

**THE FACTORS THAT CONSTRAIN OR ENABLE BLACK
FEMALE BOTANY AND ZOOLOGY HONOURS STUDENTS
IN MAKING THE TRANSITION TO MASTERS STUDIES IN
EASTERN CAPE UNIVERSITIES**

THESIS

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ABSTRACT

This study's main aim was to find out why so few black female honours students progress to masters studies in two biodiversity-related fields, Botany and Zoology and what constrains and enables black female honour students in these fields in progressing to masters study. Its findings are based on data obtained from a total of 18 black female honours students and 11 staff members at three Eastern Cape universities.

The study has its roots in an examination of the historical landscape of higher education and postgraduate studies and recent related developments in South Africa. The particular focus of the research is on transformation in terms of race and gender in upper postgraduate education in the biodiversity sector and related fields in a democratic South Africa.

Using Margaret Archer's morphogenetic/morphostatic approach within the paradigm of social realism, the study examined the relationship between structure and human agency through Structural Emergent Properties (SEPs), Cultural Emergent Properties (CEPs) and Personal Emergent Properties (PEPs). This structure/agency framework informed the research methodology and process.

The data was generated over a three-month period through the use of interpretive methods of investigation, semi-structured interviews and questionnaires. The data generation process focused on finding out from black females themselves what they felt hindered or enabled their transition to masters degree study, using interpretive methods which situated the study in the critical interpretive domain.

The findings of the study revealed many structures that constrain the transition to masters level studies of black females, the majority of whom did not intend to continue their studies. Such structures included insufficient postgraduate funding to study and live on to support themselves and their families, the perception that there are no job opportunities in their study fields, not getting support from home to study further in these fields and feeling that these study fields are not for black people among other constraints. The study also revealed that there are black females who exercise their agency and find enabling conditions to facilitate their transition to masters level. The study also revealed the deficiency of studies focusing on transition within a South African context. The research findings highlight a variety of ways in which universities in the Eastern Cape and elsewhere in South Africa can strengthen black women's participation in biodiversity learning at the tertiary level.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1. Introduction

This chapter sketches the background of South African Higher Education in order to set the scene for the study within a South African context. In this chapter I present my role and interest in the study and how the study came about. I also present the focus of the study and the motivation and justification for the study as well as provide an introduction and description of the study areas, give an outline of the main research question and sub-questions and provide operational definitions of terms and concepts that are used in the thesis. Lastly, I present a general synopsis of the thesis by providing an introduction to each chapter. Any reference made to honours and masters students refer to full time students who are studying through contact mode at their respective universities. Also, it is important to note that when referring to Zoology in this study, I refer to both Zoology and Entomology as some of the participants were doing their honours in Entomology. This grouping is common in the four Eastern Cape universities under investigation as Entomology falls under the Zoology department as it concerns the study of animals and insects.

1.2. Historical landscape of Higher Education in South Africa

Within an African context, South Africa has one of the longest histories of higher education (Kotecha, Wilson-Srydom, & Fongwa, 2012) and this is primarily a result of the socio-political path that the country followed. Higher education in South Africa has a past characterised by discrimination and racism which could be attributed to both colonialism and the apartheid regime that plagued the country. The country's higher education system mainly embodied political, social and economic differences (Badat, 2007). Discrimination in relation to race, class and gender as well as spatial and institutional bias defined higher education in South Africa (Badat, 2010). A fundamental feature of early higher education in South Africa was the intimate relationship between the socio-political scene of the country during apartheid and the higher education landscape (Kotecha et al., 2012). The former South African governments (both the colonists and that of the apartheid regime) used higher education as an instrument to execute and impose their own beliefs and ideologies rather than to provide a good education for all. Since the early establishment of universities, there was a

binary divide between universities based on race and this divide separated white universities in which most research was undertaken from the vocational technikons that were mostly for other race groups (International Education Association of South Africa (IEASA, 2009). Institutions that were historically “white” were located in favourable areas of the country that included major cities and economic centres such as Johannesburg and Cape Town and had the best facilities (IEASA, 2009). Race determined access to funds, resources and infrastructure (Kotecha et al., 2012). Furthermore, social inequality during the apartheid regime was more pronounced for blacks and females who were marginalised and somewhat excluded from higher education (Badat, 2010).

Post-apartheid, the main focus of higher education in South Africa was and still is on transforming the racial division that has plagued the country for so long (Council on Higher Education (CHE), 2009). Currently, prominence has been given to affording previously disadvantaged groups, which include blacks and women access to higher education (Kotecha et al., 2012). Post-apartheid, higher education in the country has undergone much transformation and restructuring and one of the manifestations of the restructuring was evident in the merging of the 36 universities of South Africa into 23 public Higher Education Institutions (HEIs) which allowed everyone access irrespective of gender and race (Kotecha et al., 2012). The 23 institutions were divided into three broad categories; eleven traditional universities (where most of the research is undertaken and there is a high proportion of postgraduates), six comprehensive universities (which mostly concentrate on teaching but also provide postgraduate studies) and six universities of technology (an advanced version of the former technikons) (Kotecha et al., 2012). The 23 public HEIs (Table 1) provide entry to approximately 800 000 students country wide with a quarter of these students being distance students (Kotecha et al, 2012). In addition to the 23 public HEIs, two more universities, Sol Plaatje University and the University of Mpumalanga were established in 2014 and both are categorised as public universities resulting in South Africa now having 25 public HEIs.

Table 1.1: The 23 public Higher Education Institutions of South Africa.

Type	Name	Student Population
1. Universities	University of Cape Town	22,298
	Rhodes University	6,319
	University of Pretoria	53,106
	University of the Free State	26,189
	University of Fort Hare	9,339
	North-West University	47,008
	University of KwaZulu Natal	37,170
	University of Limpopo	17,132
	University of the Western Cape	15,070
	University of Stellenbosch	23,983
	University of the Witwatersrand	26,000
2. Comprehensive universities	Nelson Mandela Metropolitan University	22,657
	University of South Africa	262,680
	University of Johannesburg	44,430
	University of Venda	10,909
	University of Zululand	10,316
	Walter Sisulu University	24,970
3. Universities of Technology	Cape Peninsula University of Technology	29,361
	Central University of Technology, Free State	10,895
	Durban University of Technology	22,164
	Tshwane University of Technology	51,628
	Mangosuthu University of Technology	9,128
	Vaal University of Technology	16,946

Source: IEASA (2009)

1.3. My role in the study

I realise that I am fortunate to have reached the level of a postgraduate student doing a master's degree. Looking back at how I reached this stage in my academic career, I realised that the biggest factor that contributed to my studying to this level was the availability of financial aid in the form of loans and scholarships. This was matched by my family's support and the good marks that I obtained in order for me to move from one level to another to secure funding. Another important factor that encouraged and enabled me to study further was the love I had for what I was studying and the fact that I knew about the work opportunities in my field of study which were in the environmental and biodiversity sectors respectively.

Unfortunately, this was not the case for my fellow classmates some of whom either did not complete their undergraduate degrees or completed them but could not study further to postgraduate level due to financial need and other factors. Even those who managed to get an honours degree, more than half of them did not go beyond that level. Through informal discussions between friends, I ascertained that most of them who did not pursue postgraduate studies stated lack of finances as being the prohibiting factor. Being first generation graduates and having to work in order to take care of their families as well as not seeing any opportunities in the fields that they had chosen (which were also in the environmental and biodiversity sectors) were major factors that contributed to their decision not to study further. A significant number of them had gone to work in professions unrelated to their studies while others undertook degrees in other fields of study. The question then arose in my mind, is the situation the same with other students in other universities in the same fields of study? What other factors are there in addition to the most obvious one of finance that prevents students from embarking on postgraduate studies?

As I mentioned, I was fortunate to reach masters level as a result of being awarded financial aid, I received a scholarship to undertake a masters degree in Environmental Education in the Environmental Learning Research Centre (ELRC) in the department of Education at Rhodes University. This implied that the research that I would do would need to have an educational focus to it. Also, a provision in my scholarship was that I had to undertake a study related in one form or another to the biodiversity sector in South Africa. This sector identified by the Human Science Research Council (HSRC) (Vass, Rood, Wildschuit, Bantwini and Reddy, 2009) and the Biodiversity Human Capital Development Strategy (BHCDS) (South African

National Biodiversity Institute (SANBI) & Lewis Foundation, 2010) and through sector analysis that the biodiversity sector lacked professionals with advanced skills and qualifications. I coupled the educational dimension that I had to incorporate in my study with my passion for biodiversity. I examined the biodiversity sector in South Africa as well as the state of postgraduate studies in the sector nationwide. I looked at various core documents related to the biodiversity sector such as the HSRC, BHCDS and other related documents and found that there was a lack of postgraduate students in the biodiversity sector, especially at masters level and that the problem lay in fewer honours students proceeding to masters level. Similarly, South Africa as a country does not have enough postgraduates in general. I also found that this area of postgraduate transition in the biodiversity sector is under researched and as a result, I could not find any literature on the transition from honours to masters level within a South African context. It became obvious to me that this was an important area to pursue as South Africa's biodiversity sector and higher education sector are areas that are important to the development of the country.

I identified a platform to investigate bottlenecks to postgraduate transition (with specific reference to honours transition to masters study) in the biodiversity sector. This became an opportunity for me to investigate factors that affected students in making the transition to postgraduate studies and to see whether the factors that had constrained my colleagues were the same for other students and to find out what other factors existed that influenced student's decisions when embarking on postgraduate studies. My research, therefore, is situated in the context of examining the transition to masters study in two specifically biodiversity related fields in Eastern Cape universities.

1.4. The research focus

This study is an investigation of the factors that influence a student's decision-making process with regard to the transition from one stage of their academic career to another in Eastern Cape universities, South Africa. To be more specific, the focus of the study is on why honours graduates do or do not continue into postgraduate studies, specifically at masters level in the biodiversity sector. The necessity for the study arose from the results of document analysis on South African higher education and a biodiversity sector analysis as well as the results from the Human Science Research Council (Vass et al., 2009), Biodiversity Human Capital Development Strategy (SANBI & Lewis Foundation, 2010) and the Environmental Sector Skills Plan (ESSP) (Department of Environmental Affairs (South Africa. DEA, 2010)

that revealed a lack of postgraduate graduates in the biodiversity sector, especially masters and doctoral graduates. It became evident from the results of these studies that the biodiversity sector is in short supply of professionals with more advanced skills and that this has adverse effects on the management, conservation and research of the country's biodiversity (SANBI & Lewis Foundation, 2010). Another realisation was that the sector is in short supply of black biodiversity professionals, especially black women with more advanced qualifications, specifically masters degrees (Vass et al., 2009). The lack of professionals with advanced qualifications has also been reported in other sectors such as the environmental sector which was also experiencing difficulty in obtaining professionals with masters degrees (South Africa. DEA, 2010). In both sectors (biodiversity and environmental sectors), the problem of the lack of masters graduates was attributed to honours students not proceeding to masters studies.

The biodiversity sector is a broad conglomerate of fields and for the sake of simplification two fields of study were chosen as the focus of this study. The biodiversity sector has sixteen study fields identified by the HSRC as specifically biodiversity related and two of these main fields were selected as the focus of this study, Botany and Zoology. Botany and Zoology fall under Life Sciences which is one of the 20 first order Subject Matter Categories according to the Classification of Education Subject Matter (CESM) of 2008. The intention of CESM is the supply of a standardised outline to aid the exchange, reporting and recording of subject matter studies. These two study fields were found to be the best at representing biodiversity and are central to building the scientific base for biodiversity knowledge and professional practice. Botany which is the study of plants is an important area of study and people in the sector should have access to it at the highest level because plants represent a greater majority of South Africa's biodiversity. Due to the high rate of plant endemism in the country (Wynberg, 2002), people with high level skills are needed to ensure the management and conservation of our natural capital. Zoology is also an important field of study that benefits the biodiversity sector as it is the study of animals. Because of the high number of threatened and endangered species in the country and in the world, professionals in Zoological studies can help animal conservation, breeding and management. Both plants and animals make up the majority of biological diversity which the study concentrates on as they are core to most biodiversity scientific careers.

1.5. Rationale for the study

Information on postgraduate studies in South Africa and on postgraduate studies in the biodiversity sector more specifically, (which will be discussed in depth in chapter 2) indicates that although there has been an increase in the numbers of honours, masters and doctorates in South Africa, this increase has not kept up proportionally with the increase in undergraduates. According to an HSRC report, there seems to be an impediment in the advancement from honours to masters studies in the biodiversity sector. This stasis has also been observed in the environmental sector (South Africa. DEA, 2010) (Table 1.2) as mentioned earlier.

Table 1.2: Comparative graduation figures in two key environmental fields for 2001 and 2006, showing increases and stasis in graduations at particular levels. Source (South Africa. DEA, 2010).

