

CHAPTER 1

RESEARCH PARAMETERS

1.1. Background of the study

Access to higher education is a contentious issue, not only in South Africa but also across the world (Crozier, Reay, Clayton, Colliander and Grinstead, 2008). In South Africa, during the apartheid era, racial discrimination was practiced, and access to education and other amenities was limited to a minority of the populace, while the majority, namely blacks and women, were left out. In post-apartheid South Africa, access to education in general and higher education (HE) in particular is aimed at redressing the inequalities of the past, giving equal opportunities to people from under-represented groups and in particular endeavouring to empower women.

While the higher education system in South Africa has experienced a substantial growth, participation rates remain low. The gross participation rate, defined as the total HE enrolment expressed as a percentage of the 20 - to - 24 year age group, was 15% in 2001, rose to 16% by 2005 (Scott, Yeld and Hendry, 2007), and increased to 17% in 2009 (CHE, 2009a). This needs to be viewed against the benchmark of 20% gross HE participation rate for countries at a similar level of economic development to South Africa (Foxcroft, 2009). Participation rates are particularly low for black¹ students. According to Scott, Yeld and Hendry (2007), the following 2005 participation rates were reported: 12% for African, 12% for Coloured, 51% for Indian and 60% for white students. There was a slight improvement in participation rates in 2009 for African (13,3%) and coloured students (14,8%), and a drop in the participation rate for Indian (44,9%) and white students (56,9%) (CHE, 2009a). The participation rate of blacks in general is particularly low in the natural sciences and technology (SET), even though there has been a gradual increase in the proportion of black students in these fields as well. “Black students are heavily under-represented in career fields in which sciences and mathematics are firm entrance requirements, e.g. Information Technology, Engineering, Natural Sciences and Medicine” (Jansen, 2010:132). This assertion is also made by the Council on Higher Education (CHE) (2009b:15) as it states that “all fields of study, other than education, continue to attract disproportionately more white students.” This has a

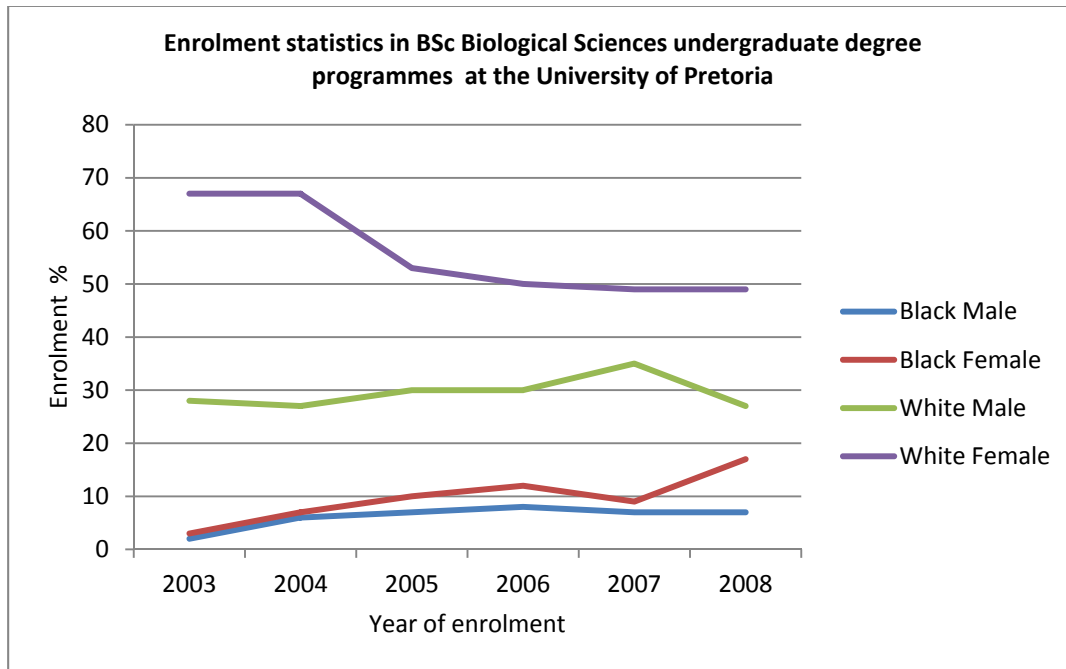
¹ The term black is used to denote Africans, Coloureds and Indians.

critical impact on the occupational and social mobility of blacks and on their entry to programmes with a high exchange value in the labour market. The purpose of this study, therefore, is to explore issues of access and retention in the natural sciences.

According to higher education management information service (HEMIS) data of 2010, women made up 58% of all graduates in first-degree courses (3 years and 4 years combined) nationally, and 60% of all graduates taking first-degree courses at the University of Pretoria. It was for this reason that I only looked at blacks as under-represented. Blacks are in majority in South Africa but under-represented in relation to their representation in the population.

The headcount statistics of students enrolled for Bachelor of Science (BSc) in Biological Sciences (BS) at the University of Pretoria (UP) from 2003 to 2008 is an illuminating example of this trend (Figure 1.1). Although there has been a significant improvement with regard to enrolment in this programme, the statistics show that a gap still exists between white and black students. For example, the enrolment of black female students increased from 3% of total enrolment in 2003 to 17% in 2008. At the same time the enrolment of white female students declined from 67% of the total enrolment in 2003 to 49% in 2008. Nonetheless, this still left a wide margin between black and white female students who were enrolled in this programme. These figures translate to white female registered students making double the percentages of black female students registered for this programme in 2008.

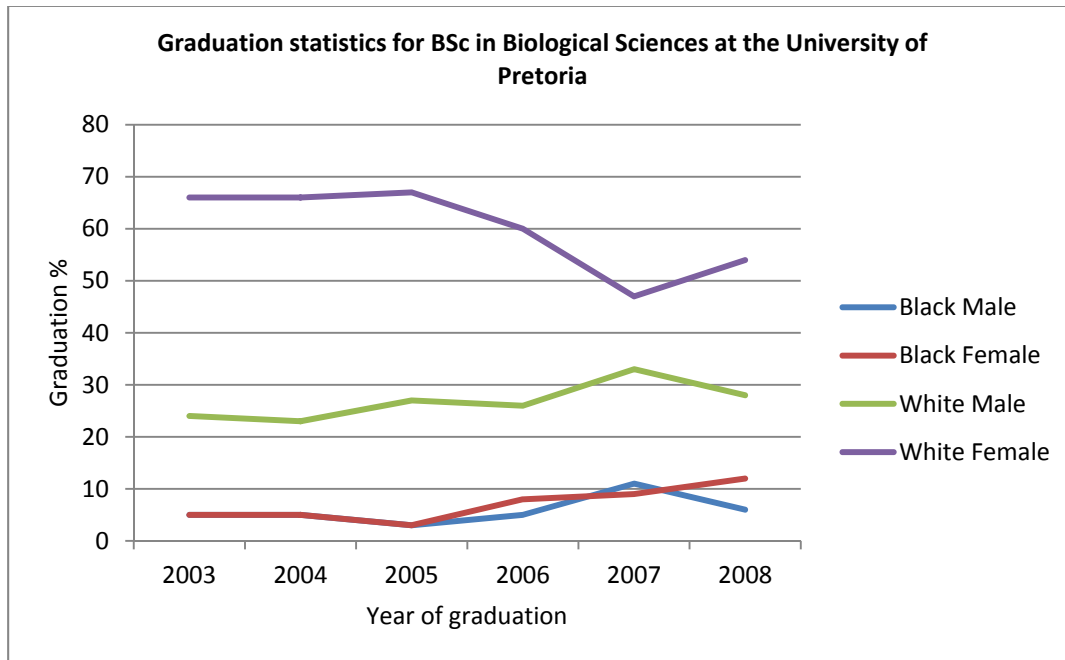
Figure 1.1



Source: *Higher Education Management Information System (Department of Higher Education and Training), 2010.*

The gap is even wider when one considers graduation figures. Figure 1.2 indicates the graduation statistics in the same programme for the academic years 2003 to 2008. The data clearly show that white female students have a propensity to high completion rate, as compared to both white males and blacks. This is demonstrated by the fact that more than 50% of white female students graduated from this programme in 2008, while only slightly more than 12% of black female students and fewer than 28% of white males graduated from the programme. The graduation rate of black male students is significantly lower, at under 10%. It should, however, be borne in mind that not all students who register for this programme pursue it for the full duration of three years; some, for example, use it to access other career tracks such as medicine. This could offer an explanation for the low graduation rate, but not for the gap between black and white students.

Figure 1.2



Source: *Higher Education Management Information System (Department of Higher Education and Training), 2010.*

The disparity in access numbers between black and white students at the University of Pretoria confirms that, despite democracy and the lifting of the admission barriers which once prohibited people of colour from accessing certain amenities and institutions, blacks in South Africa are still under-represented in terms of participation in some fields of study in higher education institutions (HEIs). Against this background, the democratic government of South Africa introduced policies with a view to redressing these glaring inequalities, among them the National Plan for Higher Education (DoE, 2001a), the White Paper 3 of 1997, and the Higher Education Act of 1997. However, as Morrow (1994) asserts, formal or physical access to institutions of higher education differs from epistemological access. The former refers to gaining admittance into institutions of higher learning or being allowed access to the physical space of a university, whilst the latter refers to how knowledge is distributed and obtained within the institution itself.

While physical/formal access can provide entry to a HEI, the main challenge is to give students access to the knowledge in these institutions, thus allowing them to succeed in their studies. That is, access with success.

In order to explain students' access to and success in BSc in Biological Sciences at UP, this study will make use of and expand Osborne and Gallacher's (2004:11) view of access as a process comprised of three stages. These are "getting in", which refers to the period prior to entry into higher education, including the years of schooling; "getting through", which refers to the period of time spent in higher education; and "getting on", which denotes the subsequent outcomes of higher education. The intellectual puzzle which underpins this study is the question why, regardless of its importance and after almost two decades of progressive post-apartheid policy development, access, particularly to science and technology programmes, continues to be a challenge in different ways in South African higher education institutions (Gamede, 2005).

While each university has its own specific challenges with regard to access, generally relating to its history and context (CHE, 2010), this study sets out to unravel how a historically white university understands access and how it implements its policy of access to Bachelor of Sciences (BSc) in the Biological Sciences (BS). It explores how different stakeholders understand and practice access, focusing on the experiences of first-year students from under-represented groups enrolled for a BSc in Biological Sciences. The first-year student cohort was chosen as relevant since they are still trying to adapt, learn, and understand the institutional culture.

The main research question is:

- What are the possibilities and limitations of widening access of under-represented groups to the Biological Sciences at the University of Pretoria?

Sub-questions:

- How is access policy to the Biological Sciences understood and implemented at institutional and departmental levels?
- What are the challenges faced by students from under-represented groups with regard to access to Biological Sciences at the University of Pretoria?
- How do students from under-represented groups negotiate access with success within the Biological Sciences at the University of Pretoria?

This is a case study of widening access for students from under-represented groups in the Biological Sciences at the University of Pretoria. It aims to identify possible barriers to access, as well as their impact on widening participation in the Biological Sciences. Face-to-face semi-structured interviews were conducted with six policy-makers and six first-year lecturers in the Biological Sciences. Three focus groups with twenty-nine first-year second-semester students were also conducted, as well as analysis of 193 questionnaires administered to the first-year second-semester students in Biological Sciences during the 2011 academic year.

1.2. Rationale for the study

In this study, I chose to explore various concepts (such as student recruitment, readiness, support, including both academic and psychosocial support, and the admission process encapsulating policy and funding) that impact on access of under-represented groups to higher education. The inclusion of these numerous concepts increased the breadth of the research, whilst focusing on one concept increased the depth of the study.

I was interested in the topic on both professional and academic levels. As an employee of Higher Education South Africa (HESA), my portfolio relates to advising university personnel who implement the relevant access policies from the Department of Higher Education and Training (DHET), as well as constantly scanning the environment to identify any legislative changes relating to such access policies. The constant engagement with policy and discovering the challenges around access issues that are experienced by higher education institutions (HEIs) intrigued me. Most of all, I was interested to find out if there was a link between access and throughput rates or success.

On the academic level, there seems to be general agreement that few students from under-represented groups in South Africa register for programmes which require mathematics and science taken as school subjects (Jansen, 2010; Downs, 2010; Scott, Yeld and Hendry, 2007; Walters, 2004). However, in Britain the Department of Education and Skills (DfES, 2006) argues that potential students from low socioeconomic backgrounds, and particularly those from under-represented groups,

are less likely to apply for HE programmes that require mathematics and science, even if they meet the admission requirements for such programmes. The report suggests that this could be attributed to lack of finance and perhaps the need to register for less demanding programmes with a view to complete studies within the allotted time and join the labour market. This argument underscores the importance of determining how access can be broadened in science and technology programmes. The relationship between access and science-related fields always poses a challenge, and there is thus a need to understand the complexities that surround this relationship.

