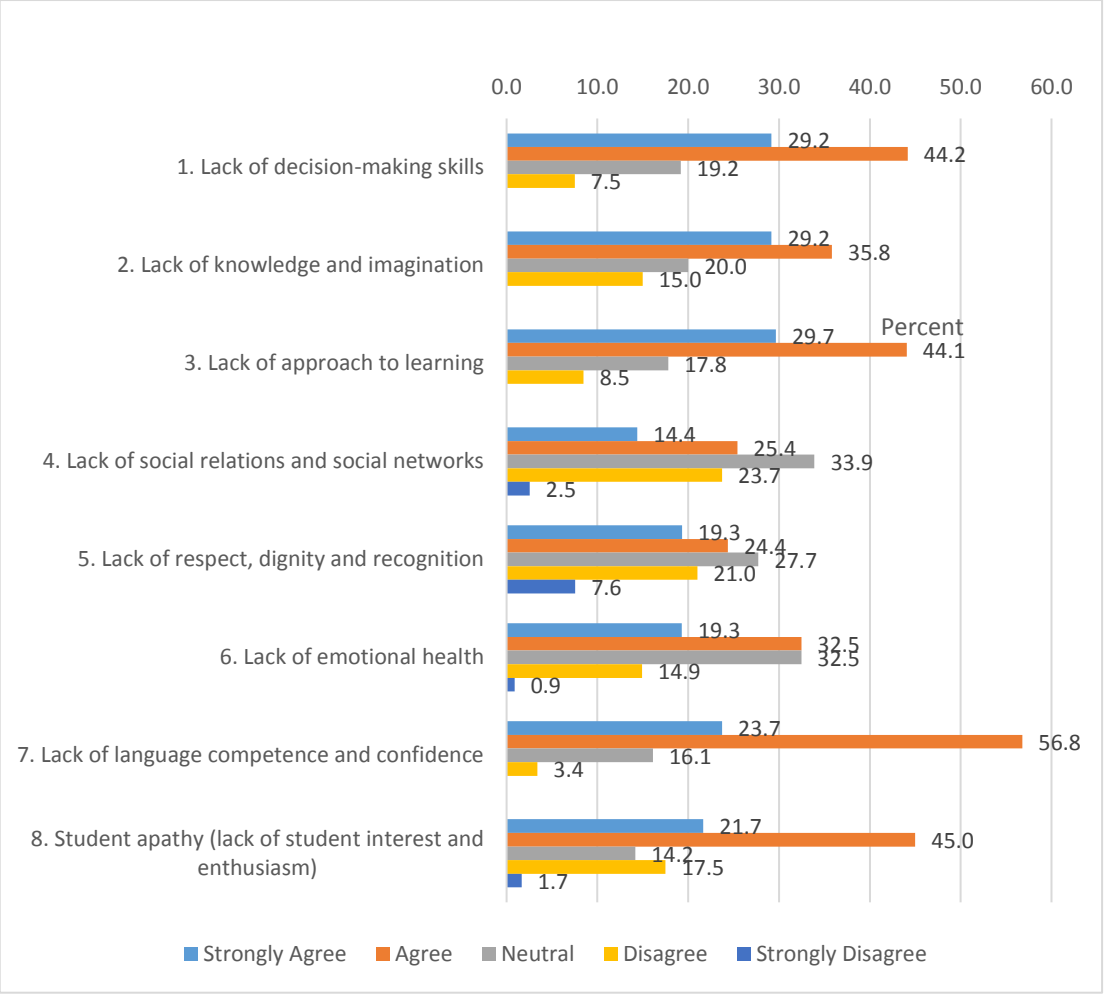

Figure 5.18: Teaching challenges relating to student readiness for higher education that affect teaching and learning

From the results shown in Figure 5.18 above, the following patterns are observed:

- All statements from statement 1 to statement 3 and statement 7 to statement 8 show a high level of agreement; and
- Statements 4 to statement 6 reflect a neutral position.

The results for statement 7 reveal that 56.8 percent of the respondents believe students lack language competence and confidence, 44.2 percent of the respondents agreed students lack decision making skills, 35.8 percent of the students agreed with a lack of knowledge and imagination, 44.1 percent felt students have a lack of approach to learning and 45 percent agreement shows there is student apathy (lack of student interest and enthusiasm).

The results, as illustrated in Figure 5.18, show that majority of the respondents agreed that, as academics, they experienced the following challenges relating to student readiness for higher education: lack of decision making skills, insufficient knowledge and imagination, absence of approach to learning, and a lack of social relations and social networks (teamwork), in addition to a lack of respect, dignity and recognition, insufficient emotional health, lack of language competence and confidence, and student apathy affecting teaching and learning. In addition, some of the respondents agreed insufficient social relations and social networks and lack of respect, dignity and recognition, affect teaching and learning. This is consistent with the views of Wilson-Strydom (2015: 176), who highlights the following capabilities for student readiness, such as students having social relations and social networks, respect, dignity and recognition, as well as emotional health and a positive approach to learning.

5.10.1.7 Whether training provided by the university is adequate

The respondents were asked whether the training provided by the university, to enhance teaching and learning for the disadvantaged student in the classroom, is adequate.

Table 5.16: Adequacy of training provided by the university to enhance teaching and learning

Have you been provided with adequate training to enhance teaching and learning in the classroom especially among disadvantaged students?		
	Frequency	**Percent**
Yes	**59**	**49,2**
No	**61**	**50,8**
Total	**120**	**100,00**

The results shown in Table 5.16 above indicate that nearly half of the respondents (49.2 percent) responded “yes” they are provided with adequate training. However, 50,8 percent of the respondents indicated “no” to not receiving adequate training.
When asked why they thought the training was not adequate, the following indicates some of the responses given: “Adequate training specifically for the disadvantaged is not available to my knowledge at DUT” and “More training needs to be done - I

teach large classes and although I break down and even repeat certain concepts, it is not sufficient for the students";

- **Training not specific to disadvantaged students:** Adequate training specifically for the disadvantaged is not available to my knowledge at DUT; training is provided at DUT but not specifically for the disadvantaged student and it is not a priority;
- **Increased training:** More training needs to be done - I teach large classes and although I break down and even repeat certain concepts, it is not sufficient for the students;
- **Academic literacy and writing skills:** Students don't have academic literacy and writing skills, or sufficient computer literacy knowledge; and
- **Inconvenient times for training:** Lack of time to attend training. The training occurs during lecture time and therefore, we are unable to attend.

Some of the respondents who indicated the training was adequate, indicated that they found the following beneficial or useful (the responses are grouped together in terms of common themes identified):

- **Understanding and motivation**: A better understanding of the student and the student's background must take place; allowing students to express themselves and acknowledging their input; most students come from troubled backgrounds with no role-models, just sitting down with them and motivating them makes a big difference; number of years' experience, patience and understanding; understanding that students learn differently; capacity to relate to students from all sectors/cultures/genders of diversity;
- **Training/additional training and workshops, including**: Online assessment workshop from CELT; AD training; facilitator training, assessor training; training on e-learning/Blackboard; academic workshops on teaching and learning (including CELT workshops); workshops run as part of the Siyaphumelela Project; Code switching; e-learning training with the students; training on learning designs; teaching and learning workshops to deal with large classes; use of online resources;
- **Lecturer initiated strategies**: Improve teaching; alternative teaching and learning strategies may be used; different teaching styles and ways to assess

student performance; own research into teaching and learning, scholarly reading, journal articles and scholarly literature; and class interaction;

- **Student support and enhancing student capacity**: Appointments for consultations; additional practical work; engagement with the writing centre has also helped student feedback/response to the academic programme; blended learning; extra tutorials; interventions via e-learning and practical work sessions; and engage regularly with students on the teaching and learning zone;
- **Proactive intervention**: personal consultations with at-risk students; revision and delivering extra lectures in weaker sections; lecturing style; and use of technology.

5.10.1.8 Levels of agreement regarding intervention measures used to enhance teaching and learning amongst disadvantaged students

Respondents were asked to provide feedback regarding intervention measures used in enhancing teaching and learning amongst disadvantaged students. Figure 5.19 below shows the results.

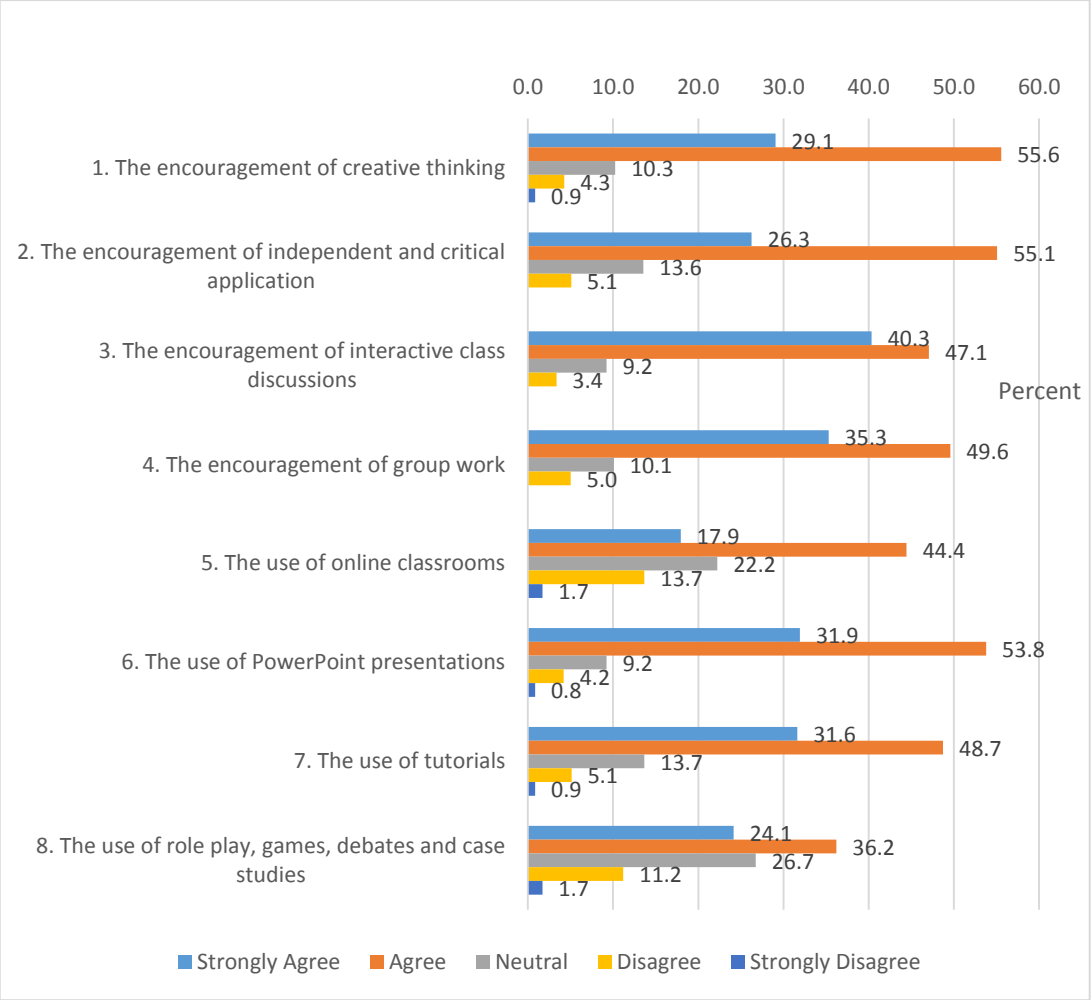

Figure 5.19: Levels of agreement regarding intervention measures used to enhance teaching and learning amongst disadvantaged students

From the results shown in Figure 5.19 above, the following patterns are observed:

- All statements show a high level of agreement by the majority of the respondents.

  .

The results indicated in Figure 5.19, show the majority of the respondents agreed the following intervention measures have been successful in enhancing teaching and learning among disadvantaged students: the encouragement of creative thinking (56 percent), independent and critical application 55.1 percent, interactive class discussions 47,1 per cent, group work 49,6 per cent, and online classrooms 44,4 percent as well as PowerPoint presentations 53,8 percent, role-play, games and debates and case studies 36,2 percent.