Graduations: Study field Biological Sciences			Graduations: Study field Geography		
	2001	2006		2001	2006
First degrees, higher diploma	549	1 318	First degrees, higher diploma	425	848
Professional qualifications, Honours	393	446	Professional qualifications, Honours	145	165
Masters	243	243	Masters	106	106
Doctorates, post-doc	83	89	Doctorates, post-doc	8	19

What are the enabling and constraining factors influencing this progression? This is the question that this study seeks to answer. The high quality skills that are needed in all sectors can only be acquired, advanced and enriched at masters and doctoral level. The data itself shows that many students, especially black South Africans, do not make the transition from undergraduate to postgraduate level and even more specifically, many do not study further than the honours level. This study aims to investigate what constrains those who do not make the transition and what enables the few who do? When the constraints and enablers are known, even for a small group of individuals, it might reveal what motivates people to study further to masters level so that the constraints or inhibitors can be addressed. This study will provide a description and explanation of the challenges that many graduates face in moving to masters studies so that more informed interventions can be created and implemented in order to address the issue.

1.6. Introduction to the study sites

The study focused on the four Eastern Cape universities. Eastern Cape universities were selected for this study to probe the phenomenon in more depth because they cover a range of South African universities, and also for physical convenience purposes. The Eastern Cape is also an extremely biodiversity rich province, and all of the universities offer Botany and Zoology programmes at honours and masters level.

The first university selected for study was Rhodes University in Grahamstown. Rhodes University (RU) is the smallest traditional university in South Africa. It was a historically white university (HWU) but this profile changed and by 2008, 46 % of enrolments were black Africans and by 2010, this percentage increased to 50 % (Bunting, Sheppard, Cloete & Belding, 2010). In 2010, the total percentage of black Africans was 58 % (RU Digest of Statistics, 2011). The university's student output and throughput rates have been strong (Bunting et al., 2010). More than half of their permanent academic staff have a doctorate (54 %) so the university shows a strong research performance by its instruction and research staff and this also has a positive implication for postgraduate supervision. Rhodes University has one of the highest proportions of staff with PhD's in relation to other South African universities (RU Digest of Statistics, 2011). Racial and gender equity amongst staff is uneven however, 20 % are black and 39 % are female (2011). The university is dependent on a state subsidy, student fees and private income as financial sources. The university has a high proportion of postgraduates to undergraduates (30 % in 2013) (RU Digest of Statistics, 2013) which met the national benchmark of 30 % set in 2010. Of the 2202 students who graduated at the university in 2011, 123 students graduated with undergraduate certificates and diplomas, 1174 graduated with undergraduate degrees and 634 graduated with postgraduate studies below masters. 214 graduated with masters degrees. Of the total students at the university in 2012, 58 % were females (RU Digest of Statistics, 2013). The graduation rate for masters in the university in 2011 was 26 % (Statistics on Post-School Education and Training in South Africa, 2013).

Since its merger in 2006, Walter Sisulu University (WSU) in Mthatha has not performed well in many areas. Between the years 2000 and 2008, this university was dominated by undergraduate enrolments (97 % of enrolments were in undergraduate qualifications) (Bunting et al., 2010). The throughput rate of the university was low between 2000 and 2008 with less than half of students completing the studies they had registered for. Only 60 of the

nearly 700 academic staff had a doctorate in 2007 (SARUA, n.d.) which might have unfavourable implications for supervision of upper postgraduates. Of the total research and instruction staff in the university, 87 % were black and 43 % were female. The performance related to instruction and research output has been low in the university (Bunting et al., 2010). The university relies heavily on government subsidy. In 2011, 4833 students graduated from the university and of those, 2949 students graduated with undergraduate certificates and diplomas, 1625 graduated with undergraduate degrees and 211 graduated with postgraduate studies below masters and only 44 graduated with master's degrees (Statistics on Post-School Education and Training in South Africa, 2013). The graduation rate for master's study in the University for 2011 was 11 %. In 2011, black Africans (including Coloureds and Indians) accounted for 100 % of enrolments (Bunting et al., 2010) and 57 % of students were female (Statistics on Post-School Education and Training in South Africa, 2013).

Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth is a comprehensive university and between 2000 and 2008 was dominated by undergraduate degrees and diplomas (Bunting et al., 2010). Between 2000 and 2008 the university saw an increase in masters and doctoral enrolments but still remained dominant in undergraduate degrees (Bunting et al., 2010). In 2008, the graduate output declined to 45 000 from 62 000 mainly because of the closing of distance syllabi. This also had an effect on the number of African students in the university as they declined to 59 % from 76 % (Bunting et al., 2010). The number of Coloured and Indian students increased from 6 % to 16 % in 2008. The research output of the university by research and instruction staff fluctuated but lay below the goal for comprehensive universities set by government which was 1.0 (Bunting et al., 2010). Of the total instruction and academic staff in the university in 2011, 25 % were black and 46 % were female (Statistics on Post-School Education and Training, 2013). At the time of writing, 34 % of its academic staff held a doctorate which is quite low. In 2011, 5264 students graduated from the university, 2041 students graduated with undergraduate certificates and diplomas, 2107 graduated with undergraduate degrees 667 graduated with postgraduate degrees below masters and 390 graduated with masters degrees (Statistics on Post-School Education and Training in South Africa, 2013). The university saw a decrease in females in 2008 from 57 % in 2000 to 54 % probably because of the termination of distance programmes. The university is mainly funded by government and also sources private funding in addition to that. The

graduation rate for masters at this university was 21 % for 2011 (Statistics on Post-School Education and Training in South Africa, 2013).

The University of Fort Hare (UFH) is a traditional university in Alice and in 2008 its enrolment in terms of head count placed it under the banner of being one of the country's seven small contact universities (Bunting et al., 2010). The proportion of postgraduates in the university increased between the years 2000 to 2008 from 9 % to 14 % respectively. In terms of research output performance by its research and instruction staff, the performance remained low and below the threshold that was set by the Department of Higher Education and Training (South Africa. DHET) in 2008 (Bunting et al., 2010). Twenty one per cent of their academic staff has a doctorate (Bunting et al., 2010). Of the total instruction and research staff, 74 % are black and 36 % are female (Statistics on Post-School Education and Training, 2013). Fort Hare's student body is composed of largely African students, of the 11 144 students enrolled in the university in 2011, 97 % were black Africans and of those 57 % were female students (Statistics on Post-School Education and Training in South Africa, 2013). The university also relies substantially on government funding (Bunting et al., 2010). In 2011, 2424 students graduated from the university and of those 53 students graduated with undergraduate certificates and diplomas, 1619 graduated with undergraduate degrees and 548 graduated below masters and 160 graduated with a masters degree (Statistics on Post-School Education and Training in South Africa, 2013). In 2011 the graduation rate for master's study was 21 % (Statistics on Post-School Education and Training in South Africa, 2013).

With this information on the four Eastern Cape Universities, it is quite clear that some of the universities are more research intensive than others and have better resources and therefore one could assume that in some universities it would be easier to move from honours to masters studies while in others the transition would be more difficult.



Figure 1.1: Location of the four Eastern Cape Universities.

1.7. The research question

The study's main aim is to discover why so few black female honours students proceed to masters studies in two biodiversity related fields, Botany and Zoology. The main research question that this study seeks to answer is: What are the factors that constrain or enable black female Botany and Zoology honours students to make the transition to masters studies in four Eastern Cape universities? In order to better address the main research question, I developed four sub-questions:

- 1) What is the current status (enrolment and graduation rates) of honours and masters studies in Botany and Zoology in the four Eastern Cape universities in particular and more widely in South Africa?
- 2) What are the constraints that influence black female Botany and Zoology honours students with regard to the transition to masters studies in the four Eastern Cape universities?
- 3) What enables black Botany and Zoology honours students to transition to masters studies in the four Eastern Cape universities?
- 4) What are the implications of these constraints and enablements for the South African Biodiversity Human Capital Development Strategy (SANBI/Lewis Foundation, 2010) and its on-going implementation?

The study's objective is to provide recommendations as well as to inform the Biodiversity Human Capital Development Strategy of 2010 depending on the findings of the study.

1.8. Practical definition of concepts

The following terms will be used throughout the study.

Constraints and enablers: “They are the potential causal powers of structural emergent properties and have the power to impede or facilitate projects of different kinds from groups of agents who are differentially placed” (Archer, 2003, p. 4). For this study, constraints and enablements are taken as the factors that impede or facilitate transition from honours study to masters study in Botany and Zoology in the four Eastern Cape universities.

Transition: The term “transition” is quite open and not well defined and has a variety of meanings depending on the context; and in most cases it deals with moving physically. For this study, the definition by Dunlop and Fabian (2002) will be used to define the transition the study focuses on. They define transition as “being the passage from one place, stage, state, style or subject to another over time” (p. 148). The focus in this study is on students' transition from one stage to another, and in this case, from the honours stage to the masters stage.

Black females: In this context black females refer to the previously disadvantaged groups in South Africa, the African, Indian and Coloured females (Employment Equity Act, 1998).

Lower postgraduates: Diplomas and Honours (Council of Higher Education (CHE), 2009).

Upper postgraduates: Masters and Doctoral (CHE, 2009).

1.9. Limitations of the study

Transition is a very broad notion that encompasses social, personal, academic and emotional transition and so it was difficult to decipher which type of transition to focus on. This study focuses on academic transition which involves movement from the honours to masters level of study. I would have liked to focus on both honours and masters students in terms of data collection (i.e. interviews, questionnaires, etc.) (See chapter 3) but that proved to be too time consuming and would generate large amounts of data beyond the scope of a masters thesis.

Due to constraints of time and resources and some institutional constraints, interview and questionnaire data of honours students was not collected in all four institutions. The study looks at four cases and as a result, findings from the study will not be generalisable to the rest of the country as four cases are insufficient to give a clear picture of the phenomenon being investigated and also because all four cases are in different contexts and the participants themselves come from different contexts. Thus, the focus of this study is not on generalisation but to give a more in-depth idea of what some of the black females under investigation experience in transitioning to masters study in the Eastern Cape.

1.10. Broad structure and overview of the thesis

In this thesis I sought the thoughts, opinions and perspectives of all honours students irrespective of race and gender as well as the views of specifically black females and staff members in Botany and Zoology departments in Eastern Cape universities on the challenges faced by many honours students in transitioning to masters studies. I also present the views of the aforementioned groups of people on how constraints to this issue can be addressed and what interventions are needed to enable an easier transition to masters studies. This thesis has six chapters and each chapter is a detailed depiction of the stages involved in the progression of the research process of this thesis.

Chapter one serves as an introduction to the study. It presents a brief background to the study and my interest in it by explaining my role in the study. This chapter also provides the focus of the research by explaining the rationale for the study and giving an introduction to the study sites. A brief background on the context of the study is also presented in this chapter together with the main research question and sub-questions that the study sought to answer. Lastly, chapter one provides the structure and overview of the thesis.

Chapter two contributes an examination, review and synthesis of literature that has shaped and informed this study. The chapter shows how the study is positioned and located within the literature. This is done by mapping the history and current features of the research question. It provides a detailed contextual profile of postgraduate studies in South Africa. It shows how the need for upper postgraduate graduates in the country came about. It also provides a contextual profile of the biodiversity sector and the need for masters graduates in the biodiversity sector. Lastly, the chapter presents some transition literature insights.

Chapter three discusses the research approach and methodology as well as the data generation methods used to investigate challenges in the transition to masters study in Eastern Cape universities. It discusses the theoretical orientation that the study adopted and how and why this particular theoretical framework was chosen and how it helps in explaining findings in the study. It also provides a description of the process of data analysis. Lastly, it presents how ethical considerations were met and how issues of validity and trustworthiness were addressed.

Chapter four offers a presentation of the results of the data analysis performed in chapter three in relation to the four Eastern Cape universities and the constraints and enablements affecting the progression of honours students to masters study in Botany and Zoology. It also provides a picture of what postgraduate education looks like nationally and within the four Eastern Cape universities in Botany and Zoology. Although the findings are presented and discussed under the same themes, because of the different contexts of the universities and students as well as the staff members, the outcomes of the analysis vary.

Chapter five offers an interpretation of the data presented in chapter four in relation to the theory of social realism by Archer (1995). By drawing on findings in chapter four, this chapter serves as a forum for deeper analysis of the findings. The chapter also provides a concluding synopsis of the whole study and provides a blueprint of recommendations established from the findings discussed in chapter four. It is hoped that the recommendations will inform the Biodiversity Human Capital Development Strategy (BHCDS, 2010) and its on-going implementation to better address the challenges that many honours students face in transitioning to masters studies in Botany and Zoology. The recommendations also act as a guide for further research in the transition of postgraduates, with specific reference to the honours students' move to masters in biodiversity related fields.

1.11. Conclusion

In this chapter I introduced the study by giving a brief introduction to the study as well as providing a brief historical landscape of higher education in South Africa. I explained my role in the study and how and why I was inspired to undertake the study. The research focus and rationale were presented and the physical context of the study was introduced by providing an introduction to the study sites and their geographical location. Furthermore, a synopsis of the orientation to the research questions and sub-questions was provided. I also

presented definitions of some terms key to the study. Lastly, a narration of each chapter provided the thesis outline as well as the limitations of the study.

The following chapter describes the history and context of postgraduate studies in South Africa as well as the history and context of postgraduate studies in the biodiversity sector. It also serves as a literature review which locates the study in current research by showing the gap in transition literature studies as well as the lack of transition studies, especially for blacks and in particular, black females nationally as well as internationally in the fields of Botany and Zoology.

