



**The factors associated with student recruitment and student profiles in Dental Technology at a University of Technology**

THIS RESEARCH REPORT IS SUBMITTED IN FULL COMPLIANCE WITH THE REQUIREMENTS FOR THE MASTER OF HEALTH SCIENCES IN DENTAL TECHNOLOGY AT THE DURBAN UNIVERSITY OF TECHNOLOGY

Philiswa Charity Dlamini  
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Supervisor .....

Mrs R. Sunder: MTech: Radiography

Co-supervisor .....

Mr G. Bass: MEd: Higher Education

Co-supervisor .....

Professor T. Puckree: PhD: Physiotherapy

# Abstract

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With the transformation in Higher Education (HE), the number of Black African students entering South African universities increased significantly (72%). Black African students accounted for 77.38% of the total student population at Durban University of Technology (DUT). It has been noted that the majority Black African students in HE are first-generation students, many are under-prepared, and come from low-socioeconomic backgrounds. Students from this racial group tend to make incorrect career choices due to a lack of knowledge, experience, and adequate vocational guidance and career counselling. To add to this, many University of Technology programmes, such as Dental Technology, are vocational in nature and prepare students for unfamiliar industries. The aim of this study is to determine the factors associated with student recruitment practices and student profiles in the Dental Technology programme at the DUT.

This cross-sectional study employed a mixed method approach. An online survey recruited Dental Technology students who entered the programme from 2008 to 2012. The students' demographic information was retrieved from the Management Information System (MIS) Department. The survey generated categorical data, which was analysed using the SPSS (Statistical Package for the Social Sciences) which included frequencies, cross-tabulation, Chi-Square test, and Spearman's Rank Order Correlation. Semi-structured interviews with Dental Technology lecturers and the staff involved in student recruitment practices generated qualitative data which was analysed using QSR NVIVO 10. Common themes were classified and discussed.

The findings showed that 75% of Dental Technology students were Black African. Only 28% came from urban areas and 81.4% of students attended government schools. Furthermore, 60% relied on financial aid for the payment of their tuition fees.

Two categories of necessary attributes emerged i.e. *general attributes for an HE student* (intrinsic qualities e.g. passion, positive attitude) and the *practice specific attributes for Dental Technology* (e.g. good eye-hand coordination, manual dexterity). However, the academic staff indicated that the programme is not attracting its desired students. Added to this, is the fact that from the 2008 – 2012 initial intake of 157 students, 41% dropped out of the programme.

According to Dental Technology staff, there are no programme-specific student recruitment practices, and they rely on the institutional recruitment practices. However, qualitative findings showed that the DUT employs a generic approach which includes branding and direct promotion with academic departments only minimally involved, reducing the likelihood of effectively recruiting desired students for specific academic programmes such as Dental Technology. About 83% of students indicated that they had not been exposed to any of the DUT's recruitment practices while they were still in high school.

With these findings, it can be concluded that the association between the profiles of the student participants and the current student recruitment practices in the Dental Technology programme is incongruent and weak. In essence when students are recruited to enrol in academic programmes in an institution there needs to be a strong relationship between academic departments and the staff members responsible for recruiting students as the academic staff members are better able to clearly explain the intricacies of their respective programmes and they have an accurate understanding of their desired students. The student recruitment personnel are equipped to sell or market the institution and its offerings to prospective students, but there is clearly a need for the Dental Technology programme to pay more attention to the manner in which their students are recruited and retained. This will help to improve the programme's pass rates and dropout rates while addressing the issues of access, equity, diversity.



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## Declaration

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*This research is dedicated to the Sovereign Lord of Armies, who  
blesses every day of my life.*

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## **Abbreviations and terminology**

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### **Abbreviations**

CAO -	Central Applications Office
DOE -	Department of Education
DUT -	Durban University of Technology
ECP -	Extended Curriculum Programme
HE -	Higher Education
HEI -	Higher Education Institution
IRC -	Institutional Research Committee
IREC -	Institutional Research Ethics Committee
LO -	Life Orientation
MIS -	Management Information System
SLO -	School Liaison Officer
SADTC -	South African Dental Technology Council
SAQA -	South African Qualifications Authority
UoT -	University of Technology

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# Chapter One

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## The problem and its setting

### 1.1. Background

Higher education provision has become a competitive environment. Higher Educational Institutions (HEIs) have to compete for suitable students, and as a result, HEIs need to differentiate themselves, resulting in the necessity for more inventive ways for recruiting prospective students (Frolich and Stensaker 2010). While it is argued that South African HEIs do very little to individualise their student recruitment practices (Beneke and Human 2010) and should invest time and resources in devising programme specific student recruitment strategies Pretlow (2014); other studies have shown that most universities have recognized the need to use media as one of the tools for attracting students, through advertising and public relations campaigns, as well as engaging in school based initiatives (Levitz 2011; Beneke 2011; Frolich and Stensaker 2010; Beneke and Human 2010). Nevertheless, these studies also note that most of South African HEIs have not yet fully embraced the true concept of marketing. This study will investigate the current student recruitment practices used for the Dental Technology programme at DUT and the profiles of the student enrolled in the programme.

Competition for talented students, transformation and massification in HE in South Africa has resulted in an increasing sense of importance in the understanding of student recruitment practices. The national call for the massification of HE resulted in a rapid increase in the number of black students entering South African universities, who are largely under-prepared, come from low socio-economic backgrounds, and many are first-generation students (Strydom, Mentz and Kuh 2010). Although HEIs have very little direct influence over the educational preparation of students entering universities, they still contend with declining resources whilst having to deal with more students from diverse backgrounds and pressures for increased accountability and quality assurance (Strydom, Mentz and Kuh 2010). Previous studies suggest that Black students make erroneous career choices due to a lack of knowledge, inexperience, and the lack of adequate vocational guidance and career counselling (Mkamba 2011; Osakinle 2010; Hlalele and Alexander 2011; Strydom, Mentz and Kuh 2010). Consequently, many of them are unsuited for their careers, as they end up in professions that do not satisfy their values and needs. Holland (1987), two decades earlier, argued that it is essential for an individual's career choice to fit their respective personality, as they are more inclined to enjoy that chosen career, and to stay in the job for a longer period. This study investigates the factors that affect students' choices of Dental Technology as a career.

Student profiles in the Dental Technology programme at Durban University of Technology (DUT) have changed significantly in the last fifteen years, from a predominantly white to predominantly black student population (Bass 2007). The effect of student recruitment on the demographic profiles of the Dental Technology

student body is unclear and also whether recruitment practices can be linked to poor student performance and retention. The majority of students currently enrolling in South African universities, as previously stated, are black and many come from low socioeconomic backgrounds, and are first generation students (Strydom, Mentz and Kuh. 2010). The problem is exacerbated in that many come from poorly-resourced schools where they receive very little or no career guidance. Therefore, they come into a tertiary environment with very little knowledge of the university programme, such as Dental Technology. Often these students enrol in programmes unsuited for them in that they make uninformed career choices. This is especially challenging in that a number of university of technology programmes, such as Dental Technology, are vocational in nature and prepare students for specific industries which the students might be entirely unfamiliar with.

Dental Technology is a part of the dental profession. The required blend of artistic abilities, hand and mind coordination (Bass 2007), accurate vision and the ability to perform efficiently under pressure are some of the essential personal attributes for this profession. Given the nature of the Dental Technology programme it is important that the required personal attributes for this programme are understood by the students entering the profession. It is not clear whether the desired personal attributes are evident in the current Dental Technology student population. Therefore, this study will determine whether the current Dental Technology student recruitment methods are aimed at recruiting students with the required personal attributes to pursue a career in Dental Technology.

Previous studies have identified the necessity for institutions to know and understand the needs of their prospective students in order to be able to attract their desired students (Osakinle 2010; Beneke and Human 2010; Frölich and Stensaker 2010). In addition, Beneke and Human (2010) have noted that student recruitment is essential for improving quality and enhancing diversity. Given the academic challenges relating to the demographic shifts in HE nationally, it is unclear whether the student recruitment practices have changed to accommodate the change in student profiles. This study attempts to determine the factors associated with the student profiles (as defined) and the Dental Technology student recruitment practices. A student profile is understood to include demographics, personal attributes and performance of an individual student.

Osakinle (2010) recommended that HEIs need to advance student preparedness by improving and extending advice and guidance services through their recruitment practices. This study also tries to determine whether there is a need to improve the existing student recruitment practices in the Dental Technology programme, in order to address student profiles, dropout rates and desired graduate attributes.

Similar student recruitment practices research initiatives have been addressed in other programmes in the dental fraternity internationally. However, there is a limited body of research in Dental Technology student recruitment practices both nationally and internationally and this points to a universal problem in what is considered good practice in recruiting suitable dental technology students. Consequently, the results of

this DUT study could benefit the global community in terms of informing the recruitment practices.

### **1.2.1. Challenges faced by the Dental Technology Industry**

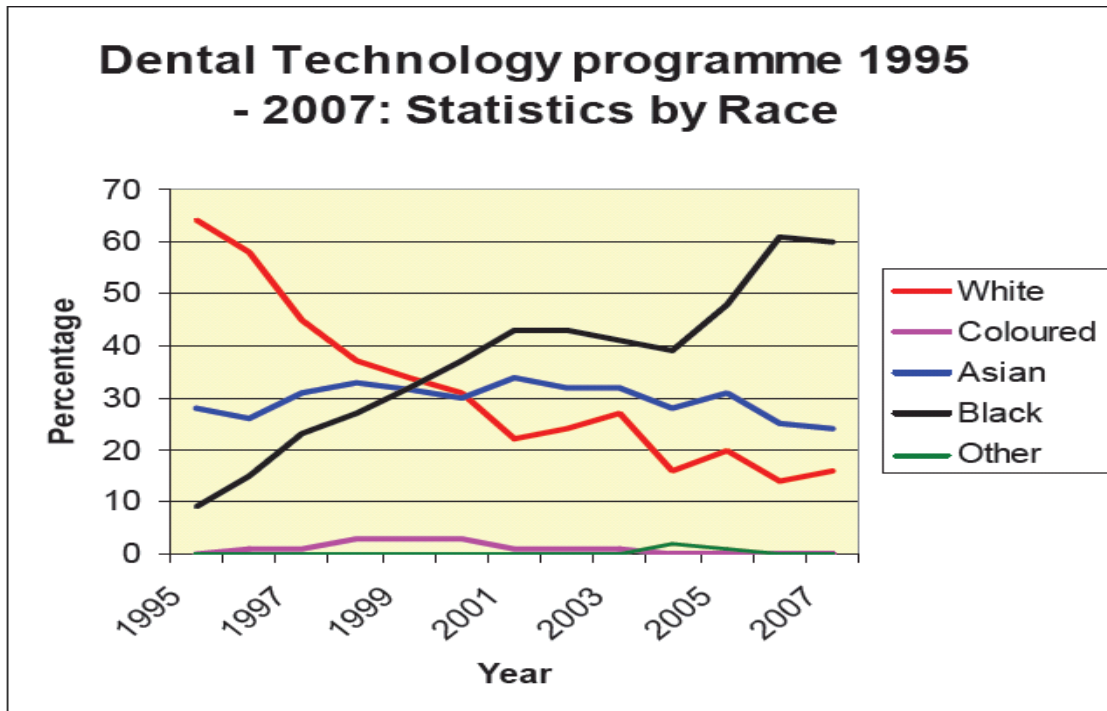
There is limited literature addressing the challenges in the Dental Technology industry globally, let alone in the South African context. Gordon and Christensen are amongst the main contributors in this area of research. In 2005, they published two articles in *The Journal of the American Dental Association (JADA)*. The first one was titled Dental Laboratory Technology in crisis: Challenges Facing the Industry which outlines the main challenges affecting the Dental Technology industry in America. At this conference a number of challenges were identified within the Dental Technology industry, and this section will share those related to limited public awareness

There has been a significant decrease in the accreditation of Dental Technology programmes in America, the main reason being the costs associated with the processes of accreditation of these programmes and the fact that Dental Technology is not well-known to the general public which affects the demand for the programme. The limited programmed demand might be true of the South African context, for instance, there are only three institutions that offer this programme in the country, i.e. DUT, Tshwane University of Technology (TUT) and the Cape Peninsula University of Technology (CPUT).

Another significant challenge is that the salaries for dental technicians are not attractive, with very few exceptions. In the USA, prospective dental technicians have to spend at least two years in the Dental Technology programme. In South Africa training as a dental technician takes at least three years. Given the period of training, it could reasonably be expected that the earnings of these professionals would be significantly higher than the minimum salary scale. However, this is not generally the case, although in the USA the scales might be slightly better than those in South Africa. The unattractive salary also impacts on the popularity of the profession, especially in the socio-economic context of South Africa where most students inherently have to carry their family responsibilities.

In South Africa, Dental Technology is still a developing profession (Skea 2010) and as can be expected, it is subject to a number of challenges, which are similar to those faced by the global industry. However, thus far, the greatest challenge for this industry is the lack of visibility in the public eye. When this is compounded by the common challenges faced by Black African students, who now form the majority of the students at DUT this becomes an even greater challenge for the academic programme.

## 1.2. Rationale



**Figure 1.1: Student demographic shifts in the Dental Technology programme from 1995 to 2007 (Bass 2007: 68)**

This research is driven by a significant increase in the number of Black African students and, inversely, a drop in White students in HE and how this sector has adapted in order to accommodate the change. Of particular interest are the evident demographic shifts in the Dental Technology programme at the Durban University of Technology (as illustrated in Figure 1.1 above) which is reprinted from Bass (2007). Anecdotal evidence suggested that this trend has continued over the years, with White and Indian student intake on the decrease. Given the demographic shifts, for this research, it was of importance to understand how the programme has adapted to these changes and particularly how they have amended their student recruitment practices in order to accommodate their current student population.

The alignment of student recruitment practices to student profiles is critical because the transformation in HE in South Africa is linked to the National Development Plan which is focused on improving access for the previously disadvantaged students. The South African Survey Student Engagement (SASSE) Institutional Report confirms that the Black student population at the Durban University of Technology (DUT) is at 77.38%, which is congruent with national figures of 72% Black student enrolment. This transition in student profiles from a predominantly White to a predominantly Black population is also evident in the Dental Technology programme at the DUT. According to Bass, in 2007, Black students accounted for 60% of the Dental Technology student body, and this has since increased incrementally.

Given the significant shift in the students' demographic profiles in HE, it is unclear as to whether student recruitment practices have been adjusted to accommodate the current students' profiles. The recruitment of students who are suited for specific programmes is essential, especially because a number of programmes within universities of technology (for example, Dental Technology) require a specific set of personal attributes as they are industry specific in nature, and tend to prepare students for industries with which they might be unfamiliar. As a result, many students enter the HE environment with limited knowledge about the university programmes, especially unfamiliar programmes, such as Dental Technology.

Literature suggests that many Black African students make erroneous career choices due to lack of adequate vocational guidance and career counselling (Hlalele and Alexander 2011; Mkamba 2011; Osakinle 2010; Azzo, Ezeja and Ebezel 2009; Oellermann 2009). It highly recommended for HEIs to advance student preparedness by offering the relevant career guidance services through their recruitment practices (Osakinle 2010).

Properly designed student recruitment practices not only serve to attract the desired students but also help to motivate and correctly place students in programmes best suited to their personalities. Consequently, there are a number of studies which emphasise the necessity for institutions to know and understand the needs of their prospective students in order to be able to attract their desired students (Beneke and Human 2010; Frolich and Stensaker 2010; Osakinle 2010). In addition, Beneke and Human (2010) noted that a properly designed student recruitment programme is essential for improving quality and enhancing diversity.

### **1.3. Aim of the study**

The aim of this study is to investigate the factors associated with student recruitment and student profiles in Dental Technology at the Durban University of Technology.

#### **1.4. Objectives of the study**

1. To investigate student profiles in the Dental Technology programme for the past five years.
2. To investigate the student recruitment practices used by the DUT and by the Dental Technology programme.
3. To determine the association between the student profiles and the current recruitment practices.
4. To identify the desired personal attributes for the Dental Technology programme.
5. To investigate the factors which inform the students' choice of Dental Technology as a career.
6. To describe the relationship between the students' choice of Dental Technology as a career and the desired personal attributes.

#### **1.5. Operational Definitions**

For the purposes of this study, the author will use the following operational definitions:

- i. Student profile is defined as including demographics and socio-economic status, university preparedness, performance and personal attributes of the student.
- ii. Student recruitment is defined as the process of appropriately formulating tailor-made methods designed to attract, direct, place and retain the desired prospective students into a specific academic programmes in a higher education institution.

## 1.6. Structure of the dissertation

This dissertation consists of six chapters. This chapter presents the background to the study by unpacking the demographic shifts in the South African HE sector, the implications of these demographic shifts, the challenges within the Dental Technology industry globally, and the selection process for the programme at DUT. The background is later followed by the aim and objectives of this research.

**Chapter two** provides a review of the literature relevant to student profiles and student recruitment practices in HE. Recruitment studies have been undertaken in the Dental fraternity; however, this study is the first of its kind to look at Dental Technology specifically and it focuses on an under-developed area of research nationally. It is critical for the literature review to begin with the social factors which affect learning as they help outline the determinants of educational success. The review further links the social understanding of learning with the career choice factors. It then turns to a brief history of HE marketing as it is seen as the basis for the formulation of student recruitment practices.

**Chapter three** describes the research design and methodology employed in this study.

**Chapter four** reports on the findings and gives an analysis of the student profiles in Dental Technology at DUT from 2008 to 2012 and of the student recruitment practices which are employed by the DUT and the Dental Technology programme.

**Chapter five** provides a discussion of the findings with the aim of addressing the aim and objectives of this study.

**Chapter 6** presents the conclusions by summarizing chapters *four* and *five* and provides sound deductions to substantiate the main aim of this study. Furthermore, this chapter declares the limitations for this study and provides future recommendations for studies to follow in this area of research.

## Chapter Two

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### Literature review

#### **2.1. Introduction**

This study seeks to understand the association between student recruitment practices and the student profiles in the Dental Technology programme at the Durban University of Technology (DUT). Therefore, this chapter reviews the literature relating to student recruitment practices and student profiles in Higher Education (HE). A student profile is understood to include students' demographics, performance and personal attributes.

The literature review begins by unpacking the social discourses that influence the student's learning and cognitive abilities as they play a significant role in the manner in which students relate and behave in tertiary education. Considering the impact of social discourse will allow for a different and better understanding of the current state of the students' readiness for HE in South Africa.

One of the signs of students' readiness for HE is their ability in making a career choice. The career choice decisions comprise multi-stage processes involving a series of successive decisions; career choices, therefore, should be taken seriously as they affect one's academic and future success (Canterbury 2008). However, students who come straight from high school normally have little idea of what they want from

education and, consequentially, are quite ignorant about their educational needs (Canterbury 2008). It is, therefore, important to look at what influences the students' career choices and the significance of career guidance, especially in the current South African social context. The fact that a number of educational programmes offered at Universities of Technology (UOTs) are vocational in nature and prepare students for industries which might be unfamiliar to them underscores the need for students to be making informed career choices. Moreover, given the specific needs of the South African economy, students are faced with significant challenges when choosing suitable careers which will guarantee not only employment but job satisfaction as well. Ultimately, in the light of HE requirements, this entire situation highlights the importance of effective, focused student recruitment, especially by the UOTs and universities which aim to meet the national plan for HE and provide relevant support for their prospective students.

The recruitment of students into Higher Education (HE) currently follows the broad marketing concept used in the business industry for the marketing of goods and/or services. However, marketing for the sale of goods and services is not the same as marketing for education and the recruitment of suitable students. It is necessary to understand general marketing concepts but thereafter it is vital to develop customised HE marketing that engages with the functions and formulation of a student recruitment strategy tailor-made for that particular institution of higher learning.

## **2.2. Social discourse and educational success**

The importance of understanding the social discourses that shape students for educational success forms the foundation of this literature review, as it can also highlight significant gaps to which Higher Education Institutions (HEIs) have to pay attention to.

James Paul Gee is said to be one of the main contributors to ground-breaking theories of the social understandings of learning in South Africa. His work was first published in 1990, and his theories have been revised a number of times. According to Gee (2011), people are socialized, from birth, into discourses (i.e. a combination of saying, doing, thinking, believing and valuing) which are indicative of a membership in a particular social group. These discourses are innately philosophical and some are more eminent and influential than others. However, they all contribute to one's learning and cognitive abilities (Gee 2008 cited in Boughey 2012: 139). Gee (2008 cited in Boughey 2012: 139) suggests that there are two classes of discourse, and they are the primary and secondary discourses. The primary discourse, which affects everyone, is influenced by one's presence within the home. This enables self-discovery and it lays the foundation for specific cultural traits. Secondary discourses are those obtainable in the public sphere, such as schooling, religious groupings, businesses, community or political organisations. Both the primary and the secondary discourses tend to influence each other. For instance, the home values and beliefs (primary discourse) influence how one carries oneself in public (secondary discourse). On the other hand, religion and education (secondary discourses) have some significant bearing on how parents raise their children (primary discourse). From Gee's

(2008 cited in Boughey 2012) theory it can be deduced that the social discourses make an invaluable contribution to the development of one's cognitive abilities and the type and quality of knowledge they may be exposed to.

In recognising Gee's theory on the social understanding of learning, Boughey (2012:138) further discusses the theories of learning, of interest to this study is what she termed the 'social account of learning' which directly links social discourse to students' educational success. This theory argues that educational success is greatly dependent on the social contexts in which an individual is brought up in. It acknowledges that an individual's social environment significantly influences his/her educational culture and ultimately their success.

Boughey (2012) and Pretlow (2014) submit that the predicament might be that the HE sector largely perceives educational success to be mainly dependent on an individual's intrinsic factors such as intelligence, cognitive ability, placement, and motivation. However, it should be noted that although the general cognitive ability may be the single biggest source of variance in intelligence, the social background also plays a significant role in students' cognitive abilities (Timar and Maxwell-Jolly 2012). Maswikiti (2008) suggests that instead of accepting a genetic explanation for variants in intellectual capabilities, it is also important to consider the socio-cognitive understanding of this variance as well. The socio-cognitive affective factors take into account how different groups of people and social classes acquire knowledge, for instance, the manner in which families uniquely motivate and interact with each other

(Timar and Maxwell-Jolly 2012). To this end, it has been gathered that the socio-cognitive affective factors and/or the social account of learning are also responsible for preparing the general cognitive abilities of an individual (Boughey 2012; Maswikiti 2008).

In light of the above discussion, it is important for HEIs to consider the social background of their prospective students when designing and packaging their offerings. The following section presents an overview of the student profiles in South African HE. For the purposes of this study, the reader is reminded that student profile is understood to include students' demographics and socio-economic status, university preparedness and performance and personal attributes. As a result, the following review will be structured according to these sub-headings.

### **2.3. Student profiles in South African Higher Education**

#### **2.3.1. Demographic shifts in South African Higher Education**

Higher Education Institutions (HEIs), globally, are facing challenges within a changing environment. These challenges include a decrease in government funding, mergers of HEIs, increased competition between institutions, a drive to attract quality students and the global trends of internationalization (Jordaan and Wiese 2010). The South African HE sector is experiencing similar challenges such as those occurring in the global context, but the transformation in terms of students' demographic profiles takes precedence.

In post-apartheid South Africa, the transformation of HE was one of the most anticipated outcomes. However, it has produced numerous challenges for higher learning, since the transformation in terms of equity and access has resulted in an increasing number of Black African students entering HE. Hlalele and Alexander (2011) confirm that Black African students make up 72% of the total student population in SA. Similarly, the Durban University of Technology (DUT) has also undergone remarkable shifts in terms of the demographic profile of its student body.