Because fewer black students access and complete programmes in science and technology, ensuring access and retention of under-represented groups in the sciences and science-related programmes has become a national imperative. This study was deemed necessary since it related to one of the national priorities.

The study focused on the BSc in the Biological Sciences in order to explore both the opportunities and limitations of widening access for the under-represented groups in South Africa, with special reference to black students. This involved identifying barriers to access and making recommendations as to how to deal with them. The project is a case study of a former Afrikaans-medium historically advantaged institution (HAI), namely, the University of Pretoria. It was chosen because students from under-represented groups seem to still choose the erstwhile white higher education institutions (Jansen, 2010).

There is paucity of literature on access to higher education (HE) in South Africa. The available studies focus on access as a transformational tool and argue the access related issues through strategies such as academic development with a view to achieving access with success (Akoojee and Nkomo, 2007; Boughey, 2003; Naidoo, 1998) and support for under-prepared students in the form of foundation programmes. Ntshoe (2003), Cele and Menon (2006) focus on the economy of access by unpacking the impact of finance and of policy shifts on access. Koch and Dornback (2008) focus on the language issue and its impact on access to higher education. Cross and Carpentier (2009) postulate the concept of 'new students' in South African higher education and explore the institutional culture, student performance and the challenges of democracy. These authors also illuminate the

challenges of language in higher education. Nel and Kistner (2009) highlight the implications of the National Senior Certificate (NSC) for access to higher education; Mdepa and Tshiwula (2012) examine student diversity in South African higher education, while Walters (2004) focuses on the concept of access from a lifelong learning perspective. Gamede (2005) looks at the biography of access within the context of social justice in South Africa.

Despite this background of research, Scott (2004) claims that this phenomenon has not been sufficiently studied, because few universities have dedicated research centres that focus on access. This is particularly significant in this context, as black students from rural and township areas try to access urban, formerly white universities.

The aim of this study was therefore to contribute to the general discourse on access and widening participation in HEIs, with particular reference to the Biological Sciences. Specifically, it sets out to analyse the complexities involved in student access in the context of widening access in the Biological Sciences at the University of Pretoria.

1.3. The notion of access

The notion of access is understood and interpreted differently by different scholars. In this chapter I first consider the definition of access in order to develop a deeper understanding of the concept. Rowan et al. (nd, cf Gamede, 2005) argue that access to education refers to the entry of a candidate into an institution following the removal of any barrier which might deny access to such a candidate. In South Africa, the main concern is to expand access, desegregation and the redress of inequality (Samoff, 2001). Access is important in a social transformation context, since it may result in massification of higher education through the admission of a diverse group of students, including those from under-represented groups. The thrust behind widening participation is therefore to combat social exclusion and improve the economic situation of the historically under-represented groups (European Commission, 2001; OECD, 2003).

Woodrow (1999) defines access broadly as widening participation in higher education so as to include under-represented groups, encapsulating both successful completion of studies and equal opportunities. Admission is perceived as a process, which includes equality and the opportunities that higher education and the world of work can potentially offer students.

However, Goastellec (2008a) points out that there are trends in access, and that access is no longer focused on massification *per se*. But there is also a need to scrutinize widening participation, particularly in programmes that are highly selective in terms of good performance in mathematics and science subjects at school level. Goastellec (2008a) argues that discussions and concerns around access are no longer on increasing the enrolment numbers (expansion), but focus on broadening participation. This means the removal of structural and institutional barriers to progression (Gorard, Adnett, May, Slack, Smith and Thomas, 2007) and increasing the numbers of under-represented groups in those programmes where their enrolment numbers are lagging behind, due to factors such as socioeconomic backgrounds which lead to attendance at poor schools. The concern about participation is no longer on increasing the numbers of students who enrol at higher education institutions but has shifted to providing equal opportunities to all, including the under-represented groups, through increased enrolment numbers in the highly selective mathematics and science programmes.

In this study, access is understood as a means of entry into an institution of higher learning and as a form of participation in HEIs, and includes post-enrolment access with success that is reflected in the outcomes. Against this backdrop, this research endeavoured to unravel the concept of access from the perspective of widening participation.

For the purpose of this study, access was also understood in terms of both formal access or physical and epistemological access (Morrow, 1994). Physical or formal access refers to gaining admittance to a HEI, whilst epistemological access refers to access to the knowledge which is disseminated within the institution and thus questions the academic practice of the institution (Morrow, 1994, 2009). It presupposes various levels of access, with the epistemological being the higher level, attained through interaction with the curriculum and the way the curriculum is

delivered (ibid). Both physical and epistemological access are “inextricably intertwined and it will be difficult to realise one without the other” (Gamede, 2005:8). Physical access was not only limited to accessing the institution as the study also sought to focus on widening access, that is, affording equal opportunities for students to access university programmes, particularly those students from under-represented groups.

1.4. Conceptualizing access

Access has been conceptualized in different ways in different periods. How it is practiced also depends on the specific country's history and politics (Clancy and Goastellec, 2007).

This study used Goastellec's (2010) categorization of access, which gives three types of norms that govern the development of access: inherited merit – which is parallel to higher education (HE) in South Africa during the apartheid era, where HE was elitist, mostly white and male; equality of rights – where access addresses issues of social justice, democratization, massification or expansion of higher education and equality of opportunities – which argues for equal opportunities for students from various backgrounds, including those from under-represented groups and low socioeconomic backgrounds. Thus widening participation (WP), particularly to black students in the sciences, becomes imperative, as the niggling question remains: Why are black students still under-represented in the Biological Sciences?

Boud (2004) reminds us that the very notion of widening participation implies that the doors of learning are not completely open, and questions the significance of such a notion. However, it does underscore the importance of access being open and equally available to those candidates who meet certain admission requirements. In the South African context, these requirements are, *inter alia*, the minimum admission requirements (DoE, 2008a) and the university's admissions point score (APS). Whilst physical or formal access usually refers to entry into HEI, in this study it was used to unravel the interpretation of access policy and admission policy, and their implementation by the policy-makers, the first-year lecturers and first-year students (as policy implementers, curriculum mediators and policy consumers), and how

students from under-represented groups receive and interact with these policies in Bachelor of Science in the Biological Sciences at the University of Pretoria.

Widening participation (both physical and epistemic) was explored within the context of “getting in”, “getting through” and “getting on” (Osborne and Gallacher’s, 2004:11) as a theoretical framework underpinning this study. It focused only on ‘getting in’ and ‘getting through’, because these first two stages have a direct link between school and university. Furthermore, ‘getting on’ occurs in the world of work and as such refers to the outcome of the student of having participated in HE studies, in terms of his/her experience of the labour market, the work readiness of the graduates who are employed, and of society in general (Osborne and Gallacher, 2004).

1.4.1. *Getting in*

“Getting in” refers to the diversified admission criteria and access routes that assist in widening access for disadvantaged and under-represented groups (Foxcroft, 2009:2). It focuses on the interface between schooling and higher education. This concept requires higher education institutions to consider what kind of preparation the students entering through their doors have received. Does the school system adequately prepare learners for the rigour and challenges of higher education?

1.4.2. *Getting through*

“Getting through” refers to how the institution responds to the changing student body and the programmes, services, approaches to curriculum development, teaching and learning that it has in place to assist students so that they persist in their studies and graduate (Foxcroft, 2009).

“Getting through” conjures up Bourdieu’s (1977a) concepts of ‘habitus’ and ‘cultural capital’, as they are linked to the socioeconomic status of students and impact on their university experiences. Habitus is referred to as “a system of dispositions that is of permanent manners of being, seeing, and acting and thinking or a system of long-lasting perception scheme or schemata of perception and action” (Bourdieu, 2005:43). A group of people sharing a similar or neighbouring position in social

space tend to display common elements of behaviour and a similar style. Habitus is thus a product of social conditions which may be changed by history, since it is itself the product of history (Bourdieu, 1990, 2005, Reay, 2004b). Furthermore, the concept of habitus is perceived by McDonough and Calderone (2006:1704) as a “common set of subjective, internalized, class-based perceptions that shape an individual’s expectations, attitudes, and aspirations.” The issue of habitus is particularly pertinent to this study, since it explores the experiences of black students in a previously white Afrikaans university in the context of its language, symbols and artefacts. These depict the history of the Afrikaners, with which white Afrikaans students can identify, but alienate students from black and under-represented groups (Jansen, 2009). Such students feel little sense of belonging in this historically advantaged institution (HAI).

Reay (2004a) argues that cultural capital cannot be attributed to academic success or failure of an individual’s aptitude, but to what is inherited from the family milieu. Goastellec (2008a:74) holds that “higher education (HE) remains elitist by principle and advocates for a selective dimension of access.” She postulates that many still consider academic performance to be a result of “natural intelligence” and deny the influence of socioeconomic determinants on scholastic achievements.

Hiller and Rooksby (2005:24) argue that the concept “capital” should not only be limited to economic nuance but could also be applied to resources which are pertinent and imperative in social contexts, such as status, power, personal contents and formal and informal systems of knowledge. The assumption by HEIs is that students, regardless of their socioeconomic backgrounds, should be able to navigate the library, switch the computer on, and have the know-how to use the internet. A further assumption is that the students should be at an appropriate level to critically engaging with a text and be able to ask for and find assistance from home. However, students from low socioeconomic backgrounds are less likely to have this kind of know-how and support, so may not have the cultural capital required for the robust university studies, even more since they may be the first generation of graduates from their families.

The concept of habitus will be explored in order to assess the impact of the sense of belonging on widening participation of black students in Biological Sciences at a formerly white Afrikaans university.

Soudien (2010) underscores the importance of creating a space for the under-represented groups within HEIs. He argues that elite HE produces social class in terms of new racial demographics, that race takes a sublimated form and can manifest itself overtly as intolerance of other peoples' cultures and languages. He sees institutional culture and character as the key to making students feel at home, giving them a sense of habitus within an institution, and therefore the potential for *getting through* by succeeding in their studies. Whilst HEIs in South Africa offer a self-transformation experience, racism remains a challenge in South African higher education institutions.

The imperative of widening access does not only bring new groups of people with new voices into HEIs but also ensures that they have a reasonable chance of success. As the non-traditional students gain access to HEIs, they will need specialized support, and this will change the way such provision is made (Boylan, 2004).

According to Scott (2010a:229), "getting through" "is measured in terms of graduate outputs". There is a need to reform the curriculum in such a way that it does not only enable HEIs to accommodate diverse students, including those from the under-represented groups, but also to attain the requisite outputs. Scott (2010a:233) further notes that "3-year degree programmes are completed in 5 years at contact universities in South Africa". There are several postulations in this regard; the question of a poor schooling system, as well as the kind of curriculum offered to students, could be cited as among the myriad reasons why students do not complete their degree studies in the allotted time.

Another critical question to be considered is whether the curriculum and HEIs adequately prepare students to meet the needs of the South African labour market.

"Getting through" therefore seeks to attain a balance between equity of outcomes and a curriculum which addresses the labour market of South Africa.

1.4.3. Getting on

“Getting on” focuses on the opportunities that HEIs offer students with a view to preparing them for the labour market and general citizenship. The critical question according to Scott (2010a: 230) is how well HE is meeting South Africa’s need for high-level human resources. In other words, are the graduates produced well prepared to respond to the needs of the labour market?

This suggests that widening access goes beyond entry into HE, taking into account the sustenance of students, their perseverance throughout their studies, and the actual throughput. The throughput rate is also relevant to the kind of the graduate that is produced by HEIs. Therefore, it is not only about the numbers but also about the need to unpack the “graduateness”, that is, the calibre of the graduates in terms of their readiness to enter the world of work. This is what is referred to as “getting on”.

This study will not deal with ‘getting on’, given that only students who ‘get in’ and ‘go through’ will be able to reach this final stage.

1.5. Research design

This research was a case study of widening access in the BSc in Biological Sciences at the University of Pretoria in the faculty of Agriculture and Natural sciences. A case study is used to zoom in on a specific site where in-depth study of a single institution is conducted (Creswell, 2008).

My study was located in the Faculty of Natural and Agricultural Sciences, which offers several scientific and agriculturally-related programmes. The focus was on widening access to Biological Sciences. The BSc in BS is a three-year generic degree for which a student can register with a view to diverting to other career tracks calling for a professional degree, such as medicine, veterinary science or dentistry.

In 2011, 764 first-year second-semester students were registered for BSc in the Biological Sciences undergraduate degree at the University of Pretoria. The staff complement within the faculty includes a dean, two deputy deans, heads of

departments, professors and associate professors, senior lecturers and lecturers, who share the teaching and research responsibilities of the faculty. It should be noted that the teaching personnel share the teaching responsibilities according to their specialities. A lecturer may teach part of the module in a subject at various levels in the school. There are no lecturers set aside to teach BS only. This case study thus offered a glimpse of how that faculty was organized.