CHAPTER TWO

FRAMING THE STUDY: CONTEXT, HISTORY AND TRANSITION LITERATURE INSIGHTS

2.1. Introduction

This chapter provides a review of literature and is designed to locate and frame the study. The literature discussed in this chapter is on postgraduate enrolments and graduations and aims to help the reader to better understand the postgraduate landscape of South Africa. The chapter provides literature on the production of postgraduates in the country with specific reference to upper postgraduates in all sectors. The review traces the historical context of upper postgraduate enrolments and graduations and discusses the importance of postgraduate studies for South Africa and the world at large.

The chapter also provides a contextual profile of the biodiversity sector and related fields. It discusses the lack of postgraduates in these sectors with particular reference to the lack of masters graduates. It presents the current status of honours and masters studies in Botany and Zoology (which are the two focus fields of study in this research) in the four Eastern Cape universities and more widely in the country which is the first research question of this study.

2.2. Contextual and historical profile of postgraduate studies in South Africa

For a better understanding of the current trends in graduation and enrolment rates, a history of the South African education sector and broad growth trends is necessary. The main objectives of the policies of the post-apartheid society were to create a distinct integrated national higher education system and to amend the racial and gender injustices left by the apartheid regime. In 1996, the National Commission on Higher Education (NCHE), a structure set up for transformation in higher education, produced a report on university and technikon research output. The report indicated that the research output of these HEI's was indicative of the inequalities of the country's system of higher education. Historically White Institutions were shown to be dominant in producing postgraduates at master's and doctoral level as well as being dominant in the production of research publications (NCHE, 1996, p. 40). As a way of defusing the pressure between the goal of achieving equity and the demand for development,

the NCHE stipulated the need to broaden access to higher education to increase the number of blacks at universities (NCHE, 1996). In 1997, the South African government showed a marked interest in the graduation rates and postgraduate enrolments in the country because, although South Africa had improved its HEIs enrolment rate, the average rate of graduation between 1993 and 1998 remained at 15 % (South Africa. Department of Education [DoE], White Paper 3, 1997). White Paper 3 emphasised the need to expand masters and doctoral students' enrolments in order to address the advanced skills required for economic and social development to supply the "academic labour market" (Section 2.24) as well as cater for the needs of the "general labour markets" (Section 4.56). "Access of black and women students to masters, doctoral and postdoctoral programmes" was prioritised (Section 2.91). It heightened concerns over the then low enrolment and graduation levels in PhD programmes (Section 4.56). In the same year White Paper 3 had the goal "to secure and advance high-level research capacity which could ensure both the continuation of self-initiated, open-ended intellectual inquiry and the sustained application of research activities to technological improvement and social development" (South Africa, DoE, White Paper 3, 1997, p. 1:27).

In 2001, the National Plan on Higher Education (NPHE) took this goal and used it as a framework to create five priority areas that needed urgent attention. Increasing the graduate output (with a focus on doctoral graduate output) was one of those priorities. The NPHE (2001, p. 66) also emphasised the need for a boost in postgraduate graduations and enrolment rates because although enrolments and graduations in postgraduate studies had increased, the rate of drop outs was high and "completion rates [were] slow" (Section 5.3). The focus was also on growing the doctoral output. HEIs were also encouraged to attract students for postgraduate studies from other developing African countries but particularly from the SADC (Southern African Development Community) region. The NPHE also called for increased access for black, female and disabled students to HEIs in masters and PhD studies (Section 5.4.3.2). In 2006, the Council on Higher Education (CHE) commissioned a report that provided a statistical profile on postgraduate studies in South African public universities for the years 2000–2005. Although South Africa had enjoyed a significant increase in graduate enrolments (both undergraduates and postgraduates) between 1990 and 2005, the findings of the CHE suggested that the postgraduate rate had not kept up with the undergraduate rate. According to the CHE (2009), of all graduates in 1990, postgraduate studies composed 31.3 %. This percentage, however, declined in 2005 to 26.9 % (which was attributed to the decline in honours and diploma graduates (lower postgraduates). With regard to masters and doctoral

studies, an increase was observed during this period (1990 and 2005) from 6.3 % to 7.7 % but despite this, the country was generating a smaller number of postgraduates in 2005 than in 1990. In terms of gender transformation at the masters and doctoral levels in 2005, there were fewer female students. This was also the case for black graduates at masters and doctoral levels.

The results of the analysis by the CHE in 2009 show that there has been improvement in transforming the demographics of higher education in South Africa in terms of postgraduate studies (both entrance and graduations) with reference to both gender and race but this change has not been significant. The number of black Africans has increased in many higher education institutions, (Higher Education Management Information System (HEMIS), 2011) but not to a satisfactory degree. What is of concern is the fact that there are more foreign upper postgraduates (masters and doctorates) than black South Africans and more Indian and White South Africans actually enter and complete postgraduate studies (Rosenberg, Ramsarup, Burt, Ellery & Raven, 2009). What is also of concern is the reality that the dispersion of postgraduate enrolments and graduations is still similar to that of the nineties despite the fact that universities with the greatest share of postgraduate enrolments are no longer restricted to historically advantaged, white institutions (CHE, 2009). The CHE (2009) suggests that South Africa is facing the challenge of not having sufficient skilled professionals and the shortage is more evident at the postgraduate level.

Vass et al. (2009) reveal that studies indicate that a continued backsliding between the undergraduate degree graduates and postgraduate graduates exists. The National Human Resource Development Strategy (2009) is an initiative aimed at focusing on the barriers that exist from honours to masters and doctoral studies in order to increase the assembly of black and women scientists in South Africa (Rosenberg et al., 2009b). Meanwhile, the Department of Higher Education and Training (South Africa. DoHET, 2009) also focused on the lack of black postgraduates and the insufficient number of professionals in certain fields of study and their objectives related to higher education. One of those objectives was to boost and enhance black student's low success and participation rates in research, postgraduate studies and scarce fields. The department also made clear their intention to improve HEIs capacity to produce animal and plant health specialists (amid other professions) (South Africa. DoHET, 2009).

To emphasise the problem of the lack of masters graduates in South Africa, SARUA (2012) suggests that less than 25 % of students are enrolled for postgraduate studies below masters level and only 11.7 % have been admitted for masters study and only 5.6 % of those graduated. This indicates and confirms the problematic pipeline from honours to masters studies. Fewer students are moving from honours to masters and even fewer are graduating at the masters level. In 2012, the Green Paper for Post-School Education and Training (South Africa. DoHET, 2012) was released (now a confirmed White Paper for Post-School Education and Training, 2013). The purpose of this paper was to present a concept paper about the department and to show its priorities (Green Paper, 2012). The Green Paper indicated that, of the approximately 80 000 students enrolled for postgraduate studies below masters level, slightly more than half enrolled for masters. The DoHET (2012) identified the need to increase the number and quality of masters and doctoral degrees. For there to be an increase in masters degrees would mean that honours students are actually moving on to masters and actually graduating with their masters degrees with the option of doing doctoral degrees. The National Development Plan (NDP) was created with the aim of eradicating poverty and lessening inequality by 2030 (South Africa. NDP, 2011). The plan proposed, among other things, that the number of upper postgraduates should be increased at universities and that the number of Africans with masters and PhD qualifications should be part of this increase. The National Skills Development Strategy III of 2011 also emphasises the need for transformation in the area of education and training by focusing on black Africans in terms of giving them more opportunities in skills provision.

Parallel to this development of policies and their employment, in the field of science and technology, the Department of Science and Technology (South Africa. DST, 2007), created a ten year innovation plan with the purpose of transforming South Africa's economy into a knowledge-based economy in which the creation and promulgation of knowledge leads to economic growth and produces benefits that will enhance all areas of human exertion. This innovation plan is directed and led by four elements of which human capital development is one. The DST (2007) felt that South Africa was not producing enough doctoral students and as a result, a human capital pipeline was developed by the department that begins with postgraduate students at one end and ends with the production of world class researchers and scientists at the other.

All of the documents summarised here have a few things in common; the need for transformation in higher education and their marked interest in postgraduate studies or the

lack thereof. The information given thus far is a summary of postgraduate studies across South Africa in order to provide a general but clear idea of the problem. As described in chapter one, my focus is on the lack of masters graduates in the biodiversity sector and the reasons for that will be discussed in the following section.

2.3. Contextual profile of the biodiversity sector and related fields

South Africa is a country with world renowned biodiversity and hosts many of the world's biodiversity hotspots such as the Cape Floristic Region as well as many others. With such high biodiversity and high endemism, the country needs its biodiversity protected and managed. South Africa is one of the most biologically diverse countries in the world (taking the third position in biological diversity in 2002) (Wynberg, 2002) with between 250 000 and 1000 000 species, many of which are endemic to the country (Wynberg, 2002). This great biological diversity is, however, under threat and in need of urgent attention. Many factors contributing to biodiversity loss in South Africa have been identified (e.g. over exploitation, alien invasive species and many more) with habitat transformation taking precedence (Wynberg, 2002). Together with global climate change, these factors create the risk of biodiversity loss. Biodiversity loss is not a new phenomenon to South Africa but now it is occurring at a faster rate than before. Not only does South Africa's biodiversity attract attention from foreign tourists and contributes to tourism, it is life sustaining for many South Africans (Wynberg, 2002).

The country's biodiversity is not only there for aesthetic value but it underlies ecosystem services that are critical for human wellbeing and people realise this. Air purification, flood attenuation, provision of food and medicine, timber, habitat provision, climate regulation, carbon sequestration, are just a few examples of the important ecosystem services that nature provides (Millennium Ecosystem Assessment, 2005). Biodiversity influences how, when and where ecosystem services are provided (Millennium Ecosystem Assessment, 2005). Less diverse areas are less resilient and so there is a connection between the ability of ecosystems to provide goods and services and biodiversity (Tilman, 1997). Changes in biodiversity affect processes such as pollination, seed dispersal, human health regulation and many other important processes. (Millennium Ecosystem Assessment, 2005). In order to combat and mitigate biodiversity loss in South Africa, the biodiversity sector needs people with high level and relevant skills that can be more rapidly acquired and developed through postgraduate studies (Rosenberg et al., 2009b).

In 2005, the National Biodiversity Strategy and Action Plan (NBSAP) of South Africa was developed with the goal to create a plan of action to conserve and manage the biodiversity of South Africa and to ensure that the population of South Africa benefit from the sustainable use of the country's biodiversity (South Africa. Department of Environmental Affairs and Tourism (DEAT), 2005). One of the main objectives of the NBSAP includes the transformation of the biodiversity sector and making it representative of South African society. It aims to ensure institutions and agencies with biodiversity management-related responsibilities are effective and adequately capacitated (South Africa. DEAT, 2005). The National Biodiversity Framework (NBF) of South Africa was developed in 2007 under the influence of the NBSAP and is a conservation and development framework that also has a focus on strategies and actions necessary for biodiversity management in South Africa. The NBF (South Africa. DEAT, 2007) states that “the biodiversity sector is far from representative of the South African population, reflecting the ongoing legacy of past discrimination and inequalities” (p. 24). With a strong focus now on biodiversity management and building capacity in the biodiversity sector, it is appropriate that the biodiversity sector aims to attract, retain and develop human capital through a coordinated and structured investment in human capital. This can be done by building human capacity, skills and knowledge of the workforce involved in biodiversity management in order to ensure effective management in all sectors of biodiversity (Vass et al., 2009). The Human Science Research Council was contracted to do a skills analysis in the biodiversity sector and the results indicated a lack of critical and relevant skills in the sector. The HSRC report suggests that the investment in capacity building may afford institutions and the biodiversity sector the ability and capacity to predict, adapt and respond to the loss of natural resources in an innovative manner.

According to the HSRC report, the biodiversity sector and related fields of study have more entry level national diplomas and undergraduate degrees than postgraduate degrees. This is also the case in other fields of study such as in the environmental sector (South Africa. DEA, 2010). According to the report, between 2000 and 2007, the annual average growth rate for undergraduate qualifications for Science, Engineering and Technology (SET) fields of study was 5.6 % and 2.3 % for Higher Education in general as compared to the biodiversity field's annual average growth rate of 5.8 % which is higher than that of SET and Higher Education. This suggests that a significant number of undergraduates are accessible to the biodiversity sector (Figure 2.1). The annual growth rate for the national diplomas increased rapidly in

biodiversity related fields at 10.7 % per annum in relation to the growth rate for honours/masters which was the slowest at 3.3 % which is considerably below the biodiversity field's annual growth rate of 5.8 %. These results indicate that after completion of undergraduate degrees, fewer and fewer students proceeded on to honours study and even less moved on to masters studies (Figure 2.1), but it is not clear why?

The lack of postgraduate graduates (at honours and masters level) is further confirmed by the increasing rift between the supply of honours/masters and the supply of undergraduate degrees (Figure 2.1).