5.10.1.9 Additional comments on other measures used to improve teaching and learning

Academic teaching staff responded to an open-ended question, relating to other measures implemented to improve teaching and learning among disadvantaged students. The respondents were asked to comment on other intervention measures that have been successful in enhancing teaching and learning, especially among the disadvantaged student. The following responses were received:

- Encouraging reading outside course work; encouraging participation in other activities to enhance life skills;
- Excursions and activities outside of DUT, such as performance in communal areas, interactive activities outside of DUT;
- Taking students to workplace sites, relating them to theory, teaching is made easier. There is better understanding, students perform better in assessments and practical exposure aligned with theoretical components;
- Most importantly, WIL exposure to the work environment, in their own professional development, makes for a clearer understanding of the theory they learn in class;
- My passion for teaching and learning has made it possible for me to be creative in the classroom and identify the challenges with learning and hence, implement interventions;
- Numerous case studies, content relevant and identifiable examples;
- Peer review of group work and projects;
- Practical sessions, such as present flexibility or plyometric sessions;
- Research and presentation during lectures;
- The use of interactive learning design, active exercises during class, group work, impromptu presentations;
- Use of artefacts, collage and other arts-based methods; and
- Visiting places of work and learning from them. This proves as an effective learning tool since industry can make more sense of what is being done in industry.

5.10.1.10 Teaching challenges experienced in implementing intervention measures

The respondents were asked to comment on the teaching challenges they experience in implementing the above measures that hinder the effectiveness of these interventions. Figure 5.20 below shows the results.

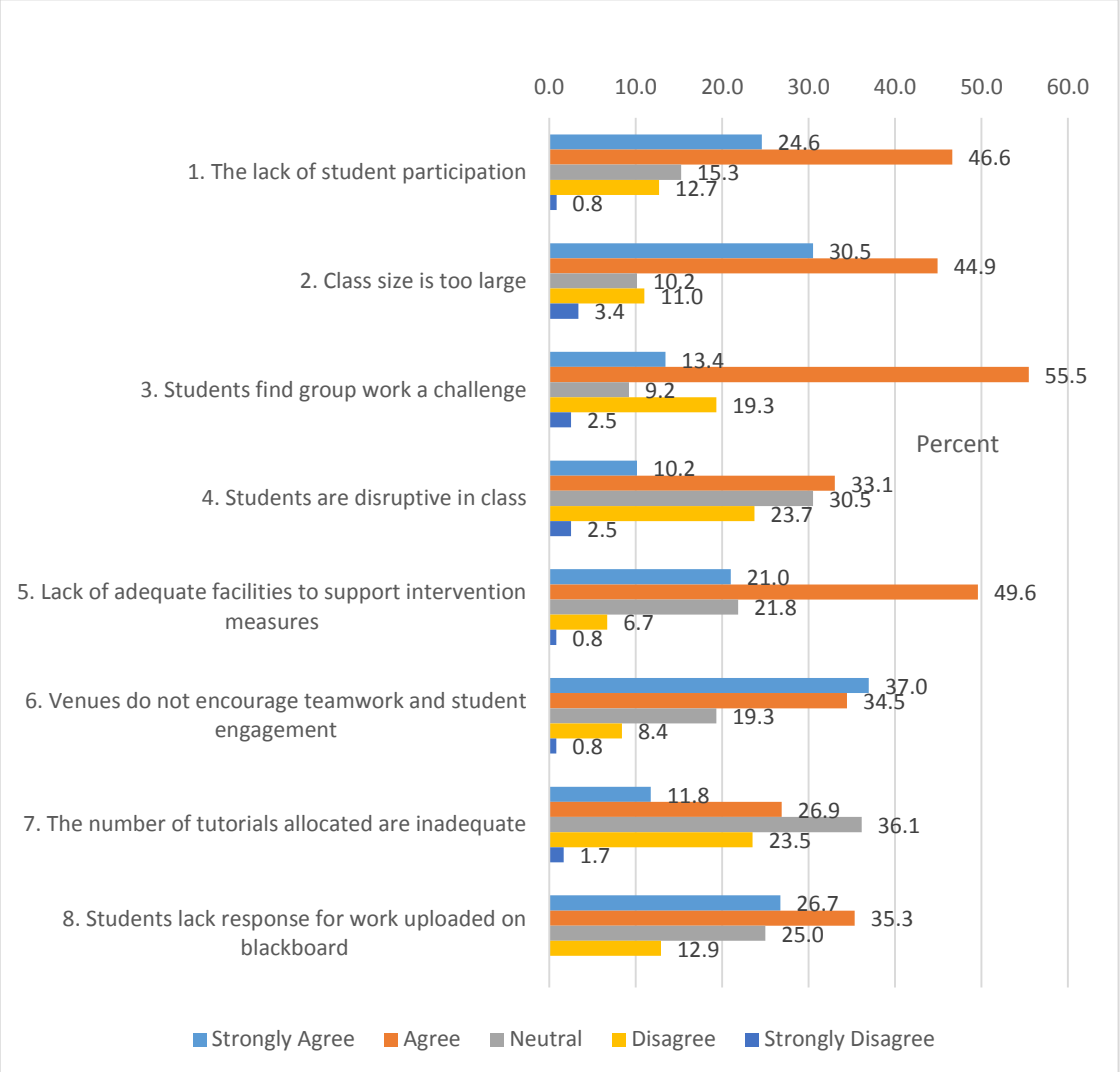

Figure 5.20: Teaching challenges experienced in implementing intervention measures that hinder student performance

From the results shown in Figure 5.20, the following patterns are observed:

- All statements show a high level of agreement;
- Statement 4 and 7 show a high level of neutral responses; and
- Statement 56 shows a high level of strongly agree.

The results depicted in Figure 5.20 show the majority of respondents agreed that they experienced the following challenges in respect of intervention measures: lack of student participation 46,6 percent, class size is too large 44,9 percent, students working in a group 55,5 percent, and disruptive students 33,1 percent, in addition to insufficient facilities 49,6 percent, inadequate venues for teamwork and student engagement 34,5 percent, not enough allocated tutorials 36,1 percent, and student lack of response for work uploaded on blackboard 35,3 percent in the implementation of intervention measures. Further, some of the respondents indicated they experienced challenges with disruptive students and inadequate number of tutorials.

5.10.1.11 Additional comments on challenges with intervention measures that hinder student improvement

The respondents were asked to comment on other challenges they have experienced in implementing intervention measures, which hinders improvement of student performance.

The following responses were received:

- **Time Management**: In too many cases, students cannot time manage themselves effectively. This is a crucial skill that needs to be learnt and understood so that they can speed up performance. Students procrastinate and waste time;
- **Socio-economic issues**: Poverty of students influence their concentration span, difficult transport situation, such as when there are no student residences; lack of clean rooms and facilities at residences; malnutrition due to a lack of healthy food; financial constraints; many of our students are distressed; depressed because of cases of sexual abuse; and violence at home and sometimes on campus;
- Students are afraid to participate in activities;
- Students don’t attend sessions, specifically organised for support and guidance;
- **Under-preparedness of schools**: Students from schools are not fully prepared to study at HEIs, at schools they are spoon fed;
- **Student Apathy**: Students lack of interest and poor attendance in the class;
- Students need to be taught how to be responsible;

- They do not use Blackboard or seem to want online work; and
- **Work overload**: many students have an intense amount of collective assessments during the semester and often management of time task is a major challenge.

5.10.1.12 Other interventions/measures to improve teaching and learning

Academic teaching staff responded to an open-ended question relating to other measures that may be used to improve teaching and learning among the disadvantaged students: The following responses were received:

Study skills and support: A course on the approach to studying for tests at tertiary level; parent orientation; and discussions on studying practices; as well as lecture attendance; and tutorials at residence;

- **Audio visual aids in classroom**: Appropriate sound system should be installed in classrooms;
- **Mentorship programmes:** A buddy system or pairing an advantaged student with a disadvantaged student; motivating students to help each other in their own language; peer learning;
- **Workshops**: on how to teach disadvantaged students; additional e-learning workshops;
- **Class size**: Create smaller classes;
- **First year student initiatives**: For first year students, English reading and writing must be compulsory; there should be more academic literacy programmes to bridge the gap between school and tertiary education; First Year Student Experience (FYSE) seminars, residence tutorials and academic tutorials; more integrated projects should be done from first year level;
- **Additional computer labs** are needed;
- **Increase language proficiency:** AD programmes targeted at literacy; library reading and writing centres; introduce a module as an optional non-credit bearing module intended to improve student understanding of the language of offering;
- **Internet access and data for students;**
- **Innovation** in the delivery of curriculum;

- **Code switching:** Some classes should be taught in isiZulu and English. There must be a combination of languages in the lecture room. Students tend to learn better in their mother tongue; and
- **Introduce Food Programme**: Students should have one free meal a day offered on campus.

5.10.1.13 Level of agreement in respect of increased access of the disadvantaged student in respect of the access policy at DUT

The respondents were asked to indicate their level of agreement in respect of increased access of the disadvantaged student relating to the access policy at DUT.

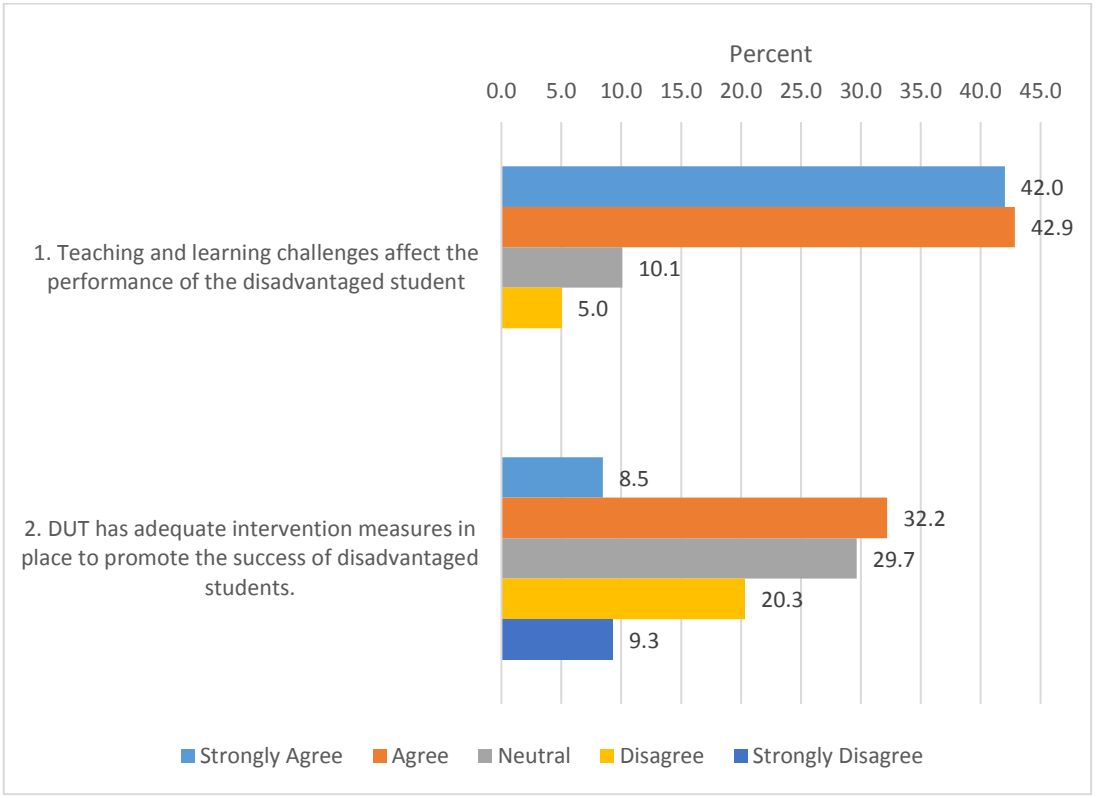

Figure 5.21: Level of agreement in respect of increased access of the disadvantaged student in respect of the access policy at DUT

From the results shown in Figure 5.21 above, the following patterns are observed:

- Statement 1 shows a high level of agreement (both agree and strongly agree)
- Statement 2 shows a high level of agree and neutral responses.

The results shown in Figure 5.21 above for the statements relating to the increased access of disadvantaged students at DUT in respect of the access policy reveals that:

- **Statement 1- Teaching and learning challenges affect the performance of the disadvantaged student:** The majority of the respondents (84.9 percent) agreed (42.9 percent) or strongly agreed (42 percent) that teaching and learning challenges affect the performance of the disadvantaged student. A few respondents (10 percent) remained neutral, while five percent disagreed with the statement.
- **Statement 2 - DUT has adequate intervention measures in place to promote the success of the disadvantaged student.:**40.7 percent of respondents agreed (32.2 percent) or strongly agreed (8.5 percent) that DUT has adequate intervention measures in place to promote the success of the disadvantaged student. However, 20.9 percent disagreed and 9.3 percent strongly disagreed with the statement, while 29.7 percent preferred to remain neutral on this statement.