According to Creswell (2008:214), purposive sampling occurs when a researcher intentionally selects individuals and sites in order to learn about and understand the central phenomenon. The University of Pretoria was purposefully chosen because it is a historically advantaged institution (HAI) and accessible (Maree and van der Westhuizen, 2007). A homogeneous purposive sampling was used to select individuals in the first-year second-semester programme of Biological Sciences. The underpinning principle of homogenous purposive sampling is the common characteristic that the participants share (ibid). In this study, common characteristics included the fact that the subjects were all in the second semester of their first year of Biological Sciences and that they were all from under-represented groups.

1.6. Significance of the study

Access is one of the key challenges of higher education in South Africa. This led to the crafting of what became the leading step towards policy intervention in the form of Education White Paper 3 and later Higher Education Act of 1997. The Education White Paper 3 articulates its vision as:

[P]romote equity of access and fair chances of success to all who are seeking to realise their potential through higher education... (DoE, 1997a:7).

Against this background, this study seeks to unravel the access related issues such as access policy and access processes with a view of developing a deeper understanding with special reference to under-represented groups. The focus is mainly on the natural sciences and technology since career tracks in these fields require a firm grasp of mathematics and science and lead to careers that are high in

demand. But students from under-represented groups are very few in such careers and this curb both their occupational and social upward mobility (Jansen, 2010, Goastellec, 2008a). This study was also intended to enhance the existing literature and contribute to the body of knowledge in the field of access to higher education studies with special reference to Biological Sciences in a South African context. It is also the central aim of this to provide useful knowledge that needs to be taken into cognisance by university policy-makers when crafting access policy.

1.7. Limitations of the study

The study acknowledges that under-representation cannot be limited to race, gender or social class. There is a current debate about whether a race-based policy could be used for access to a formerly advantaged university, such as the University of Cape Town (Bitzer, 2010; Favish and Hendry, 2010; Price, 2010). While being black may not *per se* be an indicator of under-representation, given the growing black middle class in South Africa, it is still a valid indicator for under-representation, since most black students come from disadvantaged backgrounds and attended poor schools.

The study does not intend to analyse the policy formulation process, nor does it seek to analyse all the conceivable issues regarding access policy. Nonetheless, the in-depth analyses of the implementation of access policy raise pertinent questions, both nationally and internationally, about such implementation in HEIs.

Since a case study is inherently limited, the findings of this study cannot be generalized (Ensor, 2001; Anderson, 2002; Leedy and Ormrod, 2001; Creswell, 2008; Yin, 2003). However, such findings can be extrapolated.

1.8. Organization and layout of the study

Chapter 1 (Research parameters)

This chapter provided the introduction to the study, and introduced the research questions and the rationale for the study. The chapters that follow have been assembled in accordance with specific organizational themes:

Chapter 2 (Literature review)

This chapter gives a review of the literature pertinent to the study. It further delineates the concept of widening participation using the three stages of access, namely inherited merit, equality of rights, and equality of opportunity (Goastellec, 2010; Clancy and Goastellec, 2007). Widening participation is further unravelled through a brief history of the establishment and a prolegomenon on higher education in United Kingdom (UK) and in the United States of America (US). In addition, the study explores issues of access and widening participation in one of the Latin American countries namely, Brazil. The African dimension is explored through an examination of access and widening participation in higher education in Tanzania and in South Africa.

Chapter 3 (Conceptual framework)

This chapter provides an in-depth discussion on the concepts that underpin this research. Osborne and Gallacher's (2004) concepts of 'getting in' and 'getting through' were adopted as the conceptual framework. These concepts are explored and developed using the stages of each main concept. 'Getting in' is explored through student recruitment, student readiness, the admission process and funding. On the other hand, 'getting through' is explored through the orientation period, student support, epistemological access and institutional culture.

Chapter 4 (Research design and methodology)

This chapter provides a detailed strategy of the research design and methodology, and explains the qualitative research approach taken in this case study. The chapter

also explains the scope of the research, the sampling, and the data collection techniques.

Chapter 5 (Data analysis and findings)

This chapter gives a detailed data analysis. It explores how the different stakeholders understand and experience the various policy instruments employed in the processes of 'getting in' and 'getting through'. It shows that the University of Pretoria (UP) is able to recruit and enrol students not only from urban areas but also from rural and township areas. However, lack of residence facilities and poor transport are barriers to widening participation. Problems among the students include lack of preparation, work overload and failure in examinations, despite a well-accepted support system of mentorship. Other findings indicated the ambivalence of the university towards its role in widening participation and the impact this has on its finances, on the work load of its lecturers, as well as on its goals and prestige as research university.

Chapter 6 (Interpretation and discussion)

This segment presents a detailed interpretation and discussion of the findings of the study. It highlights the key policy instruments that have been put in place to widen participation in Biological Sciences. It was evident that 'getting in' was facilitated by student recruitment and the promise of support, but was hindered by inadequate preparation for university studies from the schooling side, and that 'getting through' was facilitated by the student support offered by the university through mentorship programmes, but was hindered by insufficient residences and poor transport.

Chapter 7 (Conclusions and recommendations)

The study draws several conclusions showing that, whilst strides have been made in the provision of access to under-represented groups, more still needs to be done, especially in the provision of academic and psychosocial support, residence accommodation and transportation, if widening participation were to be achieved.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The literature review seeks to explore the relevant literature which addresses the concept of access, with a view to developing a deeper understanding of the phenomenon under investigation, both locally and internationally. The study is about widening access to under-represented groups in the Biological Sciences in a former white and Afrikaans-medium university.

Whilst it is important to widen participation, it is equally important to ascertain that such access is fair. It is therefore important to find out the social backgrounds of students who enter higher education (Goastellec, 2008a). The question is: How can a fair access policy to higher education be organized, so that higher education does not reproduce social inequality but instead promotes social mobility? Fair access, according to Goastellec (2008b), can be organized by widening participation and giving equal opportunities to students from diverse backgrounds, as well as by paying attention to funding. The national student-funding framework, as well as the way higher institutions are funded, has a decisive role in widening participation.

The chapter continues by analysing three successive trends of access which are common to a number of countries, namely the shift from “inherited merit”, through a commitment to “equality of rights”, towards the application of some modes of affirmative action described as “equality of opportunities” (Goastellec, 2010). It continues by exploring crucial factors which have impacted on access to higher education in recent years, and particularly in South Africa, among them the massification and globalization that have impacted on the need to widen participation to students from under-represented groups. It continues with the analysis of widening participation using as an example, a Latin American country, namely Brazil. Widening participation is further explored in the African context using Tanzania as an example, and ends with the exploration and analysis of widening participation in South Africa.

2.2. Inherited merit

The concept of inherited merit refers to the notion of access which is the identification of academically selected students mostly on the basis of being born to a certain social class. Often it means being male from an upper-class family and living in an urban area (Clancy and Goastellec, 2007). In the South African context during the apartheid era, this privilege was bestowed mostly upon those who were white and male.

In this sense, higher education was traditionally established mainly to serve the elite and perpetuate elitism in society. Examples of such elites were political authorities, religious leaders and/or colonizers, who required higher education to provide them with specific professionals such as lawyers, doctors, clergy and civic leaders. Thus higher education and its privileges were closely associated with the elite (Goastellec, 2010). This approach to higher education inadvertently created a chasm for low socioeconomic groups who did not have the means to access higher education.

Since access to higher education was meant for a few elite individuals, it rejected any understanding of “otherness”. This suggests that those who ordinarily did not access higher education would not be understood, and might be mistreated by the ruling groups who were made up only of the elites (Goastellec, 2010; Clancy and Goastellec, 2007). Inherited merit also implied that lack of inclusive access to higher education could be excused by an interpretation of some of the “social inequalities as legitimate, justified or ‘naturally fair’” (Goastellec, 2008b: 74).

Access as inherited merit was prevalent in the early modern universities in the United Kingdom (UK) and United States of America (US).

The establishment and the prolegomenon of higher education in the UK was closely linked to Christianity, with both lower and higher education offered in monastic and cathedral schools. Thus universities in the United Kingdom and other European countries arose from the cathedrals and/or churches (Previté-Orton, 1971, Backhouse, 2009). One of the oldest universities in the UK is Oxford University which began as an Anglican University around the twelfth century. The purpose of the university then was to train clergymen and clerks to become erudite leaders for both church and the state. In 1871, the sons of middle-class families were allowed

access for the first time to Oxford University. The fact that access was granted to the sons of middle-class families underscores the notion that it was mainly granted to those who subscribed to the prevailing religious ideology, were of a certain class and as such reinforced the principle of inherited merit. The steady increase in the demand for higher education led to the establishment of other universities, such as Cambridge University. These universities perpetuated the notion of access as inherited merit, since they remained institutions reserved for the elite.

The UK universities had strong roots in the church and operated “under the jurisdiction of a distant pope operating in uniform cultural milieu, which allowed them to combine practical learning with a search for universal truths” (Florea and Horvat, 2009:482). During those nascent stages of the university whoever was not aligned with the church might be excluded from participating in higher education, therefore perpetuating the notion of access as inherited merit.

In the modern era, however, the authority of the church was replaced by that of the secular nation states. As a result, the church lost its dominance over the universities, which were now able to exercise a measure of independence (Florea and Horvat, 2009). This autonomy was maintained as long as state funds were not involved and the universities were able to maintain their elitist character.

The next section further examines the notion of access as inherit merit by exploring this notion from an American higher education perspective.

The history of American higher education began in 1636 with the founding of Harvard College, followed 60 years later by the William and Mary College in Virginia. Yale College and the University of Pennsylvania were founded in 1710 and 1740 respectively. Princeton, Columbia, Brown, Rutgers and Dartmouth Universities were established between 1746 and 1769 (Cadozier, 1987). These university colleges were developed with one main purpose which was to train the clergymen, though the curriculum was later extended to include civic and business leaders.

Along with community colleges, land grant universities were also established. These mainly offered study programmes of one to two years. The first few junior colleges, however, were not successful, due to lack of students, shortage of money and poor locations.

In 1901 in Joliet, Illinois, a junior college was established with the purpose of offering preparation courses for university studies. The undergraduate programmes were organized into lower and upper divisions, with the lower being offered for two years at college level and the upper for a further two years at university level. However, most students did not transfer to universities to complete the remaining two years, for which they could be awarded a baccalaureate degree, since they had already attained an associate degree which could open employment opportunities for them. According to Cadozier (1987) and Levine (1993), the establishment of the community colleges was prompted by the need for trained workers in the new expanding industries. These community colleges opened up opportunities for farmers' sons to access higher education (Cadozier, 1987; Levine, 1993). The land-grant institutions were also an attempt by the US government to compel inclusivity in higher education. Despite the discriminatory practices the introduction of community colleges and land-grant universities represented the desire to expand post-secondary education and shift from the limiting effects of inherited merit as it had a detrimental effect on the economic growth and development. Nonetheless, despite these lacklustre efforts, the majority of people from under-represented groups were still excluded from higher education.

The colleges or universities realized the importance of research. The universities seized the opportunity, as they saw a need to differentiate themselves in terms of their names and curricula, and used research as leverage. The extended university curriculum included the liberal arts. In 1950, Pennsylvania and Michigan State Colleges renamed themselves as universities, and gradually other colleges followed the name change trend. In a way this phenomenon heralded the birth of higher education in the USA. Congress passed a law in 1890 for small funding for teaching in land-grant colleges and specifying that African-Americans who had been freed from slavery could not be excluded from participation in education including higher education (Cadozier, 1987; Levine, 1993).

Thus the history of access in the US, which is inextricably linked with the history of higher education, demonstrates that access to institutions of higher learning was granted mostly to white males in accordance with the inherited merit principle (Noftinger and Newbold, 2007). Nonetheless, the community colleges seemed to

offer alternative routes to higher education and the introduction of a differentiated higher education system.

However, problems with finance made it difficult for many individuals to access higher education, so access was limited to those who could afford to participate. The rise of the Civil Rights movement in the US characterized the period from 1955 to late 1960s. The history of access in US, particularly for African-Americans and other minorities was linked to the Civil Rights movement in one way or the other. Whilst the political circumstances have changed, resulting in a differentiated higher education landscape in the US, the principle of inherited merit remains highly contested in some elite universities. Several court cases compelled the US government to offer equal access to minority students with talent. A case in point was *Brown vs Board of Education of Topeka* of 1954, which overturned *Plessy vs Ferguson* of 1896, which had endorsed the 'separate but equal doctrine' (Jones, 2006:887; Noftinger and Newbold, 2007; Bestey, 2008). The case managed not only to overturn racial segregation practices but also to open the doors of learning for all people of colour who qualified to go to HEIs.