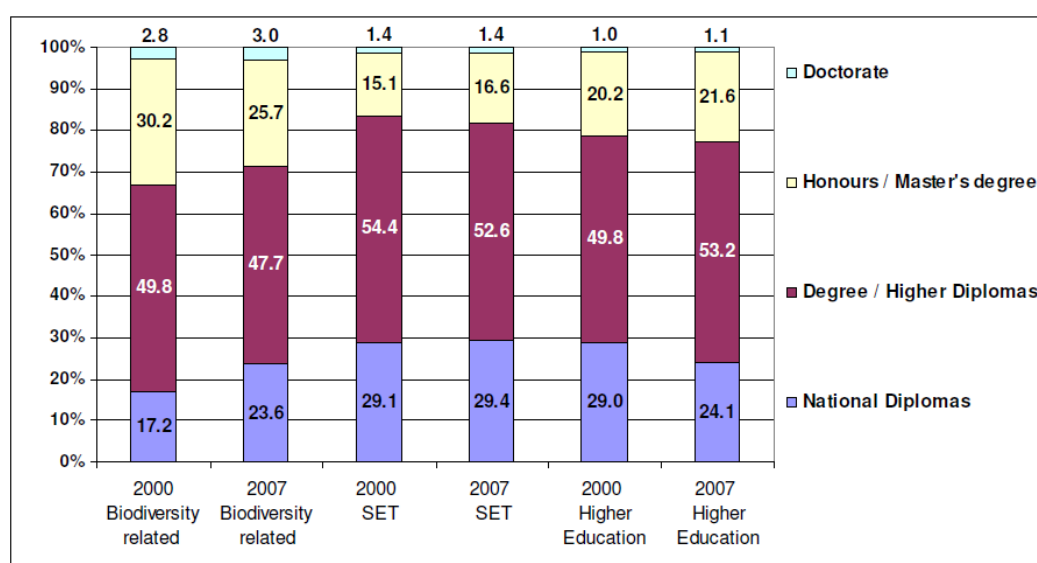


Figure 2.1: Comparison of the proportion of qualifications in biodiversity-related fields of study to SET and higher education (2000, 2007). Source (Vass et al., 2009).

This validates the concerns in the biodiversity field that there is an insufficient number of postgraduates at the masters level (Vass et al., 2009). An important finding by the HSRC (Vass et al., 2009) was that the lack of postgraduate graduates in the sector is mainly caused by the paucity of students moving from honours to masters degrees (Figure 2.2). Another difficulty identified in the biodiversity sector is finding black entrants, especially black females with more advanced qualifications, with specific reference to masters degrees (Figure 2.3) when compared to higher education in general and SET (Figure 2.4) (Vass et al., 2009).

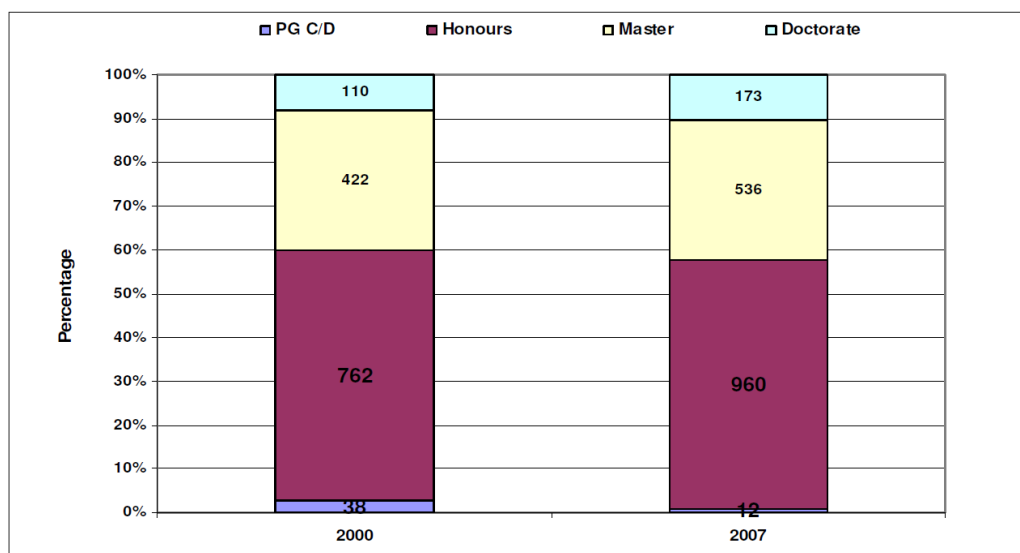


Figure 2.2: Trends in postgraduate qualifications in the biodiversity sector (2000, 2007). Source (Vass et al., 2009).

The HSRC report also argues that the difficulty facing the whole system of higher education is the transition to and completion of both masters and PhD degrees more especially in qualifications related to science. The decline of black females and blacks in general is more evident at this level (figures 2.3 and 2.4) (Vass et al., 2009).

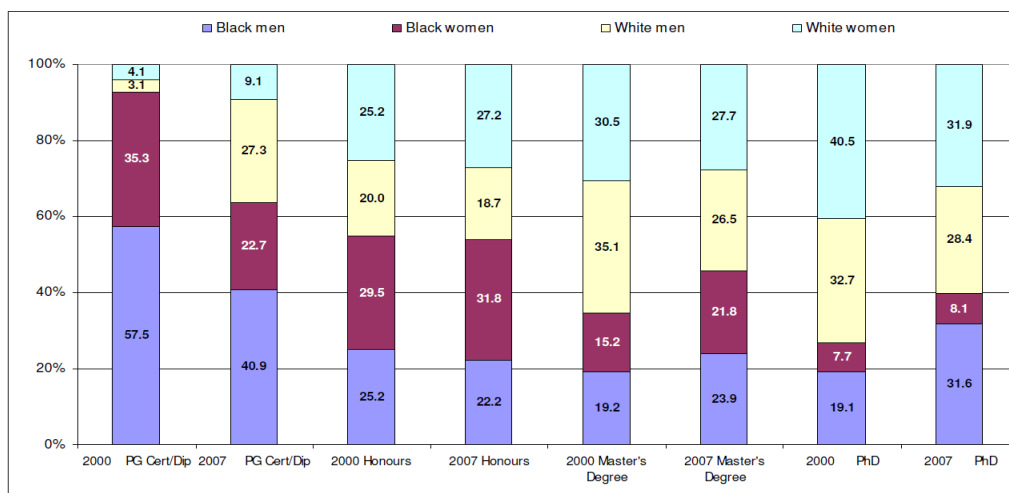


Figure 2.3: Trends in postgraduate qualifications in the biodiversity sector by gender and population group (2000, 2007). Source (Vass et al., 2009).

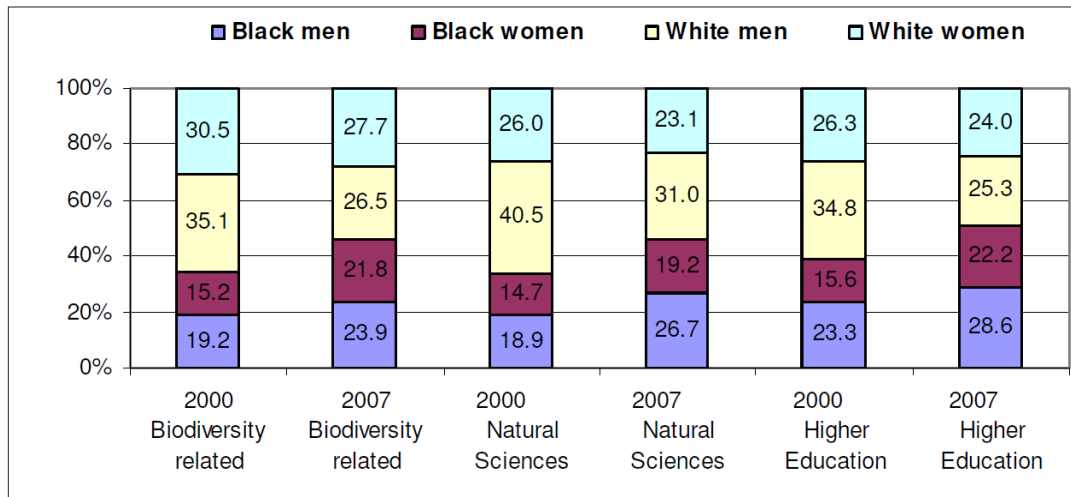


Figure 2.4: Comparison of trends of masters degrees in biodiversity-related fields, SET, general HE (2000, 2007). Source: (Vass et al., 2009).

In 2009, the South African National Biodiversity Institute (SANBI) together with the Lewis Foundation invested in the development of a Human Capital Development Strategy (HCDS) for the biodiversity sector (also known as the Biodiversity Human Capital Development Strategy (BHCDS). The Biodiversity Human Capital Development Strategy (BHCDS) of 2010 which is informed by the HSRC study of 2009 and ESSP study (South Africa. DEA, 2010) has a focus on high skills in the biodiversity sector, that is, a larger amalgamate of biodiversity professionals, particularly, but not exclusive to black South Africans with high level skills to engage in the conservation, management and research of South Africa's biodiversity. The strategy has a twenty year implementation window and seeks to pro-actively and positively address gaps in human capital development for the sector (ibid). The strategy informs us that the sector experienced a decline in postgraduate qualifications between the years 2004 and 2007. It was also estimated that 30 % of people employed in the sector did not have the necessary qualifications to take on the responsibilities that they had been appointed for. The strategy has a strong focus on racial redress (SANBI and Lewis Foundation, 2010). The strategy also argues that although South Africa has policies aimed at biodiversity loss and ecosystem services depletion, the organisations assigned to carry out these policies are failing in their mandate because of the lack of capacity in the sector. Although the biodiversity sector has come a long way in terms of transformation of race and gender, there is still much to be done (SANBI and Lewis Foundation, 2010) and the task that lies ahead is to develop and attract black South Africans with appropriate and relevant qualifications into management positions (SANBI and Lewis Foundation, 2010). This is

because blacks, especially black females are not in professional and management positions in the biodiversity sector (SANBI & Lewis Foundation, 2010).

The BHCDS strategy explains that the following factors are partly responsible for the social inequity in the biodiversity sector:

- Schools attended by most black South Africans provide education of low standards.
- A lack of awareness about the sector and the requirements needed to enter the sector as well as the work opportunities provided by the sector. This lack of awareness and minimal access to information is more pronounced for black South Africans.
- Impression that the sector does not pay well.
- Black South Africans experience being unwelcome in organisations.

There is no factual data regarding graduates and how they decide to choose a career in the biodiversity sector and how and why they decide to commence postgraduate studies or not (SANBI & Lewis Foundation, 2010). The following reasons based on secondary data and experience has been suggested by the BHCDS on why such a small number of graduates embark on postgraduate studies:

- **Supervision capacity** – The higher education system is unable to take on many postgraduates at a time because the number of staff with the proper qualifications needed to supervise masters and doctoral students are limited.
- **Lack of incentives** – Many graduates lack the motivation to obtain a second degree as they are offered employment even at senior levels with only a first degree.
- **Lacks of finances** – Many graduates cannot afford to carry on with their studies after a first degree due to financial constraints and having other financial commitments such as being first generation graduates at home. Bursaries do not provide enough income to live on. Also, bursaries for part-time study are very difficult to find.

Accordingly, the strategy indicated that engaging with graduates in order to gain definitive insights into their decision making process would be invaluable, hence this study.

2.4. The importance of postgraduates to South Africa and the world

The production of graduates, in particular, postgraduates is essential in modern society as these groups of people acquire the relevant knowledge and skills required in the present knowledge economy. They can also add knowledge to society that is gained through

engaging in extensive research (CHE, 2009). In these times of globalisation, postgraduate skills are in high demand in all sectors and it is well known that South Africa has a shortage of highly skilled professionals in all sectors and professions (CHE, 2009).

Allais and Nathan (2012) suggest that for economic growth to occur it is accepted that the acquisition of higher levels of education is necessary and that “the idea of a knowledge economy is frequently invoked, sometimes as an ideal to which we should aspire, and sometimes as an imminent reality” (p. 2). This simply means that our societies and economies are influenced by “knowledge” and are in need of people with the relevant and high level knowledge and skills in order to compete. More postgraduate professionals are necessary and essential for focusing on and attending to the changing needs of society (CHE, 2009). South African graduates are in high demand internationally and this warrants an increase in the production of postgraduates in order for the country to remain competitive as most leave the country in the existing brain drain (CHE, 2009).

In her paper on the role of postgraduate education in research systems, Kearney (2008) mentions that the current scene of advanced degrees is to a large extent different. She suggests that there is an increasing requirement for masters and doctorates in particular fields because of the changes in higher education in which the supply of postgraduates needs to match the increasingly varied demand. She also proposes that in human capital, postgraduate education involves some form of investment whether it is for national gain or personal gain. The main objective of postgraduate education is to produce postgraduate professionals with highly specialised skills needed to address issues related to their specific backgrounds and circumstances but within the larger society of globalisation (Kearney, 2008). People with expertise and skills create a foundation for the discovery of feasible solutions to the problems of sustainable human development - with specific reference to good governance, reduction of poverty, population, access to education by all, health care provision, and many more (Kearney, 2008).