The results from the above responses shown in Figure 5.21, illustrate the majority of the respondents are of the opinion that teaching and learning challenges affect the performance of the disadvantaged student. However, less than half of the respondents indicated that DUT has adequate intervention measures to promote the success of the disadvantaged student.

5.10.1.14 Relevant comments not covered in this questionnaire

Respondents were asked to indicate anything else they felt that may not have been covered in the questionnaire.

The following responses were received relating to teaching and learning challenges:

- **Inadequate facilities for the disadvantaged student**: Not enough equipment or facilities to accommodate disadvantaged students;
- **Student protests:** Student protests affect student orientation and constrains the academic programme placing students under pressure;
- **Poor student attendance:** impacts on performance;

- Students make **wrong choices in career** and often end up failing or performing poorly; and
- **Insufficient funds to teach staff -** The use of smart boards was rolled out by one of the faculties and currently they stand unused because of insufficient funds allocated for staff training.

The following responses were received relating to possible measures to enhance teaching and learning:

- **Parental involvement in the orientation process,** in order to understand what their child will be going through in their first year and learn how to support them;
- **Reduce class size:** Employ additional staff in order to reduce class size and improve the quality of interaction;
- **Support programmes:** Bridging courses should be offered to disadvantaged students; as well as broad-based mentoring of students at different levels;
- **Monitor intervention measures;**
- **Early detection**: Intervention forms are given to students who perform below 50 percent after the first assessment, so early detection can take place;
- **Improve lecturer language proficiency;**
- **Increased student access to the computer and internet**: Disadvantaged students are most often unable to do independent tasks, since they do not have access to the internet at home. Therefore, campus accessibility to internet must be adequate. Moreover, disadvantaged students without laptops or computers struggle to find adequate spaces at DUT to access a computer;
- **Improving teaching methods**: Difficulty with large number of students in a group. Teaching and learning was compromised so we split groups into smaller ones. Lecturing alone is ineffective. Teaching is required using multiple methods; and
- **Student responsibility:** Students should be encouraged to take advantage of structures and policies in place to assist them, especially at risk/disadvantaged students. Some purely need to be informed that more is required from them at this level. Students must learn personal responsibility.

5.11 Reliability Statistics

Analysis of reliability of the research instrument through Cronbach's Alpha

As indicated in Section 5.6 above, the two most important aspects of precision are **reliability** and **validity**. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.70 or higher is considered as "acceptable".

The table below reflects the Cronbach's alpha score for all items that constituted the staff questionnaire.

5.11.1 Cronbach's Alpha

Table 5.17: Cronbach's alpha scoring of items which reflect reliability of the research instrument

		N of Items	Cronbach's Alpha
A1	Teaching and learning challenges of disadvantaged students associated with large class size	11	0,852
A2	Challenges associated with e-learning that affect teaching and learning of the disadvantaged student	7	0,825
A3	Challenges in respect of English language proficiency	7	0,880
A4	Challenges relating to the first year disadvantaged student experience that affect teaching and learning	4	0,707
A5	Challenges relating to disadvantaged student readiness for higher education that affect teaching and learning	8	0,878
B9	Intervention measures that have been successful in enhancing teaching and learning especially among the disadvantaged student	8	0,842
B10	Challenges that have been experienced in implementing measures that hinders the improvement of student performance	8	0,750

The Cronbach's Alpha reliability test indicates that all questions are above the minimum of 0.7 and this suggests that reliability is good and factor analysis can now take place.

5.12 Validity

The questionnaires were subjected to a factor analysis test for validity.

Table 5.15 below clearly shows that the values of the KMO and Bartlett's test meets all criteria.

5.12.1 KMO and Bartletts Test

Table 5.18: KMO and Bartlett's tests

		KMO Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	Sig.
A1	Teaching and learning challenges of disadvantaged students associated with large class size	0,795	501,415	55	0,000
A2	Challenges associated with e-learning that affect teaching and learning of the disadvantaged student	0,803	288,634	21	0,000
A3	Challenges in respect of English language proficiency	0,853	434,401	21	0,000
A4	Challenges relating to the first year disadvantaged student experience that affect teaching and learning	0,748	102,272	6	0,000
A5	Challenges relating to disadvantaged student readiness for higher education that affect teaching and learning	0,863	414,182	28	0,000
B9	Intervention measures that have been successful in enhancing teaching and learning especially among the disadvantaged student	0,801	413,444	28	0,000
B10	Challenges that have been experienced in implementing measures that hinder improvement of student performance	0,734	182,644	28	0,000

All of the conditions are satisfied for factor analysis, that is, the KMO Measure of Sampling Adequacy value should be greater than 0.50 and the Bartlett's Test of Sphericity sig. value should be less than 0.05. Table 5.18 clearly shows that the values of the KMO and Bartlett's test meet all criteria.

Factor analysis is used only for the Likert scaled items. Certain components divided into finer components. This is explained below in the rotated component matrix.

5.12.1.1 Rotated Component Matrices

An examination of the content of items loading at or above 0.5 (and using the higher or highest loading in instances where items cross-loaded at greater than this value) effectively measured along the various components.

The statements that constituted the following themes, such as: Challenges relating to English language proficiency, teaching challenges relating to first year student experience, teaching challenges relating to student readiness, loaded perfectly along a single component.

This implies the statements that constituted these sections perfectly measured what was set out to measure.

It is noted the variables that constituted the remaining sections loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded.

The rotated matrix for the different factors is reflected in tables 5.19 to 5.22 below.

5.12.2.1 Rotated Component Matrix relating to:

Challenges of the disadvantaged students associated with large class size

Table 5.19: Challenges of disadvantaged student associated with large class size

A1	Component	
	1	2
Overcrowded lecture venues lead to inadequate seats for students	0.708	0.139
Increased lecture workloads mean an increase in marking	0.609	0.070
Students find it difficult to hear in class due to the large class size	0.770	0.239
Students are less motivated and show little interest in class activities	0.301	0.638
Students are reluctant to participate in class activities	0.211	0.775
Disruptive student behaviour leads to poor class control	0.004	0.704
Lack of student interest leading to poor student engagement	0.032	0.830
Poor visuals in large venues	0.732	0.373
Lectures start late while waiting for students to settle down	0.259	0.610
Lack of facilities such as projectors, screens, sound, interactive/smart boards	0.777	0.026
Unable to disseminate information	0.522	0.534

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Large venues have poor audio visual facilities

Large class size has a negative effect on students

It is noted the variables in Table 5.19 that constituted the section on challenges associated with large class size, loaded along two components (sub-themes).

This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows:

The trend of component 1 was identified as “large venues have poor audio visual facilities: which reflected the sub theme “Lack of facilities such as projectors, screens, sound, interactive/smart boards as having the highest score of **0.777**, while component 2 was identified as “large class size negatively affects students” which reflected the sub theme “students are reluctant to participant in class activities” as having the highest score of **0.775.** This implies the “lack of facilities such as projectors, screens, sound, interactive/smart boards” and “students are reluctant to

participate in class activities" are significant challenges associated with large class size.

Challenges associated with e-learning that affect teaching and learning of the disadvantaged student

Table 5.20: Challenges associated with e-learning that affect teaching and learning of the disadvantaged student

A2	Component 1#	2#
Lack of understanding of student learning styles used in materials development	0,788	0,084
Lack of teaching methods for e-learning	0,793	0,281
Lack of available technical support for online difficulties	0,209	0,821
Lack of training skills in the use of e-learning technology	0,111	0,894
Inadequate response time for checking student online responses	0,436	0,643
Lack of quality e-learning facilities for online learning	0,656	0,422
Lack of adequate access to necessary computer equipment to enable me to conduct online classrooms	0,666	0,153

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Lack of e-learning knowledge

Challenges with online and e-learning facilities and technology

It is noted that the variables in Table 5.20 above, constituting the section on challenges associated with e-learning that affect teaching and learning of the disadvantaged student, loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend of component 1 was identified as "lack of e-learning knowledge which reflected the sub theme:" "Lack of teaching methods for e-learning" as having the highest score of **0.793**, with component 2 identified as "challenges with online and e-learning facilities and technology", which reflected the sub theme "Lack of training skills in the use of e-learning technology" as having the highest score of **0.894**. This implies a "lack of e-learning knowledge" and "lack of teaching methods for e-learning" are significant challenges associated with e-learning that affect teaching and learning in higher education.

Intervention measures used to ensure successful teaching and learning in higher education

Table 5.21: Intervention measures used to ensure successful teaching and learning in higher education

	Component	
	1#	**2#**
The encouragement of creative thinking	0,864	0,116
The encouragement of independent and critical application	0,864	0,133
The encouragement of interactive class discussions	0,788	0,317
The encouragement of group work	0,737	0,293
The use of online classrooms	0,080	0,802
The use of PowerPoint presentations	0,666	0,332
The use of tutorials	0,335	0,714
The use of role play, games, debates and case studies	0,208	0,594

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Ways to improve student success in the classroom

Successful intervention measures to promote teaching and learning

It is noted the variables in Table 5.21 that constituted the section on intervention measures to ensure successful teaching and learning, loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend of component 1 was identified as “ways to improve student success in the classroom: which reflected the sub theme "the encouragement of creative thinking and independent and critical application “ as having the highest score of **0.864** and component 2 was identified as “successful intervention measures to promote teaching and learning”, which reflected the sub theme “the use of online classrooms” as having the highest score of **0.802.** This implies that "the encouragement of creative thinking and independent and critical application" and "successful intervention measure to promote teaching and learning" are significant

intervention measures used to ensure successful teaching and learning in higher education.

Challenges experienced with implementation of intervention measures that hinder student performance

Table 5.22: Challenges experienced with implementation of intervention measures that hinder student performance

	Component	
	1#	2#
The lack of student participation	0,041	0,831
Class size is too large	0,681	0,201
Students find group work a challenge	0,421	0,289
Students are disruptive in class	0,184	0,800
Lack of adequate facilities to support intervention measures	0,793	0,000
Venues do not encourage teamwork and student engagement	0,747	0,123
The number of tutorials allocated are inadequate	0,488	0,186
Students lack response for work uploaded on blackboard	0,436	0,553

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Poor student cooperation

Inadequate facilities

It is noted that the variables in Table 5.22 above that constituted the section on challenges with the implementation of intervention measures, loaded along two components (sub-themes). This means respondents identified different trends within the section. Within the section, the splits are colour coded and can be interpreted as follows: The trend of component 1 was identified as “poor student cooperation”, which reflected the sub theme “Lack of inadequate facilities to support intervention measures” as having the highest score of **0.793**, with component 2 identified as “inadequate facilities” that reflected the sub theme “lack of student participation” as having the highest score of **0.831.** This implies “lack of inadequate facilities to support intervention measures” and “lack of student participation” are regarded as significant challenges faced, in respect of intervention measures implemented in the classroom.

5.13 Cross tabulations

The traditional approach to reporting a result requires a statement of statistical significance. A p-value is generated from a test statistic. A significant result is indicated with "$p < 0.05$".

A second Chi square test was performed to determine whether a statistically significant relationship existed between the variables (rows vs columns).

An analysis of the results of the tables reveals the following significant cross tabulations.

Statistically significant relationships (p-values >0) were found for the following variables/aspects only:

- “Lack of understanding of student learning styles used in materials development”; and “Have you been provided with adequate training to enhance teaching and learning in the classroom especially among disadvantaged students?” (p-value = 0.009); and
- “Lack of teaching methods for e-learning” and “Have you been provided with adequate training to enhance teaching and learning in the classroom especially among disadvantaged students?” (p-value is **0.002).**

The remaining p-values were not significant.

5.14 Correlation Analysis

Bivariate correlation was also performed on the (ordinal) data. The complete results of this study is found in Annexure I of the appendices.

The results indicate the following patterns.

Positive values show a directly proportional relationship between the variables and a negative value indicates an inverse relationship. All significant relationships are indicated by a * or **.

For example, the correlation value between “I feel less motivated” and “I feel less confident” is 0.408. This is a directly related proportionality. Respondents indicated that the more motivated they feel, the more confident they are, and vice versa.

An analysis is conducted on statements deemed significant to the study for correlation purposes and is indicated according to sub-themes as follows:

All significant correlations are indicated as follows:

Analysis 1: The correlation value between “overcrowded venues” and “Increased lecture workloads mean an increase in marking”, is **0.351**. There is a significant relationship between these variables. The respondents indicated that an overcrowded venue means an increase in workload, which means an increase in marking.