Levine (1993:10-11) identifies some of the efforts that the federal government implemented to improve access of the under-represented in higher education during the nineteenth hundreds. They include: "funding for new initiatives such as financial assistance, outreach and mentoring programs. In addition, assessment of incoming students for diagnostic purposes, programs to compensate for poor student preparation and collaboration with public schools." The colleges and universities were also held accountable for improved access and achievements of students from under-represented groups. However, Levine (1993) points out that, despite all these efforts, the gap between minority and majority college participation and degree attainment has not narrowed.

The 'big three' US universities (Harvard, Yale and Princeton) experienced uneasiness and serious challenges in the early nineteenth hundreds with respect to access for Jewish people. These immigrants seemed strange and different in terms of language, appearance, religion and customs. The Jewish community had identified higher education as a vehicle for upward mobility and therefore wanted to enrol their children at such institutions. Although these universities valued

homogeneity and the tenets of the Protestant faith, the enrolment of the Jewish students created anxiety and fear amongst the administrators and trustees of these universities. In order to address the 'Jewish problem' a quota system was instituted (Florea and Horvat, 2009).

To give effect to the quota system, the admission offices were empowered with 'expanded discretionary authority'. The universities also introduced admission policies which were replete with ethnic bias. Further, the admission criteria underscored the family background of the potential student, photographs became compulsory and the student's 'character' was investigated through interviews. The admission office turned their attention on what they called 'geographical diversity' and institutional 'discretion' was exponentially increased. Thus, the final decision lay with the institution, and the admission policies were implemented to ensure that the number of Jewish students was limited (Florea and Horvat, 2009: 485).

Such admission policies and the accompanying non-academic considerations continue to exist in the current higher education landscape both in the US and elsewhere, demonstrating the tension between institutions' self-interest and meritocracy (ibid).

However, Bickel (2008) points out that, while social equity initiatives in the UK are linked to class issues as determined on economic basis, the US has a history of racism and its access policy is linked to both race and class. This means that policy relates to the history of both the country and the institution.

In the twentieth century, as demographic, economic and political pressures increased the demand for higher education, the elitist notion of access as inherited merit lost favour and was replaced by a more democratic approach, that of equality of rights, as it was felt that higher education should be accessible to everybody, whatever their social origin. This equality of rights approach presented an opportunity to introduce diversity to higher education (Clancy and Goastellec, 2007).

2.3. Equality of rights

Equality of rights means that the formal barriers to access to higher education have been removed for women, people of different race and social groups.

“The norm of equality of rights is affirmed by the changes in higher education roles and changes in political principles sustaining social organisation” (Goastellec, 2010:285). Concomitant to the affirmation of the equality of rights are the critical questions: Why the need for higher education? What drives access to higher education?

The demand for higher education is impelled by various factors. First, the economic factor, that is, the need to expand the workforce and to build a knowledgeable and skilled workforce to drive the economy. Technological changes and increased international competitions implied that the skills of the workforce needed to be sharpened (Clancy and Goastellec, 2007; Goastellec, 2010). As knowledge supplanted capital, people developed a strong need to acquire knowledge (World Bank, 2000). Both knowledge acquisition and skills honing are mostly done at institutions of higher learning. Universities are a critical component of education for the development of any nation, because they play a critical role in capacity development of highly skilled human power, technology transfer and knowledge production. Thus universities are placed at the centre of a country’s economic development and become the engine of economic development (Kariwo, 2007).

Second, the expansion of access to primary education through the principle of universal access helped to increase the numbers of people who completed this phase of schooling and wished to further their studies at the next level and ultimately reach higher education (Goastellec, 2010). The World Bank (2000) argues that the increase in widening access at primary and secondary education levels contributed to the increase in higher education enrolments, particularly in developing countries. This phenomenon was impelled by the increase in the number of people at the traditional age for attaining higher education and by the increasing number of secondary school graduates who wanted to progress to higher education. In this sense, education seems to be offering equality of opportunities.

Third, according to Goastellec (2008b) there are three issues that weigh heavily on higher education, namely demographic pressure, which refers to an increase not in the population in general but specifically in the cohort in the higher education age group, economic pressure, which refers to the efficacy and efficiency of higher education systems, and political pressure, which calls for diversification of the student body. Furthermore, “the level of access to higher education is often presented as an indicator to the economic and social development” of a country (Goastellec, 2008b:71). Countries therefore find themselves in an untenable position of supporting the increase of access in higher education which leads to massification.

Massification, that is, the increase in the number of students, has been perceived as an imperative for higher education. This perception had its roots in the US in 1944, with the signing of a bill that gave access to higher education for World War II veterans. In 1957, as a reaction to the launch of the Sputnik, the National Defense Education Act was passed by the US Congress. This Act entitled universities to federal funding which was aimed at increasing the number of researchers in America, inevitably massifying the higher education system as its enactment led to an enlargement of access to higher education (Goastellec, 2010).

The process of massification in the US increased significantly after 1960 and continued to see a steady growth as the total number of students increased from 14.8 million to 17.5 million between the years 2000 and 2006 (Scott, 2009; cf Goastellec, 2010), as compared to worldwide student enrolment figures which astronomically increased from 13 million in 1960 to 100 million in 2000 (Grandstein and Nikitin, 2004; cf Goastellec, 2010). There has also been an increase in student enrolments in various countries, such as Kazakhstan, with an increase of 62% from 272 700 to 442 400 between 1995 and 2001, and Bangladesh, from 801 733 to 962 567, which translates to 20% increment between the years 1998 and 2001. The Republic of Korea experienced an increment from 2 950 826 to 3 500 560, which translates to 19%, between the period 1998 to 2001, and Australia had an increase from 671 253 to 726 418, or 8%, during the period 1998 to 2001 (UNESCO, 2003).

According to the World Bank (2000), in 1995 more than 47 million students were enrolled in higher education in the developing countries, which marks a major increase from the approximately 28 million students enrolled in 1980.

The rise in enrolment numbers could partly be attributed to what Goastellec (2010:284) calls the “mechanical phenomenon of the demographic augmentation”, induced by the governments’ economic and social policies aimed at increasing the enrolment figures in higher education systems (Clancy and Goastellec, 2007). This suggests that the role played by demographic pressure in the massification of higher education system cannot be overemphasized. It is for this reason that Goastellec (2010:284) argues that “the rise of mass of higher education is one of the main universal dynamics of the second half of the twentieth century.”

Interestingly, whilst Asia experienced a 24% increase in enrolment figures during the period 1991 to 2005, Sub-Saharan Africa only recorded 5% increase in enrolment to higher education between 1991 and 2005 (Mohamedbhai, 2008). This slow increase could be attributed to the lack of funding. Because of various competing priorities, governments may be compelled to allocate insufficient funds to education in general and higher education in particular (World Bank, 2000). Such funding shortfall will have a negative impact on the infrastructural development of higher education.

The massification of higher education goes hand-in-hand with the increase in the female share of enrolments in higher education in the developing countries. This is underscored by the fact that between 1965 and 1995 higher education in developing countries registered an increase in female enrolments from 32% to 45% (World Bank, 2000). This looks positive, as female enrolments seem to be driving the demand for higher education and thus will promote gender equity in education. The lower mortality rate also contributes to massification because greater numbers of pupils enrol for primary education and continue to secondary schools (Mohamedbhai, 2008). Upon completion of secondary education, the natural progression is to advance to higher education, which encompasses all other forms of post-secondary education, such as colleges and universities.

Massification has had a major impact on higher education institutions. Scott (2010) argues that it cannot be limited to the increase of numbers alone or to the quantitative growth that universities experience, but stems equally from the social

equity and economic utility which erode the traditional cultures of studies in local campuses and encourage student mobility and alternative models of teaching. With massification, higher education has experienced a substantial qualitative transformation, as it changes the values and ethos of the universities. In this process, traditional institutions have undergone major and in some cases painful changes.

Altbach (2007) maintains that massified higher education may lead to the need for a differentiated higher education system, one which might be used to channel students from lower socioeconomic status and under-represented groups and by so doing promote greater social class integration differences and the achievement of social injustice.

On the positive side, massified higher education provides opportunities for greater access and more diversity of gender, social class and ethnicity among students. It can encourage social mobility, expansion of the knowledge economy and an increase in skills levels. Furthermore, mass higher education also opens opportunities for private higher education and the privatization of public post-secondary institutions (Altbach, 2010).

Massification fuels the thrust for globalization, as the increase in student enrolment stimulates and encourages student mobility, since the students may not be catered for by their local higher education institutions. In this sense, the demand for access to higher education has implications for student mobility and its corollary impact on the national higher education systems in various countries (Goastellec, 2010). Thus the demand for access to higher education not only expands the system in terms of exponential increase in the number of enrolments but this expansion also has the potential to put a strain on higher education systems.

Economic globalization has spurred various processes in education. It has increased the demand for higher education, particularly in developing countries and transitional countries which are trying to integrate into world production and trade schemes and often have a growing young population (van der Wende, 2003). The neoliberal economic policies and managerialism inhibit expansion and emphasize efficiency, while the minimal government investments have a negative impact on students from under-represented groups and thus also impact negatively on widening participation

(McGrath and Akoojee, 2009). Globalization has benefits for people who want to pursue global careers and offers opportunities for faculty mobility and for researchers to interact with like-minded researchers in other parts of the globe. The negative side is that globalization encourages economic migration, which has the potential to destabilize traditional communities and societies as well as their support system in the form of family and friends. This occurs as the researchers move to the other countries to pursue research and share experiences with like-minded colleagues in those countries (Scott, 2010b).

It is further argued that “traditional HEIs are not responsive sufficiently to the demand for more diversified and flexible forms of higher education” (van der Wende, 2003:194). Education across frontiers provides a means to satisfy this growing demand for higher education. Thus the development of transnational education has the potential not only to widen participation in higher education but also to contribute to the meaningful massification of higher education (ibid).

Obanya (2004) argues that massification has compounded the problems of funding in higher education because most universities, especially in Africa, rely heavily on government funds and these are inadequate. The corollary effect is that the universities become subsistent and struggle to survive. In these circumstances, it is perhaps the students who are most affected by massification, as the quality of student life is negatively impacted by this phenomenon (Mohamedbhai, 2008). In support of the poor students’ quality of life Mohamedbhai (2008:14) argues:

They [students] have to contend with overcrowded classrooms, unavailability or insufficiency of academic facilities including accommodation, reading materials, research equipment, computers, etc. These frustrations usually lead to students becoming more ungovernable and usually taking to the streets in demonstrations against either the management of the university or the government in order to improve their lot. Students complete higher education without having gained the necessary skills to make them employable. They spend most of their time just trying to survive and pass their exams and therefore do not have much time for self-development.

The main question is therefore whether expanding the education system “reduces inequality by providing more opportunities for persons from disadvantaged groups or

magnifies the inequalities by expanding opportunities for those who are already privileged” (David, 2009:5). This misgiving is echoed by Clancy and Goastellec (2007) as they point out that when access is massified, inequalities are reproduced within the higher education structure which becomes differentiated in terms of sector or institution, college or field of study. So expansion of enrolment does not necessarily result in widening participation since higher education remains stubbornly elitist in principle and promotes selective access despite the implementation of the universal access principle and meritocracy.

Corsini (2002) defines meritocracy as a social system which gives opportunities and advantages to people on the basis of their ability rather than their wealth or seniority, thus reinforcing the importance of the principle of equal rights. Florea and Horvat (2009:486) identify two types of meritocracy, namely aristocratic and democratic: “In the former the people at the top of the system make decisions about who wins or loses the competition, in the latter form of meritocracy, decisions are made by means of uniform tests and other impersonal criteria, who wins and who loses becomes simply a matter of personal achievement.” In this regard, higher education plays a significant part in the promotion of emerging meritocratic knowledge by affording individuals an opportunity to succeed in it and by legitimizing their success.

It is against this background, Goastellec (2010:285) points out that higher education is elitist and that “academic performance is considered the results of ‘natural intelligence’; the influence of socioeconomic determinants was therefore denied.”

The notion of access as equality of rights is somewhat interrelated with the transformational issues described as social justice. This links education to social transformation and equity (Samoff, 2001). Education by its very nature lends itself to issues of social transformation because it is perceived as having the potential to act as an equalizer in an otherwise unequal society. Cultural diversity and educational equity are fundamentally consistent with social justice, thus the pursuit of such policies is justified and worthwhile in the long term. Social justice could be an option in addressing the anomalies which exist in society and are mirrored by societal institutions such as HEIs (Benjamin, 1996). In this sense, social justice as a phenomenon could help HEIs to reflect on their practice with regard to access, and this practice could help attract the critical mass to higher education. Clancy et al.,

(2007) concur that social justice emerges as a new tool for reducing divisions and fractures where racial identities have hitherto been dominant, as in South Africa.