The DUT is the result of the 2002 merger of the M L Sultan Technikon and the Technikon Natal. The M L Sultan Technikon developed from the M L Sultan College, which had operated exclusively for the Indian population and the Technikon Natal developed from the Natal Technical College which had enrolled whites exclusively. While at the time of the merger the two institutions were still racially integrated, their segregated legacies persisted and were prevalent (Bass 2007). This raises questions as to whether the DUT systems have been able to accommodate the current change in their students' profile. The majority of the institution's student body is now made up of Black African students, who were not exclusively catered for before the merger. According to the SASSE institutional report (2010), the DUT's student population consists of 77.38% Black African, 1.71% Coloured, 16.57% Indians and 3.77% White. South African students accounted for 98.73% of the total students registered at this institution. This indicates that all the student-related challenges within this institution are at a national level and may be associated with the particular ethnic group of students which forms the majority of the institution's student body.

A report compiled by Professor Gwele (2006) demonstrates that the students' demographic profiles in the Faculty of Health Sciences at the DUT are similar to the current institutional trends. According to this report, Black African students have been steadily increasing from 42% in 2004 to 59% in 2010, whilst the percentage of Coloured students has remained almost constant over the years and they range between 2% and 3%. The percentage of Indian students has decreased from 35% in 2004 to 27% in 2010. Bass (2007) also tracked the demographic shifts in the Dental Technology programme between 1999 to 2007 and he noted a significant shift from a predominantly White (65% in 1999) male enrolment to a significantly Black African (60% in 2007) population. Chapter four of this study will present a continuation of this trend from 2008 to 2012.

This shift in the students' demographics in HE is worth noting as students of different racial groups have been exposed to different social discourses and probably have gone through dissimilar learning cultures which in turn affects their general university preparedness and cognitive abilities (Boughey 2012; McMillan 2007). Some studies suggest that HEIs should view Black African and White students as two different market segments with different needs and preferences (Boughey 2012; Beneke and Human 2010; McMillan 2007).

The following section is focusing on the impacts of the socio-economic status on students' academic life.

### **2.3.2. Impact of the socio-economic status on students' academic abilities**

Maswikiti (2008) argues that the quality of students' social discourses is greatly affected by their socio-economic status and that in turn influences their university preparedness, performance, and achievements (Bayat, Louw and Rena 2014; Du Plessis and Gerber 2012; Maswikiti 2008).

VandenBos and American Psychological Association (2007:871) defines socio-economic status as "the position of an individual or group on the socioeconomic scale". The socio-economic scale is informed by a combination of social and economic factors, such as income, the level of education, type of occupation and rank, place of residence and, in some societies, even ethnic origin, and religious background. Although the APA version is not the only definition that can be used to describe socio-economic status it is, however, suited to the South African context because similar social factors are utilised when separating the higher socio-economic groups from low socio-economic groups (Maswikiti 2008) In the context of education, Maswikiti (2008) suggests that the higher socio-economic status families are able to socialise their children in ways that enhance their general cognitive abilities, which ultimately informs their academic performance. In general, students from affluent families tend to develop and a strong academic culture and are generally well revealed, and are likely to have attended well-resourced schools (Du Plessis and Gerber 2012). In many countries in the world, an individual's socio-economic status is closely associated with participation in HE and the type and prestige of the institution they attend (Du Plessis and Gerber 2012). Contrarily, the opposite is true for students who come from underprivileged

backgrounds. Many attend under-resourced schools and many are mostly under-prepared for HE (McMillian 2007). Consequently, it is essential for the HE sector to recognize the significance of the above when designing their systems and services, especially those of student recruitment.

South Africa possesses a very sensitive history where the former apartheid system resulted in considerable racial inequalities and segregation in all spheres of life (Boughey 2012). This system has a tenacious legacy, and unfortunately very little has changed in the last two decades of democracy (Bayat, Louw and Rena 2014; Boughey 2012; Maswikiti 2008). Under the apartheid system, the Black African population was treated inferiorly (Boughey 2012), and the type of education provided to them was limited and was designed to produce labourers. Consequently, the Black African majority still come from low socio-economic backgrounds due to the fact that very few of the older generation were able to gain access to HE, and as a result, they were employed in jobs which had low or no educational requirements and were, generally, poorly paid. Moreover, the movement of black Africans was restricted during apartheid which contributed to large numbers of the Black population living in rural areas. Coupled with this was the fact that jobs for uneducated persons in the cities were generally limited. Twenty-two years into democracy we still see the majority of Black African people residing in rural areas and in townships, where service delivery is extremely poor, especially in the health and education sectors (Boughey 2012). Consequently, in order for many Black Africans to access better education and better service delivery with ultimately a chance of better employment, there exists, today, a movement of Blacks to urban areas. This movement to urban areas, however, limits

the opportunities for raising the socio-economic status of the population of the rural areas. In addition, many Black African children from the low socio-economic backgrounds (rural as well as urban) live in homes where the availability of books and attention to reading is not prioritised, making such environments unfavourable for their academic development (Boughey 2012). The extent to which shortage of relevant materials and resources affects people's chances of becoming suitable candidates for HE, of gaining access (let alone to their desired programme), and of being able to complete a qualification in minimum time can never be argued enough (Scott, Yeld and Hendry 2007). It is therefore, important for the HE sector to acknowledge the impact of socio-economic factors to students' academic abilities and to intensify their efforts to address them as a central element of their improvement strategy.

This literature, argues that there is a strong correlation between affluence and the quality of education, which in turn significantly affects ones' university preparedness, performance, and achievements especially in South Africa (Bayat, Louw and Rena 2014). According to the Scott, Yeld and Hendry (2007) the socio-economic inequalities in South Africa are among the most severe in the world.

Rena (2008) states that quality education is a cornerstone for economic development and social transformation and therefore there is a great need for South Africa to continually advance the quality of education; it is indispensable for educational success and ultimately for economic development and social transformation, thus highlighting the significant role of HE in the country, and the need for this sector to

realise and devise mechanisms which will help in supporting the needs of their prospective students.

The next section is looking into other factors that influence students' university preparedness and performance.

### **2.3.3. University performance and preparedness**

Due to the current Department of Education's funding framework for HE, throughput rates have become one of the top priorities in the sector as HEIs are funded based on their enrolment and graduation numbers. However, Scott, Yeld and Hendry (2007) suggest that historically HEIs have been less effective in collection and updating the students' performance data based on the findings of the DoE's 2000 cohort study published in the Mail and Guardian (2006), one of the leading reasons for such is that the HE considers the key factors which determine student performance to be beyond the sector's control e.g. money and poor schooling.

Poor students' performance in HE is commonly attributed to the unsatisfactory functioning of the school system, and the legacy of inequalities has had a significant effect on the quality and nature of the current outputs in education. As a result, scholars argue that schooling available to many Black African students in rural areas and in the townships is still of poor quality, even though South Africa has had more than twenty years of democracy (Bayat, Louw and Rena 2014; Boughey 2012; Bloch

2009). Scott, Yeld and Hendry (2007) assert that the history of the country has ensured that students' performance on the National Senior Certificate (Grade 12) remains highly skewed racially, and is generally very poor. Hence it can be concluded that the South African school system has, to a large extent, been unsuccessful in developing the students' academic potential. Instead it renders students that are under-prepared for higher learning, and as a result most students do not meet the necessary entry requirements to HEIs, and those who are admitted have a high failure and drop-out rate (Scott, Yeld and Hendry 2007).

Consequently, many students from these disadvantaged schooling backgrounds perform poorly in tertiary education when compared to their wealthier counterparts (Bayat, Louw and Rena 2014; Spaul 2013; McMillan 2007). A cohort study undertaken by Scott, Yeld and Hendry (2007) advocate that Black African students' performance rates in HE are still the worst compared to their peers from other racial groups, regardless of the university, faculty, qualification or subjects studied. Their progress is further thwarted by the fact that English is the medium of instruction at many tertiary institutions, whilst English is their additional language (Nyika 2015). According to Hlalele and Alexander (2011) 50% of students at HEIs in South Africa struggle to complete their first degrees/diplomas within the maximum study period (five years for a diploma qualification<sup>1</sup>), with under-preparedness as the main cause for this situation.

Rosenberg, Ramsarup, Burt, Ellery and Raven (2009) argue that university under-preparedness of students is prominent across the spread of schools and remains a

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<sup>1</sup> This refers to the maximum period allocated for the completion of a qualification

significant challenge for South African HEIs. They further elaborate that the university under-preparedness not only refers to students lacking the required foundational knowledge but it also includes their inability to accurately estimate the level in which they need to engage with the different modules. Consequently, the universities in the country are faced with major task of helping students to succeed at world-class HE level when their schooling is being continually affected by the remaining legacy of apartheid, as well as a variety of new problems (Rosenberg *et al.* 2009).

McMillan (2007) advocates that many White students tend to be better prepared for tertiary education because they draw on the experiences of their parents and, possibly, their grandparents. On the other hand, Strydom, Mentz and Kuh (2010) noted that many Black African students are first-generation HE students and cannot draw on the experiences of their parents. This may make a significant contribution to their under-preparedness for HE.

It should be noted that ideally the improvement of the school system can be one of the best solutions for solving key performance problems in HE; however, this would need rigorous assessment of the prospects and this can be considered as a long-term approach, therefore, requiring for HE to mobilise interim solutions or device strategies which can help in controlling the situation of poor performance and under-preparedness.

In as much as there are external factors that have a major bearing on the students' university preparedness and performance in HE, it must be noted that there are also other factors within the sector's control that can substantially affect student success and graduate outputs. Scott, Yeld and Hendry (2007) argue that there are key factors within HE sector, such as structures, conditions and practices that have a significant effect on student performance which the HEIs and the sector as a whole can address.

These factors can be grouped under two broad headings:

- i. Affective factors arising from institutional culture; and
- ii. The teaching and learning processes

Scott, Yeld and Hendry (2007) state that it is widely accepted that affective factors have a significant influence on students' academic performance. This paper further attests that the Academic Development experience in the country has indicated that well-designed educational interventions are counteracted by lack of motivation and interest due to incorrect career choices, anxiety about personal or financial circumstances, choice of or alienation from the institution. The study argues that while some affective factors may be beyond the institution's control, others such as aspects of students' career development, life skills and relationships with the institution are at least partly within it. Given South Africa's past, institutional culture has become one of the major issues and changing the dominance of traditional institutional culture in favour of a more inclusive approach is now of high importance in the HE sector.

To this end, HEIs evidently need to work more efficiently and assume a developmental role when addressing the limitations and the needs of their prospective students. It can be inferred that the demographic shifts in students' profiles have exposed some deeply-rooted challenges which are negatively affecting the HE sector and which play out in poor pass rates and significant increases in dropout rates (Strydom Mentz and Kuh 2010). HEIs can address these associated challenges through properly designed and correctly implemented student recruitment strategies. Improving and extending advice and career guidance services to prospective students also has the potential to advance student preparedness. One of these inclusive approaches should be an extension of career guidance serving the community through properly structured student recruitment strategies. As the student recruitment strategies also fall under the affective factors which institutions have control over, and when executed properly, it can have major benefits for the HE sector in terms of addressing some of the under-preparedness and poor performance and drop-out challenges. In that, when students are better guided into academic programmes which are suitable to their personalities and aligned with their professional desires, they can be motivated to perform well, and thus the throughput rate will increase. The significance of the development of a proper student recruitment project will be discussed later in this chapter.

The discussion regarding teaching and learning processes are beyond the scope of this research, however, their impact on students' performance should be recognised.

#### **2.3.4. Personal attributes**

Freeman and Rogers (2010) stated that, in order for students to fulfil their professional roles, they must be competent in both their behaviour and skills as required by their professions.

Dental Technology is a practical profession, and as a result, the required blend of artistic abilities, manual dexterity, hand and mind coordination, meticulousness, accurate vision and the ability to perform efficiently under added pressure are some of the essential personal attributes that are needed from student coming into this profession (Skea 2010; Bass 2007). The Dental Technology industry is largely unknown to a general public (Gordon and Christensen 2005a, 2005b), and this makes it unlikely for prospective students to find sufficient and correct information about this profession and its required personal attributes especially when considering the fact that most of the students currently enrolling are from poorly resourced schools. At present it is not clear whether the information available to prospective students adequately explains Dental Technology as a profession and the required personal attributes for the programme. There are studies focusing on personality and graduate attributes (e.g. Harvey 2010; Pool and Sewell 2007) and a couple of studies in the medical and clinical dentistry also looking at graduate at the graduate attributes for the sector (e.g. Freeman and Rogers 2010; Huw and Morgan 2009), but no studies were found focusing specifically on the required personal attributes for the Dental Technology profession.

The review now turns to discuss the factors linked with career choices and career development in South Africa.

#### **2.4. Career choices and career development**

Canterbury (2008) states that career choice decisions should be taken seriously and that they comprise multi-stage processes involving a series of successive decisions. He further affirms that students in their senior high school years are expected to make decisions in respect of their lives which will define their future. Firstly, students are expected to choose between entering HE or seeking employment. Secondly, those wanting to enrol in HE are then required to make long-lasting career defining decisions, firstly regarding a field of study, e.g. Health Sciences and then, after choosing a particular HEI, look for a place in a specific academic programme (Menon, Saiti and Socratous 2007). However, Canterbury (2008) argues that students who come straight from high school have, normally, only a very vague idea of what educational benefits they want and many are ill-informed about their educational needs. Students making career choices differ in levels of sophistication, maturity, desires and capabilities. In general, they have little experience in making career choices. These are difficult and complex decisions (Canterbury 2008). As a result, their inexperience is frequently seen during the process of choosing relevant HEIs and/or programmes. Many tend to be limited when making informed choices by their age, lack of experience and the lack of access to relevant career guidance and/or development resources (Canterbury 2008).

In the South African context, students begin to make initial career choice decisions at the end of Grade 9, as they are required to select the subject fields which they will study in Grades 10, 11 and 12. The selection of subjects limits access to specific programmes and, consequently, professions. For example, entry into Dental Technology requires a level three pass in Physical Science and or Mathematics/Maths Literacy level 6. However, the South African Qualification Authority Report (SAQA 2012) states that although Grade 9 students are assisted when selecting subjects, the career choices of students who attend under-resourced schools are very limited due to the huge shortage of teachers who teach the gateway subjects Mathematics and Science (Watson 2010). Ultimately these unfavourable school conditions are detrimental to career education in South African schools (Watson 2010). Given the above it is clear that the availability of teachers and school resources at Grade 9 level have an effect at one of the critical stages in terms of career guidance. The Department of Basic Education incorporates career guidance in the syllabus as a part of the Life Orientation subject (LO). However, Flederman (2009) reports that most LO teachers are struggling with the implementation of this subject to its full capacity, and they are even less informed when it comes to career development and the available career choices. Furthermore, SAQA (2012) suggests that insufficient time is allocated for this subject which might be a contributing factor to this challenge.

The actual career choice decision comes at the end of Grade 12 for at this point students are expected to choose their paths for further studies. The SAQA Report (2012) acknowledges that career guidance activities vary considerably among schools, with the major influencing factor being the socio-economic status of the pupils

attending the school, and that of the community in which the school is situated. For instance, schools in the more affluent areas have established career guidance practices in place and they often utilise the services of registered career psychologists who are employed by the schools privately, independent of the Department of Basic Education. While, on the other hand, the schools without the financial resources can only rely on the services of LO teachers, many of whom have insufficient knowledge and experience regarding career guidance (SAQA 2012; Badat 2011). Consequently, the literature suggests that many Black African students make erroneous career choices due to lack of adequate vocational guidance and career counselling (Hlalele and Alexander 2011; Mkamba 2011; Osakinle 2010; Azzo, Ezeja and Ebezel 2009; Oellermann 2009).

Another prominent challenge nationally is the accessibility of reliable career-related information, and as a result, schools depend on other stakeholders such as the HEIs, Higher Education South Africa (HESA), Skills Education Training Authorities (SETAs) and private companies to provide the needed career guidance information (SAQA, 2012). However, the reliability of this option is also affected by socio-economic status in that the affluent schools are more likely to be successful in effectively partnering with these external parties (SAQA 2012; Badat 2011). Therefore, to a large extent, public secondary education has not yet mastered the means of providing sufficient career guidance and career development services to its students (Badat 2011).

The career choice process is said to be influenced by the individual's internal factors

(such as demographics, perceptions, learning, motivation, personality, emotions, and attitudes) and external factors which include culture, social class, reference groups, family and HEIs' marketing and recruitment efforts (Boughey 2012). Beneke and Human (2010) also argue that students' perceptions are generally generated by their history, traditions, culture and priorities. Many scholars including (Watson 2010; Watson and Fouché 2007), have recognised the negative impact of the post-apartheid system on the career development of the majority of South Africans, and they acknowledge that the career psychology profession in South Africa has not been able to address this challenge. Flederman (2009) claims that the main challenges relating to the provision of career-related information and career guidance stem from the lack of proper coordination and the absence of national policy leadership in this field. Meanwhile, the concern is that the progression and retention rates in the South African universities still rank the lowest in the world, with a 40% dropout rate of first-year students (Mkamba 2011; Watson 2010). Although it might be argued that there are many other reasons for student dropouts it must be noted that incorrect career choices contribute significantly to the dropout rates.

Watts (2009) and Watson (2010) state that, historically, the career counselling and career education in South Africa have focused on the White elite population and on the Parson's trait-factor theory. The Parson's trait-factor theory aligns the individuals' talents to the occupations available. However, Leong and Blustein (2000) in Watson (2010) argue that career counselling must preferably be understood within specific cultural contexts. Although South Africa has multiple contextual levels (multicultural, socio-political and the socioeconomic contexts) which impact on an individual's career

development, the approach of career guidance psychology has paid very little attention to these circumstances (Watson 2010). Noteworthy is the fact that an individual's career development options tend to be constrained by the contextual and systemic realities of the environment within which they live. In the South African context, the career psychology community has noted the fact that the social inequalities are still persistent even after twenty years of democracy (Watson 2010). In simple terms, poor people generally attend poor schools. The Black African population under apartheid was largely poor and the socio-economic inequalities still remain today. Hence, there is still a great need for the South African career counselling profession to redefine its theory, research base, counselling and assessment approaches in order to accommodate the current challenges relating to this field (Watson 2010).

The SAQA report (2012) highlights that there are a number of socio-economic challenges faced by South Africa, and they include inequality and poverty, high levels of unemployment due to an oversupply of low or unskilled workers, and, consequently, a shortage of high-skilled workers. According to this report, one of the recent challenges in the democratic era is the non-employment of qualified youth. The fact that educated youth remains unemployed suggests that the education system is not delivering the specific and relevant skills which are needed by the labour market and, as far as the labour market is concerned, it might be argued that it is not succeeding in alleviating poverty by absorbing graduates (SAQA 2012).

The South African government (through former Deputy Minister of Higher Education and Training, Professor Hlengiwe Mkhize and the current Minister of Higher Education and Training, Dr Blade Nzimande (2010) has repeatedly underlined the significance of career guidance as part of successful learning. The SAQA (2012) report states that the framework for career guidance in South Africa is regarded as a national imperative, because career guidance:

- i. Is connected to human rights in terms of learning, working and social justice. Therefore, it should be noted that career guidance, in spite of its intricacies, remains an important component of the educational system and it plays a critical role in increasing accessibility to the educational opportunities to more individuals.
- ii. Can positively contribute to the achievements of public policy goals in education, which are employment and equity.
- iii. Is part of a human resource development strategy which is designed to harness technological and economic changes, thus enabling the country to compete effectively in the global economy. Therefore, career guidance should be seen as an important tool that can help in encouraging all individuals to engage in career planning throughout life, at the same time empowering them to view lifelong learning as an instrument allowing them to respond more flexibly to the opportunities available in the labour market (SAQA 2012:25).

In summary, the above-mentioned Ministers see career guidance as a critical part of the national strategy and advocate that career choice must result in on-going sustainable employment and open up avenues for lifelong learning. As stated by the SAQA (2012:26), "it is further important to see career guidance as a public good in its

own right – as a crucial service to citizens, associated with the affirming human value, self-respect and hope." Currently, the effectiveness of the initial career guidance which directs students into suitable and relevant learning pathways is under serious question, especially because, currently, there are a significant number of qualified but unemployed youth (SAQA 2012), and the progression and retention rates in South African universities still rank lowest in the world (Mkamba 2011; Watson 2010). Although HEIs cannot redress the gaps in the basic education system such as poor career guidance and the poor quality of basic education (SAQA 2012), institutions of HE can appreciate the limitations their prospective students face when making career choices. Higher Education Institutions are seen as having the means to help address this situation through student recruitment strategies that provide career guidance that ensure that students are enrolled in suitable academic programmes (Canterbury 2008).

Jordaan and Wiese (2010) found that career choice factors differ among students, depending on their ethnic background. In their findings, the results for Indian and Coloured students are excluded because these ethnic groups presented small sample sizes. Thus, their statistical results were only inclusive of data obtained from students belonging to the Black and White ethnic groups. Therefore, they suggest "that higher education institutes could view Black and White students as two market segments with different needs and preferences that require unique marketing strategies" (Jordaan and Wiese 2010:547). They further state that when students are selecting a university, students from disadvantaged backgrounds are more needs-driven, and for them the priority is to source financial support, whereas students from affluent backgrounds

seem to place emphasis on the quality of education and facilities. According to these scholars, tailor-made student recruitment strategies can guide South African HEIs in their attempts to address the goal of the National Plan on Higher Education of achieving diversity in the HE system.

John Holland's theory of personality types stresses the importance of matching an individual's career choice to his/her personality. Two decades ago, he argued that this was essential as the individual would then be more inclined to enjoy that chosen career, and to stay on the job for a longer period of time. This concept highlights the need to equip prospective students with the skills and knowledge which will help them develop a strong sense of self-awareness, and the ability to link their personalities with possible career choices (Osakinle 2010). This means that there is a great need for better career counselling in South Africa and for it to be redefined in terms of theory, research, counselling practices and the assessment approach (Watson 2010).

To this end, it is important to look at the ways in which HEIs are able to contribute to the career development of their prospective students. The section below looks at the recruitment of students into HE which is said to follow the broader marketing concepts used in the business industry for the marketing of goods and/or services. Industrial marketing emphasizes the importance of understanding the needs and desires of customers with the intent of providing tailor-made products for the targeted customers (Jordaan and Wiese 2010).

Other studies suggest that Black African students make erroneous career choices due to lack of knowledge, inexperience, and the lack of adequate vocational guidance and career counselling (Hlalele and Alexander 2011; Mkamba 2011; Osakinle 2010; Azzo, Ezeja and Ebezel 2009; Oellermann 2009). Poorly resourced schools offer no career guidance which results in students entering the tertiary environment with limited knowledge about university programmes. This challenge is escalated in programmes that are not well-known to the public, such as Dental Technology.

The repercussions of inappropriate career choices are serious with multiple negative effects on students, the HE sector and the respective industries which the students will possibly join after they graduate. For clarity purposes, a brief discussion of how incorrect career choices can affect the parties mentioned above is provided below.

According to Boughey (2012), many Black South Africans view the attainment of an HE qualification as a gateway to a much better life, and the possibility of escaping from the grinding poverty which they have been experiencing in their families and communities from birth. However, the literature also shows that many Black African students have difficulties in making correct career choices (Mkamba 2011; Osakinle 2010; Hlalele and Alexander 2011; Strydom Mentz and Kuh 2010), making it the most expensive mistake of their lifetime and costing them their dream of a better future, job satisfaction, and personal fulfilment.