It is asserted that the knowledge society’s worth and productivity will depend heavily on the creation and application of knowledge nationally (Herman, 2011). In advanced countries where the knowledge economy is sought and is an important goal to attain, education policies have therefore been designed to enable the knowledge economy (Warhurst, 2008, cited in Herman, 2011). In this view, there is the implication that in order for countries to compete in the knowledge economy, they have to produce workers with knowledge i.e. graduates, and

more specifically to produce masters and doctoral graduates. There is a suggestion that doctoral education increases productivity of individuals with a doctorate as well as improves productivity of those working with the doctoral individual (Herman, 2011). Universities play a major role in producing upper postgraduates and if as a country we want to compete globally, we need both males and females to be highly educated.

2.5. Transition literature insights

Many stages are involved in arriving at the decision to commence a postgraduate degree; a student may decide to commence postgraduate studies even before they begin their undergraduate degree, or while they are doing their undergraduate degree, when they are about to finish their first degree or sometime after they have graduated (Jepsen & Neuman, 2010). Magano (2011) adds that some students are motivated to pursue a postgraduate qualification in order to increase their career opportunities while others seek to develop academically or gain expertise in a specified study field (Mouton, 2001). Bowman (2005) obtained similar but varied justifications on why students embark on a masters degree. She found that students aimed to increase their advantage beyond a first degree. There are two ways that this can happen. Firstly, through accumulating the number and improving the level of qualifications, students expect financial returns. Secondly, through skills development, the students can provide the labour market with skills that it obviously lacks as it is rapidly being crowded by graduate skills (Bowman, 2005). Obtaining a masters and doctoral degree is not a clear-cut experience for many students and it can even be an unpleasant experience for some resulting in them backtracking from their studies (Magano, 2011). Many universities around the world are tasked with increasing masters and doctoral students output both as theses or dissertations and research publications, South African universities are no exception.

Studies on postgraduate research have largely neglected how and why lower postgraduate students decide to transition to masters studies. Not much work has focused on honours students and the state of affairs in their lives when deciding to embark on a masters degree. Literature on educational transition has widely neglected transition to the postgraduate level of study. Other aspects of transition in education have been widely researched in transition studies by Tobell (2003), Hargreaves and Galton (2002) on primary to secondary transition or from high school to university (Haggis & Pouget, 2002; Macaro & Wingate, 2004; Walker, Matthew & Black, 2004). Numerous studies have also been done on transition of young children from home to school (Birch & Ladd, 1997; McIntyre, Blacher & Baker, 2006).

According to Jepsen and Neuman (2010), a greater proportion of literature on students' decision making process is usually done for upper postgraduate studies such as the study by Neuman (2003) on doctoral experiences of higher education and the study by Wright (2003) on completion and submission rates of doctoral students. In such cases, students have already made the transition to upper postgraduate studies. According to O'Donnell, Tobbell, Lawthom & O'Neill (2009), educational transition research to date has not included the sociological, cognitive and emotional processes that form the basis of transition to postgraduate studies for both research and taught students. The assumption may be that once a first degree is obtained, postgraduate study serves as "almost the same" or "just moving on to the next level" and therefore there is little if any transition to be undergone. This indicates a lack of research on the precursors to upper postgraduate enrolment with specific reference to black honours students moving to master's study and more specifically in fields related to biodiversity.

Through an intensive literature search only one study looking specifically at students about to enrol for a masters degree was found. However, the study focused on students' decision making to enter taught masters full time in the United Kingdom. This study by Bowman (2005) revealed some enlightening outcomes on students' decision making to start masters courses. She found that the majority of students decided to apply for a masters degree because they were not ready for major transitions in their lives such as entering the job market. They felt that it was logical to further one's studies because from a very young age formal education was central to their existence. Some were genuinely passionate about their fields of study and wanted to generate more knowledge around them. Others felt that having a masters qualification would improve their chances of getting a good job (this is a very common factor in students' decision making processes to further their studies). Some felt that it would be difficult to return to further their studies later on in their lives. All these factors played a role in the students' decision making process and the aim of this study is to discover what factors influence South African and more specifically Eastern Cape honours students in embarking on a masters degree. Although there have been no studies on decision making concerning honours courses in South Africa, the studies cited here give some insight into what goes on in the minds of students when they are faced with such a big decision and these insights can be used as a guide when looking at the South African context.

There have been studies focusing on honours students such as the study by Hawes and Flanagan (2000) on the honours experience at university or the study by Schatz, Boroujerdi

and Deth (1987) on the development of student interests in embarking on an honours program. The honours year is very important as it straddles undergraduate and postgraduate study and offers an introduction to research for many students by giving them a “taste” of how research is conducted and serves as a benchmark for masters and eventually doctoral study. In most cases the honours year influences a student’s decision on whether or not to embark on masters and eventually PhD studies. To further emphasise this point, the study by Neuman (2003) on PhD students illustrates the importance of encouragement of honours students by their supervisors to embark on masters and doctoral studies. Similarly, Jepsen and Neuman (2010) emphasise the importance of the honours year in moving on to upper postgraduate studies. The honours year provides students with training for research by thesis and this is its most distinguished attribute (Jepsen & Neuman, 2010) as it may afford the opportunity for a student to progress to masters and eventually PhD. Therefore, it is safe to assume that the honours year can play a major role in a student’s decision on whether to continue to upper postgraduate studies or not. However, there have been no studies found on this topic.

Many institutional and personal factors may affect a student’s goal to embark on postgraduate studies. The institutional and personal factors mentioned here are those that influence undergraduates to continue to postgraduate level of study (Jepsen & Neuman, 2010). The following have been suggested as consistent (throughout the year) factors that may contribute to intentions to study further; cost of courses, entry requirements, course duration, the content and the probability of getting individual attention from lecturers and having access to specialities in certain geographic locations (Jepsen & Neuman, 2010). Some institutional factors can also be inconsistent and vary throughout the year, such as receiving individual attention from academic staff. Institutional factors, when combined with personal factors or non-institutional factors can be anticipated to influence students’ decisions and their destination. As yet, there are no studies that have looked into the constraints or enablers of embarking on masters studies by honours students within a South African context and especially related to the areas that form the focus of this study.

This lack of research also exists within the biodiversity sector and related fields. There is no factual and empirical data about honours graduates’ decisions regarding postgraduate studies, especially at a masters level (SANBI and Lewis Foundation, 2010). The BHCDS has given some anecdotal and secondary information suggesting why so few graduates move on to postgraduate studies in general (mentioned previously in section 2.3.), these include, lack of

motivation to study further, higher education capacity with reference to the lack of qualified staff to supervise; and the lack of finances. With regard to funding, it is well known that many disadvantaged students are unable to pay for tuition and study costs and as a result, the Department of Higher Education has called for the provision of funding in the form of study loans and bursaries in HEIs (South Africa. DoHET, 2012). This study attempts to find out whether these factors really constrain further study from honours to master's level and what other constraints or enabling factors exist with regard to the transition to masters level.

2.5.1. Black postgraduate's transition literature review insights

Studies on South African black students at the postgraduate level, especially at the honours and masters level are scarce. Moreover, studies on postgraduate education in general are limited irrespective of the race of the students concerned. Through a rigorous literature search for factors constraining or enabling black students' transition to masters level of study in South Africa, I found very little has been investigated regarding this matter, in fact, no literature could be found pertaining to the challenges faced by many graduates in transitioning to masters study or even transitioning to doctoral studies within a South African context. Most work done on postgraduate studies in South Africa and in other countries deals with doctoral education as the literature search confirmed. South African policies themselves when talking about postgraduate studies and the need to attract and produce more students, mostly referred to PhD graduates (e.g. NPHE, 2001; DST Ten-Year Innovation Plan, 2007). With regard to this focus on doctoral education in South Africa and abroad, I would like to point out that the spotlight should not be at the exit level per se but should start at the bottom of the postgraduate chain. By this I mean that in order to ensure that there are in fact students who will embark on doctoral studies, interventions to attract and retain postgraduate students should start at the honours level and work up the chain. I say this simply because without honours students there would be no masters cohort and consequently very few doctoral students who are very important to South Africa's development. This is very important especially when South Africa wants to produce its own postgraduate students with advanced skills because as it stands now, many upper postgraduate students are recruited from African countries.

After 1994, when South Africa progressed to democracy, transformation in higher education in South Africa had many goals. One of the basic and crucial goals was to focus on changing the apartheid legacy that had plagued the country for so long by increasing access to HEIs to

groups that were previously under-represented in higher education, especially black and female scholars. During this time of transition, South Africa also needed to improve its economy and compete globally; education policy therefore had to contend with an unavoidable obligation of development and evolution towards innovation, research and economic growth. Accordingly, post-apartheid policies exhibited difficulty between the indispensable need for local equity and the inescapable need for economic development through becoming a global player (Herman, 2011).

The democratic South Africa has been characterised by high illiteracy rates and shortage of people with basic skills and subsequently first time entrants to university and undergraduate students have been the focus of higher education policies (Herman, 2011). Postgraduate levels of study were for quite some time neglected by the research community and policy-makers. Even though it was known that the schooling system in the country was flawed (basic and secondary education), there was no time to wait until the system was “repaired” because there was an urgent need for South Africa to compete globally. For this reason, it was imperative to avail resources for the development of skills, research and innovation at the postgraduate level (Herman, 2011).

A few studies in education research have attempted to represent the intricacy of the unequal and complex context of schooling in higher education but this is something of a new paradox in higher education and is mostly focused on career guidance and career decision-making in the United Kingdom (Bowman, 2005). Neuman (2002) asserts that doctoral education policy has a vital duty in improving diversity. Therefore, regardless of the exaggeration of prevailing policy to broaden participation of minority groups in higher education, evidence indicates that most of the attention is on the doctoral level and the participation trends and experiences of doctoral studies. Most likely, the reason for such a focus on doctoral studies in South Africa is because the person with a PhD is seen as the driver of economic development (South Africa. DST, 2007).

With limited studies on black postgraduate students’ decision making processes and especially black student transition to upper postgraduate studies, the few existing studies on black doctoral students will be used get an idea of the challenges faced by black doctoral students in their studies and why there is such a slow growth rate in the number of black PhD graduates who are South Africans. This can be used as a mirror to look at the challenges faced by many graduates in transitioning to master’s study within the South African context.

Although challenges may not be the same between black honours students and black doctoral students, there may be some commonalities and this will give a general idea on obstacles at the postgraduate level.

In attempting to explain the lack of black graduates from South Africa in doctoral education, Herman's (2011) study on doctoral education equity in South Africa illuminated factors that continuously re-enforce under-representation of blacks in doctoral education. These factors were identified by PhD programme leaders in various PhD programmes that were rated as successful.

- The first consideration is the deep-rooted socially impaired system of schooling in South Africa. By the time few black South African students reach university after secondary schooling, it becomes clear that there are few who have the potential to embark on higher degrees in sought after subjects.
- The second factor is inadequate funding. Current funding for doctoral education is insufficient for full time students. The funds do not support the typical South African student doing a PhD, who usually is older and tends to have to support a family. The majority of black doctoral South African students have family responsibilities more demanding than the majority of white doctoral South Africans. This lack of funding prompts many black students to look for part-time work and even work full-time while studying and consequently their studies often take a backseat to their work commitments.
- Thirdly, blacks drop out from their doctoral studies at a high rate because of institutional or individual reasons or because of certain issues that act as impediments to their achievement. There is a perception that having an academic career is not exceptionally appealing to black South Africans because firstly, they have few role models in academia and secondly, many black South African students have parents with little or no formal education, or one parent having a postgraduate degree and few have parents with doctorates. This means that many black students are the only people at home who have enrolled in a PhD programme and thus have no idea of the rigours of postgraduate study.
- Fourthly, many students drop out of their studies because they get employment offers from companies that attract black South Africans with potential in order to meet their equity targets. Students often accept these jobs due to pressure from parents to start

earning money. Many parents want to see a return on their investment and have waited long enough to see the results of their sacrifices. In poorer families, students are pressured to find work even after the first degree. This may lead to a comparison of income by the students meaning that some students may look at the income they might get from working versus the amount of money they will receive from a bursary and whether the money they will get from either will be enough to support themselves and their families.

- Lastly, institutional culture and racism play significant roles in influencing students to drop out from their PhD studies. In HWUs black students drop out because they are uncomfortable there and feel alienated and disorientated as they find it difficult to manoeuvre through the administrative, physical and emotional setting in which they find themselves. There is a clash of cultures and black students who experience discord cannot concentrate fully and engage well with activities associated with doctoral studies.

A PhD programme leader in the study by Herman (2011) on the lack of blacks with doctoral degrees identified that black South African women enter such programmes and are hard-working but also have family responsibilities that require them to split their focus between study and home and most need to support their families with bursary money which is not enough to accommodate themselves and their families. Although the study did not focus on black females per se, it does give some insights on challenges that black females need to deal with at doctoral level which at many times are not different from those experienced by black female masters and black female honours students.