Clancy and Goastellec (2007) and Goastellec (2010) hold a view that the social justice agenda is not quantitative; that is, it is not about increasing the enrolment numbers in higher education but is rather concerned with widening access to the previously under-represented groups, with a corresponding and the corollary impact on equality of access. This phenomenon resonates well with the history of access in the new South African context.

The 1994 elections heralded the dawn of democracy in South Africa, and with it a shift in access policy from the notion of inherited merit, whereby higher education was the privilege of mostly white students, to the notion of equality of rights. This shift was based on the new constitution, which was anchored in the Bill of Human Rights advocating social justice, equity and redress as the key principles for social transformation (DoE 1997a, 2001a). The perception of access from a social justice point of view presupposes the inequalities based on the segregation policies of the apartheid era. According to Nkomo, Akoojee and Motlhanke (2005), transformation in higher education is considered an indicator of social progress. It refers to a process of absolute overhaul of social thinking and results in meaningful social transition (Akoojee and Nkomo, 2011). Transformation in the South African context refers to the need to ensure that the barriers to access are completely removed so that the higher education system becomes more inclusive, achieving widening access, improved throughput rates and participatory outcomes. Access, from a social justice perspective, could be understood to refer to inclusion of those students who were deliberately and systematically denied entry into higher education through the traditional exclusive education system.

One of the barriers to access in South Africa is lack of funding. This is supported by international experience; for example Woodrow (1999) and Boud (2004) are of the opinion that the socioeconomic status of parents and their level of education contribute to the success or failure of the students at a higher education level. Furthermore, low socioeconomic status may lead to economic barriers which in turn may become an impediment to student retention (Boud, 2004). In an attempt by the South African government to assist disadvantaged students with funding, former

President Mandela launched the National Student Financial Aid Scheme (NSFAS) in 1996. This financial aid scheme is essentially a loan scheme, and a portion of the loan can be converted into a bursary on condition that the recipient demonstrates satisfactory academic performance, which translates into achieving success in registered courses (Akoojee and Nkomo, 2011; DHET, 2010). The challenge with this scheme is the small amount of money allocated to universities for this purpose (DHET, 2010; Wangenge-Ouma, 2010).

Despite the intractable challenges of access to higher education institutions in South Africa, at undergraduate level women seem to have overcome the barriers and are in the majority in higher education institutions (CHE, 2010; Goastellec, 2010; Woodrow, 1999). However, the substantial increase in numbers is mainly reflected in the humanities and social sciences, with fewer being registered in the science and technology fields (Jansen, 2010; Scott, Yeld and Hendry, 2007; Walters, 2004). There is therefore a continuing need for equality of rights and widening access at university level.

In South Africa, policies and regulations that encourage diversity in HEIs are set by the government and by the university management, with the approval of the university governance structure, generally known as the university council. Attaching incentives or rewards to induce desired behavioural practices and punishing failure to comply with policy can also encourage HEIs to implement access policies leading to diversity and increase the number of students from low socioeconomic backgrounds (Benjamin, 1996).

Despite some degree of success in Britain in increasing the number of students in higher education, Woodrow (1999:343) identified four myths that stood in the way of European higher education institutions achieving equality of rights.

Firstly, it is not the responsibility of higher education to promote inclusion. It is argued that higher education is detached from society, and it is therefore not the mandate of higher education to address any issue of poverty alleviation or discrimination that might exist in the society. This implies that higher education should focus only on issues such as teaching and learning, rather than be concerned with promoting inclusion. This kind of approach leads to governments developing

policies making it mandatory for institutions to consider promotion of inclusion (Woodrow, 1999).

Secondly, it is argued that equity is the enemy of academic excellence; students of lower socioeconomic status will lower standards. This myth is a blow to the inclusion of students from under-represented groups in higher education. When institutions increase numbers and enrol students from low socioeconomic groups and from under-represented groups, it seems to be expected that academic excellence will drop and that standards will be lowered, as these students may not have the cultural capital to handle the rigours of higher education (Woodrow, 1999; Altbach, 2007, 2010; Wangenge-Ouma, 2010).

Thirdly, access and widening participation is seen not as an investment but is perceived as problematic, as most higher education institutions do not seem to see the value of inclusion, particularly of students from under-represented groups. However, some institutions of higher learning do see the recruitment and inclusion of such students as adding value to the ethos of the university (Woodrow, 1999).

Fourthly, higher education institutions claim not to be able to afford widening participation. This myth persists, despite there being no correlation between the money spent on higher education and the support for widening access. The phenomenon could be perceived as purely a question of priorities. That is to say, higher education institutions choose to spend their money on other issues, relegating widening access to the periphery as something not worth spending money on (Woodrow, 1999).

The opposing argument is that claiming to be unable to afford widening participation demonstrates a lack of commitment by some HEIs. Several HEIs in the United Kingdom have attempted to widen participation, focusing particularly on students from low socioeconomic backgrounds (DfES, 2006; David, 2009).

Promotion of inclusion needs active participation and support by higher education institutions, not merely compliance with government regulations. If higher education continues to see itself as prevented from leading this process, it will not be fully

involved; instead, it will only be seen as complying with government regulations. In addition, it is also important to disaggregate the fact that admission of students from low socioeconomic backgrounds lowers the standards or the quality of education HEIs provide (Woodrow, 1999).

The university as an institution of higher learning is perceived as a community in which people of different cultures and classes have equal opportunity for access to higher education, have an equal voice in shaping institutional aims, and engage as equals by bringing divergent views into a rich conversation of respect (Benjamin, 1996). The emphasis here is on HEIs seeing all students as being diverse but equal, in terms of their potential to contribute equally to general social welfare by drawing from their various cultures. The fact that these cultures are diverse enriches the classroom discussions in institutions of learning. However, this is an idealistic view, as “equality” is understood and applied differently in different societies and in different HEIs.

The shift in educational policy in Britain refers to access as widening participation (WP), which seems to go beyond just entry to higher education, instead of attempting to increase the spread of enrolments across the spectrum of different academic programmes, particularly those which lack a diversified student population. Widening participation is therefore about attainment, and about “helping more people from under-represented groups, especially those from low socioeconomic groups, to participate successfully in higher education” (DfES, 2006:3).

The main reason for widening participation is to invest in high-level skills by increasing the percentage of people with degrees, as this has the potential to deliver high economic benefits. Furthermore, the British government hopes that this kind of endeavour will narrow the social class gaps through educational achievement, to create a society with equality of economic and social opportunities, given that the extant social divisions are unjust.

A study on recent trends in widening participation in Britain, conducted in 2006 by DfES, measured the percentages of higher education students from state schools, lower socioeconomic groups, and low participation areas. The study sought to demonstrate the progress made by the higher education system in Britain with regard to diversifying participation. It showed that there was a steady progress

towards achieving diversity as students from various walks of life were given an opportunity to participate in higher education. However, the study (DfES, 2006:4) acknowledges that “although progress has been made, it has been slow.” The key strategy for achieving success in widening participation was underpinned by four principles: attainment, aspirations, applications, and admissions.

Educational attainment not only entails the outcomes at school level but also encapsulates the need to narrow the social class achievement gap and encourage parental involvement at school level, in particular to help learners from low socioeconomic backgrounds to achieve good grades which will enable them to gain access to higher education. Parental support, provision of information on what higher education can offer, and the general support of government for the school system through programmes such as feeding schemes, childcare and early childhood education ensure that there are enough learners from low socioeconomic backgrounds and under-represented groups who qualify or meet the admission requirements, thus increasing the potential for widening access to higher education.

The narrowing of the social achievement gap was achieved by encouraging 16 year-olds from lower socioeconomic groups to remain much longer in school, at least until they had attained the advanced level subjects. Improving levels of attainment needs to be accompanied with raising the level of aspirations. There is a difference of about 25% in the likelihood of high and low socioeconomic groups staying in school for longer, ultimately to achieve the advanced levels (DfES, 2006:11). This suggests that if learners have in mind which career to follow and what is required to obtain it, they are more likely to remain in school in order to achieve their dreams. Dissemination of information to schools about career guidance and what higher education has to offer helps potential students to build mental pictures of what they may become once they have completed higher education. In addition, gifted children from low socioeconomic groups and under-represented groups are spotted early and given the necessary support so that their potential to reach higher education is increased.

The application process entails “knowing enough about the alternative universities and courses to put in an application to an institution which can satisfy the potential student’s aspirations and for which the student has the appropriate qualifications and

qualities” (DfES, 2006:5). In order to widen participation for people from under-represented groups and those of low socioeconomic status, they need to be shown how to select and apply to institutions of higher learning. This requires critical career guidance knowledge.

Admission is the prerogative of the universities, as they set the criteria which need to be met in order to gain admittance to a particular programme. Ideally, “admission should always be based on merit – irrespective of class, background or school attended” (DfES, 2006:2). However, this is not always possible, as there are people from lower socioeconomic backgrounds who may not have been adequately prepared for higher education. As a result, they will be at a disadvantage when they have to compete for places in universities, particularly the elite universities.

Hoare and Johnston (2011) point out that the competition among students, particularly at the so-called elite universities, put pressure on selectors and involve public scrutiny of the social profile of the undergraduate programmes. The competition for available spaces in the courses ensures the highest entry standards, and this fierce competition is likely to turn against students from educationally disadvantaged backgrounds. For example, in the UK students should normally be able to access higher education courses with two Advanced level subjects, but the competition pushes the entry threshold to three Advanced level subjects with at least an A symbol (ibid).

According to the World Bank 1995 review, as cited in Samoff (2001:17), “qualified potential students should not be denied access to institutions because they are female, are from ethnic minorities, live in geographically remote regions, or have special education needs.”

The World Bank thus associates equity with equality, by defining equity in terms of access. Samoff (2001) cautions against this approach, as it devalues the connection between discrimination and injustice and fails to explore measures which could address injustice.

2.4. Equality of opportunities

Equality of opportunities is about levelling the playing fields and making access to higher education possible for people from diverse groups, regardless of their socioeconomic backgrounds, where they live or the schools they have attended.

According to Clancy and Goastellec (2007), the equity principle is defined as equality of opportunity as it emerged from the social struggle. Equality of opportunity operates from the premise that intelligence is spread among all social groups. The dearth of students from working-class backgrounds in top or Ivy League institutions is a cause for concern and raises a critical question “as to whether individuals have equal opportunities to succeed where success is largely defined in terms of achievement of wealth and power” (Florea and Horvat, 2009:486). Equality of opportunity thus shifts the focus from higher education systems of massification to the distribution of students within higher education institutions, which is achieved through changing the focus of access policies from expanding access to widening participation. In this sense, equality of opportunity is about widening participation.

Clancy and Goastellec (2007:139) argue that:

Increasingly it is recognised that it is necessary to go beyond formal equality of rights and take account of differences in the opportunity structure. It is acknowledged that merit-based admission needs to be augmented by some form of affirmative action. The rationale is that since access to higher education is, to varying degrees, competitive, it will always privilege those with superior economic, social and cultural resources.

Higher education institutions introduced “sociotechnic tools” (Goastellec, 2010:286) or “socio-technical instruments” (Florea and Horvat, 2009: 489), such as the various admission tests conducted in elite institutions, as a way of augmenting the competitive access to higher education (Goastellec, 2007). The promulgation of these sociotechnic tools is an indication that school exit qualifications alone are not sufficient to determine access, particularly for people from under-represented and disadvantaged groups. The universities in the US use the national entrance examination, the Scholastic Aptitude Test (SAT). The SAT is intended to select the most intelligent individuals, regardless of their social backgrounds. That is to say, it is

one of the determinants for entrance into an Ivy League institution or elsewhere (Florea and Horvat, 2009). It is important to note that the SAT is used in combination with the high school results.

Florea and Horvat (2009:489) argue that these regional entry tests to some extent perpetuate inequalities in access:

...[B]ecause reducing an individual's accomplishment and potential to a number have compelled institutions to ignore motivation, competence, maturity and many language qualifications, not or hardly reflected by any high school graduation standardised test scores or grades. But the selection of individuals through the SAT revealed collective inequalities in access to higher education (e.g. regarding socioeconomic and ethno-racial belonging) and in many ways reproduced social inequalities.

The opposing argument, against the introduction of the sociotechnic tools, is that they are used by the elite universities and thus perpetuate inequalities as far as access to higher education is concerned, since higher education is naturally competitive and thus will always advantage those from backgrounds with superior economic, social and cultural resources (Clancy and Goastellec, 2007; McCowan, 2007).

Having identified the problematic nature of the SAT as a socio-technical instrument, some measures, such as affirmative action, were put in place to compensate the historically disadvantaged groups. Goastellec (2010:288) argues that:

The diffusion of alternative admission practices (quotas, specific selection processes for minority students) is aimed both at correcting bias in the measure of academic competences (considering that admission tests favour students with certain type of culture) and resolving the problem of legitimacy in higher education by improving diversity and hence the societal representation of the elite. These processes translate the idea that access to higher education or at least access to the most elitist institution, should offer equitable representation to the various groups composing the society.