In the case of HE, students who make inappropriate career choices tend to add to the financial pressures which are already troubling this sector. The current state funding formula for HE is outputs-driven, therefore students' performances in terms of throughput rates and research are prioritised more than ever (De Villiers and Nieuwoudt 2010). Students who make incorrect career choices negatively affect the institutions' reputation and compromise the rates for the state's funding subsidy. The common habits exhibited by students who make incorrect career choices are:

- Moving from one programme to another until they find their perfect fit
- Poor performance, due to lack of self-motivation
- Delayed progress
- In more serious cases dropping out

Even though it can be argued that wrong career choices are not the only cause of student dropouts it is very important to note that in the absence of motivation and/or passion the will to succeed decreases.

At a national level, the priority is on the production of the high skills levels needed by the country in order to compete in the global economy. Hence, when students' drop out of programmes exceed the maximum study period, the country's HE sector is seen as incapable of graduating the required number of professionals and of negatively impacting on the national economic development (Boughey 2012).

Furthermore, Freeman and Rogers (2010) state that, in order for students to fulfil their professional roles, they must be competent in both the behaviour and skills required by their professions. Therefore, when students make incorrect career choices and move into unfamiliar jobs in an industry in which they have little interest the chances of them achieving personal and professional satisfaction are greatly reduced. This then has a negative impact on the industry as that individual's ability and the quality of their performance within that particular job may be compromised. Holland (1987), two decades earlier, argued that it is essential that an individual's career choice fits his/her respective personalities, as they are then more inclined to appreciate that chosen career and to stay in the employment for a longer period. This theory emphasises the importance of students making correct career choices, and how this ultimately benefits the industries and contributes positively to economic development nationally.

The above theories are directly relevant to the Dental Technology industry since work of a good quality is a prerequisite for good business. The above discussion reinforces the significance of a student's socio-economic circumstances, of correct career choices and the disastrous outcome of incorrect career choices.

According to Jordaan and Wiese (2010), in order for HEIs to survive and prosper in this new era, they must definitely keep abreast of the changes occurring in their sector, and they also need to display the ability to fully adapt to these changes in order to excel. The transition in students' demographic profiles seems to be the greatest change and it has brought to light many of the academic challenges facing Black

African students. In order for HEIs to prosper, they need to address these challenges directly. Jordaan and Wiese (2010) advocates that the HEIs resolve some of these challenges through properly designed and correctly implemented student recruitment strategies. He believes that student recruitment strategies can be improved by extending the advice and guidance services to prospective students. This has the potential to advance student preparedness

## **2.5. Student recruitment strategy**

### **2.5.1. Higher Education marketing**

Marketing of HE emerged as a distinct practice in the 1980s Originating in the USA it was later more formally practised in the UK around 1992 (Hayes 2007). In South Africa, the marketing of HE is said to have slowly emerged in the mid-90s (Akoojee and McGrith 2008). A definition of HE Marketing was offered by Kotler and Fox in 1995 and has been accepted by many other scholars including Beneke (2011) and Phillip (2012):

*The analysis, planning, implementation and control of carefully formulated programmes are designed to bring about a voluntary exchange of value with target markets to achieve institutional objectives. Marketing involves designing the institution's offerings to meet the needs and desires of their target markets and using effective pricing, communication and distribution to motivate and service these markets.*

(Kotler and Fox, 1995:6)

Higher Education Institutions depend on various individuals and groups in order to achieve institutional objectives, and in turn, these individuals and groups directly or indirectly depend on HEIs in order to fulfil specific goals (Fillip 2012). Therefore, these individuals and groups are classified as the target markets of HEIs, and according to Maric (2013) and Fillip (2012) the target markets for HEIs include not only prospective students but also parents of students, suppliers, accreditation organizations, competitors, mass-media, the local and business community, the general public, government agencies, and foundations and trustees.

In addition, HEIs have used marketing to secure financial resources such as government subsidies, research funding, private donations and grants. Globally, it is common for HEIs to have units which focus on institutional marketing. According to Ramachandran (2010), ideally marketing departments are responsible for the construction of strategies, including those of student recruitment, which will help to uniquely position the institution in the HE market by providing constructive insights into international collaboration and branding:

- *Latest trends in the HE sector,*
- *New opportunity areas for academic offerings, and*
- *Identify possible risks and suggest potential solutions*

(Ramachandran 2010:545)

The student recruitment, student administration and/or student services' departments are seen as being the students' first point of contact in an HEI. In addition to organising career fairs and exhibitions and providing career information to prospective students, they are also expected to provide an analysis of institutional progression and student retention methods (Ramachandran 2010). However, Hawkins and Frohoff (2010) found that some "marketing" departments within HEIs view marketing plans as a way of achieving marketing goals primarily for elements which they have control over, such as branding and media relations. Other marketers in the academic settings are challenged by a lack of documented plans, goals and objectives by either the institution or an academic department within the institution (Hawkins and Frohoff 2010; Ramachandran 2010). Such information is essential for the creation of a logically based marketing plan. In many cases, it was found that these plans do exist. However, such plans are usually mismanaged and therefore not distributed to the relevant departments, like the institutional marketing department (Beneke 2011).

The discussion now considers how the HE sector perceives the notion of marketing. HEIs have not yet grasped the true essence of marketing (Beneke 2011; Hayes 2007). Irene and Forbes (2009) state that HEIs are currently implementing marketing principles poorly and, in many cases, their efforts seem to be unsuccessful in recruiting desired students. In many instances, HEIs view marketing as huge advertising and promotion projects consisting of glossy brochures and intense selling activities (Irene and Forbes 2009). Beneke (2011) also confirms that, normally, when South African universities utilise the phrase 'marketing' they are actually referring to promotion. Promotion is understood to include brochures, direct mail, advertising, and public

relations efforts. Moreover, there are a number of studies which acknowledge that most South African HEIs have recognised the need to feature in the media through advertising and public relations campaigns, as well as engaging in direct selling (Levitz 2011; Beneke 2011; Beneke and Human 2010; Marring and Gibbs 2009). Beneke (2011) argues that very few institutions possess a comprehensive, well-documented, institution-wide, well-coordinated marketing programme. The current literature suggests that, generally, marketing is poorly understood by HEIs and is being executed on an ad hoc basis (Beneke 2011; Levitz 2011; Frolich and Stensaker 2010; Marring and Gibbs 2009). It is also believed by some institutions that marketing should only be practised by those institutions that wish to attract intellectual and/or financial resources (Frolich and Stensaker 2010). In contrast, however, Ramachandran (2010) found that some HE managers perceive marketing to be almost as important as finance, human resources, quality assurance, and other major sectors within the HEI. On the other hand, Beneke and Human (2010) revealed that institutions perceive marketing differently depending on the institution's experience and future aspirations. These views are summarised below:

- i. Institutions which limit their duty to solely educating students to view marketing as being a surplus foreign component of the student recruitment process.*
- ii. Institutions that tend to receive an abundance of new applications every year perceive recruitment marketing as a thing of the foreseeable future, but not necessary at present. As a result, they focus more on refining their selection processes rather than improving their student recruitment efforts.*

- iii. Institutions that have a favourable reputation and remain interested in strengthening their brand view marketing as being essential to their student recruitment strategy* (Beneke and Human 2010:439)

Furthermore, in general, academics are said to be discouraged by the idea of marketing HE (Ramachandran 2010; Hayes 2008). Some academics believe that applying marketing techniques jeopardise the academic integrity and freedom. Therefore, they see it as being responsible for fostering customer-like behaviour that leads to an attitude of entitlement in prospective students (Hayes 2008). Beneke (2011) argues that it appears rather ironic that many institutions offer marketing programmes to their business management students and continuously preach the virtues of marketing to these students. Yet, the institution's management is unable to realise and appreciate the role that marketing could play in the operation of their institutions and in student recruitment (Beneke 2011). In other instances, it was found that some academics accepted marketing only on terms that are controllable by them, thus limiting the true potential of marketing (Ramachandran 2010). On the other hand, there are other academics who are able to grasp the theoretical context of marketing but struggle to understand the importance of the actual implementation. Lastly, Ramachandran (2010) indicates that for some academics, the drive to maintain the viability of their programmes forces them into the realisation that the marketing discipline might present some solutions.

In summary, the literature has shown that HEIs have a poor understanding of marketing and, therefore, they are struggling with its proper implementation and its connection to student recruitment strategy. It has also become evident that there are a number of marketing components which have an effect on effective student recruitment, these being advertising and promotion, branding, and relationship marketing (Beneke 2011; Beneke and Human 2010; Chen and Hsiao 2009; Helgesen 2008). The discussion now turns to reviewing the available literature on student recruitment strategies.

### **2.5.2. Student recruitment**

The above section on HE marketing argued that there should be a direct link between the broader institutional marketing and student recruitment (Frolich, Brandt, Hovdhaugen and Aamodt 2009). Although HE marketing and student recruitment seem to be intertwined, there is a definite difference between the two. A student recruitment strategy should be seen to be a unique programme, embedded in an institutional marketing strategy which is purely focused on attracting, directing, placing and retaining prospective students in a specific programme at a particular HEI (Pretlow 2014; Brown 2014; Beneke 201). Brown (2014) suggests that student recruitment should be prioritised in an institution's strategic planning because it is one of the key elements that greatly contribute to sustainability and the success of an institution. He further advocates that the recruitment of the right students in adequate numbers is beneficial to the long-term sustainability of an institution.

Globally, current literature highlights the functions of a student recruitment strategy as:

- Providing accurate and adequate information regarding a programme, entrance requirements, admission policies, completion requirements and academic standards (South African Higher Education Quality Committee 2004).
- Advancing student preparedness through improving and extending advice and career guidance services to prospective students (Osakinle 2010).
- Securing new applications (Brown 2014).
- Improving the excellence and enhancing the diversity in an institution's student body (Frolich and Stansaker 2010; Jordaan and Wiese 2010).
- Promoting the academic profile of an institution as well as the quality of the institution's academic offerings (Frolich *et al.* 2009).
- Growing and maintaining the student population and its quality by attracting a cohort of students with a high probability of completion (Brown 2014).
- Meeting the institutional recruitment goals, and, therefore, strengthening the institution's overall funding base (Brown 2014; Badat 2011).

The above student recruitment functions suggest that the ultimate goal for the student recruitment strategy would be to ensure that suitable prospective students are attracted into appropriate academic programmes and that they are retained in such programmes until completion. Brown (2014) cautions HEIs to include student recruitment in their strategic planning, as it would allow them, minimally, the opportunity to improve and maintain the quality of their student population.

Literature argues that HEIs have not yet mastered the proper implementation of HE marketing due to the challenges of fully grasping the marketing concept and consequently, the notion of student recruitment also seems to be misunderstood by many HEIs. Aggravating this situation is the fact that the development of a student recruitment strategy is still an emerging area in research globally (Pretlow 2014; Frolich and Stensaker 2010; Frolich *et al.* 2009). Beneke (2011) also argues that South African HEIs do not have well-documented student recruitment strategies and he bases his premise on an earlier study which was done by Falender and Merson in 1983 on the formulation of a student recruitment strategy. According to these scholars, developing a student recruitment strategy would ensure that the institution's resources are well coordinated and are used effectively, in a manner which will increase institutional success.

However, literature is yet to provide a proper definition for a student recruitment strategy. Therefore, in order to improve the reader's understanding of the meaning of a student recruitment strategy in the context of this research, an operational definition is provided below. This definition was constructed through combining the meaning of the words: recruitment and strategy. For the purposes of this study, the student recruitment strategy can be defined as the process of appropriately formulating tailor-made methods designed to attract, direct, place and retain the desired prospective students into a specific academic programmes in a higher education institution.

In addition to the above statement, I also argue that effective student recruitment requires interventions suited to the structures and requirements of individual academic programmes and which will ensure that students are able to adjust to, and succeed in those programmes. Therefore, it is critical that a thorough analysis of the programme for which students are being recruited is carried out before designing a student recruitment strategy for a particular programme. This analysis will inform how suitable candidates should be sourced, screened, and selected.

Beneke (2011) and Falender and Merson (1983) also emphasise that a student recruitment strategy should be well-documented, explicitly showing the institution's strengths and weaknesses, and it should include the current and future institutional resources and how they are to be utilised. According to Falender and Merson (1983), the body responsible for developing the student recruitment plan must include all the significant university managers, namely, the Admissions (or equivalent) personnel, the Academic Deans, the head of the institutional finance department, alumni and the student representatives. It is argued that there are several aspects which must be borne in mind when designing a student recruitment plan:

- i. Institutions need to evaluate their current population in terms of desired students and percentages. They should also be aware of the type of students currently enrolling such as those who have enquired about the institution, and were accepted, but did not enrol (Falender and Merson 1983).
- ii. Institutions and academic programmes have to clearly understand their desired students in terms of profiles and attributes, and what would be the most effective methods for attracting them to enrol (Falender and Merson 1983).

- iii. Detailed promotional methods, programmes and events that are going to be employed by the institution in order to attract its desired students in their expected numbers, would need to be formulated (Falender and Merson 1983).
- iv. Pretlow (2014) argues for programmes to employ a multi-pronged approach for attracting students into specific programmes. This approach consists of an element of personal contact (e.g. school visits) and the multiple exposures to the same information (e.g. programme brochures, career exhibitions, and other advertising mediums). To ensure that accurate programme information is available and easily accessible through many different media programme, representatives should also promote the programme through school talks and career exhibitions.
- v. Suitable tests for measuring the students' potential for academic success should be put in place. Testing forms an integral part of admission practices because HEIs have to balance the demands of merit, competence and social representativeness in their admission plans (Cronjé 2009). Badat (2011) argues that the first step in the admission process is determining the eligibility of prospective students through relevant tests. For many universities, entrance tests can be employed for two reasons, namely admissions and/or placement<sup>2</sup> (Cronjé 2009).
- vi. Also, for institutions to possess an effective admissions policy it is important to have retention criteria in their student recruitment plan (Cronjé 2009).

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<sup>2</sup> The term *placement* in respect of recruitment has a dual meaning, namely either placing students into a particular programme or placing the student in the appropriate entry level (i.e. mainstream or the extended curricula). For this study, the term *placement* refers to the latter definition.

After completion of the student recruitment plan, strong attempts should be directed at ensuring that the institutional faculties, administrators, current students and alumni know, understand and embrace this plan. The support provided by these groups is vital for the successful implementation of a personalised recruitment programme (Beneke 2011; Waeraas and Solbakk 2008; Falender and Merson 1983).

Higher Education Institutions globally are facing challenges such as a decrease in government funding, mergers between HEIs and an increase in competition among institutions. The transformation of HE in South Africa has placed pressure on HEIs to produce graduates qualifying in the minimum time while at the same time addressing equity and diversity (Jordaan and Wiese 2010). In addition, HEIs are forced to pay more attention to their outputs and to accountability in order to secure funding (Beneke 2011). As a result, Frolich and Stensaker (2010) encourage HEIs and related programmes to pay more attention to student recruitment as it can help to increase diversity in students' participation in those institutions where diversity has not been achieved. Ideally, prospective students look to enrol in specific educational programmes which they feel are suited to their personalities and will give them the opportunity to work in professions or industries which they enjoy. However, most HEIs rely on a handful of students who are organised, motivated and responsible enough to seek more information soon after seeing a single programme pamphlet (Pretlow 2014). To widen this base Pretlow (2014) strongly recommends that the programmes make strategic investments in their student recruitment plan. For a student recruitment strategy to be successful HEIs will have to understand who their prospective students might be, how their circumstances influenced them when they selected an HEI and/or

programme. This will allow the HEI to identify and address the needs of the students with methods which will attract, enrol and retain students in the appropriate programme.

### **2.5.3. Selection processes for Dental Technology students**

Dental Technology is an approved and registered health profession that deals with the restoration of the oral and facial structures through the construction of different dental prostheses (Skea 2010; Bass 2007). After completing the three-year National Diploma in Dental Technology, one becomes a qualified dental technician, a member of the dental team that works in a dental laboratory manufacturing dental prostheses from a written work order from a dentist.

In order for students to be considered for entry into the Dental Technology programme at the DUT, they must meet the minimum requirements as shown in Table 2.1 below.

**Table 2.1: Minimum entry requirements for the Dental Technology programme**

Entry Requirements DEPARTMENTAL NSC REQUIREMENTS		DEPARTMENTAL SENIOR CERTIFICATE REQUIREMENTS			NCV ENTRY REQUIREMENTS
<b>Compulsory Subjects</b>	<b>NSC Rating Code</b>	<b>Exemption or equivalent qualification</b>			i) At least 50% in three fundamental subjects, including English and ii) At least 60% in three compulsory vocational subjects
English (home) OR English (1st additional)	3	Compulsory Subjects	HG	SG	
Physical Science, or	3	English	E	C	
Maths or	3	Mathematics	E	B	
Maths Literacy	3	Physical Science	E	B	
And two 20 credit subjects(not more than 1 language)	3				

All the students who meet the academic minimum requirements are then invited to the placement test. The placement test allows for prospective students to be tested for manual dexterity and English proficiency. The practical element in the Dental Technology profession is definitely dominant, making manual dexterity one of the most important required abilities. Bass (2007:9) argues that "Student(s) who lack manual dexterity may not be successful in this profession".

The Standardised Assessment Test for Access and Placement (SATAP) and Teaching English to Speakers of Other Languages (TESOL) tests are then used to test for English proficiency, numeracy and science competency. These are seen as the main essential elements, combined with good manual dexterity. Such a combination can

assist in identifying the most suitable candidates for Dental Technology. After the assessments candidates who are successful are subsequently invited for individual interviews. The aim then is to gauge their proficiency in spoken English and personal drive for the programme (Bass 2007). The panel for these interviews has traditionally consisted of the Head of Department (HOD), a first-year coordinator and the Extended Curriculum Programme (ECP) coordinator.

Once the placement test has taken place, students are either admitted to enrol in the traditional course or in ECP. A maximum total of 28 students can enrol in the traditional course (which is inclusive of the students progressing from the EC programme), and a maximum of 30 students can enrol in ECP. "The policy of the Department of Dental Services is to offer places on the ECP to learners who do not qualify in terms of the standard entry requirements and/or who are under-prepared for tertiary education but have the necessary academic potential for success and who meet the national requirements for Higher Education" (Bass 2007:10).

The concern is that there is no evidence in the student recruitment practices, undertaken by the department, of any form of method used in order to attract the *desired* students. Therefore, this study seeks to understand all student recruitment practices at the DUT and those carried out in the Dental Technology programme specifically. The study also seeks to investigate ways in which students could be attracted to the Dental Technology programme. This study also wishes to understand the association between these practices and the current students' profiles.

## 2.6. Summary

This review argued that people are socialised from birth into discourses which make an invaluable contribution to the development of their cognitive and knowledge acquisition abilities. It was noted that the quality of social discourses is greatly affected by socio-economic status, which ultimately influences a student's university preparedness, performance and achievements in tertiary education. Hlalele and Alexander (2011) confirm that Black African students make up 72% of the student population. This is significant because the country is still recovering from apartheid which promoted racial segregation and inequality. This contributes to Black Africans being unprepared for HE as they are still part of the low socio-economic group of South African society and reside in areas where both basic education and service delivery are poor. This review argued (Bayat, Louw and Rena 2014) that, especially here in South Africa, there is a strong correlation between affluence and the quality of basic education, a factor which can negatively influence the preparedness for higher education of those persons coming from the low-income sectors.

The majority of students who enrol in South African universities are under-prepared for HE. In addition, many of them are first-generation students (Strydom, Mentz and Kuh 2010) and they are unfamiliar with educational programmes offered at Universities of Technology (UOTs) which are vocational in nature. This review pointed out that currently there is an increase in the number of qualified youth who are unemployed. This can be the result of either limited job opportunities or of poor career choices because of poor career guidance and counselling in schools. Ultimately, this situation suggests that South African HE is not delivering the relevant skills which are needed

by the labour market, and thus creating a critical gap in students' career development processes. The review showed that the current systems, both in basic education and in the career psychology field, have not been able to adequately address this area. Therefore, the career psychology sector has been encouraged by Watson (2010) to redefine its theory, research base and counselling and assessment approaches especially because an individual's career development options tend to be constrained by the contextual and systemic realities of the environments within which he/she lives. This review found that the current literature suggests that many Black African students make erroneous career choices due to a lack of adequate vocational guidance and career counselling, mainly in schools.

The review section on HE marketing established that there should be a direct link between the broader institutional marketing and the students' recruitment. It further highlighted the significant benefits of most marketing components to student recruitment and the fact that, although HE marketing and student recruitment seem to be intertwined, there is a definite difference between the two. However, HEIs are currently struggling when it comes to the proper implementation of the marketing concept.

There is limited literature relating to student recruitment strategies in general and, in particular, those focusing on programme-specific student recruitment strategies. The review debated the works of scholars like Pretlow (2014), Ramachandran (2010) and Falender and Merson (1983), and discussed the functions and the formulation of a

student recruitment strategy. Furthermore, the researcher offered a working definition of a student recruitment strategy established from the literature reviewed. A properly structured and implemented student recruitment strategy has the potential to ensure that the programme and the institution are able to attract, enrol and retain their most desirable students. Given the South African context, HEIs have to work very hard in order to overcome some of the challenges of under-preparedness, uninformed career choices and other challenges that are prevalent in this sector.

## Chapter Three

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### Methodology

#### **3.1. Introduction**

This chapter focuses on the research paradigm and methodologies adopted for this study. The main aim was to determine the association between the student profiles and the current recruitment practices in Dental Technology at DUT. Therefore, it was important to first describe the student profiles in the Dental Technology programme and secondly, to investigate the current student recruitment practices in Dental Technology at DUT from both the perspective of staff members and students who enrolled in the programme between 2008 and 2012.

A mixed-methods research approach was identified as the most suitable approach for achieving the objectives of the study, and this chapter will unpack how this research design and related methodologies were applied to this study.

#### **3.2. Research design**

Research takes place in many different contexts such as social, historical and/or political contexts and it is therefore important to understand that what happens both inside and outside of the mind plays a significant role in research (Creswell 2014). In simple terms, research is not fixed or limited to any single context or place. However, the researcher's actions and beliefs have to conform to certain standards and rules

that are commonly understood and recognised by the global research community (Joubish, Khurram, Ahmed, Fatima and Haider 2011). These standards and rules are collectively referred to as a research paradigm (Joubish *et al.* 2011). A paradigm is basically a worldview, the body of beliefs and values that gives birth to the frames and processes within which research is conducted (Taylor, Kermode and Roberts 2007)

This study employed the Pragmatic Paradigm (worldview), which Feilzer (2010: 8) asserts that it “sidesteps the contentious issues of truth and reality” and “focuses instead on ‘what works’ as the truth regarding the research questions under investigation”. The Pragmatic Paradigm eliminates position of dissimilarities between the two opposing worldviews. Thus allowing the researcher to combine a variety of research methods, worldviews and assumptions and this paradigm allows for employment of various forms of data collection and analysis (Creswell 2014). This paradigm is not devoted to any system of ideas and reality. According to Creswell, Klassen, Clark and Smith (2011) this paradigm employs “what works” because it is able to apply numerous methods which can help in addressing the research problem and questions, considering both objective and subjective knowledge. Hence, the researchers are able to choose and mix the methods, techniques and procedures of research which present the best possibilities of answering the research problem and questions (Creswell *et al.* 2011). According to these scholars, this worldview is also helpful in resolving theoretically misunderstood problems that may otherwise remain unresolved. This paradigm allows for the interpretation of each notion through the identification of its respective practical consequences. It should be noted that this paradigm exists in many forms but, for most researchers, the pragmatic worldview

arises from actions, situations and consequences rather than prevailing conditions (Creswell 2014), and this makes it suitable for this study.