Analysis 2: The correlation value between “Students find it difficult to hear in large class “and “Students are less motivated and show little interest in class activities” is **0.484**. There is a significant relationship between these variables. The respondents indicated that students show less motivation and interest in class activities, since they find it difficult to hear in a large class.

Analysis 3: The correlation value between “disruptive student behaviour leads to poor class control “and “Lack of student interest leading to poor student engagement” is **0.626.** A significant relationship exists between these variables, with respondents indicating that disruptive student behaviour leads to poor student engagement.

Analysis 4: The correlation value between “Lectures start late while waiting for students to settle down” and “Unable to disseminate information” is **0.580.** There is a significant relationship between these variables. Respondents indicated that, since lectures start late, they are unable to disseminate information.

Analysis 5: The correlation value between “Lack of understanding of student learning styles used in materials development” and “lack of teaching methods for e-learning” is **0.617.** There is a significant relationship between these variables, with respondents indicating that, due to the lack of teaching methods for e-learning, they do not understand student learning styles used in materials development.

Analysis 6: The correlation value between “Lack of training skills in the use of e-learning technology” and “Inadequate response time for checking student online responses” is **0.551.** A significant relationship was found between these variables. The respondents indicated they cannot adequately check student online responses, since they lack the e-learning technology training skills to do so.

Analysis 7: The correlation value between" English is generally not the first language of the student" and "The lack of English language proficiency leads to poor writing skills' is **0.666.** There is a significant relationship between these variables, as respondents indicated students have poor writing skills, due to English not being their first language.

Analysis 8: The correlation value between "The lack of English language proficiency leads to poor communication" and "The lack of English language proficiency demotivates the student" is **0.655.** This indicates a significant relationship exists between these variables. The respondents indicated that lack of English language proficiency leads to poor communication.

Analysis 9: The correlation value between "The lack of English language proficiency leads to poor comprehension" and "Students lack academic skills" is **0.347.** There is a significant relationship between these variables, with respondents indicating that a lack of English language leads to poor comprehension, which leads to insufficient student academic skills.

Analysis 10: The correlation value between "Students lack academic skills" and "They display poor class participation "is **0.540**. A significant relationship was determined to exist between these variables, as respondents indicated that students display poor class participation, since they lack academic skills.

Analysis 11: The correlation value between "Class size is too large" and the "venues do not encourage teamwork and student engagement" is **0.443**. There is a significant relationship between these variables and respondents indicated venues as not encouraging for teamwork and student engagement, due to large class size.

5.15 Hypothesis testing

The null hypothesis states that there is no association between the two variables. The alternate hypothesis indicates that there is an association between the variable A Chi square test was performed to determine whether there was a statistically significant relationship between the variables (rows vs columns). The traditional approach to reporting a result requires a statement of statistical significance. A p-value is generated from a test statistic. For all values with an *, a significant result is

indicated with "p < 0.05". For all values with an **, a significant result is indicated with "p < 0.01" the results are indicated below:

5.15.1 English is generally not the first language of the student versus poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills

This section examines the relationship between English is generally not the first language of the student and selected learning challenges of the student (poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills

Table 5.23: Chi-square test: English is generally not the first language of the student versus poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills

	English is generally not the first language of the student.	
	Pearson's Co-efficient	P-values
Poor study skills	.413**	0,000
Poor writing skills	.666**	0,000
Poor comprehension skills	.493**	0,000
Low confidence levels	.401**	0,000
Poor communication skills	.476**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

5.15.2 Poor writing skills versus poor study skills

This sections examines the relationship between poor writing skills and poor study skills. Table 5.24 below shows that the p-value for the relationship between poor writing skills and poor study skills is 0.000. This shows that there is a significant relationship between the two variables which means that poor writing skills plays a significant role in contributing to a student's poor study skills.

Table 5.24: Chi-square test: Poor writing skills versus poor study skills

	Poor writing skills	
	Pearson's Co-efficient	P-Value
Poor study skills	.648**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

5.15.3 Overcrowded lecture venues versus selected difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement

This sections examines the relationship between overcrowded lecture venues and selected teaching and learning challenges experienced in the classroom (difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement). The p-values as indicated in Table 5.25 below show that there is a significant relationship between the variables. This means that overcrowded lecture venues plays a significant role in contributing to difficulty of hearing in class (p-value = 0,000); less motivated students (p-value = 0,003); reluctance to participate (p-value = 0,001); and lack of interest and poor student engagement (p-value = 0,010).

Table 5.25: Chi-square test: Overcrowded lecture venues versus selected difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement

	Overcrowded venues	
	Pearson's Co-efficient	P-Value
Difficulty in hearing	.553**	0,000
Less motivated students	.273**	0.003
Reluctance to participate	.303**	0.001
Lack of interest and poor student engagement	.236**	0.010
**. Correlation is significant at the 0.01 level (2-tailed).		

5.15.4 A lack of teaching methods for e-learning versus selected e-learning challenges of staff (the lack of training skills; lack of on-line technical support)

This sections examines the relationship between a lack of teaching methods for e-learning and selected e-learning challenges of staff (the lack of training skills; and the lack of on-line technical support). The p-values as indicated in Table 5.26 below show that there is a significant relationship between the variables. This means that a lack of teaching methods for e-learning plays a significant role in the lack of training skills (p-value = 0,000) and lack of on-line technical support (p-value = 0,000).

Table 5.26: Chi-square test: A lack of teaching methods for e-learning versus the lack of training skills; and lack of on-line technical support

		Lack of teaching methods for e-learning
	Pearson's Co-efficient	P-Value
Lack of training skills	.346**	0,000
Lack of on-line technical support	.434**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

5.15.5 A lack of understanding of student learning styles in relation to materials development versus lack of quality e-learning facilities for on-line learning

This sections examines the relationship between a lack of understanding student styles used in materials development and lack of quality e-learning facilities for on-line learning. Table 5.27 below shows that the p-value between lack of understanding student styles used in materials development and lack of quality e-learning facilities for on-line learning, is 0,000. This shows that there is a significant relationship between the two variables which means that a lecturer's lack of understanding of student styles used in materials development plays a significant role in the lack of quality e-learning facilities for on-line learning.

Table 5.27: Chi-square test: A lack of understanding of student learning styles in relation to materials development versus lack of quality e-learning facilities for on-line learning

		Lack of understanding of student learning styles in relation to materials development
	Pearson's Co-efficient	P-Value
Lack of quality e-learning facilities for on-line learning	.366**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

5.15.6 Student under-preparedness versus selected learner challenges (lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning)

This sections examines the relationship between student under-preparedness and selected learner challenges (lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning). The p-values as indicated in Table 5.28 below show that there is a significant relationship between the variables. This means that student under-preparedness plays a significant role in lack of decision-making skills (p-value = 0,000); lack of knowledge and imagination (p-value = 0,000); and lack of approach to learning (p-value = 0,000).

Table 5.28: Chi-square test: Student under-preparedness versus lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning

	Student under-preparedness	
	Pearson's Co-efficient	P-Value
Lack of decision making skills	.409**	0,000
Lack of knowledge and imagination	.417**	0,000
Lack of approach to learning	.359**	0,000
**. Correlation is significant at the 0.01 level (2-tailed).		

Section C: Comparative Analysis of the Study using a Student Questionnaire and a Staff Questionnaire relating to Teaching and Learning Challenges of Disadvantaged Students of Higher Education

5.16 Comparisons of similar questions from both questionnaires

5.16.1 Similar questions from both questionnaires are reflected in Table 5.29 below.

Table 5.29: Comparison of similar questions from both student and staff questionnaires

STUDENT QUESTIONNAIRE	FINDINGS	STAFF QUESTIONNAIRE	FINDINGS
Challenges associated with large class size	Was not perceived as a challenge	Teaching and learning challenges associated with large class size	Was perceived as a challenge particularly with increased workloads in a large class that leads to an increase in marking
Challenges associated with e-learning	Was not perceived as a challenge	Challenges associated with e-learning that affect teaching and learning of the disadvantaged student	Was perceived as a challenge particularly with the lack of e-learning training skills in the use of e-learning technology
English language proficiency	Was not perceived as a challenge	Challenges in respect of English language proficiency	Was perceived as a challenge particularly with English not being the first language of the student
Student readiness for higher education	Was not perceived as a challenge	Challenges relating to disadvantaged student readiness for higher education that affect teaching and learning	Was perceived as a challenge particularly with Students lack of language competence and confidence
Challenges relating to first year students	Was not perceived as a challenge	Challenges relating to the first year disadvantage student experience that affect teaching and learning	Was perceived as a challenge particularly with student lack of academic skills

Table 5.29 above shows common themes reflected in both the student and staff questionnaires. A comparison of the themes reflected in the above table was undertaken to identify whether any significant correlations existed between the responses to the two questions. The results indicated no significant correlations between staff and student views on teaching and learning challenges at DUT. Where academic teaching staff indicated otherwise, students to a large extent, believed they are not faced with challenges, in respect of teaching and learning in the classroom with:

- large class size
- e-learning
- lack of English language proficiency
- student readiness for higher education
- first year student challenge.

5.17 Conclusion

The results of the empirical study were presented and analysed in this chapter. Data were analysed using the SPSS package and various statistical methods employed. Data were analysed with the use of graphs and tables. Tests of the reliability and validity of the questions were conducted using Cronbach's Alpha and KMO and Bartlett's tests. The Cronbach's Alpha for both questionnaires indicated questions were above the minimum of 0.7 and suggest reliability is good. The KMO and Bartlett's test for both questionnaires also showed the values met all the criteria.

The first research instrument, viz. the student questionnaire, consisted of 18 questions, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 10 questions, which measured various themes.

The second research instrument used, viz. the staff questionnaire, consisted of nine closed-ended questions and four open-ended questions, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into seven sections that measured various themes.

The findings from the results analysed were corroborated using relevant literature.

The next chapter discusses the significant findings of the empirical study, as well as the study achievements in line with the aims and objectives. Conclusions and recommendations, possible further research and limitations to this study, will also be deliberated.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This empirical study was conducted to determine the teaching and learning challenges experienced by both staff and students at the Durban University of Technology, in addition to the intervention measures in place to assist in curtailing these challenges. As part of the empirical study, a student survey and an academic teaching staff survey were carried out. In the previous chapter, the data from the two questionnaires were analysed and interpreted, and findings presented. Both surveys were undertaken based on relevant literature, identified in Chapters 2 and 3 of the study. The student challenges were highlighted in paragraph 5.4.1 of the student questionnaire, while paragraph 5.5 highlighted the interventions and measures that were being implemented to improve student pass rates. The academic staff questionnaire highlighted the challenges experienced by teaching staff in respect of teaching and learning, together with the measures implemented to address such challenges.

In this chapter, the summary of findings is presented, conclusions are drawn and recommendations made, based on the findings from the empirical study. This chapter will also set out suggestions for further research and the limitations to the study. The aims and objective of the study, as outlined in Chapter 1, are restated below.

6.2 AIMS AND OBJECTIVES

The aim of this study was to investigate the teaching and learning challenges faced by disadvantaged students that inhibit the achievement of access and equity of outcomes, and the experiences of staff, in respect of measures implemented to address these challenges to promote student success at DUT.

The objectives of the study were:

Objective 1 To investigate, through a literature review,

- the access and equity challenges arising from transformation in higher education
- the teaching and learning challenges experienced by disadvantaged students of HEIs and the possible strategies implemented to address such challenges.

Objective 2 To investigate, through an empirical study, the teaching and learning challenges experienced by disadvantaged students at DUT; and

Objective 3 To investigate, through an empirical study among academic teaching staff at DUT,

- the teaching challenges in respect of disadvantaged students;
- the nature of the measures implemented to address these challenge; and
- their perceptions on the challenges in respect of such measures.

The summary of findings in respect of these objectives are set out below:

6.3 SUMMARY OF FINDINGS

The summary of findings from the empirical study is described below. The findings from the student survey are presented first, followed by those from the staff survey.

6.3.1 The student survey

The student survey comprised 18 questions, divided into three sections. Section A included the biographical data, Section B the student teaching and learning challenges, with the intervention measure in place to improve student performance in Section C. The questionnaire was divided into 10 sections that measured various themes. The findings are summarized below:

6.3.1.1 Student learning challenges

The following sets out the learning challenges experienced by respondents, according to the five themes identified:

Theme 1 - Large class size: The challenge experienced by the majority of respondents, in respect of large class size, was that of overcrowded classrooms, leading to inadequate seating. Challenges experienced by some of the respondents

include the following: difficulty in hearing; feeling less motivated; the lecturer cannot control the class due to disruptive behaviour; and loss of interest in class activity; as well as not being able to see the board; in addition to lectures starting late while waiting for other students to settle; and inadequate facilities, such as projectors, screens, sound and interactive/smart boards.