However, these alternative admission practices also fell out of favour, as Goastellec (2004) argues: "this formula was abandoned and holistic admission processes were

organised to measure the academic merit of an individual regarding all the handicaps s/he had to face to reach this level” (Florea and Horvat, 2009:489). Even though these alternative admission practices have some inadequacies, it should be noted that they have opened a window of opportunity to students who otherwise would not have accessed higher education.

In conclusion, it is equally important to identify categories of social inequality that need to be addressed. In South Africa and the US, the ethno-racial dimension is the dominant category used for identification of social category, hence the metaphor of the ‘melting pot’ (Clancy and Goastellec, 2007). It is, however; equally important to note that identification of the dominant category does not suggest it is the only measure that could be used to define diversity.

2.5. Access and higher education in Brazil

In order to develop a deeper understanding of the three categories of access to higher education, namely inherited merit, equality of rights and equality of opportunity, it is imperative to find out how these issues are played out in other countries. On the one hand, the South African experience somehow reflects developments in countries such as the US, UK (as explained above) and Brazil. On the other hand, Tanzania provides another window of opportunity to perceive access issues in higher education from an African country. This demonstrates development or lack thereof in access related matters. However, the South African experiences, just like in other countries, are driven by its own particular circumstances and history.

Brazil provides an opportunity to explore issues of access to higher education as it share some similarities with South Africa (Maassen and Cloete, 2006). In the recent past, these two countries, together with India, formed cooperative arrangements for trade, economy and the other related mutually beneficial projects (Akoojee and Nkomo, 2011). In this context, a critical review of the education system and access issues in Brazil becomes relevant. Furthermore, Brazil is classified as a developing country with inequalities similar to those in South Africa; getting a Latin American perspective on access to higher education thus adds value to this study.

Higher education institutions are the microcosm of the society within which they are located. These institutions cannot be looked at in isolation from society in general. McCowan (2007:583) points out that “equity is not a word associated with Brazilian society. The country is one of the most unequal in terms of income distribution and the educational opportunities are distributed in a similar unjust way.” The education system in Brazil displays an extreme inequality that is mirrored in the country as a whole, in which access is to a large extent restricted to people from high socioeconomic groups. This perpetuates the notion of access as inherited merit. Furthermore, the problem of access is compounded by the highly selective nature of the entrance examinations for public universities, which have become very competitive (McCowan, 2004 and 2007).

The intake in higher education is dependent on the number of candidates who enrol for secondary education and successfully complete this phase of their schooling. The successful candidates must also meet the university entrance requirements. Unesco (2001), cf McCowan (2004), states that primary school enrolment has reached 97%, albeit there are high dropout and repetition rates. Although the secondary school enrolments reached 71% in 1999, the quality of education in public schools in Brazil is impeded by underfunding in poor areas. Gandin and Apple (2002) argue that there are a number of noteworthy initiatives by the government to address the deeply rooted inequalities that face the education system as a whole, from primary education to secondary and higher education.

The Brazilian school exit qualification is determined through successful completion of the National Examination of Secondary Schools. However, access to higher education is decided through the ‘vestibular’. This is an examination taken by candidates who want to go on to higher education. In order to make sure that one succeeds in this entrance exam, thorough preparation needs to be undertaken. These preparations include candidates attending a special preparatory course called the pre-vestibular, either during the final stages of secondary school or after completion (McCowan, 2004). The inequalities in the schooling system become very discernible or apparent at this stage, more indeed than at any other stage, because these courses (vestibular and/or pre-vestibular) are expensive. It is reasonable to conclude that chances are low for students from poor families in low socio-economic communities to pass the vestibular and thus to qualify to study at higher education

institutions. Students from poor families in most cases attend schools in rural areas and some of these schools tend to offer inferior pre-university schooling (ibid).

Neves, 2002; cf McCowan, (2004) identifies three categories of higher education institutions in Brazil. The first category is universities, which are required to conduct research, community engagement, and to teach. These institutions have the highest level of autonomy. The second type of institution is university centres; these offer multi-courses and could be said to be teaching universities since they are not required to carry out research. These first two types of institution do not require authorization from the Ministry to introduce and offer new courses. The third category is the integrated faculties and institutes or schools of higher education. These are smaller institutions with little autonomy and their course offerings have to be approved by the Ministry. Whilst they make a meaningful contribution to access and widening participation, they are viewed as less prestigious and thus are less preferred institutions.

The majority of the institutions are public universities, with administration divided between government, federal state and municipality. The national government control 61 universities; with a further 61 run by the federal state or provincial government, and the municipality runs 75 smaller higher education institutions, providing mainly technical courses (McCowan, 2004; Maassen and Cloete, 2006). Regardless of the huge number of institutions of higher learning, access poses a challenge, especially for people from under-represented groups or of low socioeconomic status.

The private higher educational institutions also play a significant role in the provision of access to higher education in Brazil. According to McCowan (2004), the private sector has succeeded in bringing a rapid expansion to higher education in Brazil. The success of private higher education institutions in increasing the enrolment numbers could be attributed to the government's initiative in giving tax rebates and cheap loans for infrastructure development for these institutions when they offer free places in higher education. Nonetheless, the majority of free places is filled by students from affluent families, since they can afford private schooling and the expensive pre-vestibular. It seems therefore that the expansion of private higher education institutions perpetuates inequalities.

In summary, the case of Brazil demonstrates an example in which expansion perpetuates elitism and a differentiated system, thus illuminates the notion of access as inherited merit, since access is attained mostly by affluent people.

2.6. Access and higher education in Tanzania

Tanzania provides yet another opportunity to explore the access related issues of higher education with special reference to widening participation. These issues are seen through African lens and therefore enrich this study.

Tanzania is an Anglophone country, where enrolment to higher education is subjected to a rigorous selection process so that access becomes restricted. The reverse seems to apply in Francophone countries, where any holder of the secondary school leaving qualification, the ‘baccalaureate’, can enter higher education without having to go through the “sociotechnic tools” or other means that determine access to such education (Mohamedbhai, 2008).

Tanzania is one of the few African countries where research in widening participation is ongoing, through collaboration with the University of Sussex in the United Kingdom (Morley, Leach and Lugg, no date). This makes Tanzania an interesting case to consider and explore.

In Tanzania, higher education is a component of the broader tertiary education sector, which is defined as all post-secondary education. Higher education refers to institutions which offer and award advanced diplomas or degrees (Benjamin and Dunrong, 2010). The tertiary institutions in Tanzania include eight public universities, twenty two private university colleges, and fifteen additional public institutions (ibid).

The birth of higher education in Tanzania followed a trajectory similar to that of most African countries. The establishment of institutions of learning was inextricably linked with the colonial rulers of those African countries. As Tanzania was a former British colony, its first university was established in 1963 as part of the University of East Africa, which served three neighbouring countries in east Africa namely, Kenya, Tanzania and Uganda. The University of East Africa itself was established as a college of the University of London. A split with the University of East Africa led to

the establishment of the University of Dar es Salaam in 1970 (Morley, Leach and Lugg, no date).

Higher education in Tanzania was expanded, as three more universities were established, namely the Sokoine University of Agriculture², established in 1965, Tumaini University³, founded by the Lutheran church of Tanzania in 1993, and Mzumbe University⁴, established in 2006. Private higher education institutions were also established alongside the public universities, in order to address the gap that arose due to the high demand for skilled labour.

Benjamin and Dunrong (2010) argue that participation rates in higher education in Tanzania are very low. In 2005, the gross enrolment in higher education was 1% (Unesco, 2007; cf Benjamin and Dunrong, 2010). According to the Tanzania Education Authority (2011), the participation rate in higher education increased from 37 667 in 2004/05 to 95 525 in 2008/09. Despite this increase, participation rates for female students remained almost level, at 31,4% in 2004/05 and 36% in 2008/09. Therefore, access to higher education in Tanzania is still male-dominated, particularly in the sciences and science related programmes, in which female participation rates are less than 10%. This underscores the need to widen participation in Tanzania, especially in the sciences, including in the Biological Sciences.

Male dominance in higher education participation rates and in the sciences in Tanzania suggests that the country is still faced with the challenge of access as inherited merit.

However, the situation seems to be changing, as there has been a steady increase in enrolment of women in higher education. Morley, Leach and Lugg (no date) assert that participation of women was lowest in Commerce, Science and Engineering, and highest in Law, Education and Medicine.

² See University website <http://www.suanet.ac.tz/>

³ See University website <http://www.tumaini.ac.tz/>

⁴ See University website <http://www.mzumbe.ac.tz/>

The question of gender-biased access invoked the following assertion:

Questions have arisen about the representation of various social interests in key public institutions. Elite social institutions have increasingly been required to consider the democratic challenge. In the policy field of higher education, the concepts of access and widening participation have become condensates for discussion of diversity, equity and disadvantage, and a form of critique of public universities (Morley, Leach and Lugg, 2009:56).

Access to higher education in Tanzania could not continue to be limited to certain groups only; the universities' access policies have had to be sensitive to intersect with gender and low socioeconomic status.

This brief analysis of access to HE in Tanzania sought to demonstrate that the challenges of access are not confined to South Africa, but are also an African issue.

2.7. Historical background of access in South Africa

2.7.1. Prior to apartheid era

The issue of access to higher education and concomitant performance or lack thereof of the first year students has been a concern in South Africa as early as nineteen thirties (Malherbe, 1977).

In 1936, prior to introduction of the apartheid government, a survey of about 8 000 predominantly white male matriculants entering South African universities was conducted. This survey aimed at identifying the cause of the excessive failure in the first year of university studies as well as the transition between schooling and university. At that stage the poor performance at university level was attributed to 'youthfulness' of the students. Since South Africa was one of the British colonies early universities in South Africa used English as a language of instruction. The survey found out that at least half of all first year students failed in at least one subject. The subjects failed by first year students were mainly the sciences, i.e. engineering, Biological Sciences and other science related bachelors' degree programmes. Furthermore, the majority of first year students failed individual subjects when compared to the overall first year aggregate.

Amongst others, the underlying factors of poor performance in first year studies were the question of the medium or language of instruction and institutional culture. For example, prior to its incorporation into University of Pretoria, the veterinary faculty in Onderstepoort used dual-medium method but after incorporation into University of Pretoria Afrikaans became a dominant medium of instruction (Malherbe, 1977).

The implementation of this dual-medium method was inconsistent and varied:

[F]rom time to time and subject to subject. Sometimes English and Afrikaans were used on alternate days sometimes they were used alternately in the same lecture (Malherbe, 1977:128).

The medium of instruction and institutional culture were inimical to the Afrikaans speaking students in English medium universities such as University of Cape Town (UCT). Mandew (2003) points out that campus life during the formative years of UCT like in other institutions of higher learning in South Africa reflected the dominant culture of the country.

Afrikaner students felt a deep sense of alienation and they resented the overly English character and the ethos of the institution, especially the medium of instruction. For blacks the climate was fundamentally as hostile and racist within the university as it was outside the institution (Mandew, 2003: 7).

These findings together with other lopsided government imperatives of that time have led to the proliferation of Afrikaans-medium universities in South Africa. Furthermore, the foundation year was also mooted as one way of reducing failure rate at first year degree studies which seemed to be emanating from the transition from school to university (Malherbe, 1965). The proposal was that foundation year should offer courses that will broaden the students' scope of general information with a view of developing a well rounded graduate. This kind of graduate will be knowledgeable in variety of subjects that inculcated the white population's social and political roots as well as subjects that could ramp up the students' inductive and deductive reasoning ability and communication skills. In order to achieve these lofty objectives, an in-depth study of certain courses such as literature, social science, natural science or physical science and communication will have to form the core of the foundation year curriculum. In this way, the envisaged foundation year will also

eliminate premature specialisation but strengthen the first students' intellectual knowledge and in the long term reduce wastage in higher education (Malherbe 1965; 1977). That is to say, the envisaged foundation year was not intended to be neither an extension of the first year university curriculum nor the remedy of the deficiencies experienced at university level as a result of poor schooling.

In addition, the foundation year was intended for all first year students and the purpose was that:

Students should be in contact with broad culture of the university. Every student will be brought in contact with what should be the common denominator in the academic experience of a university trained person regardless of the speciality and profession he is ultimately going to follow (Malherbe, 1977: 491).

Whilst the foundation year then was intended for whites it became compulsory for blacks students because their education was perceived to be inferior.

Such a scheme seemed to be needed *a fortiori* in the universities for blacks since their education has been limited (Malherbe, 1977: 493).

Subsequently, black students who enrolled at Medical School of University of Natal were the first cohort of matriculants to be subjected to such a 'preliminary' university year.