This study aimed to determine the association between the current student recruitment practices and student profiles in the Dental Technology programme at DUT. In order to achieve the above, it was critical that all the concerned population groups be fairly represented in this study. This called for data to be collected from all these relevant sample groups which included the DUT staff members (those involved in student recruitment practices and the Dental Technology lecturers) and the Dental Technology students. However, in order to access Dental Technology students, secondary data (students contact and demographic information) had to be obtained from the DUT's MIS Department. Due to varying population sizes, accessibility of sample groups and the nature of the data that was to be extracted from each population group different data-collection instruments had to be employed. Pragmatism seems to be one of the best-suited paradigms as it allows a mix of methods that does not compromise or break the standards and rules that are commonly understood and recognised by the global research community.

This is a cross-sectional study, which employs the concurrent mixed-method research design. According to Sedgwick (2014) cross-sectional studies are used to gather data on a population at a single point in time, and either the entire population or representatives of the population can be chosen to take part in the data-collection process. Furthermore, according to Zhang and Watanabe-Galloway (2013) the mixed-

methods research approach combines the elements of both the qualitative and quantitative methods, and this allows for the results to be understood and verified both in intricacy and richness. The mixed-methods research design is a set of events used for gathering, analysing and combining both quantitative and qualitative data in a single study (Creswell and Plano Clark 2011). The main underpinning of this approach is that quantitative (statistics) data together with the qualitative (detailed interview transcripts) data should yield similar results (Creswell 2014). Furthermore, combining both quantitative and qualitative research methods affords this study the benefit of both these methods and at the same time overcomes the limitations of each method (Creswell 2014). Therefore, both the qualitative and quantitative data was collected concurrently in their entirety and were only mixed at the data-interpretation stage.

Traditionally, most research done in the health sciences and, in particular, the dental fraternity tend to follow the positivist, quantitative research methodologies (Laher 2009). Many researchers in this field believe that the only reliable form of research is that done in the scientific mode. The common belief is that this type of research conforms to numbers that can be subjected to statistical analysis (Laher 2009).

*The quantitative approach is used for testing objective theories examining the relationship among variables. Consequently, statistics data is generated through the use of large-scale samples. The variables can then be measured, using a suitable data collection instrument, so that numbered data can be analysed using statistical procedures. The approach overall is systematic and controlled and can be scientifically validated.* (Creswell 2014: 20).

According to Sukamolson (2007) quantitative research has an aura of scientific respectability in that the use of statistics allows for findings to be presented in graphs and table formats which convey a sense of solid, objective research. Furthermore, quantitative studies normally target large numbers of participants and, therefore, the finding can be generalised across the study population. However, the weakness of this type of research is that it tends to produce very broad and general findings that lack depth. Thus, to a large extent, this methodology neglects the fact that world realities are neither fixed nor single and therefore people's views and realities are bound to differ and yet, at the same time, they are all relevant (Williams 2007). Additionally, people's opinions and their experiences cannot be measured numerically and in most cases these elements are also unpredictable and are not easily analysed through statistics (Laher 2009). As a result, when most researchers want to study these elements they often employ another research approach which is known as qualitative research.

*Qualitative research is an approach used for exploring and understanding the meaning individuals or groups ascribe to a social context of human problems. This is can be achieved by exploring opinions, experiences and social changes through interviews or focus groups. It attempts to get in-depth opinions from participants. Fewer people take part in the research, but the contact with these participants tends to last much longer. Data analysis inductively builds from particular to general themes, and the researcher makes interpretations of the meaning of the data.*

(Creswell 2014:20)

The purpose of the qualitative methodology is to uncover the meaning of phenomena and to improve practice and develop theory. However, because of its limited degree of generalisation, researchers tend to worry over the extent to which the findings can be applied.

It is clear that quantitative and qualitative approaches show notable differences in their strengths and weaknesses, as outlined above. Based on the type of research problem to be studied, these approaches need to be seen as alternative research strategies rather than opposing (Zhang and Watanabe-Galloway 2013).

The above discussion on both the quantitative and qualitative approaches informed the decision to mix these research methods in this study. The primary principle for mixed-methods research is that qualitative and quantitative data together can provide the best means to answer the research question (Creswell 2014). Furthermore, Zhang and Watanabe-Galloway (2013) argue that the mixed-methods research merges elements of the qualitative and quantitative research approaches and helps to comprehend and corroborate the study results in both depth and breadth.

In the light of the above the quantitative approach was used for this study as it can be analysed using statistical tests and the results are presented in graphs and tables. The qualitative approach allows for the understanding of people's opinions and experiences and how these influence the current practices in the recruitment of Dental

Technology students in particular. It was believed that this combination of both the quantitative and qualitative research methods would yield solid and objective research results with sufficient depth.

### **3.3. Research setting**

This study was conducted at the DUT in the Dental Technology programme in the Faculty of Health Sciences and with the Student Recruitment Unit of the Corporate Affairs Division. Permission to conduct the study was obtained from the Research and Postgraduate Support Division, which provided access to data from all relevant departments and divisions.

### **3.4. Study population and sampling**

Students and academic staff from the Dental Technology programme and other relevant DUT staff involved in student recruitment participated in the research study, and the sampling for each study population is detailed below.

#### **3.4.1. Population for the quantitative approach**

This population consisted of total of 157 students who registered for the National Diploma: Dental Technology at DUT between 2008 and 2012. From this population, only the South African Dental Technology students who enrolled for National Diploma

at DUT from 2008 to 2012 were invited to participate in this study. Out of the 131 students who were invited to participate in the study, only sixty students responded.

#### **3.4.2. Population for the qualitative approach**

This sample group included DUT staff members who worked as lecturers in the Dental Technology programme from 2008 to 2012, and those who were involved in the student recruitment practices at DUT. Out of the total of eleven lecturers employed in the Dental Technology programme during the study period, five were no longer working at DUT and were not included in the study.

The staff who work with student recruitment at DUT and who were included in the study included the three personnel working in the Student Recruitment Unit, two employees from the Corporate Affairs Division and the Dean of Students.

Purposive sampling was employed to generate qualitative data for this study. This type of sampling is utilised when the desired population for the study is limited or not easy to find and therefore participants are selected for theoretical reasons, i.e. they are good examples of the phenomena (Palys 2008). Both the Dental Technology lecturers and the staff members involved in student recruitment practices were seen as relevant and had the potential to produce the most valuable data for this study.

The researcher wanted to understand the views of all these staff members. However, access to the Dental Technology staff who had left the programme proved to be challenging as some have relocated and/or left the country.

### **3.4.3. Recruitment of the participants**

After the Ethical Clearance and the necessary permissions to undertake the study had been obtained, participants' contact information was released to the researcher and all potential participants were invited through emails and/or telephonic communication to participate. The information letter which provided an outline of the research was sent to all potential participants, and those persons agreeing to participate in the study were then required to complete an informed consent form, which was provided in both hardcopy and electronic versions.

### **3.5. Data-collection instruments**

For this study, both primary and secondary data was collected. Primary data is the data which is unpublished and that the researcher has gathered from the people or organization directly (Lise 2007). For this study, two categories of primary data were gathered through:

- A Survey Questionnaire (Quantitative instrument - refer to appendix 6) which was completed by Dental Technology students who enrolled between 2008 and 2012.

- Semi-structured interviews (Qualitative instrument - refer to appendix 7) which were answered by Dental Technology lecturers and staff members from the student recruitment staff.

Secondary data was obtained from the MIS Department at DUT, consisting of students' information and their contact details (refer to Appendix 8).

### **3.5.1. The quantitative instrument: Survey questionnaire**

For this study, an online survey questionnaire was employed as a data-collection instrument. A questionnaire is one of the most commonly used instruments for collecting data in cross-sectional studies (Sedgwick 2014). The online questionnaire was designed using Google Forms. The questions were both understandable and relevant to the purpose of the research and consisted of different types of questions i.e. closed-ended questions, partially closed-ended, open-ended and Likert-scale questions. The online questionnaire also included the information letter and the informed consent form.

The questionnaire structure comprised six sections:

- Section A included questions relating to the demographics of the students,
- Section B focused on the university preparedness of the student,
- Section C covered questions relating to the student's performance,
- Section D was about the attributes of Dental Technology students,
- Section E addressed student choice factors for Dental Technology as a career

- Section F covered questions regarding student recruitment.

The online questionnaire was collectively administered in one of the computer laboratories in the Faculty of Health Sciences to all the Dental Technology students who were enrolled at DUT for the study period 2008 to 2012.

Invitations to participate in the study were sent to all prospective participants who had completed the programme and were not current students through email, social media and telephonic communication. The link to the online was sent to them via email. Follow-up emails were sent to prospective participants to improve the response rates.

#### **3.5.1.1. Validity and reliability of the questionnaire**

Validity, in terms of a questionnaire, refers to the extent to which the questions provide a true measure of what they were designed to measure. Hence the content and presentation of the questionnaire can influence its validity (Field 2010; Smith 2010). As a result, all questions were clear and easy to understand, improving their potential to produce accurate information, and were designed to fulfil the objectives of this study. The reliability of a questionnaire relates to its ability to produce the same results if tested several times (Field 2010; Smith 2010). In order to examine the questionnaire's reliability, a test-retest method was used. According to the authors cited above, the test-retest method requires of the questionnaire to produce similar results when administered to the same person on two separate occasions.

In order to verify the validity and test the reliability of the questionnaire, a pilot study was carried out. A pilot study assists in the checking of the appropriateness of the instrument and ensures that the questions are not complicated. One B-Tech Dental Technology student was requested to complete the questionnaire twice on different occasions, a week apart. All the necessary corrections and adjustments were done before the commencement of the actual study; there was no evidence of variation on the data obtained therefore the questionnaire was deemed valid and reliable.

### **3.5.2. The qualitative instrument: Semi-structured interviews**

Semi-structured interviews allow for a natural conversation to take place as they are the main form of human interaction and are therefore well suited for the collection of qualitative data (Alshenqeeti 2014). The qualitative data was gathered through semi-structured interviews using a list of questions which served as a guide for the conversations. The researcher added other probing questions as required. The questions were sent to all interviewees prior to the interview allowing the participants to prepare in order to improve the quality of the conversations. All interviews were recorded using a digital voice recorder and ran for approximately one hour. All the participants were interviewed in their place of convenience, with minimal levels of noise and potential for disruptions.

### **3.5.2.1. Validity**

In order to check the appropriateness of this instrument, and ensure that the questions were not too complicated, the semi-structured interviews were also piloted. The pilot participants included one trainee staff member from Student Recruitment and one Dental Technologist who had lecturing experience. These participants were excluded from the main study. All the phrasing and layout adjustments were made, and the outcomes of these interviews helped in re-defining the probing questions for the actual interviews.

Validity, in qualitative research, relates to whether the findings are appropriate and accurately reflect the real situation and are backed by evidence (Leung 2015). Triangulation is a procedure for increasing and verifying validity by incorporating a number of viewpoints and methods (Yeasmin and Rahman 2012). For this study Data Triangulation was employed in order to ensure the validity of the study. Data Triangulation refers to the combination of two or more sets of data in one research study of a single phenomenon to converge on a single construct (Yeasmin and Rahman 2012). Hence, data for this study was obtained from three different populations (i.e. Dental Technology staff, students and student Recruitment Department).

### **3.5.2.2. Trustworthiness**

The trustworthiness of the study was established through the employment of a non-judgemental behaviour pattern on the researcher's part, and the researcher was open to all responses during the interview process. Furthermore, the interview questions were phrased in the simplest manner possible. The simplicity of the interview questions was checked during the pilot study. Although the research participants are known to the researcher, the researcher remained objective and behaved in a formal manner at all times mainly focusing on the interview questions and general interview guide line. The anonymity of all participants in reporting was ensured, and they were only identified by codes: Lecturer and/or Student Liaison Officer (SLO) one, two, three, etc. Recorded interviews remained private and confidential.

### **3.6. Data analysis**

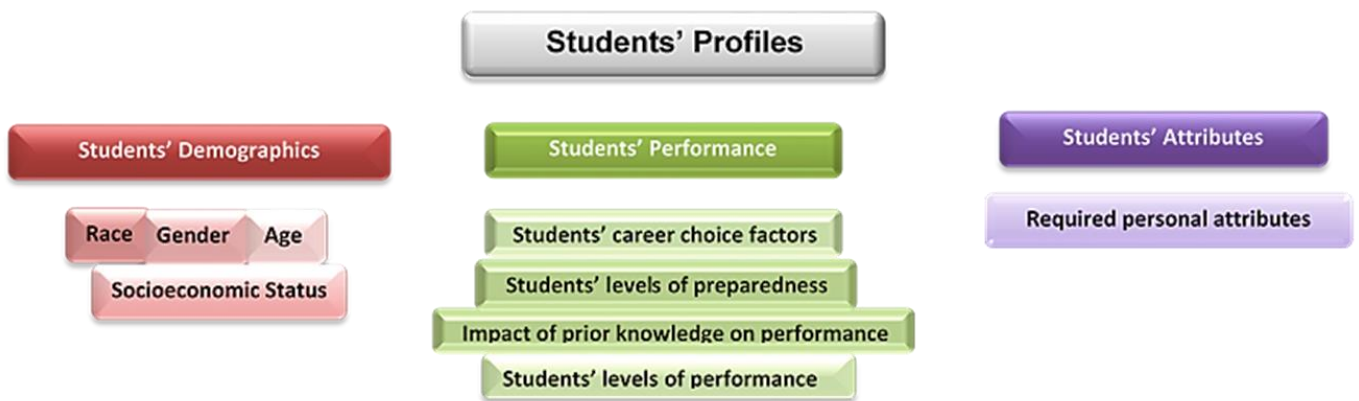
The quantitative data, gathered through the online questionnaire, was analysed using version 23.0 of SPSS (Statistical Package for the Social Sciences) software. The SPSS programme prepares data for analysis and it helps to analyse data through building charts and formulating hypotheses for other tests, clarifying relationships between variables, creating clusters, identifying trends and making predictions (Field, 2010). The qualitative data from the recorded semi-structured interviews was transcribed and using the NVIVO 10 software this data was analysed to identify themes relating to the student recruitment process and student profiles (demographics, university preparedness, career choices, student performance and graduate attributes).

Thematic content analysis is traditionally a conventional practice in qualitative research, which involves searching through the data to identify any recurrent patterns. According to Vaismoradi, Jones, Turunen and Snelgrove (2016:101), a theme is the main product of data analysis that yields practical results of linked categories conveying similar meanings.

For the purposes of clarity, the analysis of the data will be presented according to the study's objectives, as follows:

**Objective 1:** To investigate student profiles in the Dental Technology programme for the past five years.

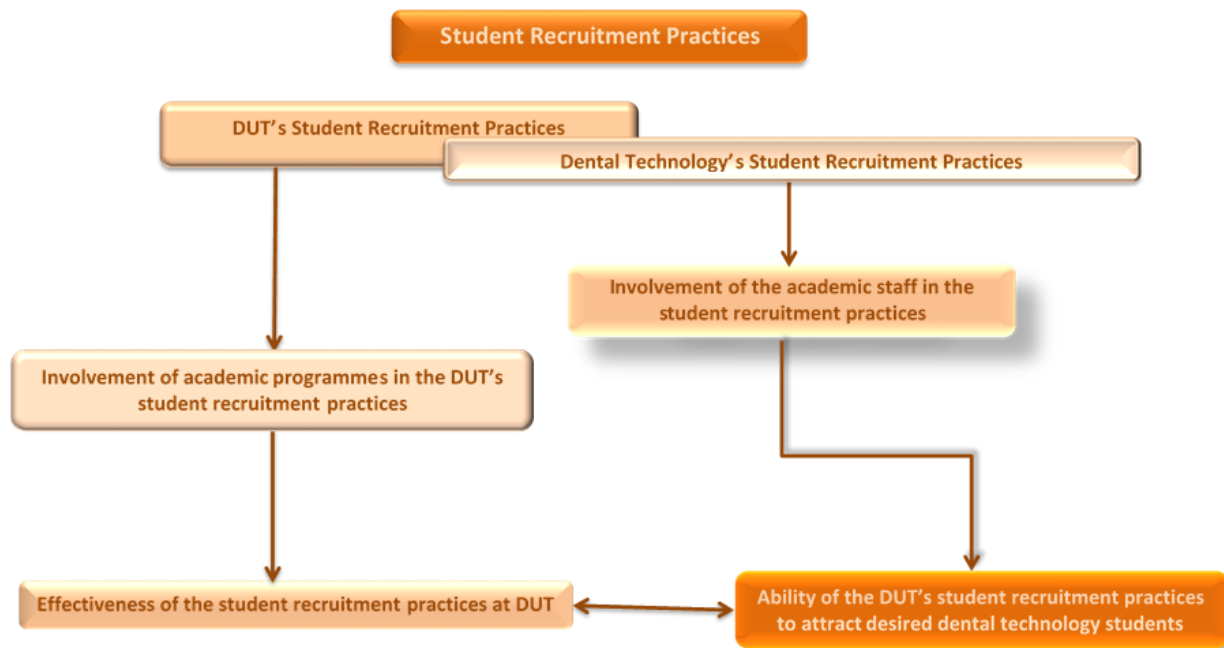
As indicated previously, student profiles are defined as to include student demographics, student performance and student attributes, and this is illustrated in Figure 3.1 below. The quantitative data relating to student profiles was analysed using descriptive statistics which helped to describe the main features of the data with the aim of summarising the data sets. For this section the analysis was done through cross-tabulation and frequencies and the subsequent data was presented through tables and graphs. In the case of the qualitative data the themes relating to student profiles were identified and summarised through figures and as direct quotations of statements from the interviews.



**Figure 3.1: Constituents of predetermined themes under Student Profiles**

**Objective 2:** To investigate the student recruitment practices used by the DUT and by the Dental Technology programme.

Most of the data relating to this objective consisted of qualitative data, and the relevant themes are shown in Figure 3.2 below, in the order in which they are discussed in chapter four. Direct quotations of statements from interviews were included in support of the themes. A small portion of quantitative data was analysed using descriptive statistics and frequency tables and was presented in a graph format.



**Figure 3.2: Predetermined themes under student recruitment practices**

**Objective 3:** To determine the association between the student profiles and the current recruitment practices.

Student recruitment practices are also expected to comprise the DUT's institution-wide student recruitment practices and those which are dental technology-specific (refer to objective two).

In order to adequately address this objective, the quantitative data was analysed using cross-tabulation, the responses were correlated with the students' demographic and academic performance information. Cross-tabulations help to show whether being in one category (demographic or academic performance) of the independent variable influences the likelihood of being in a particular category (exposure to DUT's student recruitment) of the dependent variable. In turn, this allows the researcher to examine

the association between student profiles and the current recruitment practices. Moreover, the Chi-Square Test, together with the cross-tabulation tables, was used to determine whether or not a statistically significant relationship exists between student profiles and student recruitment practices student profiles and student recruitment practices were independent of one another not a statistically significant relationship exists between student profiles and student recruitment practices (Cunningham and Aldrich 2012).

**Objective 4:** To identify the desired personal attributes for the Dental Technology programme.

Due to the unique nature of the Dental Technology profession and the environment and working conditions to which students will be exposed this objective aimed at understanding the personal attributes which the Dental Technology lecturers considered desirable for the programme. Lecturers were asked to identify these and the themes which emerged were then summarized and presented in a diagrammatic form. In addition, students were also asked which attributes they possessed, and these findings were analysed using frequency tables but presented through a graph.

**Objective 5:** To investigate the factors that inform the students' choice of Dental Technology as a career.

The data obtained under this objective was quantitative and, therefore, analysed through cross-tabulations and frequency tables.

**Objective 6:** To describe the relationship between the students' choice of Dental Technology as a career and the desired personal attributes.

Data pertaining to the factors which informed the student's choice of Dental Technology consisted of quantitative data which was a combination of nominal and ordinal data. Data relating to desired personal attributes for Dental Technology consisted of qualitative data and quantitative ordinal data and was then analysed using the Spearman's Rank Order Correlation which may be denoted as  $r_s$  or rho in SPSS. This test measures the strength of the association of two ordinal/ranked variables by giving a value somewhere between positive one and negative one, and is called the correlation coefficient. Cunningham and Aldrich (2012:164) state that "A positive correlation coefficient indicates a positive relationship between the two variables (i.e. both A and B are in harmony) while a negative correlation coefficient expresses a negative relationship (i.e. A and B are in disharmony)." If the correlation coefficient is zero that means that no relationship exists between the variables.

### **3.7. Ethical considerations**

Researchers need to protect their research participants; develop trust with them; promote integrity of research; guard against misconduct and impropriety that might reflect on their organisation or institutions; and cope with new challenging problems (Creswell 2014:92).

The preparation for this study included a proposal detailing all the anticipated plans and procedures for the study. The proposal included all the templates of the permission letters sent to the Director of the Research and Postgraduate Support Division, Department Heads for Dental Sciences, Student Recruitment and Corporate Affairs; as well as the information letters and the informed consent form for the research participants. The proposal was then approved by three different bodies within the institution in the following order:

- a) Departmental Research Committee (DRC)
- b) Research and Higher Degrees Committee (RHDC),
- c) Institutional Research Ethics Committee (IREC)

The IREC approved and granted Ethical Clearance (refer to Appendix 1) for the research study, with a condition that a pilot study was done. This was carried out to ensure that no errors were present in any of the research instruments so that necessary adjustments could be made prior to the actual data-collection process. The researcher obtained the full ethical approval and permission to conduct the research at the DUT and the permission to access information for research from the Director of Research and Postgraduate Support (refer to Appendices 2 and 3). Once these permissions were received, the data-collection process commenced.

All participants were invited to participate through e-mails and/or telephone calls. They received the information letter (refer to Appendix 4) that clearly explained the entire research procedure. This letter also highlighted the fact that participation in the study was voluntary. All participants agreeing to take part in the study were required to sign

the informed consent form (refer to Appendix 5) before participating in the data-collection process.

During data analyses, objectivity was maintained at all times and the anonymity of all participants was always guaranteed.

The reporting and the sharing and storing of data were done in an appropriate manner and adhered to the Ethics Guidelines thus promoting research integrity. The data collected through the interviews and cross-sectional survey will be stored in a locked cabinet for 15 years after which it will be shredded. All electronic data will be deleted. Only the researcher and the supervisor will have access to the data collected, and will be discarded in a manner that would ensure the participants' privacy. Polled and analysed results may be shared with participants after the study has been completed.

## Chapter Four

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### Results

#### **4.1. Introduction**

In this chapter, the data is presented in the form of figures, tables and narratives with the goal of addressing the aim and objectives for this study. This chapter will be structured according to the objectives of this study as set out in chapter three.