In 2010, the Academy of Science of South Africa (ASSAf) commissioned a study on doctoral students called The PhD Study directed to evaluating the status, challenges and needs of doctoral graduates in the country and also to generate recommendations based on the results. The most important result from the PhD Study was the recommendation to increase the doctoral graduate output in South Africa through different means such as intervention by external programmes and increasing financial aid for doctoral students in South Africa (ASSAf, 2010). This proposal was made as a result of the PhD graduation rate that was found to be very low when compared to other countries such as Brazil and Australia (ASSAf, 2010). This deficiency in doctoral graduates was said to be a threat to the country in terms of development and innovation (ASSAf, 2010). The National Research Foundation (NRF) took the findings of this study and suggested some interventions that could be undertaken to

increase the doctoral output of South Africa. Noticeably, the study had no focus on race and gender but had a strong focus on doctoral education which further emphasises the importance given to doctoral studies in South Africa.

In order for South Africa to achieve its goal of socio-economic development, it is imperative to understand the experience of the research setting of postgraduate students. The SAYAS report of 2013 (Schutte, Wright, Langdon, Lochner & Myers, 2013) aimed at acquiring an extensive synopsis on the experiences and profiles of young scientists in the country. The report provides the needs and challenges of all postgraduate students, including honours and masters students and not exclusively doctoral students.

The participants of the study were mostly citizens of South Africa including some from the SADC region and a few from Europe, America and Asia. The majority of participants were doing a masters degree followed by doctoral students and a small percentage of students were registered for honours and post-doctoral studies. With regard to race, there was an under-representation of black students in all categories of registration when compared to the national enrolment numbers of black honours (68 %), masters (50 %) and doctoral students (46 %). On the other hand, female students were well represented at 56 % of the total students in the study. When looking at the 2011 registration for both undergraduate and postgraduate studies, it seems that only a fraction (approximately 10 %) of undergraduates who registered for three to four year degrees actually progressed to masters studies (HEMIS, 2012). The results of the study indicated that most students embarked on postgraduate studies because they wanted a career in academia. When asked about characteristics that they saw as favourable for studying at a particular institution, participants cited a university's specialisation in their particular field as very important followed by registration costs that were affordable or "cheap" and a university that was closest to home. Participants also favoured universities that offered bursaries and preferred to continue postgraduate studies at the universities where they did their undergraduate degree. In terms of supervision, participants preferred a supervisor who is a specialist in their field of study. Unfortunately, across all categories, 75 % of all participants indicated that supervision given was less than five hours per month. According to SAYAS report (Schutte et al., 2013), inadequate supervision may affect student's progress to upper postgraduate studies. Students also cited the value of mentorship alongside supervision. Many students in the study were funded through bursaries and a few from other sources. As with the study by Herman (2011), this study found that many postgraduate students fund their studies in various ways such as

working part-time. As mentioned in the study on South African doctoral students (Herman, 2011), working while doing advanced degrees can be a barrier to completion. To ensure progression to advanced degrees, undergraduates need to be provided with information by their institutions about available funding i.e. bursaries, scholarships, loans and the like since less than 50 % of participants stated that this type of information was not available to them. A large percentage of honours and masters participants planned to further their studies to the doctoral level which is encouraging.

The study itself gave some insight into the challenges faced by postgraduate students and their research experiences but the results can only be elucidated in the context of the study and its limitations as the overall results may not represent fully the challenges, experiences and needs of black postgraduate students as they were under-represented in the study. The study had no focus on gender.

In 1999, the South African Network for Coastal and Oceanic Research (SANCOR) launched a study (Akkers, Bacela, Durham, Gibbons, Mzimela, Naidoo & Radebe, 1999) on capacity building. The study was on corrective action and its progress in the South African Marine Science, Engineering and Technology (MSET) association. All institutions that are members of SANCOR were included in the study (public and private sector, technikons and universities) and staff and students alike also participated. The study arose from scientists in the marine environment who were concerned by the demographics and level of qualifications in the sector. Post 1994 it was important that previously disadvantaged groups were equally represented in all categories of occupations. Since it was only five years into democracy, the study's results did not show much improvement in terms of blacks and female's (and black females) representation in higher degrees in marine sciences. By and large, the results indicated that more whites were registered for honours, masters and doctoral studies and this trend was increasing and was the opposite for black students. Most female students indicated that print media played a major role in sparking their interest in marine sciences whereas most males cited role models as their influencers. This may be because the marine sciences were and still are dominated by males and there was/still is a lack of female role models in the sector. Most white and black females indicated that previously disadvantaged groups could be attracted to marine sciences through school outreach programmes and the majority of the males felt that role models were necessary in attracting students. Progress had been made in terms of growing the numbers of black graduates in marine sciences but this growth had not been significant.

The following recommendations were given in motivating previously disadvantaged groups into marine sciences: sufficient bursaries to be given to PhD students, availability of funding for bridging courses into masters, better networking between organisations, HWU and HBU's for exposure to experts in the field, identification of female role models and setting up of mentoring programmes and lastly, increasing the awareness of marine sciences by organisations and universities. This was one of the few studies that looked at both gender and race in the sciences. However, the time that the study was done was when South Africa was still adapting to change and since then, things have changed as more blacks and females are found in the sciences but interestingly enough, the changes have not been significant and are a cause for concern. As a result, I would say that this study is still relevant to the phenomenon of insufficient blacks and black females with advanced qualifications. In some ways, the study mirrors what is currently happening with postgraduate studies in South Africa, especially in the sciences. Also, the study proved to be relevant to the biodiversity sector as it is now in terms of the shortage of black females with masters degrees as marine science studies are biodiversity related studies.

In summary, studies on black student's transition to postgraduate studies, in particular, their transition from honours to masters study in biodiversity related fields are non-existent. As seen, most studies focus on doctoral students irrespective of race and gender and only a few look at race and gender but they are also aimed at the doctoral level. This is not only a South African problem as studies on black student's transition to upper postgraduate studies are also scarce internationally. Most international studies look at race and gender at the undergraduate level or at the first year at university or college (Cuker, 2001; Kennedy, 2010; Zhang & Smith, 2011). There is however, a growing number of transition studies of black students in aquatic, ocean and fisheries sciences which are specifically biodiversity related fields, however, these studies have no focus on black females but blacks in general and at the undergraduate level (Bingham, Sulkin, Strom & Muller-Parker, 2003; Cuker, 2001). Nevertheless, it is pleasing to find studies on biodiversity related fields for black students or minority students (in the case of the United States) even if they are for undergraduate studies because it means that there is room for more studies looking specifically at the postgraduate level.

2.5.2. Black female postgraduate transition literature insights

Female transition at the postgraduate level is a phenomenon that is under-researched, especially black female transition. Internationally, there has been research undertaken on black females but this has not been sufficient. Studies on black females have mostly focused on the undergraduate level (Kennedy, 2010) or on the work place (Barnes, 1986; Gregory, 2001). And while there is a limited number of articles on black females in upper postgraduate studies, there are virtually none on the transition of black females to upper postgraduate studies in biodiversity-related fields.

The term “diversity” is usually correlated with racial diversity in South Africa. Other types of diversity and inequality are usually obscured. South Africa has elected to prioritise the category of exclusion by race, focusing on broadening access to higher education for blacks, but thereby limiting perspectives on education equality and escalating the segregation of women in higher education. There has been an increase in the number of black females in higher education but their presence remains peripheral because gender has been ignored in favour of race (Potgieter, 2008).

In an attempt to understand the challenges and experiences faced by black South African female postgraduate students, Magano (2011) produced a narrative on three black female students doing masters and doctorates in South Africa so as to understand the pleasant and not so pleasant routes of postgraduate study. The participants in the study were studying part-time and worked at the same time. The results of the study showed that the participants had work-related problems as well as social difficulties arising from family responsibilities. Two of the participants could not finish their doctoral studies due to work responsibilities. Working and studying at the same time left participants too exhausted to do their postgraduate work. For some, frustrations arose due to the duration of the degree which they thought was too long, others faced problems within their work institutions but the most important problem cited was their supervisors. The students felt that their supervisors wielded power over them and that cultural differences between them and their supervisors served to impede the completion of their studies. All three students felt that they did not own the projects and were fearful of their supervisors; they were made to feel inadequate, with one supervisor going as far as telling one of the students that she was mediocre. The author recommended that black females should start being more assertive, taking ownership of their studies and looking at past successes as a source of motivation and confidence. This study

provides insight into the experiences of black females in upper postgraduate studies, but these experiences are those of black females who have already made the transition to upper postgraduate studies. It would have been valuable to find out how the subjects coped with the prior phase, the initial transition into upper postgraduate studies.

In a conference on women in higher education leadership held at the University of Cape Town in 2008, Dr Ramphela urged universities to tackle the institutional cultures in our universities that are flooded with constructs based on gender that prevent women from leadership in higher education. On women in postgraduate studies in general, Professor Ralebipi-Simela acknowledged the decrease in numbers of females irrespective of race and gender. Professor Driver and Professor Ralebipi-Simela addressed the lack of programmes targeted specifically at recruiting and retaining blacks and women at postgraduate level in South Africa, even though many higher education institutions have equity targets and plans for blacks and women (Higher Education Conference: Institutional Cultures and Higher Education, 2008).

What is puzzling is the fact that, while it is well known that blacks and women (and black women in particular) are under-represented in postgraduate studies and that attempts have been made to encourage more black females to acquire advanced qualifications, no studies have been conducted in order to establish *why* this should be the case, twenty years after the end of apartheid. Viable policies can only be created and interventions developed when there is sufficient information from black women themselves on why they are not progressing to upper postgraduate studies. Anecdotal data on this problem is insufficient to address the problem successfully, and up until now, studies on the factors constraining black females from obtaining higher qualifications are non-existent, yet in South Africa there is a dominant interest in addressing race-based imbalances.

2.6. Theoretical Framework

The study used social realist theory as its ontological lens because social realism has the power to bridge the gap between practical social theory's explanatory power and realist philosophy's ontological power (Archer, 1995). Within this theoretical framework, interpretive methods of investigation were used in order to find the meanings that people place on the social world (Carter & New, 2004). The meaning that people give to social reality cannot be counted or measured, it needs to be understood, and that is why interpretive

methods are needed in social theory (Carter & New, 2004). Interpretive methods of investigation are seen by realists as not being in disagreement with causal reasoning. When a social practice's material setting and cultural connotations are understood, an attempt can be made to understand people's options in connection with that social practice and why they act in particular ways in relation to that social practice (Carter & New, 2004). Social realism allows for investigation into meaning and cause; indeed, a key feature of social realism is its interest in "causality and the identification of causal mechanisms in social phenomena" (Wikgren, 2005, p. 5). According to Carter and New (2004), human beings are structured in such a way that their beliefs, reasons and intentions cause actions. People inhabit social contexts that guide their beliefs and actions. A social realist approach will thus facilitate gaining an understanding of why students in general and black females in particular find it difficult to proceed to masters study in Botany and Zoology. By the same token, in showing why honours transition is a comprehensible decision for some students in particular contexts, I shall also offer a reason for *why* it takes place.

A structure-agency approach was used to help explain the enablers and constraints to moving from honours to masters level. Hays (1994, p. 61) defines social structures as "those patterns of social life that are not reducible to individuals and are durable enough to withstand the whims of individuals who would change them; patterns that have dynamics and an underlying logic of their own that contribute to their reproduction over time". Agency implies that a range of possible choices of conduct exist and that people make decisions and choices among those alternatives consciously or unconsciously (Hays, 1994). When taken together, structure and agency seek to investigate the extent to which specific social circumstances affect individual action and destiny. Structural situations only *influence* and do not utterly determine the actions of agents or actors (Carter and Newman, 2004). Agents or people make their own choices on what or what not to do, but these choices are derived from a range of options generated by structural and cultural phenomena not chosen by them. The structure-agency approach is "widely acknowledged to lie at the heart of sociological theorising" (Archer, 2001, p. 1).

Fundamentally, structure and agency seek to examine the interplay between people who are agents in the social world and the structures of social relations that themselves result from the relationship between structure and agency. The approach was selected for this study because the intention is to establish if the participants have some form of independence in their choice of whether to study or not to study further to masters level, or if they are constrained by

strong structures or powerful social forces (such as lack of finances, race, age, ethnicity, income, lack of motivation, not meeting entry requirements, lack of supervision capacity, to mention but a few). In short, the structure-agency model is useful because it contributes a framework that conduces to the explanation of social change and the causes of that change.

How or why is it that some students, including some black females, have managed to overcome potentially determining structural constraints? Though there has been much research on the structure-agency relationship, it does not clarify the facts and events relating to an individual's life and reflexivities. The ultimate interest of this study is to find out whether and how social structures inhibiting transition to masters degree study can be confronted and challenged.

In choosing social realism, I felt the study needed a theoretical lens that could present a way of exploring and investigating the social reality of students' transitions by developing a theoretical, ontological and methodological arena to segregate structure and agency analytically. In my opinion, Archer's social realism contributes such a theoretical framework (Archer, 1995, 2000, 2003, 2007). Social realism acknowledges the stratification of social reality in that structure cannot be reduced to agency and agency cannot be reduced to structure. Additionally, structure existed before the actions which reconstruct it and structural illustration comes after the actions that have transformed it (Archer, 1995). Accordingly, society is not simply produced by agents, but rather is consistently reproduced or transformed by agents upon the foundation of something that already existed (Archer, 1995). Social structures such as those of higher education have been around for a long time before people could act upon them and transform them; in the present context, the structures that constrain or enable students' transition to advanced qualifications existed before they could act on them or try to change them.