2.7.2. The apartheid era

During the apartheid era in South Africa, access for blacks did not feature as a policy option in the same way and degree as access for white students (Akoojee and Nkomo, 2007). There was only one residential university for Africans, the South African Native College at Fort Hare, established in 1916 with 343 students. Africans were also enrolled at the University of South Africa (UNISA) (which was established in 1946 to offer distance education), making up just over a quarter of the total enrolment at this distance learning institution (Nkomo, 1984). During the heyday of apartheid, there was only a very limited enrolment of blacks at English-medium universities and no blacks were admitted at Afrikaans-medium universities.

The apartheid South African government introduced the Extension of University Act in 1959, which led to the establishment of separate universities based on race or ethnic identity (Nkomo, 1984). This legislation established universities for Indians and Coloureds as special groups, while the universities of Fort Hare, the North and Zululand were created for Africans.

The promulgation of the Group Areas Act led to the establishment of homelands or Bantustans⁵. These were regions to which people of a particular ethnic group were relegated, and were situated in barren areas with no meaningful economic activities. Some of the Bantustans established institutions of higher learning, such as the University of Bophuthatswana. Founded in 1980, it changed its name to North West University in 1994. The University of Transkei was established in 1977, but merged with the Border Technikon to form the Walter Sisulu University in 2004 (Bunting, 2006). These universities, like all the other historically disadvantaged institutions (HDIs), offered courses/programmes in the humanities, teacher education and limited courses/programmes in science and technology. The Medical University of Southern Africa (Medunsa) and Vista University were established in 1977 and 1982 respectively, under a special purpose provision. In 1998 all the historically disadvantaged institutions in South Africa enrolled a total of 89 309 students, compared with historically advantaged institutions (HAIs), which enrolled a total of 148 976 (Cooper and Subotzky, 2001).

Whilst these HDIs offered blacks access to university education, the quality of the education they received was questionable. Furthermore, these institutions were unstable, since they were at the forefront of unrest and political protest against the apartheid laws and the social injustice that prevailed in the country during that era.

After the transition to democracy, black students preferred to enrol at HAIs, as they were perceived to be stable institutions where students were more likely to complete their academic programmes and degrees within the stipulated time; and where the degrees had a higher status (Ntshoe, 2003; Soudien, 2010). Jansen (2010:129) adds that many black students who attended the former segregated Model C schools chose to join HAIs after the shift to democracy, since their secondary schools were

⁵ There were 10 Bantustans/Homelands, namely Bophuthatswana, Ciskei, Gazankulu, KaNgwane, KwaNdebele, KwaZulu, Lebowa, Qwaqwa, Transkei and Venda.

the traditional feeders for these HAIs and they may have come to know about them via the institutions' recruitment campaigns. This, according to Jansen (2010:134), resulted in the emergence of a "two-tiered system in South Africa, i.e., an upper tier being the well-resourced, urban and former white universities that are racially integrated, and a lower tier of under resourced, mainly rural universities that remain black."

According to Ntshoe (2003), the higher education landscape in South Africa came under review immediately after 1994, which was the historic year when all South Africans of voting age went to the polls to elect a new government. The main concern in the review was the elitism of the HE sector, which offered only limited access to the major section of the South African society, namely blacks and women. One of the strategies chosen to redress this situation was to develop a massified higher education system that would widen access and accommodate people from the under-represented groups, namely blacks, women and mature students. In addition, the rationale behind massification was to meet social demands and address issues of equity and redress.

Akoojee and Nkomo (2007:385) argue that "the concern for greater participation is not new to South Africa but it has become an urgent imperative after the demise of apartheid." Whilst access was massified, it was equally imperative for HEIs to provide support, particularly to those kinds of students who are from previously under-represented groups, in order to ensure that such students successfully completed the degree studies for which they were registered. Foundation programmes and academic development programmes are examples of the kind of support HEIs could offer these students (ibid).

2.7.3. The democratic era

South Africa earned its hard fought for democracy in 1994. The country moved with celerity to set up new government departments and various structures that would help to give effect to the new democratic state.

In 1997, the Higher Education Act was put in place, and among other, aims to address the acute need for the new government to create a single, national, integrated higher education system (Hall and Symes, 2005:202; DoE, 2001a). The implementation of this and other related legislation led to incorporations and mergers which reduced South African universities from a total of 36 universities and technikons to 23 HEIs. Three types of university were established, namely universities (offering mainly degree programmes and steeped in research), comprehensive universities, and universities of technology (which emerged from the technikons which had been created to promote technical and vocational education). The comprehensive universities came about as a result of the merger between universities and technikons. Some of the traditional bachelors' degree-awarding universities remained intact and were not affected by the incorporations or mergers. The merging of universities and the establishment of Universities of Technology (UoT) was an attempt to bridge the gap between 'head' and 'hand' and to make these institutions inclusive.

The National Plan for Higher Education (NPHE) (DoE, 2001a:6) articulating the vision of Education White Paper 3 (1997) identified one of its goals as "to promote equity and access and fair chances of success to all who are seeking to realise their potential through higher education, while eradicating all forms of unfair discrimination and advancing redress of past inequalities."

At the implementation level, access to HEIs is informed by several legislations and the admission point score (APS), as determined by the senate of each HEI. Access to higher education in the South African context is regulated and managed through government legislation. The main piece of legislation governing access is the Higher Education Act of 1997, which repealed the University Act of 1955 but precluded Section 74, which governs access and admission to higher education institutions. This legislation spells out the admission requirements for students with Senior Certificate (SC).

In 2008, the Senior Certificate was replaced by the National Senior Certificate (NSC). The NSC is a new school exit qualification at Grade 12. This qualification uses a completely new set of admission requirements for higher education, as set out in the DoE policy. Whilst the SC used endorsement for access to HEI, the NSC uses a selection of credits from 20 designated subjects. In this policy, four designated subjects must be passed with adequate achievement (DoE, 2008a).

The NSC⁶ does not use symbols to indicate a learner's performance but an achievement rating denoted in numbers ranging from 1–7. This qualification came into being following the introduction of the Outcomes Based Education (OBE) system in South Africa that sought to replace the apartheid government's Bantu Education system (ibid).

At university level, access is managed through enrolment planning, which is a three-year long-term plan agreed between university and the government. The plan spells out the projected numbers that the university envisages enrolling, based on their resources. Further, the university also considers the subject mix when determining student selection for various programmes. For example, mathematics and science are essential if one needs to pursue science-related programmes.

Access to HE in South Africa is, therefore, conducted on two levels. Firstly, the applicant has to meet the minimum admission requirements set by the state (DoE, 2008a), that is, the NSC with the correct subject mix. Secondly, HEIs are entitled to overlay these minima with additional faculty-specific requirements, mostly determined through the M score or APS and admission tests, as well as other selection criteria in cases where supply exceeds demand.

⁶ The NSC as a school exit qualification uses the following achievement ratings, represented by numerals which translate to certain range of percentages: **1** (Not achieved) = 0% - 29%; **2** (Elementary achievement) = 30% - 39%; **3** (Moderate achievement) = 40% -49%; **4** (Adequate achievement) = 50% - 59%; **5** (Substantial achievement) = 60% - 69%; **6** (Meritorious achievement) = 70% - 79%; and **7** (Outstanding achievement) 80% - 100%.

2.8. Researching access in South Africa

The most significant recent study on access in higher education was undertaken by the Council on Higher Education (CHE) in 2010, *Access and throughput in South African Higher Education: Three case studies*. The study was an attempt to develop a deeper understanding of access and students' success and experiences in the universities as social and academic institutions, focusing on three case studies, the University of the Western Cape (UWC), the University of Witwatersrand (Wits), and the University of Pretoria (UP).

The CHE report identified three generations of research on access. The first research generation was the 1970s to the mid-1980s period. During this period access to education was elitist in nature, and most studies included liberal or critical critiques of the HE system in which the demise of the apartheid system was a precondition for access to education. The second generation of research, from the late 1980s to the 1990s, dealt with the way the South African higher education system needed to transform to accommodate a diverse student body. This period of research introduced the concept of epistemological access (Morrow, 1994), discussed earlier in this thesis. The third generation of research, into the 2000s, dealt with issues of expansion, throughput and retention. These topics have been studied by measuring the efficiencies or inefficiencies of the higher education system via sets of indicators. At the same time, an increased attention to the impact of culture on access resulted in a proliferation of qualitative studies explaining students' academic performance from individual or institutional perspectives. The CHE study adopted a critical culturalist perspective which sought to unravel the access issue by understanding students' experiences through the crosscutting issues of class, gender, language and physical ability, within the framework of a higher education system that encapsulated culture. It argued that:

When considered in isolation, student enrolments, dropout rates, failure rates, throughput rates, resource allocation and institutional renewal strategies sometimes seem trivial and meaningless (CHE, 2010:39).

For instance, the study at UWC aimed at providing an explanation of the students' academic performance by exploring the relationship between the students' everyday life experiences and the institutional practices such as rules, processes, ideas and

meanings (Ravjee, Hames, Ludwig and Barnes, 2010). In other words, it explored the relationship between cultural experiences and students' academic success. It should be borne in mind that talking about students' academic success assumes the prior attainment of access.

The study points out that:

Students are a heterogeneous group because of different home cultures, high-school cultures, teaching and learning cultures and intersecting identities of race, class, gender, ideology, ethnicity, language, sexuality, nationality and specific historical experiences (Ravjee et al., 2010: 129).

This seems to be a positive factor for UWC, since it draws on different cultures, enriching the students' learning by bringing together different experiences from these cultures.

Ravjee et al. (2010) argue that students' success is positively correlated with the ability to build a supportive academic community, one which has the potential to provide them with the armaments they will need to increase their chances of success in the challenging academic life.

The questions of student performance and low throughput rates are the twin challenges that are underpinned by students' academic under-preparedness, financial challenges and lack of the skills needed to manage the transition from school to university and academic life. The study underscores that 'academic success depends largely on the ability of the individual students to successfully negotiate their way through the institutional space' (Ravjee et al., 2010).

The University of the Witwatersrand was established mainly to cater for the white middle class population of South Africa during the apartheid era. Murray (1997) opines that prior to world wars few blacks trained as medical doctors outside the borders of South Africa. However, war in Europe meant that training has to be conducted locally and Wits opened the doors of its medical school to blacks by admitting them to the clinical years. Hence Murray's (1997) view that:

The war years at Wits were the most dramatic period of advance for black students – prior to the transformation of 1980s (Murray, 1997:27).

In the 1980s Wits university chose to be liberal and committed itself to the ideas of an 'Open University', which allowed it to enrol the students of all races (Cross, Shalem, Backhouse, Adam and Baloyi, 2010). Thus more students from the working class were enrolled, implying that students without the social or cultural capital required to meeting the challenges and the rigour of an elitist academic and institutional culture had now been enrolled. The university had opened itself up and would have to adapt its teaching and learning practices to accommodate students from low socioeconomic backgrounds who were now swelling its ranks.

The University of the Witwatersrand struggled to realize its mandate of developing "students to become independent individuals" because many students continue to feel alienated and marginalized when their efforts to succeed are not met with an equal amount of institutional support (Cross et al., 2010: 91). This leads to the perception of Wits as a "harsh, cold and unforgiving environment where many do not fit the mould of excellence and independence and struggle to survive" (Cross et al., 2010:92). Although the university has progressive policies and strategies, lack of synchronization and synergy of policies and strategies at implementation level render them ineffective, and this is evident in the low graduation rates. So while Wits has made giant strides in the transformation process, this process is experienced differently at different levels by different students in the same institution.

Jansen, Tabane and Sehlapelo (2010) explored how students at the University of Pretoria encountered and experienced academic life at a large urban institution. It was discovered that "unlike Wits and UWC, the University of Pretoria has comparatively high progression and pass rates in the undergraduate programmes based on the study cohort" (Jansen et al., 2010:96). This could be attributed to its ability to recruit and attract top students, since there seem to be strong links between graduation and completion rates and the high school grades' matriculation scores (M scores). These M scores, currently known as APS, determine eligibility to study at the university. In addition, just as in the case of both UWC and Wits, the study also identified students' academic under-preparedness, language challenges, financial difficulties and lack of computer skills as some of the impediments to their academic success. There is a chasm between high school performance and tertiary academic demands as well as the high expectations of the university. That is to say, the

schooling system does not prepare learners adequately to deal with the challenges and the rigour of university studies.

At both Wits and UWC, language is stable and is not a contested terrain, as is the case at the University of Pretoria. This contestation emanates from perceptions of betrayal both from the white students, who expect to be taught in Afrikaans only, and black students, who feel left out when a lecturer decides to give a detailed explanation in Afrikaans. The situation is even worse for the international students, who have never been exposed to Afrikaans before (Jansen et al., 2010). This occurs despite the language policy being very clear that the university offers tuition in Afrikaans and English. At the practical level, this policy is implemented differently throughout the university. For example, “teaching in English, with class notes in Afrikaans or teaching in Afrikaans, with class notes in English or teaching in both English and Afrikaans at the same time” (Jansen et al., 2010:116; DoE 2008b).