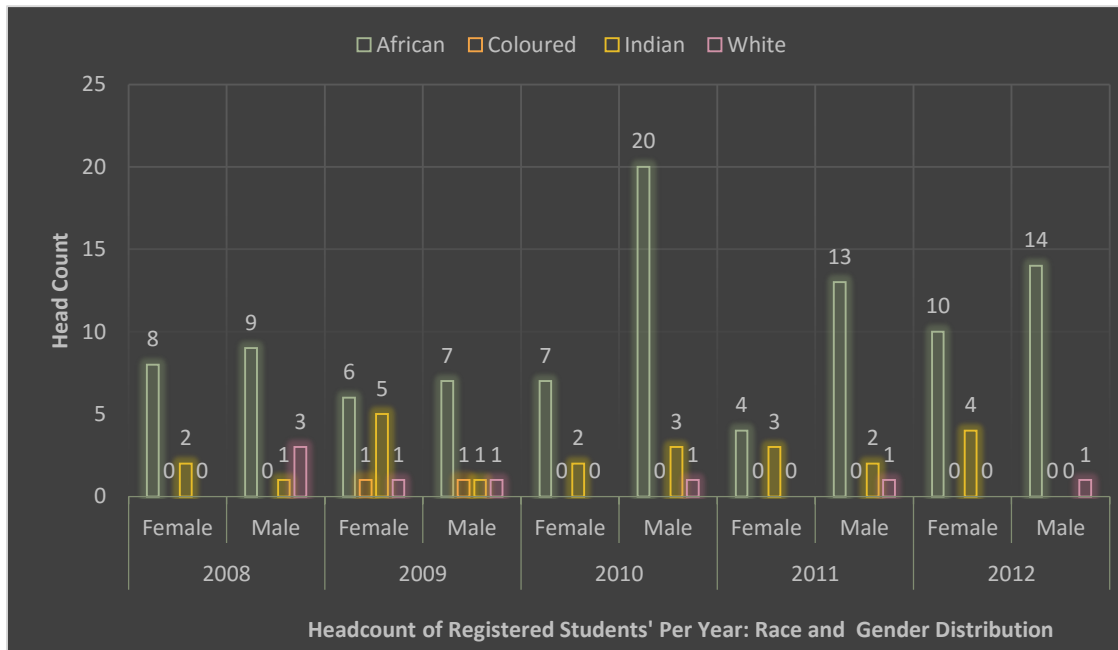
From the 131 Dental Technology students who were approached to complete the online survey, 60 responded resulting in a response rate of 46%. Seven out of the 11 Dental Technology lecturers who lectured in the programme between 2008–2012 availed themselves for the interview. Six staff members who are involved in student recruitment at DUT were also interviewed.

#### **4.2. Student profiles in the Dental Technology programme from 2008 – 2012**

##### **4.2.1. Demographics**

The students' demographic profile which is inclusive of race, gender, and socioeconomic status is described below.

The race and gender of the first-time entering Dental Technology students as obtained from DUT's MIS are shown in Figure 4.1 (n=131).

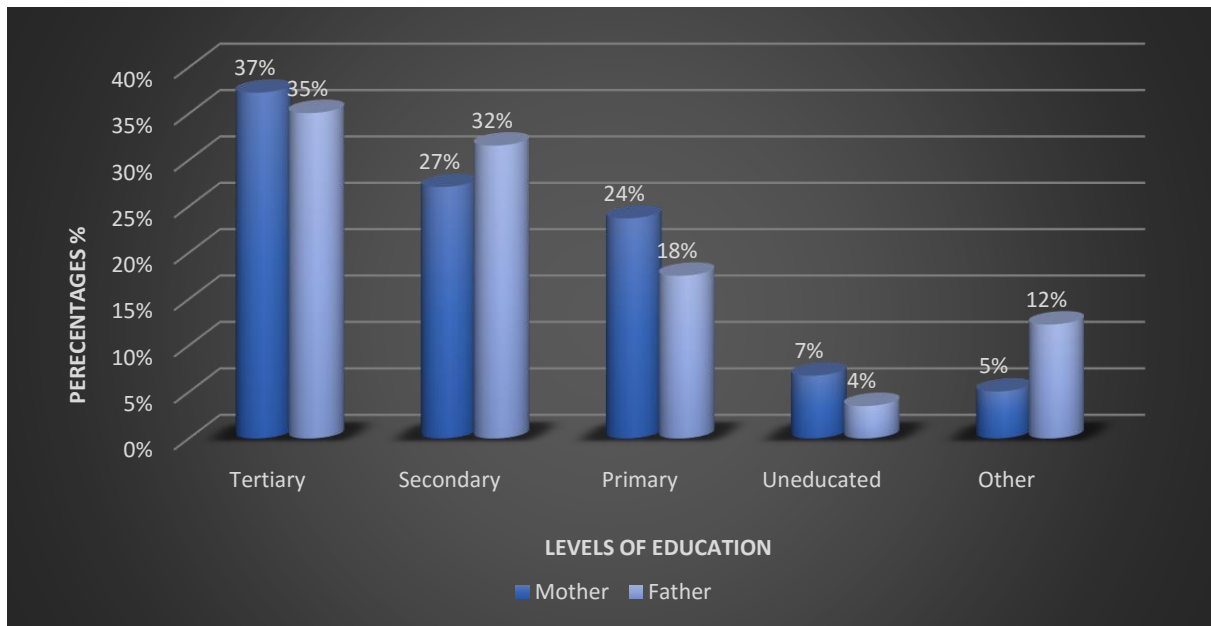


**Figure 4.1: Student head-counts by race and gender for the period 2008 to 2012 in the Dental Technology programme**

The majority of the students' year on year were African and male.

#### 4.2.2. Socio-economic status

In order to get an indication of the students' socio-economic status, data relating to the parents' level of education, parents' employments status, the type of schools that students attended, and the information regarding payment of their tuition fees was gathered and is presented in this section.

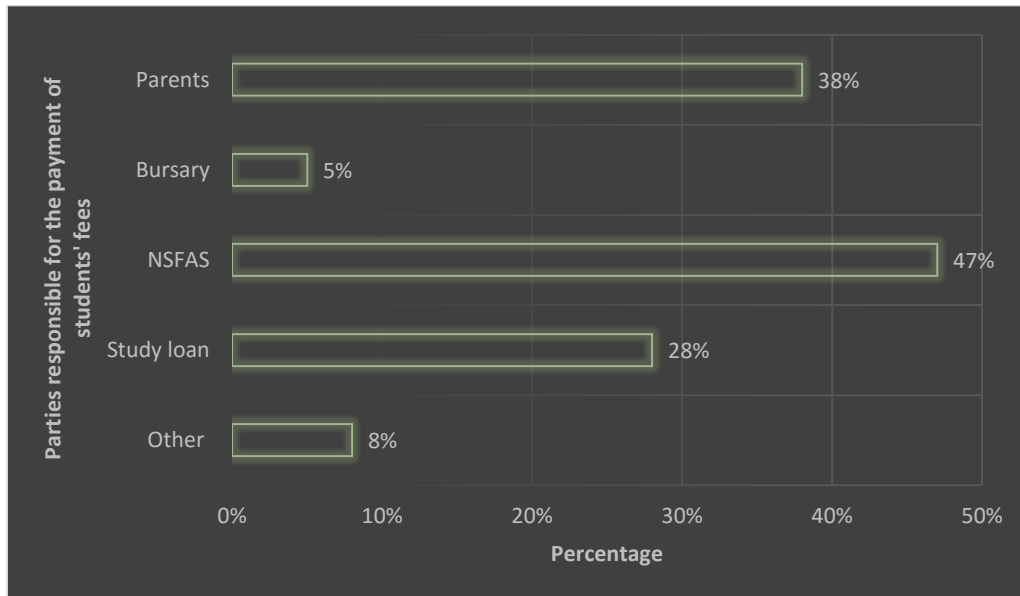


**Figure 4.2: The educational status of the students' parents**

In addition to figure 4.2 the investigation revealed that 39.2% of parents were working as professionals, 30% were unemployed, 11.4% were unskilled workers and 19.4% of parents were self-employed. To add to an understanding of the social status of students, the type of schools they attended was also determined. Of the students, 81.4% attended government schools, 13.6% went to private schools, 3.4% attended missionary schools and only 1.7% studied in technical schools. In relation to the above, it is important to note that the survey revealed that only 28% of students were originally from urban areas, while 31% of them were from peri-urban areas and the majority of 41% came from rural areas.

In order to gain a thorough indication of the students' socio-economic status, we asked about the mechanisms they were using to pay for their fees. Figure 4.3 shows the parties responsible for the payment of the students' tuition fees. Worth noting is the

fact that 57% of students relied on financial support other than from their parents or bursaries.



**Figure 4.3: Student responses to payments of fees**

#### **4.2.3. Factor which influence students' performance**

For this study, the factors which are seen as influencing students' performance include: university preparedness and the significance and impact of the students' prior knowledge about the programme, and students' social background. This study considered these factors and the data relating to these factors is presented.

##### **4.2.3.1. University preparedness of Dental Technology students: Lecturers 'responses**

Firstly, lecturers were asked to define university preparedness and from their responses, three themes emerged: personal preparedness, academic preparedness and social preparedness.

The three themes under university preparedness were further analysed and a list of characteristics which emerged are shown in table 4.1.

**Table 4.1: Lecturers' perspectives on the University preparedness of students**

<u>PERSONAL PREPAREDNESS</u>	<u>ACADEMIC PREPAREDNESS</u>	<u>SOCIAL PREPAREDNESS</u>
<ul style="list-style-type: none"> <li>• Independent thinker and worker</li> <li>• Self-discipline</li> <li>• Ability to socialise</li> <li>• Mentally (academically) matured</li> <li>• Self-driven and competitive</li> <li>• Motivated</li> <li>• Good work ethics</li> <li>• Committed</li> <li>• Positive attitude and hard working</li> <li>• Pro-active</li> <li>• Time management skills</li> <li>• Mentally prepared for HE</li> </ul>	<ul style="list-style-type: none"> <li>• Meet the minimum entry requirements.</li> <li>• Have the specifically required subjects</li> <li>• Understand educational assessments.</li> <li>• Understand how to write assignments.</li> <li>• Have basic writing skills</li> <li>• Be able to communicate in English</li> <li>• Understand the profession you have an interest in.</li> </ul>	<ul style="list-style-type: none"> <li>• Affordability of HE and related needs.</li> <li>• Students should be prepared for the requirements and expectations in HE.</li> </ul>

When lecturers were asked about the state of preparedness of Dental Technology students, they were of the opinion that students were not fully prepared for HE. They postulated that students were lacking in some major areas which include a positive attitude, independence, passion, discipline, a sense of responsibility, mental maturity, academic consistency and communication skills. This notion is evident in the quotations below:

*“... With the students that are here, I do not think they are prepared, they do not plan ahead...it is like they do not see themselves progressing into the next level. They are not proactive. The worse thing is that they have learner guides with all the guidelines, but they wait for me to hold their hand” (Lecturer 5).*

*“... They are more confident, better equipped to question, but they are less disciplined than previous students. They do not pay enough attention or concentration to their studies...” (Lecturer 2)*

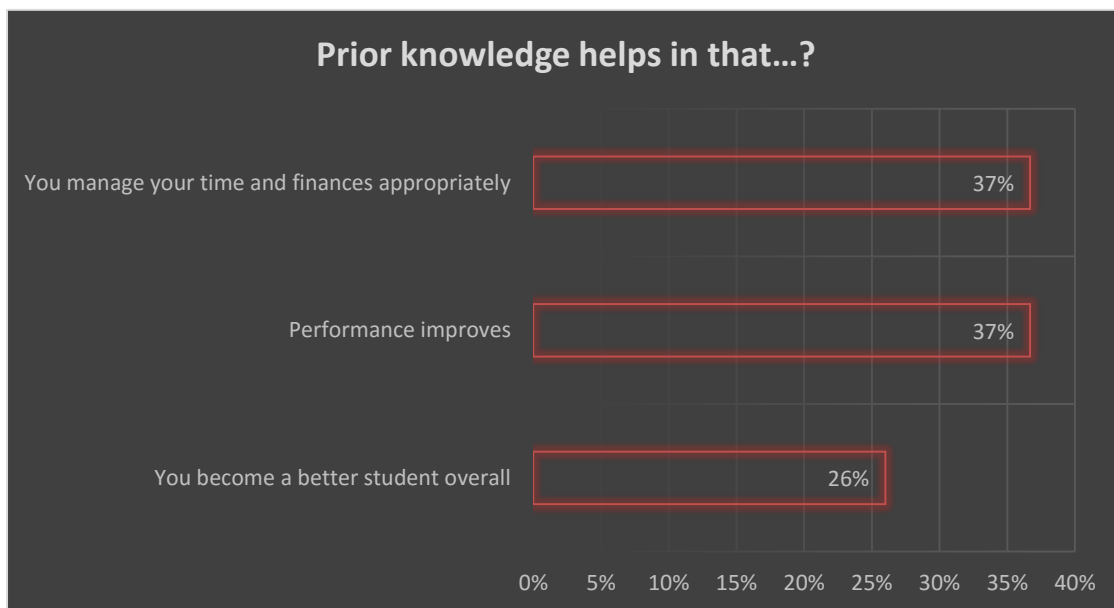
#### **4.2.3.2. University preparedness of Dental Technology students: Students' responses**

In order to establish students' perceptions of their levels of university preparedness, students were asked the questions, as seen in Table 4.2 that also includes a summary of the students' responses to these questions.

**Table 4.2: Students' responses on their preparedness for higher education (n=60)**

Questions related to the preparedness of students	Yes
Overall, would you say that your Secondary Education and school resources adequately prepared you for HE?	40 (66.7%)
Did you find it easy to adjust to Higher Learning?	32 (53.3%)
Did you receive career guidance while you were in school?	45 (75%)

**4.2.3.3. Prior knowledge about the Dental Technology programme: students' and lecturers' perspectives**



**Figure 4.4: Students' responses on their prior knowledge of the Dental Technology programme**

All lecturers indicated that it is imperative for students to possess prior knowledge of any programme in which they might want to enrol. They further stressed the importance of knowing about Dental Technology, especially because the programme

requires a unique set of skills, attitude and personality. One of the lecturers expressed this notion very clearly, and is quoted below.

*“It is extremely important for students to come in with correct background knowledge about the programme...because we are a specialised field that is not suited for everybody, due to the working conditions, the fact that it is not a very social career, and that it requires a very specific set of skills. I mean you have to be enjoying working with your hands and you have to enjoy making things. That type of a challenge is not for everybody. So the better informed they are, the better off they will be.”* (Lecturer 5)

In addition, further analysis of the lecturers’ responses regarding the importance of having students come in with prior knowledge about the programme revealed other academic benefits, and these benefits were condensed into three themes, namely:

- Improvement of students’ preparedness: basically, lecturers indicated that prior knowledge of the programme helps in improving students’ preparedness for the programme and prepares students mentally for the industry which they will be joining after they qualify.
- Enhancement of students’ intrinsic qualities: under this theme, lecturers’ views indicated that prior knowledge of the programme supports the stimulation of students’ interest, dedication and passion for both the programme and the industry which they will join later.
- Promotion of good teaching and learning practices: lecturers also indicated that when students come in with a good understanding of the programme, students’

participation in class improves and lecturers are able to use more effective or advanced methods of teaching.

Below is one response from a lecturer who was asked whether she/he thought it was important for students to come with background knowledge and it sums up the above themes:

*“Yes, I think it’s very important. Going back to the point that I raised earlier...about having passion for what you are doing and your industry... When it comes to education, you need to be prepared, you need to know where you are going, and you need to have a vision and a goal ... it is very important for students to have background knowledge and I also think it makes it easier for us as lecturers because it will enable discussions in the class... It improves the teaching methods and improves the quality of the learning process”*

(Lecturer 1)

#### **4.2.3.4. Significance of prior knowledge to students’ performance**

Eighty-one percent of students and 55% of the lecturers indicated that there was no link between prior knowledge about the programme and academic performance. The lecturers (90%) believed that for some students, if they find themselves dissatisfied with the contents of the programme or when their ability to comprehend information is low, their levels of motivation decrease and this definitely impacts on their performance.

*“... if they do not know anything about the course and it is not what they wanted then their motivation levels are low and their performance decreases... but it is not all students. Some students who have poor background knowledge might come in and do well. So it is only the case when the student does not enjoy what they are doing and obviously the motivation goes down as well”* (Lecturer 5)

Ten per cent of the lecturers strongly believed that those students who maintained good relationships with Dental Technology laboratory owners and continued to work during the vacation periods generally performed better and developed the skills and qualities required of professional dental technicians.

### **4.3. Student recruitment strategy**

In order to understand the student recruitment strategy employed at the Durban University of Technology (DUT) and in the Dental Technology programme, the focus was on understanding the marketing and promotion processes employed as well as type of students targeted by the institution, DUT's student recruitment practices, the involvement of the academic departments, the general effectiveness of the DUT's student recruitment practices, the Dental Technology student recruitment practices, and the ability of DUT's student recruitment practices to attract suitable students for the Dental Technology programme.

#### **4.3.1. Marketing and promotions**

The Advertising, Corporate Branding and Marketing Department handles the branding of the university, and their main focus is to restore and raise the profile and brand awareness of the university in the public's eye through advertising in different media platforms. The manager of this department described their core function as follows:

*“... to develop [and implement] a marketing plan that will assist to raise the profile of the university, create brand awareness but most importantly to change public perceptions of DUT. Together with the senior director of Corporate Affairs, we have been exploring various media tools to market the university”*

(Manager 1)

#### **4.3.2. Student recruitment practices at the Durban University of Technology**

The Durban University of Technology was found to be using two basic techniques as part of their student recruitment practices, i.e. branding and direct promotion. These activities are managed by the Marketing and Communication Unit and the Student Recruitment Department under the Division of Corporate Affairs respectively

The Student Recruitment Unit is responsible for promoting DUT directly to school learners by informing them about the study opportunities available at the DUT and the career paths associated with these programmes. This is achieved through a brief PowerPoint presentation which describes the status and position of the institution in relation to other HEIs, i.e. structure of the qualifications available, different faculties

and their programmes, their minimum entrance requirements and the duration of these programmes.

According to the staff members that are involved in the student recruitment practices at DUT, they target all schools South Africa that have a minimum 60% pass aggregate and preference is given to schools that offer mathematics and science subjects. The data revealed that DUT's student recruitment practices include open days, school visits, principals' and guidance counsellors' seminars, parents' evenings, career exhibitions, leaflets and brochures, distribution newspapers and radio advertising, Central Applications Office (CAO), billboards, career workshops and the DUT's website. The responses from the DUT Student Recruitment staff show that they target potential applicants who meet the institution's minimum entrance requirements. They further argue that they do not see their target market as any different from those of traditional universities or technical colleges.

When the Dental Technology lecturers were uncertain when they were questioned about the DUT's student recruitment practices. Individually they were only able to recall one but not more than three forms of recruitment practices employed at DUT. It was found that the academic departments at DUT are only partially involved in the student recruitment practices. According to the DUT's student recruitment team, academic departments are only consulted if and when there is perceived to be a need; for instance, when there is a query or when they are invited to a school talk or exhibition. It was further reported that the academic departments' role in the student

recruitment process is to display and attend to the designated stand during the annual DUT Open Day and to update the programme's entry requirements on the DUT brochures and leaflets, as per the interview comments below.

*“We only engage them when it comes to the planning of an open week. And that is because we operate on different spheres, meaning to say, they run their own sector and so are we” (Manager 2).*

*“... well they actually stipulate the entry requirements. There are times when I invite departments to accompany me to school visits... Ahem, faculties are not very much involved with me...they interact with Student Admissions Office when updating the entrance requirements...I am not directly involved with them unless during open days because that is where we all get to work together” (SLO 1)*

#### **4.3.3. Student recruitment practices for the Dental Technology programme**

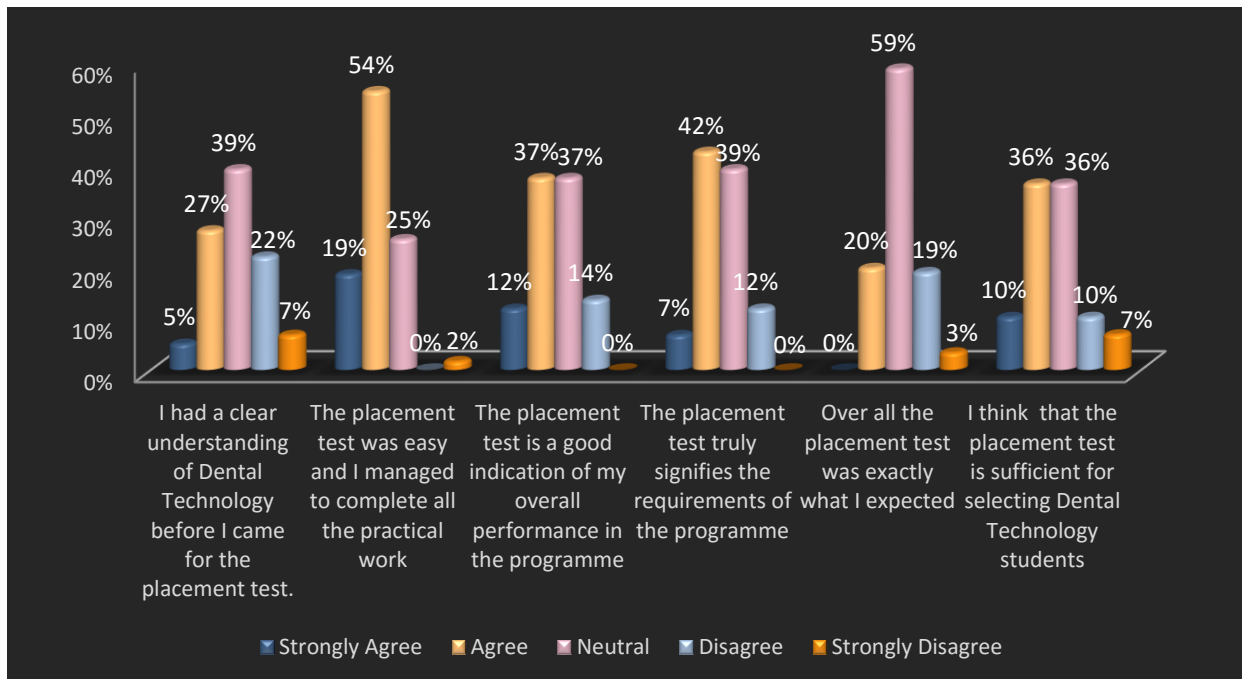
Due to the lecturers' uncertainty about DUT's student recruitment practices, it became important to find out if there were any specific student recruitment practices at the programme level. Some of their responses are shown below:

*“There is nothing that I know of at the moment which the [programme] does besides public awareness that they conduct in the form of student recruitment campaigns when they visit schools to promote the institution.” (Lecturer 2)*

*“There were attempts to visit schools and educate, do career days, but I do not think that happens any longer. It has not been happening for a while now. Besides that, all recruitment responsibility goes to DUT as far as I know”* (Lecturer 6).

#### **4.3.3.1. Selection process for Dental Technology**

In as much as the Dental Technology programme is not involved in the planning of institutional or departmental recruitment practices, it was found that the Dental Technology programme is directly involved in the student selection process which includes the planning and implementation of the placement tests. Therefore, students were asked a series of questions aimed at gauging their opinion on the linkage between the placement test and the actual programme. Their responses are shown in figure 4.5 on a Likert scale of *strongly agree, agree, neutral, disagree* and *strongly disagree*. From the results, it is evident that approximately half of the responding students opted for the neutral option for most statements except for the statement: *“The placement test was easy and I managed to complete all the practical work”*, where 54.2% of students agreed.



**Figure 4.5: Students' opinions on the association between the placement tests and the Dental Technology programme**

#### 4.3.3.1. Effectiveness of the DUT's student recruitment practices

The staff members involved in student recruitment and the academic staff in the Dental Technology programme unanimously agreed that the current student recruitment practices are effective in terms of attracting large numbers of potential students. It was reported that in recent years the numbers of new applications entering the institution were more than ten times the number of the spaces available for first-year students. The DUT's recruitment strategies were reported as effective by one recruitment staff member who stated the following:

*"It must be fairly effective because generally speaking...I'll give an example last year [2012] for the 5 500 first year spaces we had about 70 000 applications, and this year is no different. The indication we are*

*getting is that at this point [2013] there are over 55 000 applications to DUT. So it must be effective”* (Manager 1)

Academic staff in the Dental Technology programme concurred but questioned the quality of those applying.