Archer notes that social realism is helpful for comprehending the manner in which social agency mediates the causal potential of social forms (Archer, 2003). Therefore, the idea of constraints and enablements signifies agential powers: people can only be constrained or enabled if they imagine themselves acting. The fact that they seek to act in different social contexts means that they can be constrained or enabled differently (Archer, 2003).

The importance of Archer's work is its particular interest in the relationship between structure and agency from the agent's point of view, the perspective of the individual. This is in line with the aim of this study, to find out from students themselves what they see and feel

is constraining or enabling them in their transition. For anything to have the power to constrain or enable, it needs to obstruct or facilitate the achievement of a specific agential undertaking or “project” which involves a desired end and “some notion ...of the course of action with which to accomplish it” (Archer, 2003, p. 6). In the context of this study, the honours students must have a “project” or undertaking before they can be constrained or enabled, meaning that they need to have a clear plan to embark on a masters degree before they can experience hindrance to or facilitation of that plan.

Social studies of education transition attempt to implant understandings of personal biographies within the extensive cultural and socio-economic circumstances and the structures that provide favourable circumstances in which and through which decisions on progression to higher qualifications are mediated in people’s lives. This is also a concern of the realist social theory, making it compatible with this study. Archer’s notion of reflexivity offers a means of depicting how choices are made relative to conditions brought about by structures (2002). The degree of depiction in social realism exceeds that of agents with particular interests and plans of action, affiliated to a social group with common cultural, demographic and economic features (Archer, 2003). This study aims to uncover personal stories and accounts from the students themselves on transition matters that they are experiencing.

2.6.1. Historical forms of conflation of structure/culture and agency

The next step is to examine how various theoretical positions regarding constraints and enablements and structure and agency match with the socially critical position taken in this study. To begin with, social relations encountered by human beings may be seen as determining them: i.e. they can be seen as transmitters, effects or outcomes of those social relations. In this structuralist view, social structures take the leading role in explaining the world in terms of causal powers. This is a drastically weakened view of human agency because people are seen only as features in the world and prominence is given to social structures (Carter & Newman, 2004). In direct opposition to structuralism is voluntarism, in terms of which individual actions are seen as responsible for social structures: people’s tendencies and practices as well as their conversations (social constructionism) or their thoughts (different forms of interpretivism, idealism) create social structures. Here, human agency is prioritised and the role of structures downplayed (Carter & Newman, 2004).

Giddens (1984) developed structuration theory in relation to the understanding of the structure-agency relationship. In the perspective offered by this theory, social structures exist virtually until people actually account for them in social action and ultimately either change them or reproduce them. Human beings' informed activities therefore determine social relations and cannot be independent from them. Structure and agency according to this view cannot be identified in isolation as they are both held to be equally essential.

Archer (2000) has the goal of rehabilitating agency, which according to her has been reduced ontologically to no more or less than the effects of society and discourse by post-modernist and post-structuralist social theorists. According to Luckett and Luckett (2009), Archer's position is important in the context of South Africa because it helps to move beyond the attitude of being a "victim of apartheid" that many South Africans who are still disadvantaged structurally in the post-apartheid era cling to. The effects of structures are only perceptible when action is taken by agents on the premise of their interests, practices and projects. Practices are described in a person's "internal conversation" as they prioritise and juggle their need to participate in reality. Archer (2003) suggests that when agents are faced with structural constraints and/or enablements, they reflexively contemplate action through the medium of internal conversations and then resolve how to react to circumstances that they have not created. Reflexivity is defined as "the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their social contexts and vice versa" (Archer, 2007, p. 4). "The establishment of successful social practice is dependent upon the adaptive ingenuity of reflexive subjects" (Archer, 2007, p. 10): individuals need to think creatively in answering questions about what they want and how to go about achieving it (Archer, 2007). Do black female honour students even want to study further to masters level, and in terms of structural/cultural constraints, have they thought and deliberated how they will overcome them if they indeed want to proceed to masters? Have they reflexively deliberated about their future plans? These are some of the questions that Archer's structure/culture and agency framework can help answer. Archer's (2000) human agency theory has central to it the notion of individuals modifying society's positioning of them by way of individual action.

2.6.2. The morphogenetic approach

In social realism, social reality is construed as an open stratified system, because social structures are believed to have emergent properties that interact with agents that the social

structures condition but do not determine. According to Archer (1995), social reality is made up of different levels of stratifications; structure and agency are found within these levels, and each holds different emergent characteristics that are causally effective and real but are interrelated with one another. There is interaction between structural emergent properties (SEPs) such as race, cultural emergent properties (CEPs) such as religion, and personal emergent properties (PEPs) that people within certain groups possess and exercise, such as political activism. The morphogenetic approach is what Archer (1995) terms the method that emanates from the commitment of critical realism to a layered open systems ideology. Archer believes that even though SEPs, CEPs and PEPs are entangled in the real world, it is still essential to separate them artificially (using analytical dualism between structure – both SEPs and CEPs – and PEPs) so that the interplay between them can be studied over time. To establish the interplay between structure and agency, or why human agents act “so rather than otherwise”, the morphogenetic approach developed by Archer will be used.

Within her morphogenetic approach, Archer tries to distinguish between the “parts” and the “people” in society (Archer, 1995). This means that an account of the “social” that is incapable of being diminished or simplified further needs to be developed throughout the time also representing the quality of human nature to experience both freedom and constraint. Within the model of analytical dualism, it is shown that the emergence of structures occurs through interactions within society and that constraints, by virtue of enduring structural features; proliferate within society (Le Boutillier, 2003). According to Archer, despite the greatest ambition of agents some structures just oppose change. The central argument in the morphogenetic approach is that the only way to link structure and agency is through the examination of the interplay between them over time (Archer, 1995). The morphogenetic approach looks at both structure and agency equally. The morphogenetic cycle consists of three stages that cover structure, agency and culture at different times “each of which has relative autonomy and yet interacts with the others” (Archer, 1995: 192). Although it is easy to separate structure, culture and agency temporarily, the cycles of emergence–interplay–outcome are inter-related and continuous (Archer, 1995).

For human action to be understood the starting point is the actor’s circumstances and context. The morphogenetic approach maintains that people act within structural/cultural circumstances and by doing so alter or maintain these structures. The essential feature of time is as a result introduced (Figure 2.5.). For Archer, time is very important because as CEPs and SEPs are emergent properties: agents cannot immediately change them, and as a result it

takes time for changes to occur (or not: attempts by agents to alter structures may not be successful).

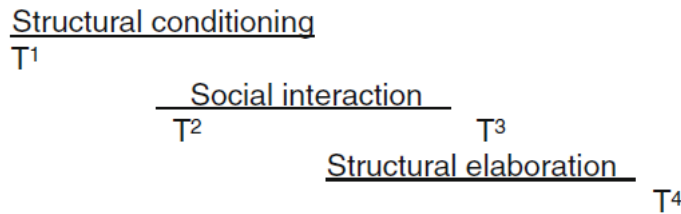


Figure 2.5: The morphogenesis of structure. Source: (Archer, 1995, p. 193).

We start at time 1 (T¹) with certain prior structural circumstances which set the scene for structural conditioning. In the context of this study prior structural circumstances are the factors already in place that could serve to hinder black female honours students from proceeding to upper postgraduate studies (relating to finance, race, gender etc.) Time 2 (T²) indicates the action that people take over time within the structures they are facing (social interaction). In so doing, they either modify or sustain those circumstances in a series of actions. Archer (1995) calls this process structural elaboration. Black female students in South African universities will either find ways that will enable them to progress to masters (e.g. working and saving money or securing bursaries, assuming funding to be the issue). Some black female students may fight to change their circumstances and beat the status quo and some will give up and be part of the statistics. The outcome at time 3 (T³) represents the combination of changed and maintained circumstances that constitute the prior conditions for any action that might ensue. The cycle is restarted through structural elaboration, introducing a fresh set of dependent influences at the time of interaction which can be facilitating as well as constraining. Therefore, T⁴ becomes the new T¹: the cycle continues and must be analysed afresh. This is also the case for the morphogenesis of culture (although at T² socio-cultural interaction occurs and cultural elaboration occurs at T⁴) and agency (where difference can also be observed between T² and T⁴), as seen in Figures 2.6 and 2.7 on the next page.

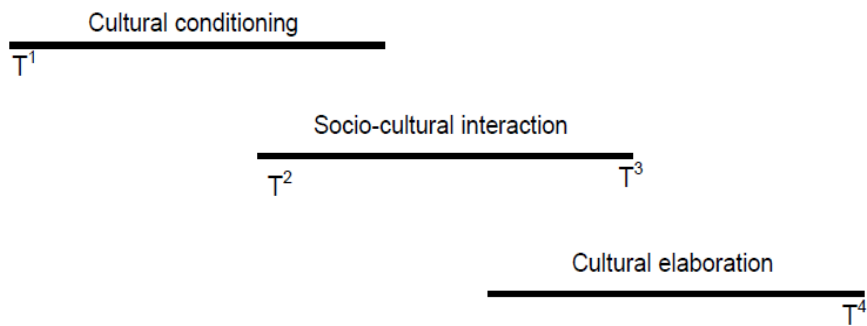


Figure 2.6: The morphogenesis of culture (Archer, 1995, p. 193).

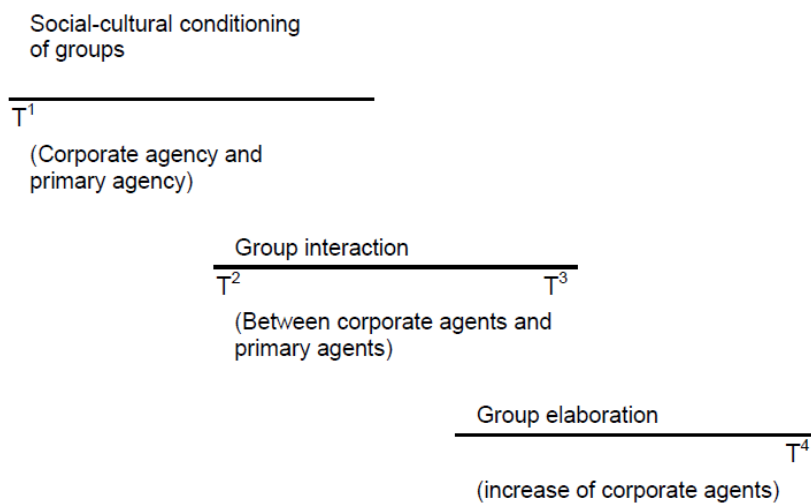


Figure 2.7: Primary and corporate agency in the cycle of morphogenesis (Archer, 2000, p. 268).

2.7. Conclusion

In this chapter, the historical landscape of South African postgraduate education has been mapped as well as the numerous national policies developed in the post-apartheid era to address the insufficient production of upper postgraduate graduates. South African higher education has come a long way but what is evident thus far is that the country is not producing nearly enough postgraduate students. By “enough” I mean the country is not keeping up with undergraduate production in terms of producing upper postgraduates. This has pronounced consequences for the economic development of South Africa, in that postgraduates at the masters and (particularly) doctorate levels are required so that as a country we can participate and compete in the current knowledge economy.

Also, as indicated in this chapter, there are a variety of factors that affect black students, especially black females, when they consider embarking on masters and doctoral studies, ranging from financial difficulties to family responsibilities. The focus of this study – on black female transition to upper postgraduate studies – is also a major concern of the South African higher education department, as evidenced by the numerous strategies and policies developed to attract and retain more blacks and females in HEIs. This redress of race and gender in higher education has been a major priority since the end of apartheid, but my contention is that more emphasis has been placed on race than gender, and a specific focus on black females has only been prevalent in the last decade.

The chapter also showed the contextual profile of the biodiversity sector and its lack of professionals with advanced qualifications, with a focus on black females. Various reasons are suggested for this shortage of a highly skilled workforce in the biodiversity sector, but none are empirically proven and this is where this study fits in. The relative dearth of published investigation into factors affecting students' progress to higher postgraduate studies generally is further evidence of the need for this study, especially since it looks at decision-making by black female students in the context of masters studies in biodiversity-related fields. Lastly, I introduced a theoretical framework to assist in explaining the constraints and enablements experienced by students proceeding to more advanced qualifications.

In summation, in this chapter I examined past and recent literature on transition in postgraduate studies and highlighted the need for studies on the decision-making process of lower postgraduates in embarking on masters studies and even doctoral studies. I showed some of the constraints to transition of students around the world and discussed some anecdotal evidence of constraints on honours students' passage to masters study in the biodiversity sector. I return to this area in Chapter Five, when I provide detailed analysis of the data produced and disclosed in Chapter Four.

The following chapter describes how the theoretical framework chosen for this study informed its research methodology; it also outlines the process followed in conducting the research in Eastern Cape universities (see section 1.6, above). The data collection tools used in the study are described and the reasons for their choice are discussed.