Jansen et al. (2010:110) also identify “the persistent negative expectations of the students” chances of success on the part of university lecturers’ as one of the key factors that need to be urgently addressed. These negative expectations trap the students and when compounded by challenges such as the language issue, become a huge mountain for some of the students to climb, often resulting in low throughput rates and students curtailing their studies.

The three case studies illuminate the challenges that students from under-represented communities have to deal with in higher education institutions. These challenges underscore the need to open the doors of learning, by removing the barriers to access as well as widening participation, including in the Biological Sciences.

A number of studies on access, commissioned by the University of Cape Town (UCT) in 2009, explored the issue of access following a debate on its race-based access policy. One of the critical questions raised was how to define disadvantage (Smit, 2012). The issue of widening access brought to the fore the complexities of social identity and the question of which social category could be used to define disadvantage. The chosen social category was national-specific (Clancy and Goastellec, 2007); for instance, in the UK social equity issues lean more towards

social class, while in the US such social equity issues are linked to both race and class (Bickel, 2008).

Hoare and Johnston (2011:25) highlight the following issues in an attempt to unravel what educational disadvantage means:

- Personal circumstances – such as age (mature age students) or a disability - which affect studying;
- Family/household circumstances – may place little value on educational attainment, progress in academic study or post-school progress, with lack of resources, monetary or otherwise;
- Neighbourhood/community – a student’s local environment may accord a similarly low priority and peer-group status to education and academic attainment and a dearth of counter-balance from local role models; and
- Schooling – attendance at poorly resourced or poorly performing schools, lacking material resources, but also lacking enthusiasm, experience and advice to support university applications, with no collective value attached to academic achievement by student peers.

In South Africa, because of its political history, the question of disadvantage somehow gets conflated with race. As Bitzer (2010: 298) points out, “the concept of affirmative action and the issue of ‘race’-based student admissions have always been closely related to the complexities of equity and access in higher education.” Thus, in its attempt to address the question of equity and access, as mirrored by South Africa’s unfortunate history of inequality in institutions, e.g. UCT, it tends to use affirmative action through a race-based access policy (ibid).

The Vice-Chancellor of UCT acknowledges that the race-based policy poses problems, as “it reinforces paternalistic relationships between the different groups and it is arguably harmful to the self-esteem and confidence of black students.” However, this does not deter the university from using race-based criteria because it “is a good proxy for disadvantage” (Price, 2010:11).

The admission policies of higher education institutions in South Africa are largely grounded in legislation and governmental regulations. The legislation sets the minimum admission requirements, whilst HEIs overlay those minima with their own specific admission requirements. The Higher Education Act enjoins university's autonomy by allowing the university council to determine and publish access policy. This policy may use various proxies, for example race as a proxy for disadvantage. Favish and Hendry (2010) argue that there are still challenges which need to be addressed in order to achieve redress of past inequalities at the University of Cape Town. The issue is how to get away from using race as a sole criterion for defining disadvantage and look at social background and other criteria. According to Waetjen (2006), race-based affirmative action is a poor proxy for disadvantage, when compared to socioeconomic status. Using race as proxy for disadvantage could create inequalities within racial groups, as affluent people from a disadvantaged race group would benefit, while the needy members of that racial group would remain marginalized.

The analysis of UCT's enrolment data from 1994 to 2009 does not provide sufficient empirical evidence to argue against using race as a proxy for disadvantage. However, UCT academic Benatar (2010:258-260) disagrees with the use of race as a form of criterion for affirmative action in admission. Whilst he purports to "endorse the imperatives to redress" the injustices of the past, he argues that using race to give preference to one group of learners over others at admission is "morally wrong and indefensible", despite good intentions, such as to ensure diversity. He proposes the use of a race-free classification such as "moderately disadvantaged" students. This argument resonates with the fact that not all blacks in South Africa are indigent following the increase of the so-called 'middle class'. The lingering question, though, is in defining the "moderately disadvantaged".

The challenge that besets access is the ongoing inequality in the schooling system. UCT does not consider poverty and schools attended as the only factors that impel this affirmative action process. Price (2010) postulates that there are several 'intermediate determinates' which need to be taken into consideration concomitantly with poverty and the school attended. He highlights the following factors: home language, parents' educational level and ability to support their children's learning, and the timing of the provision of educational toys, as well as creating a stimulating

and conducive environment for learning. Encouragement early in the child's life and the assurance that he or she could go on to university upon completion of school would inspire ambition and self-confidence.

One of the arguments in favour of keeping the race-based nomenclature as an integral part of UCT's access policy relates to the need to change the student equity profiles. Furthermore, UCT's academic development programmes seem to have been successful in increasing the enrolment numbers of black students. From this, it may be concluded that a race-based access policy also requires the university to strengthen its academic development with a view to improving both equity of access and outcomes for black students (Bitzer, 2010). The counter-argument to the inclusion of race in access policy is that this approach may lead to a racial taxonomy which by its very nature is subjective and morally unacceptable. Alternative measures to address the inequality of the past should therefore be explored. There is also a school of thought which argues that race-based categories are rooted in the apartheid philosophy, and new ways of looking at admission criteria should be considered.

The other argument locates access within the role of the university. This takes the view of university as "a mirror of local society, university as a reflection of a global society and the university as fundamentally a site for knowledge production" (Bitzer, 2010:300). It is imperative, therefore, for the university to execute its duties within the context of public good and espouse the expansion of knowledge by allowing individuals from society to access it and its resources.

Bitzer (2010:304-306) argues that myths have collected around the issue of student equity and access. He identifies six myths which beset the issue of student equality and access in higher education:

- Expanding participation will improve equity;
- Free or low-cost higher education will improve equity;
- Improving equity involves the removal of barriers to access;
- The onus is on universities to resolve the equity problem;

- Widening participation will lower standards or lower retention and completion rates;
- Students can be selected for higher education on academic merit.

The expansion of participation gives access to university studies to more people from low socioeconomic backgrounds. However, “expansion can lead to greater social inequality as mass higher education systems become highly stratified and access to elite universities and highly sought after programmes becomes heavily skewed towards higher social classes” (Bitzer, 2010:304).

Bitzer (2010) argues that a race-based access policy has a place in the university admission criteria. However, it should be coupled with other criteria, such as the socioeconomic status of the students, which seems to be a better proxy to address equity and access. This is more relevant because the advent of democracy has seen the emergence of a black middle class who can afford affluent schools in the leafy suburbs of South Africa. However, Price (2010) argues that race-based admission criteria in this case compensate for the intermediate determinants (educational disadvantages) which still serve as barriers to access for blacks, regardless of their middle class status and their children’s attendance at private schools. By the same token, white students from poor households who may have attended poor schools should not be disadvantaged by the selection process. Nonetheless, Bitzer (2010:299) cautions that “the university reputation is inextricably linked to equity and access.”

UCT is not the only university debating the issue of access and the disadvantaged. Foxcroft (2009) reports on the development of a framework for access at a comprehensive university, aimed at unravelling the issues around access and admissions in the context of such a university. Foxcroft’s framework was based on Osborne and Gallacher’s (2004) concepts of ‘getting in’, ‘getting through’ and ‘getting on’. This study adopted this framework and develops it further in the chapter on the conceptual framework. In addition, the report also focused on the access imperative in higher education.

Foxcroft (2009:3) identifies four critical components of access which invoke these questions: “Access for whom? Access based on what criteria? Access to what? And access paid for by whom?”

The first question calls for philosophical models, such as the eligibility-based model, which are underpinned by a philosophy such as entitlement (Morrow, 1994) and open access.

The second question suggests multiple entry possibilities. That is to say, access should ideally open up opportunities for students to be registered at an institution of higher learning. However, prior to admission such students should have demonstrated that they have the potential to succeed at higher learning. The potential is extrapolated from their secondary school academic performance.

The third question refers to available programmes and courses that institutions of higher learning can offer. In other words, such institutions have to consider factors such as their capacity in terms of both human and physical resources. The availability or lack of these valuable resources will determine the number of students to be registered. The mode of programme delivery also gives direction in terms of the numbers that could be enrolled. Matching the talents and interests of an applicant with the appropriate programmes is an additional factor to be considered prior to registration. It is evident that there are students who may have applied for enrolment in a programme about which they may not have had sufficient information (Foxcroft, 2009).

The fourth question is a critical one, particularly when higher education institutions have to widen access by considering applicants from low socioeconomic backgrounds. Potential students from this category need to find funding to cover the costs related to their studies. In South Africa, the government established the NSFAS to assist deserving students; however, the funding is not always sufficient to cover all the costs of their studies (Foxcroft, 2009; DHET, 2010; Wangenge-Ouma, 2010).

The report concludes that “access is not limited to focusing on opening up pathways for students to access higher education studies. It is also closely related to how an institution develops and supports students to persist and succeed at their studies

and to be work ready” Foxcroft (2009:8). In essence, this underscores the importance of the support higher education institutions need to give their students in order for them to be successful in their studies. They will then be ready to enter the world of work and compete in the global market.

It is also critical to reflect on access to higher education by considering access to student accommodation or housing which is equally important as it plays a critical role in students’ success or lack thereof at university.

In 2011, *the Report on the Ministerial Committee for the Review of the Provision of Student Housing at South African Universities* was released by the department of higher education and training. This report sketched the various challenges and the impact of problems experienced by students, especially first year students with regards to housing at university level. Whilst the report acknowledges that “the demand for student housing currently tends to outstrip supply” (DHET, 2011: xiv) there is a sizable number of students accommodated in residences in various higher education institutions. In 2010, only 20% of the total number of full-time contact students registered at 22 public universities with residences throughout the country was accommodated in students’ residences. Nonetheless, it is the first years who seems short-changed by the shortage of students housing because only 5, 3% of the first year students were in residences (DHET, 2011).

Furthermore, the challenges of insufficient residences are also compounded by insufficient funding. The other challenge that could be linked to student housing is the fact that despite residences having kitchens and self-catering facilities, “poor nutrition and student hunger are issues at all universities” (DHET, 2011:xiv). The report suggests that it is the poor from the working class and rural students that need to be empowered and accommodated into residences since they are disadvantaged based on the area they come from as compared to those from urban areas.

Whilst there are serious challenges regarding student housing, there are positives that outweigh the negatives regarding this issue. DHET (2011:130) identifies advantages of staying in students residences as:

- Access to libraries and other facilities and events;
- Provides a more conducive environment for studying; and

- The removal of the pressure to travel long distances.

It is succinctly clear that the need for accommodating first year students in residences essential. Such a move will not only enhance widening participation but it is likely to improve success rates in programmes such as Biological Sciences.

The report further identifies the advantages and disadvantages of living on and off campus as delineated in table 2.1 below.

Table 2.1

Pros and cons of living on campus

Factors impacting on studies	Benefits of living on campus	Problems with living at home or with relatives
Travel time and cost to get to and from classes	Less time and money is spent on travel, and more on studying	In many cases travel takes time which could be spent on studying
Living space conducive for studying	Students have their own space (however limited) and access to library and internet	Often students living off campus experience problems of finding space to study, they may have no local access to libraries or internet
Safety	Although safety is a challenge on campuses there are efforts to create a safe environment	The travel arrangements for getting back to townships at night can be dangerous (taxis and long walks to taxi ranks)
Building a support network	Particularly in the first year, study groups, mentoring and social activities are important	Very often students find it hard to build support networks when they live away from university

Source: Department of Higher Education and Training, (2011: 134).

It is clear that the first year students face an uphill battle if they are not in residences. It is for this reason that the report concludes that:

Strategies and mechanism need to be established to allow new first year contact students in need of accommodation to be allocated to a residence for their first year (DHET, 2011: xvi).

It is therefore, reasonable to conclude that despite challenges related to students residences such as cultural adjustments, students in residences seems to enjoy overwhelming advantages that gives them extra impetus to achieve access with success. Therefore, if widening participation in sciences and Biological Sciences is to be achieved, first year students in these programme need to be prioritised when students residences are allocated.

2.9. Conclusion

Other studies in South Africa focus on access as a transformational tool to redress the inequalities of the past, through strategies such as academic development, with a view of achieving access with success (Akoojee and Nkomo, 2007; Boughey, 2003; Nadiroo, 1998), and support for ill-prepared students in the form of foundation programmes. Ntshoe (2003), Cele and Menon (2006) focus on the economy of access by unpacking the impact of finance and policy shift on access. Koch and Dornback (2008) examine the language issue, whilst Walters (2004) focuses on the concept of access from a lifelong learning perspective. Gamede (2005) explores the biography of access within the context of social justice in South Africa.

My own study enters the debate on access by exploring the issue of widening participation in programmes/courses which were historically exclusive to certain groups in South Africa. Specifically, it will explore widening participation in science and technology, with special reference to the Biological Sciences and students from under-represented groups in the HAI.