*“...One may say the strategies are effective because they provide us with relatively large numbers in terms of recruitment. While someone, on the other hand, would say they are not because high ratios do not guarantee us with the quality that we want as an institution. Basically, it depends on the angle from which you view it. All I could say is they are there and they serve their purpose”* (Lecturer 2)

Notwithstanding the large numbers of students applying for the Dental Technology programme the survey results showed that only 17% of the students said that DUT had visited their school for a career talk or exhibition. Eighty-three per cent claimed that DUT had never been to their school. Furthermore, when students were asked whether their schools attended the DUT Open Day, only 18% of them confirmed. Lastly all students specified that they had enrolled without having seen any promotions from the Dental Technology programme.

#### **4.3.3.2. Effectiveness of recruitment practices in attracting the desired students for the Dental Technology programme**

As previously stated, all the lecturers from the Dental Technology programme indicated that while the current recruitment practices at DUT were effective in attracting large numbers of applicants, they felt strongly that these practices were not assisting in attracting the desired students for Dental Technology. The reasons are evident in some of their responses quoted below:

*“Because it is a generic strategy used by DUT it is not tailor made to the Department. DUT does not really know much about the course, and whoever is doing the recruiting in DUT is not capable of explaining what the course is and the intricacies of it”* (Lecturer 5)

In addition to the above, the uncertainty regarding the numbers and types of the schools which attend the DUT Open Day was highlighted, and the influence of the social status of the school to the students' career guidance and preparedness. This is evident in the quote below.

*“Because the students that attend the DUT open day are not a full representation of all the students that are available for us to recruit... I think it is mainly government schools that come through. Well, the trend is that the students that attend semi/private schools have a better opportunity and they have a better basic education than the students that go to government school. So in that sense no. It is not that you want students that are from private schools, but it is just that you want*

*students that are better prepared. Unfortunately, that is where the better students come from"* (Lecturer 4)

Most lecturers suggested that poor career choices were indicated as important evidence pertaining to the ineffectiveness of the DUT's recruitment practice for the Dental Technology programme. In support of the above, a quote from one of the lecturers is shared below:

*"It is just that they are poorly informed, for most matric students... they come into the programme because they have been offered the place.... It is a career guidance issue, in that maybe the parents are not educating them or the teachers are not educating them"* (Lecturer 7)

Furthermore, the lecturers were able to support their opinions by referencing experiences they had had with students. In fact, most lecturers felt that the programme was not enrolling its desired students as shown in the statement below:

*"At the moment we think we are, but the reality is that it is on face value, and what the students do in the interviews is 100% good; they appear to be the desired students...but when it comes down to it...they are not"*

(Lecturer 2)

Thereafter, lecturers were asked to justify why they indicated that the programme was not enrolling its desired students and their reasoning can be classified as: academic related, industry related and access and career guidance related. The examples of these are presented below, using selected quotes which capture each classification closely.

Academic related: *“Because of our pass rate, if these students were our ideal students than they would be flying through. We would not need all those academic interventions, academic literacy...”* (Lecturer 2)

Industry related: *“Well, the word from the industry is saying no. So I think that it[s] maybe the curriculum problem or the type of students that we enrol. Maybe they are not competent enough or they do not push themselves to be at that level of competency that the industry is expecting. The industry thinks that the majority of students are not competent”* (Lecturer 1)

Access and career guidance related: *“... I asked them [students] why did they choose Dental Technology? They said that Dental Technology is probably the first and the only course to accept them into Higher Education. The criterion for other programmes is much too high for them to be accepted. So basically, whichever programme you get accepted to, you better take it because there is a chance of you not being accepted anywhere else. So they take the first offer, they have no knowledge of Dental Technology”* (Lecturer 7)

As shown earlier, the Dental Technology programme relies on the institution's student recruitment practices, but concerns were raised about the current institutional practices not yielding the desired results. It was important to determine the potential of the Student Recruitment Department for recruiting the desired student for the Dental Technology programme. When the School Liaison Officers (SLOs) were asked how they would explain Dental Technology to prospective students they replied as follows:

*We do not normally talk about a course in detail. If I had to talk to a learner about Dental Technology... well students often have mistaken Dental Technology and Dentistry. We tell them that it has nothing to do with dentistry. Dental Technology is more about the manufacture of dentures, bridges, jaw upliftment, prosthetic nose, eyelids, and so forth. So it's anything between the forehead and the upper jaw. I would not go into detail, but that is the basic explanation that would give a student a holistic picture. Often students think that Dental Technology has to do with the dentist cleaning the teeth* (SLO 2)

Furthermore, when the SLOs were asked what they normally recommend to students seeking more information about the Dental Technology programme they unanimously agreed that they referred students to the Department of Dental Sciences. The results also indicated that the SLOs did not receive a formal briefing on the programmes offered at DUT, as cited by all SLOs.

*“No, there is no reason for it to be facilitated that way. I mean the institution is too big. It’s like in admission; I mean nobody does a formal briefing about such, except having a senate to pronounce such details”*

(SLO 1).

Another SLO suggested that, other than communicating with the academic HODs, there is no formal channel which they can use to communicate with academic departments. *“No. Ahem, we are supposed to know what the programs are about and all the specifications in line with them...and that is obtained from the prospectus”* (SLO 2).

#### **4.4. The association between the student profiles and the current recruitment practices**

In order to adequately address this objective, the responses given to the questions stated below were correlated with the students’ demographic information in Table 4.3 below. The Chi-Square tests show no significant relationship between the students’ demographic profiles and whether or not DUT had visited the students’ schools, or the schools had attended any of the DUT’s career exhibitions. One hundred percent of the students indicated that they had not seen any promotional material, exhibitions or attended any career fairs, prior to them enrolling in the Dental Technology programme.

**Table 4.3: Relationship between student profiles and recruitment practices**

<b>Questions</b>	<b>Cross-tabulation: No of positive responses (%)</b>	<b>Chi-Square p-value</b>
<b>Did DUT do any career exhibition or talk at your school while you were a student there?</b>	<b>Race</b> 10 (20% of the population) Black African students	0.497
	<b>Gender</b> <ul style="list-style-type: none"> <li>• Two (20% of the positive responses) female</li> <li>• Eight (80% of the positive response) male</li> </ul>	0.115
	<b>Socio-economic status – type of school</b> <ul style="list-style-type: none"> <li>• Eight (80%) went to government schools,</li> <li>• One (10%) attended private schools, and</li> <li>• One (10%) went to a missionary school</li> </ul>	0.678
	<b>Socio-economic status – place of origin</b> <ul style="list-style-type: none"> <li>• One (10%) from urban area,</li> <li>• Two (20%) from peri-urban areas, and</li> <li>• Seventy (70%) from rural areas</li> </ul>	0.105
<b>Before you became a Dental Technology student, did you see any form of Dental Technology career promotion?</b>	<b>100% of students responded NO to the question</b>	
<b>Did your school attend any of the DUT's open days while you were a learner?</b>	<b>Race</b> <ul style="list-style-type: none"> <li>• Seven (87.5%) Black African</li> <li>• One (12.5%) Indian</li> </ul>	0.941
	<b>Gender</b> <ul style="list-style-type: none"> <li>• Three (37.5%) female</li> <li>• Five (62.5%) male</li> </ul>	0.778
	<b>Socio-economic status – type of school</b> <ul style="list-style-type: none"> <li>• Seven (87.5%) went to government schools</li> <li>• One (12.5%) went to a missionary school</li> </ul>	0.346
	<b>Socio-economic status – place of origin</b> <ul style="list-style-type: none"> <li>• Three (37.5%) from urban areas</li> <li>• Five (62.5%) from rural areas</li> </ul>	0.094

#### **4.5. The desired personal attributes for the Dental Technology programme**

Due to the unique nature of the Dental Technology profession, the environment and the working conditions, lecturers were asked to identify the desired personal attributes which they thought had the possibility of increasing the chances of a student's success in the programme. According to lecturers, the Dental Technology

programme/profession requires a specific set of skills and personal attributes. From their responses it was found that the list of attributes could be divided under two main themes i.e. *general qualities for any HE student (labelled as Keystone Desired Personal Attributes for HE)* and *practice specific attributes for Dental Technology* (labelled as programme specific attributes) as shown in table 4.4 below.

**Table 4.4: Lecturers’ perspective on the desired personal attributes for Dental Technology programme**

<b>Programme Specific Desired Personal Attributes</b>	<b>Keystone Desired Personal Attributes for HE</b>	
<b>Accuracy</b>	Ability to apply knowledge	Perseverance
<b>Artistic ability</b>	Ability to work collaboratively	Positive attitude
<b>Attention to detail</b>	Communication skills	Precision
<b>Creativity</b>	Dedication	Pro-activity
<b>Focusing ability</b>	Flair for nice things	Respect
<b>Good hand-eye coordination</b>	Hard-worker	Self-discipline
<b>Independent thinker and worker</b>	Honesty	Self-drive
<b>Inventiveness</b>	Humility	Self-motivation
<b>Manual dexterity</b>	Mental maturity	Self-pride
<b>Meticulousness</b>	Open-mindedness	Social skills
<b>Neatness</b>	Passion	Responsible
<b>Problem-solving skills</b>	Patience	
<b>Strong work ethics</b>		
<b>Time-management skills</b>		
<b>Willingness to improve</b>		
<b>Confidence</b>		

It is evident that, although the programme requires a specific set of skills like manual dexterity, artistic ability, meticulousness, creativity etc. there are other qualities that should be rooted within the personality of the desired Dental Technology student like passion, perseverance, positive attitude, etc. which in this study are termed the

Keystone Desired Personal Attributes for HE. The results suggested that these attributes are proposed to be responsible for nurturing the Programme Specific Desired Personal Attributes.

Since lecturers had indicated that the current student population in Dental technology lacked some of the Keystone Desired Personal Attributes for HE, it became important to the students' perceptions of the attributes they possessed. In order to gauge whether the Dental Technology students exhibited the Programme Specific Desired Personal Attributes, on the survey they were provided with a list of these attributes and had to rank them on a Likert scale of strongly agree, agree, neutral, disagree and strongly disagree. The results showed that majority of students viewed themselves as possessing all the Programme Specific Desired Personal Attributes as shown in Table 4.5.

**Table 4.5: Students' perceptions of the programme-specific desired personal attributes**

<b>Programme Specific Desired Personal Attributes Identified by Lecturers</b>	<b>Programme-specific Desired Personal Attributes List Provided to Students</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Average</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
<b>Manual dexterity</b>	I like working with my hands	18%	42%	33%	2%	5%
<b>Attention to detail</b>	I pay attention to detail	12%	57%	28%	3%	0%
<b>Accuracy</b>	I work accurately	22%	56%	22%	0%	0%
<b>Neatness</b>	I work neatly	10%	48%	37%	5%	0%
<b>Meticulousness, Time management skills and Confidence</b>	I work systematically	3%	50%	40%	7%	0%
<b>Artistic ability, Creativity, Independent thinker and worker, Inventiveness</b>	I am a creative and independent thinker	17%	52%	28%	3%	0%
<b>Problem-solving skills</b>	I like problem-solving and working with complex cases	12%	43%	42%	2%	2%
	I like helping people	40%	40%	18%	2%	0%
	I like working with people	18%	48%	23%	10%	0%
<b>Strong work ethics</b>	I am good at following instructions	12%	68%	17%	3%	0%
<b>Good hand-eye-coordination</b>	I have a good eye, mind and hand coordination	18%	55%	23%	2%	2%
<b>Focusing ability</b>	I prefer working in a quiet environment	27%	30%	17%	17%	10%
<b>Communication skills</b>	I have good communication skills	20%	48%	28%	3%	0%
<b>Willingness to improve</b>	I am a fast learner	17%	51%	31%	2%	0%

#### 4.6. The factors that informed the students' choice of Dental Technology as a career

In order to get a clear understanding of the factors which informed the students' choice of Dental Technology, it was necessary to know how and when the students found out about the programme. From their responses, it became evident that about half the number of students (53.3%) started to make their career choices in Grades 11 to 12. It was also important to understand the information sources that were available to the students. As seen in the cross-tabulation table 4.6 below, 61.67% of students did not have a career counsellor in their school so the majority (38.33%) of students seemed to rely on the career booklets during their career decision-making process.

**Table 4.6: Students' responses to specific questions on their career sources**

Did your secondary school have a career counsellor? * What was most helpful to you during your career decision making? Cross-tabulation								
		What was most helpful to you during your career decision making?						Total
		Advice from the career counsellor	Career exhibitions	Career guide booklets	Life Orientation teacher at school	Advice from parents	Advice from friends and relatives	
Did your secondary school have a career counsellor?	Yes	5 (8.33%)	6 (10%)	6 (10%)	1 (1.67%)	5 (8.33%)	0	23 (38.33%)
	No	3 (5%)	5 (8.33%)	17 (28.33%)	4 (6.67%)	5 (8.33%)	3 (5%)	37 (61.67%)
Total		8 (13.33%)	11 (18.33%)	23 (38.33%)	5 (8.33%)	10 (16.67%)	3 (5%)	60 (100%)

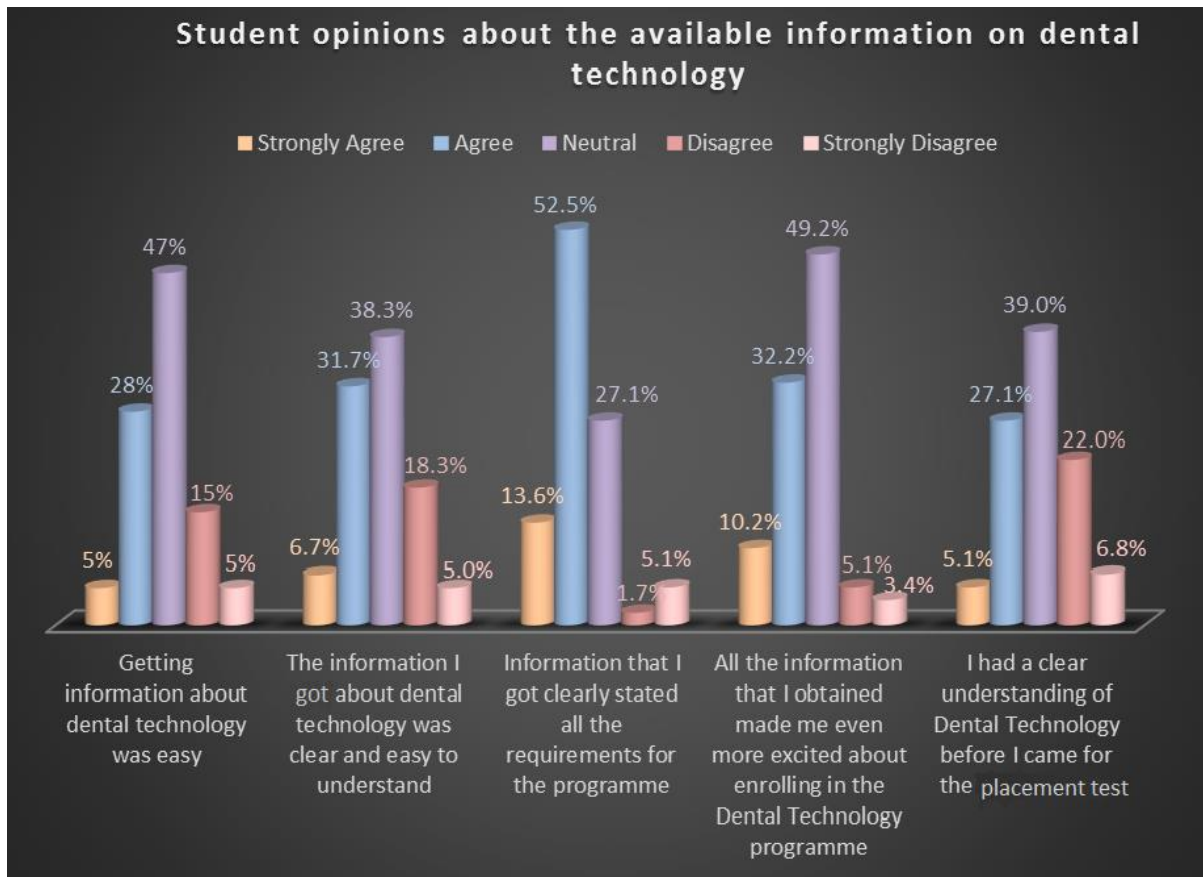
Table 4.7 below shows that 17.54% of students found out about Dental Technology through family and friends and for the majority 73.68% (42) of students they discovered the programme for the first time through the CAO booklet. The results show

that only 5.26% of students found out about the programme in Grades 8–10 while, for 43.68% students, it was in Grades 11 – 12, and for the 50.88% of students it was after they had completed Grade 12. The missing value for this table was three.

**Table 4.7: Students’ responses to specific questions on how they found out about Dental Technology**

How did you find out about Dental Technology? * When did you first find out about Dental Technology? Cross-tabulation		When did you first find out about Dental Technology?			Total
		In grades 8 -10	In grade 11 - 12	After grade 12	
		How did you find out about Dental Technology?	Through family, friends or relatives	2 (3.51%)	
Through DUT Open Days, advertisement or promotion	0		1 (1.75%)	1 (1.75%)	2 (3.51%)
Through my school career counsellor	1 (1.75)		0	1 (1.75)	2 (3.51%)
Through CAO booklet	0		16 (28.7%)	26 (45.61%)	42 (73.68%)
Other	0		1 (1.75%)	0	1 (1.75%)
Total		3 (5.26%)	25 (43.86%)	29 (50.88%)	57 (100%)

Overall, the majority of students opted for the neutral option for four statements out of five. The 52.5% of students agreed that the information they got about Dental Technology clearly specified the requirements of the programme.



**Figure 4.6: Students' opinions on the information available for the Dental Technology programme**

In order to understand the future professional plans of the students, it was important to look into their aspirations. The results showed that 14% of the students aspired to work in top laboratories in SA while 34% were aspiring to own laboratories, 18% wanted to further their studies in the programme, 30% wanted to enrol in a different programme, and the remaining 4% did not specify any future aspirations.

#### 4.7. The relationship between the factors informing the students' choice of Dental Technology as a career and the desired personal attributes

In order to establish the relationship between the factors informing the students' choice of Dental Technology as a career and the desired personal attributes, a Spearman's Rank Order Correlation ( $r_s$ ) was carried out. Where the programme-specific personal attributes presented on the students' responses (refer to Table 4.5) they were tested against the students' Likert scale responses to the following statement: all the information that I obtained made me even more excited about enrolling in the Dental Technology programme (refer to Figure 4.6). The results of this test are summarised in Table 4.6 below. The results show a moderate correlation with "I work accurately" which was significant. Although "I work neatly" was weakly correlated, it was significant.

**Table 4.8: Relationship ( $r$ ) between the students' career choice factors and the desired personal attributes of the Dental Technology programme**

<i>Attributes</i>	<i>Correlation coefficient (Spearman's <math>r_s</math>)</i>	<i>p-value</i>
<i>I like working with my hands</i>	<i>0.123</i>	<i>0.353</i>
<i>I pay attention to details</i>	<i>0.024</i>	<i>0.857</i>
<i>I work accurately</i>	<b>0.671</b>	<b>0.048</b>
<i>I work neatly</i>	<i>0.103</i>	<b>0.023</b>
<i>I am a creative and independent thinker</i>	<i>0.295</i>	<i>0.438&gt;</i>
<i>I like solving and working with complex cases</i>	<i>-0.061</i>	<i>0.647&gt;</i>
<i>I have a good eye, mind and hands co-ordination</i>	<i>0.109</i>	<i>0.411&gt;</i>

The ability to work accurately was strongly correlated with the information they received on requirements for the programme, and these findings were significant. Otherwise, the tests resulted in a weak correlation with the rest of the variables.

## **Chapter Five**

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### Discussion of findings

#### **5.1. Introduction**

The main aim of this study is to understand the factors associated with student recruitment and student profiles in the Dental Technology programme at the Durban University of Technology. The previous chapter presented all the results relating to the objectives of this study, and this chapter deals with the findings and their relevance according to the objectives of this study.

#### **5.2. The student profiles in the Dental Technology programme from 2008 – 2012**

##### **5.2.1. Demographics and socio-economic status**

The results showed that from 2008 to 2012 the Dental Technology programme enrolment consisted of 75% Black African students, 6.12% White students, 17.56% Indian students and 1.53% Coloured students (Figure 4.1). These findings confirm a continuation of the demographic shift (Figure 1.1) which was initially noted by Bass (2007). These findings also confirm similar trends evident at a national level (Strydom, Mentz and Kuh 2010).

The results further showed a correlation between the area of origin, which for most students was rural (41%) and peri-urban (31%) and the fact that 81.4% of students had attended government schools. South Africa has a very sensitive history where the former apartheid system resulted in considerable racial inequalities and segregation in all spheres of life (Boughey 2012) and it left a negative legacy behind. Further literature also confirms that very little has changed in the new democracy, in that majority of Black African people are from low-socioeconomic backgrounds and they still reside in rural areas and in townships, where service delivery is extremely poor. Hence, the schooling available to many Black African students in rural areas and in the townships is still of poor quality (Bayat, Louw and Rena 2014; Boughey 2012; Bloch 2009). This has increased concerns on students' preparedness for university.

Gee's theory on the social understandings of learning confirms that the social discourses (primary: home and secondary: public) make an invaluable contribution to the development of one's cognitive abilities and the type and quality of knowledge they may be exposed to. Maswikiti (2008) contends that the quality of students' social discourses is greatly affected by their socio-economic status, which in turn influences their university preparedness, performance, and achievements (Bayat, Louw and Rena 2014; Du Plessis and Gerber 2012). The evidence showed that only 39.2% of the students' parents worked as professionals, with more than 60% of them, unable to pay their tuition fees and relying on financial aid. As argued by Maswikiti (2008), students who come from lower socio-economic backgrounds are less equipped to develop general cognitive abilities and a stronger academic cultures that are essential for student success in tertiary education. The lecturers in this study also remarked on

the impact of the social context on the learning processes and it can be argued that the students' family backgrounds can influence their thinking, attitude and behaviour.

While the demographic shifts in student profiles are addressing the objectives of the national development plan for the academic environment, it has brought with it numerous challenges for this sector. Thus related academic programmes, such as Dental Technology are challenged to revisit their strategies to address the academic and career related challenges of many Black African students who comprise of the majority of the student body in the country.

### **5.2.2. Student dropout rates**

Further findings showed that there was a 41% student dropout rate out of a total intake of 157 in the Dental Technology programme between 2008 and 2012. It is acknowledged that there are many factors which contribute to students leaving the programme prematurely, and the exploration of such a factor is beyond the scope of this study. However, it is important to note that the survey results showed that only 32.2% of the students felt confident about their understanding of the programme at the point they enrolled into the programme (see Figure 4.6). The lecturers also postulated that the majority of students who register into the Dental Technology programme do so, not because of a genuine interest in the programme, but because it is the first or sometimes the only programme to enrol them. According to Mkamba's 2011 article, the progression and retention rates in the South African universities still rank as the lowest in the world with a 40% dropout rate of first-year students. This study confirmed

the findings of Mkamba (2011) which found that the throughput rates of working class and historically disadvantaged students in HE is still problematic. Student dropout is a national challenge, as it strains the country's economic development plans, and DUT and the Dental Technology programme need to address this matter, especially since it also affects the government subsidy allocated to them.

### **5.2.3. Academic performance**

In relation to performance, the lecturers indicated that they were not satisfied with the levels of students' performance in the programme, and they suspected that the students did not understand the level at which they were expected to perform. The survey results showed that only 13% of students thought that the programme was exactly what they had expected and they were 'enjoying' their studies, while 65.2% of students indicated that they were finding it to be a challenge, with 19.8% of students indicating that they were not appreciating the experience. These findings are significant, suggesting a level of dissatisfaction by students which is congruent with the lecturers' comments regarding poor performance, negative attitudes and demotivation of students together with their lack of prior knowledge. Ultimately this compromises the students' performance, hence the DUT and the Dental Technology should take cognizance of all the factors which affect students' performance and devise mechanisms for addressing such in manner within their reach.