Theme 2: E-learning: Although, the majority of student respondents indicated they had an understanding of the on-line course content and considered it as not significant, some respondents had the following challenges: shortage of available technical support for online difficulties; deficiency of training skills in the use of e-learning technology; lecturer takes too long to respond to online activity; absence of quality e-learning facilities for online learning; and lack of adequate access to computer equipment to use online classrooms.

Theme 3: English language proficiency: The following challenge was indicated by the majority of the respondents: English is not my first language. Although this in itself is not a challenge for the respondents, it contributes to challenges associated with lack of English language proficiency.

Theme 4: Student readiness: It was agreed by the majority of respondents that a shortage of learning skills required for university is a challenge and almost half of the respondents indicated they would find it a challenge working in teams. Some respondents indicated they experienced challenges in understanding and writing the English language and that their mathematical and numeracy skills are lacking.

Theme 5: Classroom participation: The majority of student respondents do not experience any learning challenges in respect of the sub themes.

Additional learning challenges encountered, in response to an open-ended question on learning challenges, include the following challenges, not covered by the general themes above:

- Student e-learning challenges related to online classrooms (lack of knowledge, poor connections, wifi is slow, no technical support, no access to e-books); and computer labs (insufficient; too many students; and always full)
- Overcrowded classrooms: cannot communicate in class; cannot participate in class activity; and classrooms are very disruptive.

- Lack of English language proficiency: difficulty in understanding the course material, which is in English; and language barrier;
- Challenges in respect of group work: poor team work; group work is difficult for first year students; discrimination by group members; others do not participate; and students are not dedicated to work in groups;
- High work load/ increased work load: cannot cope with the increased work load; lecturers are not sympathetic; and due dates for assessments are too close to each other;
- Lack of student readiness: shortage of communication skills; deficiency in computer knowledge and computer skills; lack of confidence; inability to engage in class discussions; and absence of time management.
- Underprepared lecturer: lecturers are not approachable; they do not do enough revision before exams; lecturers do not teach much; and lecturers are too lazy to write on the board, mostly relying on PowerPoint.

6.3.1.2 Factors that affect learning

Some of the respondents believe the following factors affect learning: lack of student interest and apathy; absence of student participation; the lack of a well organised and structured lecture; and inadequate or non-existent measures to address disruptive student behaviour.

6.3.1.3 First year student challenges

The majority of respondents who were first year students, indicated they do not experience learning challenges, in respect of academic skills (such as note taking, summarising and memorising, class participation, under-preparedness and, university support). Some first year respondents indicated they experienced challenges in respect of: lack of academic skills; finding it difficult to participate in class due to a feeling of embarrassment; feeling of being underprepared for university; and a lack of university support.

6.3.1.4 Intervention measures to improve student pass rates

The findings reveal the majority of respondents indicated they attend tutorials, while some indicate using online tutorials and writing centres.

Further intervention measures indicated by respondents that could be used to assist the learning process, relate to: computers (provision of computers in student residences); increasing the number of computer labs and practical work sessions; practical exercises, such as making past year exam papers available; and group work (for field work; group discussions in class); as well as study groups (increase the study periods; creation of study groups); peer support and assistance from older students; provision of laptops; and tutorials (additional tutorial classes, online tutorials, evening tutorial classes at student residences); in addition to SI.

6.3.1.5 Benefits of tutorials as an intervention measure

Tutorials are believed, by the majority of the respondents, to be beneficial in terms of understanding the course better and boosting morale. Furthermore, it was indicated there should be more tutorials, as respondents find them beneficial and tutorials are helpful because the tutor explains in the student's home language. On the negative side, tutorials were indicated as a waste of time because students do not get any credits for work they do; and tutors are not really concerned about whether the student benefits from the tutorial.

6.3.1.6 Other learning assistance measures that enhance teaching and learning

The following measures were indicated by the majority of respondents, to enhance teaching and learning: the writing centre is helpful in developing skills such as reading, writing and verbal presentation skills; use of worksheets and practical exercises aid the learning process; and the use of visual material, practical cases, examples, summaries and course material, help in the learning process.

6.3.2 The staff survey

The staff survey consisted of eight closed-ended questions and two open-ended questions. The questionnaire was divided into seven questions, which measured various themes. Section A included teaching challenges of the disadvantaged student and Section B indicated the interventions, measures and best practice used to promote student success.

6.3.2.1Teaching challenges of the disadvantaged student

The findings, where teaching challenges are concerned, were indicated by themes as follows:

Theme 1 - Large class size: The majority of respondents experienced the following teaching challenges, in respect of large class size: overcrowded venues lead to inadequate seating for students; increased workloads mean an increase in marking; lack of student interest leads to poor student engagement; students find it difficult to hear in class due to large class size; students feel less motivated and show little interest in class; disruptive student behaviour and poor class control; poor visuals in large venues; and lack of audio visual equipment.

Theme 2 - E-learning: In an open-ended question, respondents indicated their use of the following as e-learning technology: Blackboard; Smartboard; Internet; SMS; WhatsApp groups; Social media; E-mail; and You-tube videos.

In regard to challenges experienced with e-learning, the majority of respondents indicated they experienced: a lack of understanding of student styles used in materials development; absence of teaching methods; shortage of available technical support for online difficulties; and a lack of training skills, as well as inadequate time for checking and responding to students' online work; deficiency in quality e-learning facilities; and shortage of computer equipment, as affecting teaching and learning in higher education.

Theme 3 - English language proficiency: The following teaching challenges were experienced by the majority of respondents: English is not the students first language; poor writing skills; inferior study skills; weak comprehension skills; inadequate communication skills, all of which result in demotivated students, with students feeling less confident in the process.

Theme 4 - First year student experience: The majority of respondents indicated the following as challenges relating to first year disadvantaged students: lack of academic skills; poor class participation; underprepared students; and inadequate student support.

Theme 5 - Student readiness for higher education: It was agreed by the majority of respondents that they experienced the following challenges and deficiencies relating to student readiness: absence of decision making skills; shortage of knowledge and imagination; lack of approach to learning; and deficiencies in social relations and social networks (teamwork); as well as a lack of respect, dignity and recognition; insufficient emotional health; scarcity of language competence and confidence; and student apathy.

6.3.2.2 Intervention Measures and strategies

Agreement was indicated by the majority of respondents that the following intervention measures have been successful in enhancing teaching and learning among disadvantaged students: encouragement of creative thinking; independent and critical application; interactive class discussions; and group work; as well as online classrooms; PowerPoint presentations; role-play; and games; in addition to debates; and case studies.

Other intervention measures suggested by respondents to improve teaching and learning among disadvantaged students, include: encouraging reading outside of course work; excursions and activities external to DUT, including taking students to workplace sites; Work Integrated Learning (WIL) exposure to the work environment; and case studies and examples; along with peer review of group work and projects; practical sessions, such as present flexibility or plyometric sessions; research and presentation during lectures; and the use of interactive learning design; as well as active exercises during class; group work; impromptu presentations; and making use of artefacts, collage and other arts-based methods.

6.3.2.3 Challenges experienced relating to intervention measures

The majority of respondents indicated the following challenges in the implementation of intervention measures: lack of student participation, class size too large, students working in a group, and disruptive students, as well as lack of facilities, inadequate venues for teamwork and student engagement, and inadequate allocated tutorials, along with lack of student response for work uploaded on Blackboard.

6.4 Conclusions

6.4.1 Conclusions from the literature review

The following conclusions are drawn based on the findings from the literature review. With the transformation of higher education, certain challenges were experienced, which impacted all aspects of the higher education system, including HEIs and teaching and learning, in respect of the disadvantaged student. These comprise transformation, teaching and learning challenges:

The inequalities of higher education, during and after the apartheid era, contributed to teaching and learning challenges, particularly for the disadvantaged student. Access and equity for such students, were the means to address such inequality. Social justice, as demanded by the constitution and legislation has implications for higher education. The literature points out that, in terms of the dictates of social justice, not only must higher education institutions ensure that there is equity of access, but there must also be equity of outcomes (Scott 2009:24). Hence, there is a need for intervention strategies and redress that are specifically designed for the disadvantaged student.

In order to understand the basics of student learning and how to address teaching and learning challenges, a lecturer must first understand how learning takes place. Of the various learning theories presented, the Constructive Learning Theory and Online Collaborative Learning Theory is significant for this study in that, students are encouraged to actively participate in the process of learning through their own personal experiences with suitable learning materials (De Sousa 2017:4). The collaborative learning allows for the students to use various forms of electronic devices such as mobile technology to lessen the challenges they experience with face-to-face contact in the classroom and encourage group work (Piciano 2017:167).

As highlighted in the literature review, many of the transformation challenges experienced by HEIs contributed to teaching and learning challenges.

Teaching challenges identified in terms of the literature review included:

- large class size which contributed to challenges such as overcrowding of venues, increased workloads; poor student interaction; disruptive student

behaviour; lack of student interest; poor visuals and voice projection in a large venue

- challenges relating to e-learning technology, such as inadequate ICT and e-learning infrastructure; lack of understanding student learning styles; technological challenges; lack of technical skills; and
- lack of English language proficiency which contributes to poor writing skills, poor study skills;

The **learning challenges** in terms of the literature review were found to include:

- the absence of e-learning technology, such as the lack of computer skills; lack of access to computers; and lack of technical skills;
- minimal, if any, classroom participation; and
- the lack of student readiness, such as the lack of approach to or apathy to learning; lack of social relations and social networks; lack of language competence and confidence; and student apathy.

Challenges experienced, particularly by **first year students**, comprised:

- a shortage of academic skills, such as note taking, summarising and memorising;
- none if any class participation;
- under-preparedness; and
- a lack of university support.

Interventions measures implemented to address these challenges included the following:

- the ECP;
- tutoring;
- SI;
- student engagement;
- creation of respective writing and numeracy centres;
- peer assisted learning;
- early warning systems; and
- innovative teaching and learning approaches.

Strategies are specific to institutions of higher learning and implemented to improve pass rates in SA higher education. These strategies, although not specifically designed for the disadvantaged student, will undoubtedly help all students, including those considered disadvantaged.

6.4.2 Conclusions from the empirical study

As far as the research hypotheses presented in Chapter One are concerned, the study found the following:

From the student survey -

- There is a significant correlation between English is generally not the first language of the student and poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills
- There is a significant correlation between poor writing skills and poor study skills
- There is a significant correlation between overcrowded lecture venues and selected teaching and learning challenges such as difficulty of hearing in class; less motivated students.

From the staff survey –

- There is a significant correlation between English is generally not the first language of the student and poor study skills; poor writing skills; poor comprehension skills; low confidence levels and poor communication skills
- There is a significant correlation between poor writing skills and poor study skills
- There is a significant correlation between overcrowded lecture venues and selected teaching and learning challenge such as difficulty of hearing in class; less motivated students; reluctance to participate; and lack of interest and poor student engagement
- There is a significant correlation between a lack of teaching methods for e-learning and selected e-learning challenges of staff (the lack of training skills; lack of on-line technical support)

- There is a significant correlation between a lack of understanding of student learning styles in relation to materials development and lack of quality e-learning facilities for on-line learning
- There is significant correlation between student under-preparedness versus lack of decision-making skills; lack of knowledge and imagination and lack of approach to learning

The following conclusions can be drawn, based on the findings from the empirical study and are stated as follows:

Arising from the student survey, it is concluded that the respondents did not experience significant teaching and learning challenges. However, some of the respondents did indicate certain challenges facing disadvantaged students.

While **teaching challenges** were found to be related to large class size, e-learning, English language proficiency and student readiness for higher education, learning challenges were shown to include large class size, e-learning; English language proficiency and student readiness, as well as classroom participation. Other learning challenges include challenges relating to group work, increased workload and underprepared lecturers.

First year students also indicated challenges, for example, lack of academic skills such as note taking, summarising and memorising; difficult to participate in class due to feeling embarrassed; under-preparedness for university; and lack of university support.

In addition to these challenges, certain factors were identified that affect student learning, including the lack of student interest and apathy among students; the lack of student participation, the absence of a well-organised and structured lecture, and the lack of measures to address disruptive student behaviour.

Since these challenges resulted in poor student performance and pass rates, strategies and interventions were implemented in remediation.

Intervention strategies used to improve teaching and learning encompassed: tutorials; writing centres; online tutorials; at risk measures; and SI. Other intervention

measures used were: writing centres, worksheets and practical exercises, recapping of difficult sections, and visual material, as well as use of practical cases and examples, summaries and courses.