### 5.2.3.1. University preparedness

It should be noted that the university preparedness of students has a significant impact of their academic performance. Lecturers defined university preparedness as the student's ability to cope and be able to balance their academic, socio-economic, personal and social lives while they were in the university environment. Based on the lecturers' responses, university preparedness was broken down into three themes as shown in Table 4.1.

According to the lecturers, university preparedness exhibited by students in the Dental Technology programme is unacceptable. They attributed this to poor basic education and they also raised concerns about the school-leaving certificate being an adequate indicator of student readiness for university. On the contrary, the survey results showed that 66.67% of students (refer to Table 4.2) thought that their high school education and resources had adequately prepared them for HE. Within the same group, 67.50% of the students thought that they had adjusted to higher learning with ease, with only 32.50% indicating that they did not find it easy to adjust to the higher learning environment. These results indicate a significant gap between lecturers' and students' opinions on the accepted levels of university preparedness. This finding confirms the argument made by Rosenberg *et al.* (2009), in that university under-preparedness not only refers to students lacking the required foundational knowledge but it also includes their inability to accurately estimate the level of study engagement expected from them.

Overall the above findings confirm Du Plessis and Gerber's (2012) argument which states that the South African school system is unsuccessful in developing the students' full academic potential, instead, it produces students who are under-prepared for higher learning. He further argues that the majority of these students do not meet the necessary entry requirements to HEIs, and those who are admitted have a high failure and drop-out rate. This argument is supported by Hlalele and Alexander (2011) who reported that 50% of students at HEIs in South Africa struggle to complete their first degrees/diplomas within the minimum allocated period, with under-preparedness as the main driver in this situation. When the majority of students the Dental Technology programme were White, the pass rates and throughput rates were higher (Bass 2007) as compared to the period under study. This can be attributed to the fact that White students are more familiar with university requirements and the environment and often draw on the experiences of their parents, and therefore tend to be better prepared than the Black African majority (McMillan 2007).

The research study thus confirms the need for the issue of under-preparedness to be addressed more comprehensively in light to the current demographic profile of students in the Dental Technology programme at the DUT. Furthermore, it is important for HEIs to clarify the expected level of university preparedness to both prospective students and the managers of basic education, as recommended by Beneke and Human (2010). The Higher Education sector in South Africa, should be able of accommodate students from different races and their different social contexts. Osakinle (2010) suggests that HEIs must contribute to students' preparedness by

improving and extending their advice and guidance services through their recruitment practices.

#### **5.2.3.2. Prior knowledge about the programme and its significance to students' performance**

This research found that prior knowledge about the programme significantly contributes to improving students' preparedness, develops students' intrinsic qualities and has a positive impact on teaching and learning practices. In addition, the lecturers emphasised that for Dental Technology, prior knowledge is significant for students' academic performance and this is especially true since the programme is not a well-known one and it requires a very specific set of skills and attributes.

On the other hand, the survey results showed that only 36.7% of students believed that prior knowledge of the programme had helped to improve their performance. While, on a different question, 81% indicated that their prior knowledge of the programme had had no impact on their performance. Some lecturers reiterated that there was no link between the students' prior knowledge of the programme and students' performance, while the others suggested that students' prior knowledge of the programme can impact on students' performance because if students do not have background knowledge about the programme their motivation decreases and thus affects their performance. Although the remaining lecturers did not necessarily indicate whether the students' prior knowledge of the programme had an influence on their performance in class, they strongly believed that students who attached themselves

to a commercial dental laboratory while studying, generally performed better and more quickly developed the skills and qualities of professional dental technicians. To this end, it can be inferred that the prior knowledge about the programme does contribute positively to the development of a professional dental technician.

### **5.3. The student recruitment practices at the Durban University of Technology and in the Dental Technology programme**

#### **5.3.1. Marketing and promotions**

The findings show that the Durban University of Technology uses branding and direct promotion in order to attract and recruit students to enrol in the institution. These practices are carried out by two departments under the Division of Corporate Affairs, the Advertising, Corporate Branding and Marketing unit, and the Student Recruitment unit. These units respectively focus on institutional branding and the direct promotion of DUT to high school learners.

The Advertising, Corporate Branding and Marketing unit handles the branding of the university, and their main focus is to restore and raise the profile and brand awareness of the university in the public eye through advertising in different media platforms, e.g. newspapers, radio, television, billboards etc. According to Levitz (2011), Beneke (2011), Beneke and Human (2010), Marring and Gibbs (2009) acknowledge that most South African HEIs have recognised the need to promote their brands in the media through advertising and public relations campaigns, as well as engaging in direct

selling. It can then be said that, in terms of marketing and promotion. Therefore, it can be concluded that the DUT is in sync with the lasted trends in HE nationally.

The direct promotions are the responsibility of the Student Recruitment unit and are discussed below.

### **5.3.2. Student recruitment practices**

The findings showed that the Student Recruitment Unit, with three staff members (SLOs), is responsible for promoting DUT programmes directly to school learners, through school presentations in and around KZN. The results also revealed that DUT's student recruitment practices include open days, school visits, principals' and guidance counsellors' seminars, parents' evenings, career exhibitions, leaflets and brochures, newspapers and radio advertising, Central Applications Office (CAO), billboards, career workshops and the DUT's website. Clearly, the institution has employed a general approach when it comes to student recruitment, which might benefit the institution to a certain degree. However, there are two major reservations concerning this approach:

1. The extent to which three SLOs are able to master detailed information regarding all programmes offered by the institution.
2. The effectiveness of this approach in terms of attracting desired students for specific programmes within the institution.

The reality is that, the SLOs cannot master and effectively promote all 50 academic programmes, and this is what both the institution and the academic departments such

as Dental technology need to address. The interview results showed that, lecturers believe that only a qualified dental technician is able to properly explain the programme and its intricacies to students in a manner that will catch their interest.

On the contrary, it was found that the academic departments are not actively involved in the planning stages of the current student recruitment practices. The SLO confirmed that they have a partial relationship with academic departments in the institution. It was also found that the lecturers in the Dental Technology Department were not well-informed about the Student Recruitment Unit and the current practices used to recruit of students. These findings suggest that the relationship between academic departments and the Student Recruitment Unit is relatively weak.

Falender and Merson (1983) suggest that the Admissions (or equivalent) personnel, the academic Deans, the head of the institutional finance department, alumni and the student representatives should form part of the body responsible for developing the student recruitment plan. It can be argued that academic departments also need to be part of such bodies, especially since they are the ones who have an accurate idea of their ideal prospective students and they are the ones who deal directly with the students once they have been recruited. Academic Deans sit at high levels of HEIs' management, and are responsible for a number of academic departments, and as a result it can be contended that their input can be from a high-management point instead of an operational angle as they are removed from directly dealing with students

and might not be updated with the type of prospective students sought by academic programmes.

More importantly, this research argues for programme-specific recruitment practices aimed purely at recruiting students for a specific programme rather than recruiting them to join the institution. It is acknowledged that there is limited research globally regarding the development of student recruitment strategies, and especially programme-specific recruitment strategies. The university and the Dental Technology programme should make strategic investments in their student recruitment plans and opt for a more interrogated approach to student recruitment, especially due to the vocational and unfamiliar nature of this programme.

The findings show little or no evidence of a documented student recruitment plan. These findings are not unusual, as according to Beneke (2011), most South African HEIs do not have a well-documented student recruitment plans. However, a well-documented student recruitment plan will have significant advantages for the DUT and related academic programmes. For instance, documentation of such a plan will allow for ease sharing within the institution and promotes its development so that it can be readjusted frequently to yield best possible results. Additionally, this document would also ensure that the institutional branding and all other activities are aligned to the student recruitment goals.

Furthermore, for the successful implementation of a well-documented recruitment plan it is vital for institutional faculties, academics, administrators, current students and alumni know, to understand and embrace this plan (Beneke 2011; Waeraas and Solbakk 2008; Falender and Merson 1983). In order for a student recruitment strategy to be successful, the university and the programme will have to understand who their prospective students are and where they come from, how their social circumstances might influence their university preparedness and career choices.

### **5.3.3. Selection process**

In as much as the academic departments are not directly involved in the planning and implementation of the institution-wide student recruitment activities, like most academic departments at the DUT, the Dental Technology programme is directly involved in the selection process which includes the planning and implementation of the placement tests.

From the survey result, it is evident that approximately half of the responding students opted for the neutral option for most statements except for the statement: “The placement test was easy and I managed to complete all the practical work”, where 54.2% of students agreed. This might be an indication that students are uncertain about the placement test, and this needs further investigation, especially because the selection processes are one of the important tools in ensuring that the programme is enrolling its desired students.

The interview results showed that lecturers think that the placement tests in the programme are currently not helping in the selection of desired students for Dental Technology. This research questions the fact that lecturers recognised the ineffectiveness of placement tests, and yet there was no evidence of new interventions at the time. However, it is also argued that the likelihood for the programme to select desired students is minimised by the fact that very few efforts are being directed at attracting such students. According to the lecturers, the programme does not possess and/or implement any student recruitment activities other than the Business Practice project (mall exhibition) headed by the BTech students in the programme. This suggests that there is a need to improve the current mechanisms used for attracting and selecting students into the programme. This notion was also evident in the literature, as it is contested that the placement tests alone cannot adequately and truly measure the students' performance potential, as there are many other factors such as students' backgrounds and their levels of motivation and academic grounding which also have to be considered (Maswikiti 2008; Boughey 2012).

The findings also suggest that the standards of HE academia are compromised due to the national drive to increase access into HEIs, especially for the previously disadvantaged Black African students. To improve access, institutions like the DUT had to lower the academic entry requirements for their programmes. For instance, students are now entering HE with level three which is 40 to 49%. The results show that although 40% might not be a difficult mark to obtain in order to enter an HEI it is not sufficient to guarantee that students will perform well in the tertiary environment where 50% is the minimum pass mark. This highlights a strong need for the student

recruitment plan to be proactively inclusive of a retention plan, and this draws on the marketing principles of knowing and understanding the needs of your customers and providing tailor-made services to suit their needs.

#### **5.4. The association between the student profiles and the current student recruitment practices**

The research findings (Table 4.3) suggest that there is no significant relationship between the students' demographic profiles and the institution's recruitment practices. The results also show an absence of any programme promotion with the exception of the mall exhibition that is undertaken by BTech students. The majority of the participating students (73%) also confirmed that first found out about the Dental Technology programme through the CAO booklet and only 32.2% of the student had a clear understanding of the programme before they registered. For a programme as intricate as Dental Technology, the information in the CAO booklet can never be sufficient to adequately inform a student, who is not familiar with the programme, to such an extent that they become motivated to enrol. The CAO booklet only indicates the institutions that offer the programme and the minimum academic requirements. From these results, it can be concluded that there is no association between the current student recruitment practices and the Dental Technology students who were part of the survey as shown in Table 4.3.

A significant concern is the fact that the lecturers suggested that most students enrolled in Dental Technology, either because the programme was the first and/or the only programme to accept them into HE. This raises even more serious concerns about the student recruitment processes at the programme level and needs urgent and critical attention. The institution and the Dental Technology programme will have to urgently reconsider its current practices and contemplate designing tailor-made student recruitment strategies that will consider the needs of their targeted market.

It is important to note that many Black South Africans view the attainment of an HE qualification as a gateway to a much better life, and the possibility of escaping from the gruelling poverty which they have been experiencing in their families and communities from birth (Boughey 2012). Given the above, it is therefore critical that the institution and the Dental Technology programme consider the profiles of their students in their recruitment strategies and improve their marketing and recruitment practices. Previous studies have emphasised that institutions should know and understand the needs of their prospective students in order to be able to attract their desired students (Osakinle 2010; Beneke and Human 2010; Frolich and Stensaker 2010) and it can be concluded that the DUT and the Dental Technology programme have not yet addressed this in their practices.

#### **5.5. The desired personal attributes for the Dental Technology programme**

Due to the unique nature of the profession, the environment and the working conditions to which students will be exposed during the programme and in the industry,

Dental Technology lecturers emphasised that the programme required a specific set of skills and personal attributes and that not everyone was suited to this profession. Freeman and Rogers (2010) stated that, in order for students to fulfil their professional roles, they must be competent in both their behaviour and skills as required by their professions. Dental Technology is a practical profession that requires a blend of skills and personal attributes (Skea 2010; Bass 2007).

From the lecturers' responses, a list of desired attributes was generated. This list was separated into two different categories i.e. general attributes for an HE student and the practice specific attributes for Dental Technology (refer to Table 4.4). According to the lecturers, students must have the general attributes as these are a good foundation for a student's success. However, lecturers have little, if any ability to instil these attributes. Interestingly, the survey results showed that students actually believe that they have most of the practice specific attributes (see Table 4.5). While it can be argued as true that students do possess the desired attributes for the programme, there was greater concern about students' attitudes and motivation levels and not so much about them lacking the practical abilities which can be taught.

The distinction between the lecturer and student findings reinforce the need for student recruitment plans which clearly clarifies all the required personal attributes for a specific programme.

## **5.6. The factors which informed the students' choice of Dental Technology as a career**

The findings showed that 53.3% of the students started to make their career choices in Grades 11 to 12. This might can be considered late, since in South Africa, students are required to make their initial career decision at the end of Grade 9 when they are selecting the subject fields which they will study from Grades 10 to 12. The selection of subjects limits access to specific programmes and professions, consequently making Grade 9 a critical point for career development. Ideally, students should begin their career decision processes in Grades 8 and 9 based on the career paths which they hope to explore in future. This approach gives them more time to research the professions, the educational programmes, entry requirements and/or alternative choices.

Furthermore, in Table 4.6, it is evident that 61.67% of the students attended schools which did not have a career counsellor in their schools, and the majority (38.3%) of the students had relied on the career booklets during their career choice decision-making process. Therefore, the institution and the Dental Technology programme need to monitor the quality and quantity of the information sources which students can consult during their career search processes as this can guide institutions on when, where and how to supply accurate information about the programmes they offer (Wiese, van Heerden and Jordaan 2010).

With regards to the factors which could inform a student's choice of the Dental Technology programme, the results showed that about 95% of students first found out

about Dental Technology after they had chosen their main subjects i.e. from Grade 11 onwards (see Table 4.7). According to Osakinle (2010), it is critical for prospective students to have a clear understanding of the educational requirements of their career choice and its main vocational opportunities. For a programme that is as unfamiliar as Dental Technology (Gordon and Christensen 2005a) it is understandable that, for 73% of the students, the initial source of information was the CAO booklet. As previously explained, it is important for the reader to be reminded of the limited information contained on the CAO booklet. Information about the actual programme, its relative industry, required personal attributes and financial requirements are not included in this booklet. In addition, one of the challenges facing Dental Technology is that the general public does not know that this profession exists (Gordon and Christensen 2005a), and the extent to which family, career counsellors and LO teachers might know and/or be able to accurately explain the programme to prospective students is questionable. Therefore, it is important for the Department of Dental Sciences at DUT to ensure that the information pertaining to the Dental Technology programme is easily available to their prospective students. Findings showed that only 33% of students found it easy to get information about the programme and close to 40% of students thought that the information they had received pertaining to Dental Technology was clear and easy to understand.

Working in the favour of the programme is the fact that one of the requirements is for prospective students to visit a commercial dental laboratory prior to registration. Findings confirmed that 73% of students visited Dental Technology laboratories before registration. This might explain why 60% of students felt that the information they received clearly stated all the requirements for the programme (see Fig 4.6).

Irrespective of these findings, lecturers seem to question the quality of the visits, as they believe the time spent by most prospective students in Dental Technology laboratories is not sufficient for them to gain a clear understanding of what the programme entails and all its requirements. In fact, only about 32% of students were confident of their understanding of the programme prior to registration. The lecturers also indicated that most students have a very shallow knowledge of what Dental Technology involves. These findings highlight the need to improve the current marketing, screening and selection processes at the programme level; so that prospective students are assisted in making informed career choices.

Lecturers suggested that many students enrolled in the programme because the programme was the only one or the first to accept them into HE. In spite of the lecturers' opinions, the survey result showed that 66% of students saw themselves progressing within the Dental Technology profession. Although, there is no scientific proof of the factors which could have informed the students' choice of Dental Technology. As a result, the evidence presented by lecturers can, to a certain degree, be accepted, however, there may be other underlying reasons which contribute to students wanting to progress within this profession. Therefore, this area might need further investigation.

#### **5.7. The relationship between the factors informing the students' choice of Dental Technology as a career and the desired personal attributes**

In addressing this objective, the Spearman's Rank Order Correlations Tests were performed. In this test, the aim was to describe the type of relationship that existed

between the students' responses about factors informing their choices and the desired personal attributes exhibited by students.

The results showed a strong and significant correlation between the students' ability to work accurately and the information they received regarding the requirements for the programme and there was a weak but significant correlation between students' ability to work neatly and the information they received regarding the requirements for the programme. Overall it can be concluded that there is an insignificant relationship between the information received by students regarding the requirements of the programme and the desired specific attributes.

The data available does not show any association between students' choice of Dental Technology and the programme's desired personal attributes. However, it should be noted that the programme is of a unique and vocational nature requiring a specific set of skills and attributes. Lecturers also suggest that, in order for students to succeed in the programme and in this profession, they must exhibit all of the desired personal attributes. Freeman and Rogers (2010) state that, in order for students to fulfil their professional roles, they must be competent in both the behaviour and skills as required by their professions. Therefore, it is important that students be able to align their skills and attributes to suitable industries as this will not only lead them to jobs they enjoy, it will also ensure that they are able to perform best in those jobs. Dental Technology is very unique and demanding, and lecturers suggested that desired student students have to be enjoying to be manufacturing teeth and being in the laboratory environment

in order to succeed academically. Holland (1987), two decades earlier, argued that it is essential that an individual's career choice fits his/her respective personalities, as they are then more inclined to enjoy that chosen career and to stay in the job for a longer period. This theory emphasises the importance of aligning ones' personality and attributes to suitable career choices.

## Chapter Six

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### Conclusion and recommendations

#### 6.1. Conclusion on the aim and objectives of the study

As outlined in chapter one, the aim of the study was to investigate the factors associated with student recruitment and student profiles in Dental Technology at the Durban University of Technology. The six objectives of the study were designed to address the factors associated with student recruitment and student profiles in Dental Technology. These have been thoroughly discussed in chapters two, four and five. In concluding on the aim of the study, these factors are summarised as:

- a) **Factors associated with student profiles** include: students' demographics, socio-economic status, university preparedness and personal attributes.
- b) **Factors associated with student recruitment** include: student profiles (as per the above point), students career development support, institutional and departmental practices, and national trends in HE for student recruitment.

Provided below is a summary of findings related to each objective:

1. The study shows that the student profiles in the Dental Technology programme between 2008 – 2012 had shifted from predominantly White to a Black African student population. This trend is consistent with the findings in the Bass (2007) study. Many students are from the rural and peri-urban regions, and the majority (81.4%) of the students attended government school and 57% relied on external funding in order to pay their tuition fees.

2. The findings also show active recruitment practices at an institutional level, however, with the absence of departmental recruitment activities, these practices tend to not benefit the programme. Two major concerns are raised with the current approaches:

- The extent to which three SLOs are able to master detailed information regarding all programmes offered by the institution.
- The effectiveness of this approach in terms of attracting desired students for specific programmes within the institution.

It is highly recommended that the Dental Technology programme revisits its approach to student recruitment in order to attract their desired students.

3. The research findings (Table 4.3) suggest that there is no significant relationship between the students' demographic profiles and the institution's recruitment practices. It is also evident that the current efforts to promote the Dental Technology programme are inadequate, both at programme and at institutional levels. Considerable revision of the recruitment strategies for this programme is essential, to ensure that the prospective students in the programme are appropriately informed about the Dental Technology programme and are making informed career choice decisions.

4. The results show that most of the students in the programme do possess the desired programme specific attributes. However, the lecturers in the programme raised concerns about students lacking the general attributes for HE (i.e. attitude and motivation levels, etc.) which not may not be related to a particular career choice but are crucial for students' performance. Considering

the unique and vocational nature of the programme, it is imperative for the prospective students attracted to the programme to possess both programme specific attributes and the general attributes for HE students.

5. When looking at the factors which inform student's choice of Dental Technology as a career, it is very evident that the majority of students in the programme did not receive adequate support. Many students attended schools which did not provide career counselling, and they did not get support from outside their schools. Many students reported that, the CAO Handbook was the only 'recruitment' material that they consulted when making career choices and that they first found out about Dental Technology in Grade 11. This is further compounded by the poor recognition of the Dental fraternity to the general public. These findings highlight the urgency for recruitment strategies to include programme exposure earlier in the schooling, particularly for professions that are not mainstream or "visible" to the general public.
  
6. The data available does not show any association between students' choice of Dental Technology and the programme's desired personal attributes. However, it should be noted that the programme is of a unique and vocational nature requiring a specific set of skills and attributes. Lecturers also suggest that, in order for students to succeed in the programme and in this profession, they must exhibit all of the desired personal attributes.

The literature has shown how the factors associated with student profiles are intertwined (i.e. primary and secondary discourses) and their strong influence on the

student's educational success. Consequently, prospective students are bound to be at varying levels in terms of university preparedness depending on their primary and secondary discourses. Therefore, HEIs should appreciate that prospective students are likely to differ in terms of their academic needs due to their unique profiles, and it becomes critical for recruitment practices to be tailored according to the needs of the student profiles.

In relation to student recruitment practices, it has been discovered that this area still requires significant attention globally. There seems to be a gap both in literature and in practice. The researcher had to construct an operational definition for 'student recruitment', and the available literature focused on marketing and promotions as a form of student recruitment practices. This gap might have also lead to the confusion about the role of career development and support as a responsibility and as a significant tool for student recruitment and the benefits thereof. There was no sound understanding of a fully-fledged student recruitment strategy or practices found in literature. The results also revealed that the concept of student recruitment both at an institutional and departmental level is poorly understood, which in turn may have affected the manner in which it is practiced.

For the benefit of both the prospective students and HE sector nationally, HEIs need to realise the overall impact of poor career choices, and the significance of student profiles when designing and implementing student recruitment practices. At a national level, more focus has to be directed to student recruitment and related practices.

## **6.2. Limitations of this study**

The researcher was exposed to different challenges and limitations during the course of this research. They all contributed to making this study a success. Of significance, however, is the difficulty experienced in sourcing the participants for the quantitative data. The study hoped to attract the full participation of all the South African Dental Technology students who registered from 2008 to 2012, but the researcher found that this sample consisted of individuals whose levels of life varied and who were in different parts of the country. In order to contact them, the researcher had to rely on the information that they had given the institution when they registered as students in the programme. The changes in their contact information, their inability to access an online questionnaire and the possibility of some refusing to participate were not anticipated. For the same reasons, it became even more difficult to access those students who dropped-out of the course.

Despite the challenges, those who were willing and able to participate provided the study with rich data and they contributed significantly to making this study a success. The additional limitations also include the transformation issues in the South African HE, especially those which influence student recruitment, access and selection of students in relation to career opportunities and the student's career development process.

### **6.3. Theoretical implications**

The profiles of students entering South African universities have been thoroughly explored in the current literature. As a result, research regarding the academic challenges facing Black African students in the country is available, and there are some systems which have been put in place in order to address some of the challenges presented by this population of students. However, the implications of this change in demographic profiles and its link to student recruitment practices still need to be addressed both in research and in practice. As in Beneke's (2011) recommendations, it can be deduced from this study that students from different ethnic groups and social backgrounds have different needs and, therefore, need to be approached differently.