The challenges experienced, in respect of the intervention measures, consisted of: a lack of student participation; class size too large; students working in a group; and disruptive students; along with a lack of facilities; inadequate venues for teamwork and student engagement; as well as inadequate allocated tutorials; and student lack of response for work uploaded on Blackboard.

This study, therefore, concludes that intervention measures in higher education are tools that play an important role in improving student performance.

6.5 Recommendations

Equality in higher education not only means that students who are alike must be treated in the same way, but it also implies that students who are different, must be treated differently according to their difference (Tjabane and Pillay 2011: 10). Social justice in higher education implies that strategies for redress must take into account the differences of the disadvantaged student as compared to the advantaged one (DoE 1997)

Based on the findings and conclusions on the various themes of this study, the key challenges to be addressed, in relation to teaching and learning, were identified. The strategies and interventions to address these challenges were also acknowledged. The success of the intervention measures is dependent on student participation. In light of the above, the following recommendations are made:

- Student challenges must be addressed in the first year of study;
- HEIs need to ensure first year students are provided with the necessary support so that challenges are minimized; and
- Students must be made aware of the need to participate in intervention measures implemented to improve their performance.

The recommendations on strategies and interventions, in relation to the various challenges, are as follows:

- **Challenge of large class size**: ensure smaller classes for students; workshops for academic staff on how to deal with large class size; increasing the number of tutorials; ensure venues are suitable to accommodate large classes; and provide adequate visual aids.
- **E-learning challenges**: increase the number of labs, provide adequate access to computer labs and computers, increase wifi capabilities, provide wifi at lecture venues.
- **English language proficiency challenges**: escalate the number of writing centres; and provide workshops for academic literacy.

Other intervention measures include:

- The provision of computers in student residences; increasing the number of computer labs;
- Increasing the number of practical work sessions;
- Making past year exam papers and marking memoranda easily available to students;
- Group work for field work; group discussions in class;
- Increased study periods; creation of study groups;
- Peer support and assistance from older students to assist with problem subjects;
- All first year students should be provided with laptops for online access;
- The use of Smartboard; Internet; SMS; WhatsApp groups; Social media; E-mail; and You-tube videos;
- Tutorials: Additional tutorial classes; increase online tutorials and visual learning; introduce evening tutorial classes at the residences;
- After hour classes for problem subjects; and
- increase SI programmes.

A diagrammatic representation of the summary of the study has therefore been included in Figure 5.22 below to reflect the outcomes of the study. It summarizes the teaching and learning challenges experienced by both staff and students and also presents the strategies for improving teaching and learning as far as the disadvantaged student is concerned, in order to assist in addressing the challenges that may be experienced in the future.

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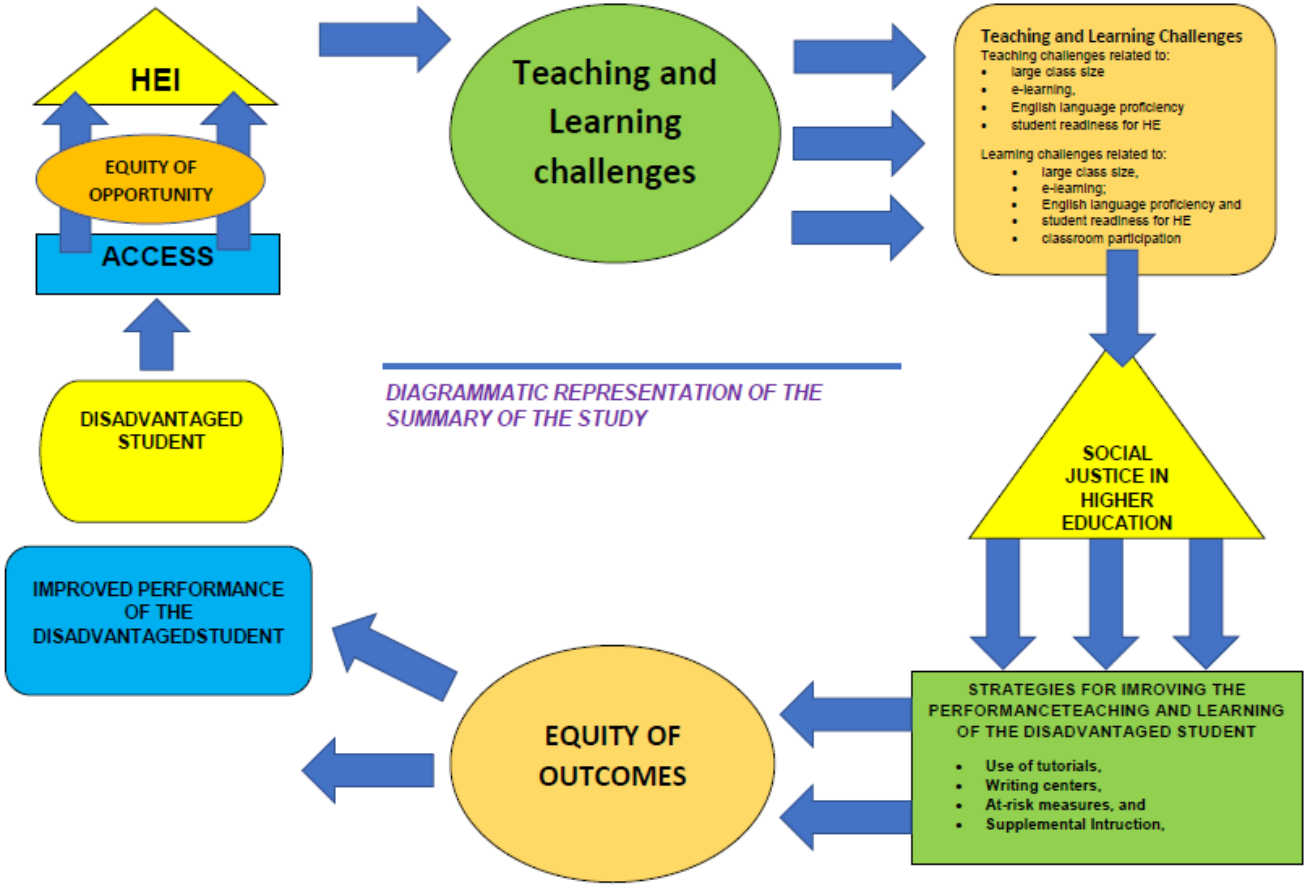

Fig. 5.2.2 DIAGRAMMATIC REPRESENTATION OF THE SUMMARY OF THE STUDY

6.6 Limitations of the study

Due to the availability and accessibility constraints relating to students, a convenience sample was used to collect data, which limited the study to only those students available at the time when the study was being conducted. Hence, the results cannot be generalized to all students in the case study institution. Challenges were additionally experienced with the collection of questionnaires. Although respondents were informed of collection dates, not many respondents completed and returned the questionnaire. Thus, a second, and in some cases, a third visit, was required.

6.7 Future research

It is recommended a similar study be carried out with students from all campuses of DUT. A further study may be conducted relating to student engagement and its impact on the implemented intervention strategies.

6.8 Closing remarks

This study brought an awareness to the challenges of the disadvantaged student in higher education. The teaching and learning challenges are merely a part of a bigger challenge, which is the poor socio-economic conditions that impact students' daily lives. As part of society, we are all responsible for the success of our students. In order to ensure the equality in higher education, students who are different (disadvantaged) must be treated differently, according to their difference. Teaching and learning cannot therefore, be analysed in a vacuum, it must analysed in a social justice context**.**

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APPENDICES

APPENDIX A – LETTER OF CONSENT AND INFORMATION

LETTER OF INFORMATION

Title of the Research Study: Teaching and Learning challenges for disadvantaged students in the context of access and equity in south African higher education : A case study of the Durban University of Technology

Principal Investigator/s/researcher: Mrs A Sivanath, B .Tech : Office Management and Technology

Co-Investigator/s/supervisor/s: Prof K Reddy

Brief Introduction and Purpose of the Study: is to investigate the teaching and learning challenges faced by the disadvantaged students that inhibit the achievement of access and equity of outcomes and it will also investigate the experiences of staff in respect of measures implemented to address these challenges to promote student success.

Outline of the Procedures: The quantitative survey using questionnaires will be handed to staff and students of the six faculties by the researcher with the assistance of 4th year students. A suitable time will be arranged with secretarys' from selected departments for when groups of students and available academic staff can be met in order to hand out the questionnaires. When the participants are met in groups they will be assured of anonymity since no name is required on the questionnaires. Collection dates and points will also be announced to groups to make it easier for collection of the questionnaires. This will be done by the researcher and the assistants. In this way the researcher can ensure that the questionnaires will be received on time and that there will be a high response rate. The qualitative survey will be undertaken The qualitative investigation will include personal interviews with selected members of the university staff who are responsible for the enhancement of teaching and learning. An appointment will be made with the relevant participants to carry out the survey at their own convenience, time and venue.

(Responsibilities of the participant, consultation/interview/survey details, venue details, inclusion/exclusion criteria, explanation of tools and measurement outcomes, any follow-ups, any placebo or no treatment, how much time required of participant, what is expected of participants, randomization/ group allocation)

Risks or Discomforts to the Participant: There will be no risks to the participants' since confidentiality is assured.

(Description of foreseeable risks or discomforts to for participants if applicable e.g. Transient

muscle pain, VBAI, post-needle soreness, other adverse reactions, etc.)

Benefits: Students may benefit from the findings of the study since it is a case study. The researcher may benefit by being able to publish an article arising from the study.
(To the participant and to the researcher/s e.g.
publications)

Reason/s why the Participant May Be Withdrawn from the Study: participation in the study is purely voluntary. No participant will be coerced into completing the survey. Participants may withdraw from the study at any time with no consequences.

(Non-compliance, illness, adverse reactions, etc. Need to state that there will be no adverse consequences for the participant should they choose to withdraw)

Remuneration: (Will the participant receive any monetary or other types of remuneration?)

Costs of the Study: No costs will be incurred for participation in the study.
(Will the participant be expected to cover any costs towards the study?)

Confidentiality: The identity of academic staff and students will not be required. Interview transcriptions will be saved in a password protect document and deleted after 5 years that can only be accessed by the researcher.
(Description of the extent to which confidentiality will be maintained and how will this be maintained)

Research-related Injury: N/A

(What will happen should there be a research-related injury or adverse reaction? Will there be any compensation?)

Persons to Contact in the Event of Any Problems or Queries:

For further queries kindly contact the Researcher, Mrs A Sivanath on 0313735671, or my supervisor Prof K Reddy on 0313735367, or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support, Prof S Moyo on 031 373 2577 or moyos@dut.ac.za

Ge**neral:**

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mrs A Sivanath, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: REC 143/17,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	**Date**	**Time**	**Signature**
	/	**Right**	

Thumbprint

I, MRS A SIVANTH (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

MRS A SIVANATH		
Full Name of Researcher	**Date**	**Signature**
Full Name of Witness (If applicable)	**Date**	**Signature**
Full Name of Legal Guardian (If applicable)	**Date**	**Signature**

APPENDIX B – STUDENT SURVEY

Questionnaire to students

Thank you for participating in this research project.

The purpose of this questionnaire is for you to assist me in the teaching and learning challenges you are experiencing in higher education. Your response to the following questions will be helpful. The information will be treated with the utmost confidentiality, and will be used solely for the purpose of this Masters' study. You are not required to include your name.

Please provide the following information regarding your current status as a student of the DUT.

Faculty:		
Programme:		
Level of Study (please indicate your answer with a tick √)		1st year
		2nd year
		3rd year

SECTION A: STUDENT BACKGROUND INFORMATION

This section of the questionnaire refers to the background or biographical information. Although we are aware of the sensitivity of the questions in this section, the information will allow us to identify the disadvantaged student. Once again, we assure you that your response will remain anonymous. Your cooperation is appreciated.

Please enter your response with a tick (√) in the appropriate block.

1. Ethnicity

African	
Coloured	
Indian	
White	

Other : Specify	

2. Home Language

English	
Afrikaans	
Isizulu	
Sesotho	
isiXhosa	
Siswati	
Setswana	
Thisivenda	
Xithsonga	
IsiNdebele	
Other	

3. What is the combined average income of your household for the year?

Less than R100 000	
R100 000 to R350 000	
More than R350 000	

4. How would you describe the type of school you attended?

Public School	
Private School	
Ex Model C	

5. Who is the household provider in your family?

Mother	
Father	
Both	
Other	

6. Who provides the financial support for your studies?

Parents	
Guardians	
Extended Family	
Bursary	
NSFAS	

SECTION B: LEARNING CHALLENGES EXPERIENCED BY THE STUDENT OF HIGHER EDUCATION

7. In your experience as a student at DUT, to what extent does each of the following **challenges associated with large class size** affect learning?