This leads us to the obvious need for the contextualization of the career-choice factors based on the South African context. Most studies regarding career choice factors focus on the selection of an institution by the student but little attention is directed at understanding the factors which influence how students select a specific programme. Therefore, the theoretical understanding of career choice needs to be revised to include the factors which influence a student's choice of a particular programme. From the findings of this study, it was discovered that most students enrolled in Dental Technology because the programme was the first to accept them into HE.

The DUT and the Dental Technology programme needs to review the concepts and practices relating to student recruitment, in order to be more effective in recruiting and retaining the desired student in the programme. This study can be considered as ground work for further studies to follow focusing on a broader understanding of student recruitment. As it stands, there is need for more research in this area; and as a result student recruitment is currently understood and practised poorly by the South African HEIs.

The basic understanding of this study is that student recruitment strategies should be aligned to the institution type and the nature of the academic programmes offered, as the desired students needed for a programme also differ according to the preferred personal attributes for specific programmes. For instance, through this study, it became apparent that in addition to the general attributes required from an HE student there are programme-specific attributes that students must exhibit in order to be successful in Dental Technology. Therefore, the theoretical cases which guide the individualization of student recruitment strategies need some revising, and they should be based on the institution type and the programme's requirements. Pretlow (2014) indicated that there is limited literature relating to the recruitment of students into specific programmes in HEIs.

#### **6.4. Recommendations**

The results of this study have implications for the DUT policies and procedures regarding student recruitment; below are some of the recommended points for consideration:

- The Durban University of Technology should engage in an overall revision of student recruitment practices and possibly condense it into a well-documented strategy.
- The relationship between academic departments and the staff members involved in student recruitment should be strengthened, and communication levels need to be formalised. This relationship will potentially improve the effectiveness of the student recruitment practices carried out by the institution.
- Staff members involved in student recruitment need to be provided with formal training in the contents of the programmes offered by DUT and how they can best be promoted. The institution offers a number of programmes and they all have specific requirements, and the staff members involved in student recruitment need to be acquainted with the different programmes and their requirements.
- The faculties and departments must pay more attention to how their prospective students are recruited, and start developing their programme-specific student recruitment strategies guided by the institution's recruitment strategy. Both the lecturers and the SLOs agreed that academic departments are best suited for explaining their specific requirements and the intricacies of their programmes.

In as much as this study attempted to cover all the relevant aspects relating to this area of research, in reality it is difficult for one study to explore all of the gaps in the literature as that may lead to more confusion and even bigger gaps. With this understanding, it should be acknowledged that there are other important aspects which need to be researched, with this study laying the foundation for further research.

The recommended areas for future research are inclusive of, but not limited to:

- Career choice factors influencing students' choice of academic programmes
- Formulation of student recruitment strategies for the South African HEIs which is inclusive of a retention plan
  - Development of student recruitment strategies for different students' profiles
  - Development of programme specific student recruitment strategies.
- Required attributes for UOT programmes
- Alternative methods of improving preparedness of Black African students for HE
- Drop-out rates in Dental Technology programmes.

## **6.5. Conclusion**

The concerns relating to student recruitment are not unique to Dental Technology at the DUT, in fact, this is a universal challenge and similar research exists for other programmes in the dental fraternity. Literature shows that this is, in fact, a global challenge; however, it proves to be more prominent in South Africa because this is a developing country. However, there is a need for more research regarding the recruitment of Dental Technology students both nationally and internationally. As has been emphasised in this study, students who make incorrect career choices do not only compromise their dreams they also negatively impact on the reputation and funds of an institution and on the economic development of the country. Therefore, the South African HE sector also needs to address this challenge at a national level. It is therefore, important for HEIs to seek measures which can help in addressing the above challenges especially as the demographic shifts in students' profiles have exposed some deeply-rooted challenges which are negatively affecting the HE sector.

It can be concluded that the student profiles have significant implications for student recruitment practices in the Dental Technology programme at the DUT. The changed demographic profiles of students in Dental Technology challenge the programme to pay more attention to how their students are recruited and successfully retained within the programme especially so that they can be of benefit to the industry and ultimately contribute positively to the economic development of the country.

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## Appendix 1: IREC- Ethical Clearance



### INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

4 June 2013

IREC Reference Number: **REC 57/12**

Ms P C Dlamini  
15 Bonaire  
211 Bulwer Road  
Glenwood  
Durban  
4001

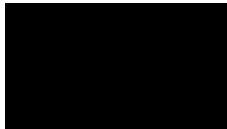
Dear Ms Dlamini

**Factors associated with student recruitment and student profiles in Dental Technology at a University of Technology**

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tools for review.

We are pleased to inform you that the questionnaires have been APPROVED; you may now proceed with data collection on the proposed project.

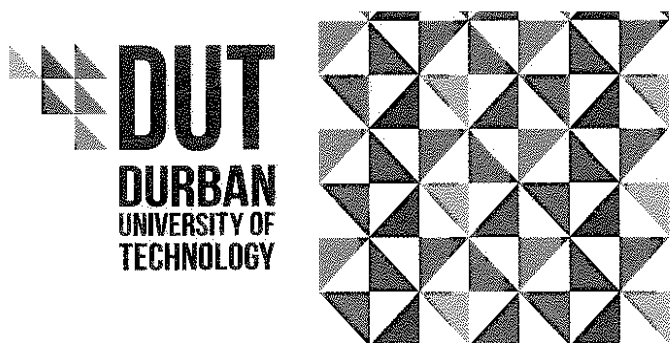
Yours Sincerely



Dr D. F. Naude  
Chairperson: IREC

## Appendix 2: IRC- Permission to conduct research at the DUT

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*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  
E-mail: [moyos@dut.ac.za](mailto:moyos@dut.ac.za)*

20 March 2013

Ms Philiswa Charity Dlamini  
c/o Department of Dental Technology  
Durban University of Technology

Dear Ms Dlamini

### **PERMISSION TO CONDUCT RESEARCH AT THE DUT**

Your correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research Committee (IRC) will grant permission to you to conduct your research at the Durban University of Technology.

We would be grateful if a summary of your key research findings can be submitted to the IRC on completion of your project.

Kindest regards.  
Yours sincerely



**PROF. S. MÓYO**  
**DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT**

## Appendix 3: IRC- Permission to access information at the DUT

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*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  
E-mail: [moyos@dut.ac.za](mailto:moyos@dut.ac.za)*

13 December 2012

Mr R Naicker  
c/o Department of Management Information

Dear Mr Naicker

### **PERMISSION TO ACCESS INFORMATION FOR RESEARCH AT THE DUT**

Ms Philiswa Charity Dlamini is currently registered as a Masters student at the Durban University of Technology in the Department of Dental Sciences. She has been granted permission to access information for research purposes at the DUT.

Kindly grant her access to the following information:

1. Contact information of all students who registered for the 1<sup>st</sup> year programme in Dental Technology from 2008 – 2012.
2. Registered student numbers by race from 2008 – 2012.
3. Dropout rate from 2008 – 2012 and the contact of those students who dropped out.
4. Pass and failure rate for the past five years.

Kindest regards.  
Yours sincerely



**PROF. S. MOYO  
DIRECTOR (ACTING): RESEARCH AND POSTGRADUATE SUPPORT**



**Benefits:** The results from this study could benefit the global DUT community in terms of informing the recruitment practices. However there are no direct benefits to you for your participation, but you should be proud of your involvement in such an important project.

**Reason/s why the Participant May Be Withdrawn from the Study:** You will only be withdrawn from this study if you decline. However there will be no adverse consequences for the participant should they choose to withdraw.

**Remuneration:** You will not receive any type of remuneration for participating in the study.

**Costs of the Study:** Costs will be provided for in the researcher's budget.

**Confidentiality:** You will not be required to write or provide your name anywhere in the process of filling in the questionnaire. Consent letter will be provided on line before you begin to answer the questionnaire you will need to agree to participate only then will the questionnaire be activated. The information that you will provide will be handled by the researcher, statistician and my supervisor. Thereafter this information will be safely kept by the supervisor for 15 year and will be deleted thereafter.

**Research-related Injury:** None

**Persons to Contact in the Event of Any Problems or Queries:**

Please contact the researcher (Philiswa Dlamini) 083 485 0220, or my supervisor (Mrs R Sunder) 031 373 2507 or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or [dvctip@dut.ac.za](mailto:dvctip@dut.ac.za).

Yours Sincerely

---

Philiswa Charity Dlamini

[philiswadlamini@yahoo.com](mailto:philiswadlamini@yahoo.com)

083 485 0220

## Appendix 5: Informed Consent Form for the Dental Technology students

### Dental Technology students' questionnaire

Dear Dental Technology (2008 - 2012) student

My name is Philiswa Charity Dlamini (AKA: PC Dlamini), I am now doing a MTech: Dental Technology at DUT.

The title of my study is: The factors associated with student recruitment and student profiles in Dental Technology at Durban University of Technology.

The main aim of the study is to determine the factors associated with student recruitment and student profiles in Dental Technology at Durban University of Technology

You are kindly invited to complete an on-line questionnaire that forms a crucial part of my study. Should you wish to continue completing the questionnaire, please select YES on the consent question and the rest of the questionnaire will appear.

Thanking you!

**\* Required**

**Consent \***

After reading the above documents, I fully give consent to participate in this study?

- Yes
- No

Continue »

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**Appendix 6: Online questionnaire for the Dental Technology students who completed the programme**

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*Please mark with X next to the appropriate answer.*

**Section A: Demographics**

1. Gender  
 a) Female   
 b) Male

2. Age  
 a) 17 -23 years   
 b) 24 years and above

3. Racial group:

Coloured	Black	White	Asian	Indian	Other

4. First Language (home language)

English	Afrikaans	Zulu	Xhosa	Other specify

5. Rate your ability to communicate in English

Poor	Average	Good	Very good

6. Year of first registration in Dental Technology

2008	2009	2010	2011	2012

7. Who is paying for your tuition fees?



FAMILY INFORMATION

Please select one answer

**13.1. PARENTS EDUCATION(Mother)**

13.1.1. Completed matric	<input type="checkbox"/>
13.1.2. Post matric qualification	<input type="checkbox"/>
13.1.3. Primary school	<input type="checkbox"/>
13.1.4. None	<input type="checkbox"/>
13.1.5. Other	<input type="checkbox"/>

**13.2. PARENTS EDUCATION(Father)**

13.2.1. Completed matric	<input type="checkbox"/>
13.2.2. Post matric qualification	<input type="checkbox"/>
13.2.3. Primary	<input type="checkbox"/>
13.2.4. None	<input type="checkbox"/>
13.2.5. Other	<input type="checkbox"/>

**13.3. PARENTS ACTIVITY (Mother)**

13.3.1. Professional	<input type="checkbox"/>
12.3.2. Domestic worker/ civil servant	<input type="checkbox"/>
12.3.3. Self employed	<input type="checkbox"/>
12.3.3. Unemployed	<input type="checkbox"/>

**13.4. PARENTS ACTIVITY (Father)**

13.4.1. Professional	<input type="checkbox"/>
13.4.2. Domestic worker/ civil servant	<input type="checkbox"/>
13.4.3. Self employed	<input type="checkbox"/>
13.4.3. Unemployed	<input type="checkbox"/>

**13.5. OLDER SIBLING INFORMATION**

13.5.1. One sibling (brother or sister)	<input type="checkbox"/>
13.5.2. Two or more siblings	<input type="checkbox"/>

**13.6. SIBLING ACTIVITY**

13.6.1. Scholar	<input type="checkbox"/>
13.6.2. In tertiary as well	<input type="checkbox"/>
13.6.3. Employed but living at home	<input type="checkbox"/>
13.6.3. Employed and living away from home	<input type="checkbox"/>
13.6.5. Has Matric but not studying or working.	<input type="checkbox"/>

13. Is there a health professional in your nuclear family?

- a) Yes
- b) No

**Section B: University Preparedness**

14. Did your school have a career guidance counsellor?

a) Yes

b) No

15. Did your school have a computer laboratory with internet access?

a) Yes

b) No

16. Did you receive career counselling in secondary school?

a) Yes

b) No

17. Was it easy for you to adjust to Higher Education learning system?

a) Yes

b) No

18. Overall would you say that your secondary education and school resources adequately prepared you for Higher Education learning?

a) Yes

b) No

**Section C: Performance**

20. I left Dental Technology because...

- a) I realised that it was not what I wanted.
- b) It was not what I expected and it was too challenging.
- c) It was not what I expected and it became too boring.
- d) It is too expensive and I could not afford it.
- e) I was never really interested in it; I saw it as a way for me to get in to DUT.

21. Did your prior knowledge of Dental Technology affect your performance in Dental Technology? If the answer is Yes, please explain.

- a) Yes
- b) No

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22. If I came in with a clear understanding of Dental Technology, I would have.....

- a) Became a very strong student overall.
- b) Performed better as I would know what is required.
- c) Discontinued with registering in this Department.

23. Do you think it is important for prospective students to have a clearly understanding Dental Technology as a profession?

- a) Yes
- b) No

23.1. Please explain your answer:

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**Section D: Attributes**

Initially I thought I was best suited to study Dental Technology, because:-

<i>Attributes</i>	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
24. <i>I like working with my hands.</i>					
25. <i>I have a good eye for detail.</i>					
26. <i>I work neatly, systematically, thoroughly and accurately.</i>					
27. <i>I am a creative independent thinker.</i>					
28. <i>I like solving complex problems.</i>					
29. <i>I like helping people.</i>					
30. <i>I perform well in team.</i>					
31. <i>I am willing and able to follow instructions.</i>					
32. <i>I like activities that require good co-ordination, physical skills and strength.</i>					
33. <i>I prefer working in silent environment.</i>					
34. <i>I have good communication skills.</i>					



**Section E: Factors that influenced my choice factors of Dental Technology**

37. When did you start to make career decisions?

- a) In primary school
- b) In grades 8 -10
- c) In grades 11- 12
- d) After completing grade 12
- e) Other \_\_\_\_\_  
\_\_\_\_\_

38. What was most helpful to you when you were making career decisions?

- a) Career exhibitions
- b) Career guide booklets
- c) Life Orientation teacher
- d) Advice for parents
- e) Advice from family and relatives

39. When did you find out about Dental Technology?

- a) In Grades 10 – 11
- b) In Grade 12
- c) After completing Grade 12
- d) When I was filling in my CAO form.
- e) Other: \_\_\_\_\_  
\_\_\_\_\_

40. How did you find out about Dental Technology?

- a) Through family, friends or relatives
- b) Through DUT advertisement/promotion
- c) Through Life Orientation teacher
- d) Through the CAO booklet
- e) Other: \_\_\_\_\_

41. Where did you find out about Dental Technology?

- a) At school, during career exhibitions
- b) At DUT, during open day
- c) At a dental laboratory
- d) At my dentist's surgery
- e) Other: \_\_\_\_\_

Please mark the appropriate selection with **X**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
<i>42. Getting information about studying Dental Technology was easy.</i>					
<i>43. The information that I got about Dental Technology was easy to understand.</i>					
<i>44. All the information that I got made me even more excited about studying Dental Technology.</i>					

45. Do you have any previous work experience, hobbies or skills that may be relevant to this profession?

- a) Yes
- b) No

46. Have you worked in health care or in any jobs that require manual dexterity?

- a) Yes
- b) No

If the answer is Yes on both 22 and 23, please explain below:

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47. Briefly explain the type of work you think a Dental Technician does; and where does s/he work? \_\_\_\_\_

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48. In five years to come I wish to see myself.....

- a) Working in one of the successful Dental Laboratories in SA.
- b) As a Dental Laboratory owner.
- c) Furthering my studies in Dental Technology
- d) Changing professions

e) Other: \_\_\_\_\_  
—

**Section F: Dental Technology Student Recruitment**

49. Did DUT do any type of career promotion at your high school while you there?

a) Yes

b) No

50. Before you became a Dental Technology student, did you at any point see any type of Dental Technology career promotion?

a) Yes

b) No

If you answered Yes, Please explain \_\_\_\_\_

51. Did your school attend the DUT open day at any point while you were a learner?

a) Yes

b) No

Please mark the appropriate selection with **X**

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
52. <i>I clearly understood Dental Technology before I came for the Placement Test.</i>					
53. <i>The placement test was easy and I managed to complete all the practical work.</i>					
54. <i>It is possible to pass the placement test without any prior knowledge about Dental Technology.</i>					
55. <i>The placement test truly reflects the requirements of Dental Technology student.</i>					
56. <i>The placement test was what I expected.</i>					



## Appendix 7: Information Letter for the DUT staff members

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### INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC) LETTER OF INFORMATION

#### Title of the Research Study:

**The factors associated with student recruitment and student profiles in Dental Technology at Durban University of Technology.**

**Principal researcher:** Philiswa Charity Dlamini

<b>Supervisor:</b>	Mrs R. Sunder	MTech: Radiography
<b>Co – supervisors:</b>	Mr G.H. Bass	M Ed: Higher Education
	Professor T. Puckree	PhD: Physiotherapy

#### Brief Introduction and Purpose of the Study:

Student profiles in the Dental Technology programme at Durban University of Technology (DUT) have change significantly in the last fifteen years, from a predominantly white to predominantly black student population. In contrast however, the changes in Dental Technology's student recruitment strategy at DUT are not clear. *Therefore the aim of this study is to investigate the factors associated with student recruitment and student profiles in Dental Technology at Durban University of Technology.*

#### Outline of the Procedures:

You are kindly requested to take part in the individual interview process which should be about one hour long. You are provided with a list of questions that will serve to guide our interview; and you are most welcome to prepare your answers beforehand. The interview will be recorded using a digital voice recorder. I plan to start the interview process early December 2012; however I will confirm the exact time and date with you so as to suit your availability. Only you and I will be present during the interview session.

Please note that participation in this study is voluntary and you are free to decline if you wish. However your opinions are of great importance and will play a critical role in the outcomes of this study.

**Risks or Discomforts to the Participant:** You will not be subjected to and risks or discomforts during the course of this study.

**Benefits:** The results from this study could benefit the global DUT community in terms of informing the recruitment practices. However there are no direct benefits to you for your participation, but you should be proud of your involvement in such an important project.

**Reason/s why the Participant May Be Withdrawn from the Study:** You will only be withdrawn from this study if you decline. However there will be no adverse consequences should you choose to withdraw.

**Remuneration:** You will not receive any type of remuneration for participating in the study.

**Costs of the Study:** Costs will be provided for in the researcher's budget.

**Confidentiality:** You will not be required to write or provide your name anywhere in the process of the interview. After agreeing to take part, you will be required to sign a consent letter before you the interview process can begin. All the information that you provide will only be accessed by the researcher, statistician and supervisor/s. Thereafter this information will be kept safely by the department for 15 years and will be deleted thereafter.

**Research-related Injury:** None

**Persons to Contact in the Event of Any Problems or Queries:**

Please contact the researcher (Philiswa Dlamini) 083 485 0220, or my supervisor (Mrs R Sunder) 031 373 2507 or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or [dvctip@dut.ac.za](mailto:dvctip@dut.ac.za).

Yours Sincerely

---

Philiswa Charity Dlamini

[philiswadlamini@yahoo.com](mailto:philiswadlamini@yahoo.com)

083 485 0220

## Appendix 8: Informed Consent Form for the DUT staff members

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### INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

#### CONSENT

##### Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Philiswa Charity Dlamini, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: **IREC 053/12**,
- 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, Philiswa Charity Dlamini herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

\_\_\_\_\_

**Full Name of Researcher**

\_\_\_\_\_

**Date**

\_\_\_\_\_

**Signature**

\_\_\_\_\_

**Full Name of Witness (If applicable)**

\_\_\_\_\_

**Date**

\_\_\_\_\_

**Signature**

\_\_\_\_\_

**Full Name of Legal Guardian (If applicable) Date**

\_\_\_\_\_

**Signature**

## Appendix 9: Interview questions for the Dental Technology lecturers

---



1. When did you join the Department?
2. How many years of teaching experience do you have in Dental Technology?

### **Student Profiles:** (demographics, performance and attributes)

#### **Demographics**

3. Briefly explain the demographic history (age, gender, race, socioeconomic status and experiences) of the current students in Dental Technology?
4. Describe what you would consider to be ideal in terms of university preparedness of your students.
5. Describe the personal attributes that you consider best suited for Dental Technology.

#### **Performance**

6. Describe the level of preparedness that your current students exhibit.
7. Do you feel that the students come in to the Dental Technology with the correct idea of what the programme entails? Please elaborate or justify your answer.
8. Is it important for new students to have background knowledge of Dental Technology? WHY?
9. Do you think that students are aware of the level in which they need to be performing?
10. Do you think that prospective students are adequately prepared for the level in which they need to be performing?
11. Do you think that student's background and their prior knowledge of Dental Technology is related to student's performance in class?

#### **Attributes**

12. What do you think are the required personal attributes that can help new students to be successful in Dental Technology?
13. What are the graduates attributes for Dental Technology?

#### **Recruitment:** (Departmental)

14. What is your role in student recruitment?

15. What student recruitment strategies are currently used by the department? (Do they help to attract desired students?)
16. Do you think that the department is enrolling the desired students for Dental Technology?
17. Do you think that the strategy used is adequate for attracting desired students for Dental Technology? EXPLAIN
18. How can the department improve its strategies for attracting the desired students?
19. Ideally what do you think are the functions of a proper student recruitment strategy?

**Recruitment:** DUT

20. What student recruitment strategies are used by DUT?
21. What role does the Dental Technology programme play in planning the student recruitment strategies for DUT?
22. Do you think that the current DUT's student recruitment strategies are helping in attracting the suitable Dental Technology students?
23. Does the department need to improve its student recruitment strategy? EXPLAIN.

*Thank you for your time and views are greatly appreciated.*

*Best Wishes.*

## Appendix 10: Interview questions for the staff members involved in student recruitment practices

---



1. Please briefly explain your role in Student Recruitment practices at DUT.
2. How are individual departments involved in what you do?
3. What schools are targeted by DUT?
4. Has the school selection procedure changed within the past five years? Please explain?
5. Have you received any form of briefing with regards to the courses available in this institution?
6. Is there a formal channel in which you use to communicate with the different departments in the institution?
7. How would you explain Dental Technology to a prospective student?
8. What would you recommend for students seeking more information about Dental Technology?

### **Students Profiles:**

#### **Demographics**

9. In general, briefly explain the demographic history (age, gender, race, socioeconomic status and experiences) of the current students enrolling at DUT?
10. Ideally which student profile (demographics, preparedness, performance and attributes) is best suited for DUT?
11. Which student profile would you say is best suited for Dental Technology?

#### **Performance**

12. What level of preparedness is exhibited by new students that come to DUT'?
13. Do you feel that the new students come to DUT with the correct idea of the programmes they enroll in?
14. How important is it for new students to have background knowledge of what they want to study?
15. What role do student recruitment strategies play in preparing students for courses offered at DUT?

16. Are the new students aware and adequately prepared for the level in which they need to be performing?
17. How do profiles of the new students affect their performance in class?
18. What role does student recruitment at DUT play in ensuring that students get the needed support so that they perform better in their respective programs?

### **Attributes**

19. What are the attribute that a new student should have in order to succeed in programs offered by UoT's?
20. How does the DUT's student recruitment strategy address the required attributes from it prospective students?
21. What are the required attributes for Dental Technology?

### **Recruitment**

22. In addition to what you do, is there a need for program specific personnel to represent their individual departments?
23. How effective is the current student recruitment strategies?
24. How can you improve the current student recruitment strategies so to ensure that it effectiveness increases?

*Thank you for your time, your involvement is greatly appreciated.*

*Best Wishes.*