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
7.1 Overcrowded lecture venues lead to inadequate seating					
7.2 I find it difficult to hear the lecturer in class					
7.3 I feel less motivated					
7.4 The class is noisy and disruptive					
7.5 The lecturer cannot control the class due to disruptive behaviour					
7.6 I lose interest in class activity					
7.7 I cannot see the board					
7.8 Lectures start late while waiting for other students to settle down					
7.9 Inadequate learning facilities such as projectors, screens, sound, interactive/smart boards					
7.10 Staff are not approachable and non-responsive because the class is too large					

8. To what extent does each of the following **challenges associated with e-learning** affect learning?

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
8.1 I have little or no understanding of					

the on-line course content					
8.2 I find the online course content to be irrelevant					
8.3 There is a lack of available technical support for online difficulties					
8.4 There is a lack of training skills in the use of e-learning technology					
8.5 The lecturer takes too long to respond to online activity					
8.6 There is a lack of quality e-learning facilities for online learning					
8.7 There is a lack of adequate access to necessary computer equipment to enable me to use the online classrooms					

9. To what extent does the following challenges in respect of **English language ability** affect the learning process?

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
9.1 English is not my first language					
9.2 I have poor writing skills					
9.3 I have poor study skills					
9.4 I cannot understand what is being said in class					
9.5 I find it difficult to communicate in class					
9.6 I feel demotivated					
9.7 I feel less confident					
9.8 I am afraid to speak up in class					
9.9 I cannot understand questions in					

a test or exam					
9.10 I do not understand the course material					
9.11 I do not understand technical terms and concepts					

10. Indicate your level of agreement with each of the following statements on challenges relating to **student readiness for higher education learning.**

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
10.1 At times, I feel that I lack learning skills that are required for university					
10.2 I find working in a team with other students a challenge					
10.3 The difficulties that I experience with the English language (in terms of understanding and writing) makes me feel less confident in class.					
10.4 My mathematical/numeracy skills are inadequate.					

11. Indicate your level of agreement with each of the following statements on how **challenges relating to classroom participation** affects learning.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
11.1 The lecturer does not allow us to ask questions and makes us feel uncomfortable if we do					

11.2 The lecturer does not understand the way we learn					
11.3 The lecturer does not give clear instructions as to what is required of us in the classroom					
11.4 There is a lack of interactive class sessions					
11.5 The lecturer does not ask for student feedback					
11.6 The lecturer does not use technology (including video clips and PowerPoint presentations to help with learning					
11.7 The lecturer continues with teaching irrespective of whether students understand or not					
11.8 The lecturer does not address us at our level					

12. In your experience as a student, what is your level of agreement regarding the challenges that affect learning.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
12.1 Lack of student interest and apathy					
12.2 Lack of a well organised and structured lecture					
12.3 Lack of student participation					
12.4 Lack of measures in place to address disruptive behaviour					

13. When you look at your university experience, what has been your most challenging learning experience/s?

_____
_____
_____
_____
_____
_____
_____
_____

14. Answer the following questions with reference to your first year experience at university.

To what extent does each of the **following challenges that relate to first year students,** affect learning?

In my first year:	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
14.1 I lacked academic skills such as note taking, summarising and memorising					
14.2 I found it difficult to participate in class as I was afraid of being embarrassed					
14.3 I felt that I was not prepared for University					
14.4 I felt that there was little or no support for first year students					

SECTION C: STRATEGIES AND INTERVENTIONS TO IMPROVE STUDENT PERFORMANCE AND SUCCESS

Strategies refers to possible actions or interventions that are used by higher education to improve student performance by addressing the problems that students experience so that dropout rates are reduced

15. Which of the following intervention measures have you used to improve your learning? (Please indicate your response with a tick√)

Tutorials	
Writing Centre	
Supplemental Instruction	
At risk measures	
Online Tutorials	
Other	

16. In your opinion, what other interventions (including those mentioned above that you have not used) could assist you in your learning?

_____
_____
_____
_____
_____

17. Indicate your level of agreement with each of the following statements relating to tutorials/tutors.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
17.1 Tutorials are good because they have helped me understand my course better					
17.2 Tutorials are a waste of time because students do not get any credits for the work they do					
17.3 Tutorials boosted my morale as I am now passing/doing well in my courses					
17.4 Tutorials are scheduled at inconvenient times, leaving					

students little time to cope with their regular educational programme					
17.5 There should be more tutorials as I find them beneficial					
17.6 Tutors are not enthusiastic					
17.7 Tutors are not really concerned about whether the student is benefiting from the tutorial					
17.8 Tutorials are helpful because the tutor explains in my home language					

18. Indicate your level of agreement with each of the following statements relating to other learning assistance measures on campus.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
18.1 The writing centre is good because I have developed useful skills, such as, reading, writing and verbal presentation skills since using it					
18.2 When I apply my knowledge through the use of worksheets and practical exercises it helps me to to learn					
18.3 When lecturers recap on difficult concepts/areas, this helps my learning					
18.4 The use of visual material (including PowerPoint presentations) helps my learning					
18.5 When the lecturer uses practical					

cases and examples it helps me to learn					
18.6 Summaries and other course material provided, has helped me to learn					

Thank you for your time.

APPENDIX C – STAFF SURVEY

QUESTIONNAIRE TO ACADEMIC STAFF REGARDING TEACHING AND LEARNING CHALLENGES

Thank you for participating in this research project.

The purpose of this questionnaire is to ascertain the teaching and learning challenges you are experiencing. Your response to the following questions will be helpful. The information will be treated with the utmost confidentiality, and will be used solely for the purpose of this Master's study. You are not required to include your name.

SECTION A: TEACHING CHALLENGES OF THE DISADVANTAGED STUDENT IN HIGHER EDUCATION

For the purposes of this study "the disadvantaged student" may be identified as a student that comes from a school that is under-resourced; that is NSFAS funded; that comes from a rural area; whose parents are poor and cannot afford an education; who has never used a computer; who is taught English as a second language or who was taught by underqualified teachers (Jones et al 2008).

Please indicate with a tick (√) the level/s of students you teach?

Faculty:		
Level of qualification taught (please indicate your answer with a tick √)		1st year
		2nd year
		3rd year
		Other: Please specify : _____ _____

1. Indicate your level of agreement with each of the following statements regarding teaching and learning **challenges of disadvantaged students associated with large class size.**

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
1.1 Overcrowded lecture venues lead to inadequate seats for					

students					
1.2 Increased lecture workloads mean an increase in marking					
1.3 Students find it difficult to hear in class due to the large class size					
1.4 Students are less motivated and show little interest in class activities					
1.5 Students are reluctant to participate in class activities					
1.6 Disruptive student behaviour leads to poor class control					
1.7 Lack of student interest leading to poor student engagement					
1.8 Poor visuals in large venues					
1.9 Lectures start late while waiting for students to settle down					
1.10 Lack of facilities such as projectors, screens, sound, interactive/smart boards					
1.11 Unable to disseminate information					

2. Which type of e-learning technology are you using for effective teaching and learning? Please indicate your response with a tick (√).

Blackboard	
Moodle	

Other : Please specify _____ _____	

Indicate your level of agreement for each of the following statements relating to **challenges associated with e-learning** that affect teaching and learning of the disadvantaged student.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
2.1 Lack of understanding of student learning styles used in materials development					
2.2 Lack of teaching methods for e-learning					
2.3 Lack of available technical support for online difficulties					
2.4 Lack of training skills in the use of e-learning technology					
2.5 Inadequate response time for checking student online responses					
2.6 Lack of quality e-learning facilities for online learning					
2.7 Lack of adequate access to necessary computer equipment to enable me to conduct online classrooms					

3. Indicate your level of agreement with each of the following statements regarding disadvantaged student **challenges in respect of English language proficiency**.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
3.1 English is generally not the first language of the student					
3.2 The lack of English language proficiency leads to poor writing skills					
3.3 The lack of English language proficiency leads to poor study skills					
3.4 The lack of English language proficiency leads to poor comprehension					
3.5 The lack of English language proficiency leads to poor communication					
3.6 The lack of English language proficiency demotivates the student					
3.7 Students feel less confident because of the lack of English language proficiency					

4. Indicate your level of agreement with each of the following statements regarding the **challenges relating to the first year disadvantaged student experience** that affect teaching and learning.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
4.1. Students lack academic skills					
4.2. They display poor class participation					
4.3. Students appear to be underprepared					
4.4. There is inadequate student support					

5. Indicate your level of agreement for each of the following statements regarding the **challenges relating to disadvantaged student readiness for higher education** that affect teaching and learning.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
5.1 Lack of decision making skills					
5.2 Lack of knowledge and imagination					
5.3 Lack of approach to learning					
5.4 Lack of social relations and social networks					
5.5 Lack of respect, dignity and recognition					
5.6 Lack of emotional health					
5.7 Lack of language competence and confidence					
5.8 Student apathy (lack of student interest and enthusiasm)					

SECTION B: STRATEGIES AND INTERVENTION TO IMPROVE STUDENT PERFORMANCE AND SUCCESS

6. Have you been provided with adequate training to enhance teaching and learning in the classroom especially among disadvantaged students? Please indicate your response with a tick (√).

	YES
	NO

7. If no, why not?

_____
_____
_____
_____

8. If yes, what have you found to be useful/beneficial?

_____
_____
_____

9. Which of the following intervention measures that you have used, have been successful in enhancing teaching and learning especially among the disadvantaged student?

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
9.1 The encouragement of creative thinking					
9.2 The encouragement of independent and critical application					
9.3 The encouragement of interactive class discussions					
9.4 The encouragement of group work					

9.5 The use of online classrooms					
9.6 The use of Powerpoint presentations					
9.7 The use of tutorials					
9.8 The use of role play, games, debates and case studies					
9.9 Other : Please provide details _____ _____					

10. In your opinion, which of the following challenges that you have experienced in implementing the above measures, hinders the improvement of student performance?

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
10.1 The lack of student participation					
10.2 Class size is too large					
10.3 Students find group work a challenge					
10.4 Students are disruptive in class					
10.5 Lack of adequate facilities to support intervention measures					
10.6 Venues do not encourage teamwork and student engagement					
10.7 The number of tutorials allocated are inadequate					
10.8 Students lack of response for work uploaded on blackboard					
10.9 Other : Please provide details					

_____
_____

11. In your opinion, what other measures may be implemented to improve teaching and learning among disadvantaged students?

_____
_____
_____
_____
_____

12. State your level of agreement with the following statements given that, there is an increased access of disadvantaged students in terms of DUT access policy into your programme.

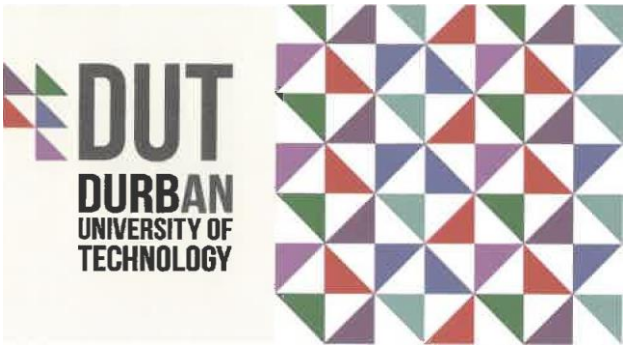
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
12.1 Teaching and learning challenges affect the performance of the disadvantaged student					
12.2 DUT has adequate intervention measures in place to promote the success of disadvantaged students.					

13. Please feel free to comment on anything which you feel is relevant and which may not have been covered in this questionnaire.

_____
_____
_____

Thank you for your time.

APPENDIX D – ETHICS CLEARANCE



Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor. Berwyn Court
Gate l. Steve Biko Campus
Durban University of Technology

P O Box 1 334, Durban, South Africa, 400 1

•ret: 03 1 373 2375 Email: lavishad@dut.ac.za

http://www.dutac.za/research/institutional_research ethics

www.dut.ac.za

9 March 2018

IRE-C Reference Number: REC 7

Mrs A
Sivanath P O
Box 39571
Queensburgh
4070

Dear Mrs Sivanath

Teaching and Learning challenges for disadvantaged students in the context of access and equity in South African Higher Education: A case study of the Durban University of Technology

I am pleased to inform you that PROVISIONAL APPROVAL has been granted to your proposal REC 143/17 subject to:

> Piloting of the data collection tools. Please note that should there be any changes to the data collection tools, in a letter signed by the researcher and supervisor,

list the changes to the documents and submit to IREC with the final data collection tools. Even when there are no changes to the data collection tools, IREC has to be notified.

> Obtaining and submitting the necessary gatekeeper permission/s to Institutional Research Ethics Committee (IREC).

PLEASE NOTE THAT THIS IS NOT A FINAL APPROVAL LETTER. KINDLY SUBMIT THE ABOVE MENTIONED DOCUMENTS WITHIN THREE MONTHS TO THE IRE-C OFFICE. DATA COLLECTION CAN ONLY COMMENCE WHEN IRE-C ISSUES FULL APPROVAL

The Proposal has been allocated the following Ethical Clearance number IREC 01 4/18. Please use this number in all communication with this office.

Approval has been granted for a period of two years, before the expiry of which you are required to apply for safety monitoring and annual recertification. Please use the Safety Monitoring and Annual Recertification Report form which can be found in the Standard Operating Procedures [SOP's] of the IREC. This form must be submitted to the IREC at least 3 months before the ethics approval for the study expires.

Yours Sincerely

Chairperson: IREC

ro essor	am

DUT DURBAN UNIVERSITY OF TECHNOLOGY

-03- 09

INSITUTUTIONAL
RESEARCH ETHICS
COMMITTEE
P O BOX 1334 DURBAN
4000 SOUTH AFRICA

APPENDIX E – GATEKEEPERS PERMISSION

Directorate for Research and Postgraduate Support
Durban University of Technology
Tromso Annexe, Steve Biko Campus
P.O. Box 1334, Durban 4000
Tel.: 031-3732576/7
Fax: 031-3732946

17th May 2018

Mrs Aradhana Sivanath c/o Department of Public Management

Faculty of Management Sciences

Durban University of Technology

Dear Mrs Sivanath

PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research Committee (IRC) has granted full permission for you to conduct your research "Teaching and Learning challenges for disadvantaged students in the context of access and equity in South African Higher Education: A case study of the Durban University of Technology" at the Durban University of Technology.

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

We would be grateful if a summary of your key research findings can be submitted to the IRC on completion of your studies.

Kindest regards.

Yours sincerely PROF CARIN NAPIER:DIRECTOR (ACTING): RESEARCH AND POSTGRADUATE SUPPORT DIRECORATE

APPENDIX H – STUDENT SURVEY – CORRELATIONS

Correlations : APPENDIX H

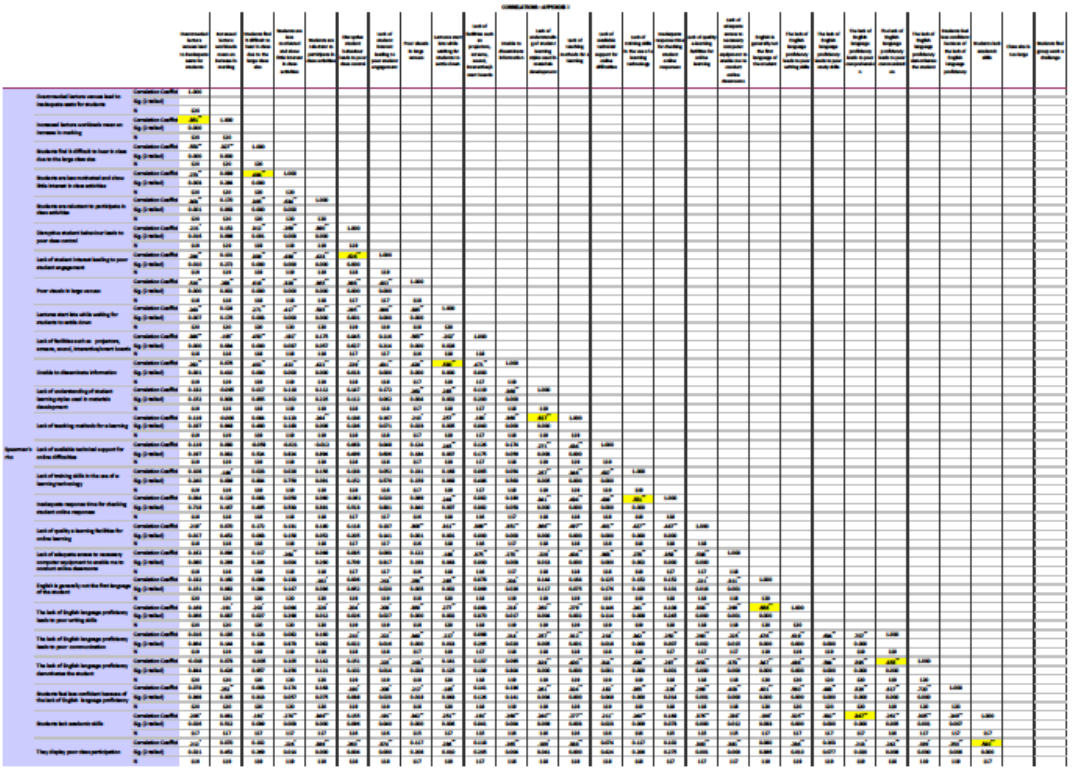
		Overcrowded lecture venues lead to inadequate seating	I find it difficult to hear the lecturer in class	I feel less motivated	The class is noisy and disruptive	The lecturer cannot control the class due to disruptive behaviour	I lose interest in class activity	Lack of quality e-learning facilities for online learning	Lack of adequate access to necessary computer equipment to enable me to use the online classrooms	English is not my first language	I have poor writing skills	I have poor study skills	I cannot understand what is being said in class	I feel demotivated	I feel less confident	I am afraid to speak up in class	I cannot understand questions in a test or exam	I do not understand the course material	I feel that I lack learning skills that are required for university
Overcrowded lecture venues lead to inadequate seating	Correlation C	1.000																	
	Sig. (2-tailed)																		
	N	343																	
I find it difficult to hear the lecturer in class	Correlation C	.394**	1.000																
	Sig. (2-tailed	0.000																	
	N	340	340																
I feel less motivated	Correlation C	.192**	.485**	1.000															
	Sig. (2-tailed	0.000	0.000																
	N	342	339	342															
The class is noisy and disruptive	Correlation C	.420**	.512**	.451**	1.000														
	Sig. (2-tailed	0.000	0.000	0.000															
	N	339	336	338	339														
The lecturer cannot control the class due to disruptive behaviour	Correlation C	.289**	.397**	.403**	.695**	1.000													
	Sig. (2-tailed	0.000	0.000	0.000	0.000														
	N	340	338	339	336	340													
I lose interest in class activity	Correlation C	.249**	.448**	.497**	.524**	.490**	1.000												
	Sig. (2-tailed	0.000	0.000	0.000	0.000	0.000													
	N	343	340	342	339	340	343												
I cannot see the board	Correlation C	.293**	.364**	.312**	.465**	.341**	.435**												
	Sig. (2-tailed	0.000	0.000	0.000	0.000	0.000	0.000												
	N	336	334	336	332	334	336												
Lectures start late while waiting for other students to settle down	Correlation C	.259**	.232**	.153**	.434**	.384**	.395**												
	Sig. (2-tailed	0.000	0.000	0.005	0.000	0.000	0.000												
	N	343	340	342	339	340	343												
Inadequate learning facilities such as projectors, screens, sound, interactive/smart boards	Correlation C	.264**	.244**	.245**	.333**	.277**	.325**												
	Sig. (2-tailed	0.000	0.000	0.000	0.000	0.000	0.000												
	N	342	339	341	338	339	342												
Staff are not approachable and non-responsive because the class is too large	Correlation C	.204**	.291**	.280**	.289**	.259**	.391**												
	Sig. (2-tailed	0.000	0.000	0.000	0.000	0.000	0.000												
	N	342	339	341	338	339	342												
I have little or no understanding of the on-line course content	Correlation C	.123*	.231**	.142**	.170**	.161**	.268**												
	Sig. (2-tailed	0.023	0.000	0.009	0.002	0.003	0.000												
	N	343	340	342	339	340	343												
The online course content to be irrelevant	Correlation C	0.024	0.099	.119*	.118*	.112*	.188**												
	Sig. (2-tailed	0.656	0.069	0.029	0.030	0.039	0.000												
	N	342	339	341	338	339	342												
Lack of available technical support for online difficulties	Correlation C	.183**	.204**	.197**	.197**	.149**	.318**												
	Sig. (2-tailed	0.001	0.000	0.000	0.000	0.006	0.000												
	N	341	338	340	337	338	341												
Lack of training skills in the use of e-learning technology	Correlation C	.128*	.152**	.157**	.160**	.124*	.241**												
	Sig. (2-tailed	0.018	0.005	0.004	0.003	0.022	0.000												
	N	341	338	340	337	338	341												
Lecturer takes too long to respond to online activity	Correlation C	0.026	.202**	.233**	.131*	.150**	.292**												
	Sig. (2-tailed	0.628	0.000	0.000	0.016	0.006	0.000												
	N	342	339	341	338	339	342												

APPENDIX G – STUDENT SURVEY – CROSS TABULATIONS

Pearson Chi-Square Tests : APPENDIX G

		Faculty	Level of Study	Ethnicity	Home Language	What is the combined average income of your household for the year?	How would you describe the type of school you attended?
Overcrowded lecture venues lead to inadequate seating	Chi-square	42.365	10.774	21.694	30.938	7.732	13.507
	df	20	8	16	32	8	8
	Sig.	.002*	0.215	0.153	0.52	0.46	0.096
I find it difficult to hear the lecturer in class	Chi-square	17.336	2.129	18.458	40.773	4.406	6.415
	df	20	8	16	32	8	8
	Sig.	0.631	0.977	0.298	0.138	0.819	0.601
I feel less motivated	Chi-square	21.332	13.409	29.642	36.824	9.063	7.703
	df	20	8	16	32	8	8
	Sig.	0.378	0.099	.020*	0.255	0.337	0.463
The class is noisy and disruptive	Chi-square	25.574	15.218	21.812	27.071	20.286	6.477
	df	20	8	16	32	8	8
	Sig.	0.18	0.055	0.149	0.714	.009*	0.594
The lecturer cannot control the class due to disruptive behaviour	Chi-square	28.758	7.997	32.298	35.937	6.156	11.853
	df	20	8	16	32	8	8
	Sig.	0.093	0.434	.009*	0.289	0.63	0.158
I lose interest in class activity	Chi-square	18.152	4.546	37.037	34.818	20.647	4.241
	df	20	8	16	32	8	8
	Sig.	0.577	0.805	.002*E4	0.335	.008*	0.835
I cannot see the board	Chi-square	28.592	12.263	37.063	48.097	10.991	2.328
	df	20	8	16	32	8	8
	Sig.	0.096	0.140	.002*	.034*	0.202	0.969
Lectures start late while waiting for other students to settle down	Chi-square	18.457	10.522	26.474	33.877	11.360	4.210
	df	20	8	16	32	8	8
	Sig.	0.557	0.230	.048*	0.377	0.182	0.838
Inadequate learning facilities such as projectors, screens, sound, interactive/smart boards	Chi-square	25.279	10.786	19.612	33.044	19.996	6.533
	df	20	8	16	32	8	8

APPENDIX I – STAFF SURVEY – CROSSTABULATIONS



APPENDIX J – CERTIFICATE OF EDITING AND AUTHENTICATION

Helen Richter

Advanced Editing, Proofreading

& Copy writing

feetjieding@gmail.com
072 9538169

26 October 2019

To whom it may concern:

CERTIFICATE OF EDITING & AUTHENTICATION

I have proofread and language edited the following journal article according to prescribed parameters:

"Teaching and Learning Challenges of Disadvantaged Students in the Context of Access and Equity in South African Higher Education: A Case Study of the Durban University of Technology"

By

Aradhana Sivanath

The work is the authors' own work, to the best of my knowledge, and is free of spelling, grammar, and structural and stylistic errors.

With thanks.

H. S. Richter (Ms)

APPENDIX K – TURNITIN REPORT

Full report - Examination 20 1 1 19 Version 2

ORIGINALITY REPORT

17%	14%	5%	11%
SIMILARITY INDEX	**INTERNET SOURCES**	**PUBLICATIONS**	**STUDENT PAPERS**

PRIMARY SOURCES

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internet Source

Submitted to University of KwaZulu-Natal

0/o

Student Paper

3	Submitted to Mancosa Student Paper	1%

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Submitted to Higher Education Commission

o

Pakistan

Student Paper

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