CHAPTER THREE

RESEARCH PROCESS AND METHODOLOGY

3.1. Introduction

This chapter outlines and discusses the research process and research methodology involved in exploring the research question outlined in section 1.7 in Chapter One. The main research question investigated is: “What are the factors that constrain or enable black female Botany and Zoology honours students in making the transition to masters studies in four Eastern Cape universities”?

Research is defined as the controlled, orderly, critical and factual investigation of theoretical proposals about natural phenomena and the assumed relationships between them (Kerlinger, 1970). This definition of research is essentially a positivist one, although it shares some characteristics with qualitative research. The main difference is the emphasis in qualitative research on how people differ from one another and from non-living natural phenomena (Cohen & Manion, 1994), an emphasis emanating from a distinctive understanding of reality and of social and individual behaviour.

This chapter illustrates the qualitative dimension of the study and the interpretive direction that it takes. The chapter describes the methods used in the research, identifying the data collection tools and explaining how the data was organised, analysed and interpreted. Methods are defined by Cohen, Manion and Morrison (2000) as the foundation for the conclusions, meanings, explanations and declarations generated and they clearly influence the way in which the thesis will unfold. Details of how the research unfolded follow, including observations, insights, choices made and decisions taken. I explain how I used the structure and agency approach and analytical dualism to create an analytical framework for analysis of the constraints and enablements to masters transition in Botany and Zoology. I also use this chapter to establish a foundation for the findings of the study detailed in Chapters Four and Five. I conclude the chapter with a discussion of research ethics and the validity of the study.

3.2. Research Methodology

Kaplan (1964) describes the aim of methodology as being to assist both the reader and the researcher to understand the process of investigation undertaken in the research. Gibson (1986, p. 3) declares that “theory and practice are indivisible ... there is always theory underlying, embedded in, any practice ...”. Like any other, this study has a theoretical basis underlying it.

In Chapter Two (section 2.6), I mentioned that the study is underwritten by social realist theory, which is adopted from critical theory. Critical theory has its origins in the Frankfurt School, a loose association of socio-political investigators. According to Tripp (1992), this “school of thought” was interested in social justice through enabling people to control the economic, political and cultural aspects of their lives. The Frankfurt School asserts that the only way to attain a just society is by way of emancipation, which Tripp (1992) defines as a process through which previously oppressed and abused people are empowered to themselves change the states of affairs in their lives. The reference to the oppressed and exploited is apt in this context because this was the situation of blacks in South Africa during apartheid. Black female students have this past as a legacy that is seemingly directing their futures, as they are the ones who are not “visible” in terms of acquiring highly advanced degrees, especially in the sciences. But their emancipation depends on them and their dreams, aspirations and commitment.

The choice to draw from critical theory and research is influenced and guided by principles and foundations of social justice, redress and democracy (Fien, 1993). With regard to the importance and value that socially critical research contributes to society, Tripp (1992) argues that this form of research into education not only questions the current actions of the system (why are black female students not progressing to masters study, what are the challenges, what is being done by institutions and why has it not been working as well as hoped?) but also explores ways to understand why the system is the way it is (why are other race groups and even black males faring better than black females in biodiversity-related fields?).

3.3. Research orientation

The research is qualitative (Patton, 1990) and quantitative (Burns and Grove, 2003) in nature. A quantitative dimension is appropriate in this study as one of its goals is to compare and quantify responses in addition to explaining the phenomenon. To find out the current status of honours and masters studies in Botany and Zoology in South Africa and in the four universities, the HEMIS data from the Department of Higher Education and Training was assessed and analysed. The HEMIS data plays an important role in HEIs in terms of higher education planning, quality assurance and the distribution of funds by government (CESM, 2008, Department of Education). HEMIS data also gives differentiated data by study field, level of study, enrolment rates, graduations, race, gender etc. per university. The data from 2001 to 2011 was used in the study so as to look for patterns or trends over an extended period and also to update the results of the HSRC (Vass et al., 2009) and ESSP (DEA, 2010) reports by ascertaining whether there have been any changes in honours and masters study since the publication of these reports.

This research will take a critical interpretive approach within the social realist paradigm so as to find the meanings that people place on the social world. Individuals construct their own reality based on their life circumstances and experiences and this construction of personal reality may lead to diversified truths. Because of this outlook on human social interaction and understanding, I felt that interpretive methods of investigation and a critical interpretivist approach would best assist me in finding out the factors that constrain or enable black female honours students in transition to masters study in Botany and Zoology in Eastern Cape universities. According to Crotty (2005), Max Weber's teachings are often connected to interpretivism because Weber suggested that the social sciences are different from the natural sciences because in the former, understanding is the main concern whereas the latter focuses on explanation. "Interpretive research emphasises an understanding and interpretation of complex interrelations between social structures and the meanings people give to phenomena" (Cantrell, 1993, p. 101). The concern of this study is to gain an understanding of social reality and explain it using social realism. Interpretive methods of investigation and the study's critical orientation assist in gaining such an understanding. The definition of interpretive research by Terre-Blanch and Durrheim (2002) further emphasises this point, in that they define interpretive research as an approach that interprets and depicts in human terms the experiences and feelings of people, rather than quantifying them. Janse van

Rensburg (2001) suggests that interpretive research produces rich and substantiated information regarding the study context.

The interpretive approach is useful in preserving the truthfulness of the phenomena under investigation and as such it is important to get inside the individual and obtain an understanding that comes from within the person (Cohen, Manion & Morrison, 2007). In the present context, preserving the truthfulness of the phenomenon that I am investigating means that such truth can only be obtained from the individuals themselves, as they are the ones experiencing the facts under investigation. According to Cohen et al. (2007), the interpretive methodology is action-oriented and may be looked at as “behaviour-with-meaning”. In this study, this means finding out why it is that some students’ progress to masters studies while others do not.

I situated this study in a critical interpretive domain because most of the research questions that I sought to answer needed interpretive methods of investigation in order to develop fuller critical explanations. The first research question focused on the current status of honours and masters studies in Botany and Zoology in South Africa (section 1.7). The second research question looked at the challenges and impediments to masters transition faced by black female students, while the third research question looked at the enablements or facilitators to transition to masters study among black female students in Eastern Cape universities (section 1.7). These two research questions (two and three) required the use of interpretive approaches to find out from the students themselves what they felt hindered or facilitated their transition to masters study. The last research question focussed on the implications of the constraints or enablements cited by students on the implementation of the BHCDS of 2010. This fourth research question depends on the interpretive methods of investigation applied for questions two and three, but also requires critical explanation using social realism. These questions are concerned with research positioned from the context and viewpoint of the students and what they view as constraints and enablements to their progress to masters study. It was my aim to acquire first-hand insights, information and knowledge of the students’ perspectives, through analysis of the data from questionnaires and interviews (see section 3.4.1 and 3.4.2).

3.4. Methods of research

It is also important to note the difference between methodology and methods, as this is sometimes confusing. According to Crotty (2005), methods refer to the procedures or techniques used in data gathering and analysis in relation to a research hypothesis or research question. Methodology, on the other hand, is the theory of the methods and techniques used in the research process. Cohen and Manion (1994) provide the meaning of methods or instruments and also broaden this meaning to incorporate not only normative research methods, but also those methods related to qualitative research.

The data collection process was aimed at gaining a deeper understanding and meaning of the research question from the participants and also at recording how, from my interplay with the different participants and actors from the different university contexts, this meaning emerged and developed. As a result, I used a variety of methods to obtain the type of data that I needed: as Wolcott (1992) has pointed out, research is a complex process in the field and a single method cannot be used to gain all the essential and required data. Lotz (1996) worked with a variety of techniques and methods that gave the impression of yielding better understanding of and insight into the specific research context and research question. In the next section I explain the data collection instruments I used as well as the data collection process I followed.

3.4.1. Data generation instruments

In this section, I describe the data collection instruments I used. Data collection is the series of actions involved in documenting information from occurrences and activities in the research. The following three tools were used in data generation so as to answer the research question.

- Semi-structured questionnaires
- Semi-structured interviews (face to face)
- Document analysis

I worked with honours students from Botany and Zoology departments in three Eastern Cape universities, Rhodes, Fort Hare and Walter Sisulu. I adopted a case study approach, in that the universities were treated as three case studies regarding possible constraints and

enablements to students' transition to masters degree study. According to Cohen, Manion and Morris (2007), a case study has the strength of observing events and issues in real contexts, thus acknowledging context as a strong agent of both effects and causes. I also worked with staff members in the two departments in each university. Unfortunately, data was not gathered from the honours students and staff at Nelson Mandela Metropolitan University because the ethics approval needed in order to conduct the research and collect data from students and staff was only received in March 2014. This was due to miscommunication between the university and the researcher regarding the procedure to be followed in applying for ethical clearance.

I conducted data collection from September to December of 2013 in the other three universities. I needed to collect data in all the universities towards the end of the year because by that stage students would have had a better idea of what their plans for the following year might be, and because at least some scholarship and bursary funds as well as internship providers should have responded to applicants, giving them direction for the following year. This meant that honours students of 2013 from NMMU could not participate in the study, and I decided not to include the 2014 honours cohort from the university as I felt that the students were at the time that the permission came through (March) busy adapting to being postgraduate students and probably undecided about their plans for the following year. Consequently, no data was gathered from the university.

3.4.1.1. Questionnaires

To find out the constraints and enablers to masters study, questionnaires were utilised. The research process began with me calling each department in each university to find out how many honours students they had so that I knew how many questionnaires I had to prepare. A questionnaire can be described as a data collection tool that is structured, often used in the collection of survey data, can be administered without the researcher being present, and is easy to analyse (Cohen et al., 2007). On the other hand, Jackson (1995) describes questionnaires as having a sequence of questions that are set with space provided for writing down answers, or a variety of fixed answers that a respondent must choose from. The questionnaire designed for this study was a mixture of both (fixed answers and space for answers) (Appendix A). Questionnaires allow a researcher to gather standardised information (both structured and unstructured) from respondents (Somekh & Lewin, 2005). Although questionnaires are often structured for numerical responses that can be ranked, the

questionnaire used in this study was semi-structured, as one of the objectives of the study was to compare and describe the events and concepts coming out of the study as well as to examine relationships between phenomena. I developed a draft questionnaire that I piloted in the departments of Botany and Zoology at Rhodes University on ten students, so as to see what type of responses I would get and ascertain how easy or difficult it is to understand the questionnaire, and whether the questions being asked were relevant in addressing the research question. I also piloted the questionnaire on my colleagues and lecturers so as to get feedback on areas that were unclear and areas that needed modification. Thereafter, amendments to the questionnaires were made from the feedback from students and colleagues.

The questionnaires were physically administered to students currently doing their honours in Botany and Zoology in three Eastern Cape universities in order to ensure a high response rate (Table 3.1) (Kelley, Clarke, Brown & Sitzia, 2003). In each university and department, I had to introduce myself, explain the study to the students and go through the questionnaire with them. The semi-structured questionnaire that I had designed was to be self-completed by the respondents overnight because I wanted them to take their time in answering the questions and write what they honestly thought and felt, instead of rushing in and writing down the first thing that came to mind. All honours students irrespective of race and gender were given questionnaires to fill in, so as to provide me with a general view of what challenges are faced by honours students in making the transition to masters studies (Table 3.1). The questionnaire was designed to ensure that the questions were of an anonymous nature because students were answering questions about constraints in their honours study experience as a whole, including some pertaining to their respective departments, supervisors and lecturers (an example of the questionnaire used can be seen in appendix A). Some initial data analysis of questionnaire data was performed after the questionnaires had been received, which involved reading through each questionnaire carefully and comparing and contrasting with the others to look for trends, patterns and more, and noting down commonalities and differences in the responses. Certain emerging issues were identified and carried forward to inform the interview process, so as to get a deeper understanding of the issues and strengthen the data generation process. With reference to the response rate, not all Botany and Zoology honours students answered the questionnaires as some students were in the field doing data collection, others gone home and others just simply too busy to participate. With regards to the response rate of black female honours students to the questionnaires, all black females in both departments completed and returned the questionnaires.

Table 3.1: Total number of honours students who completed questionnaires.

University	Department	Number of students (Number of questionnaires administered)
RU	Botany	12
	Zoology	11
UFH	Botany	4
	Zoology	4
WSU	Botany	5
	Zoology	10
Total		46

3.4.1.2. Semi-structured interviews

A small sample of respondents was selected for in-depth interviews on the constraints and enablers from the students' own perspectives, so as to get a better understanding and thick description of these factors. This small sample to be interviewed was chosen on the basis of race and gender: only black females were interviewed as the core focus of the study was to find out the constraints and enablers affecting black female Botany and Zoology honours students in Eastern Cape universities. Canelle and Kahn (1968) cited in Cohen et al. (2007) define a research interview as a conversation instituted by the researcher and another person with the intention of getting information that is specific and applicatory to the research; the content of this conversation is directed by the researcher to meet the research objectives of well-ordered explanation, description or prediction. Wellington (2000) explains that through interviews, researchers can probe and incite otherwise unobservable phenomena, and that interviews allow for exploring the thoughts, perspectives, feelings, values, and views of interviewees. The type of interview that was undertaken in the study was a semi-structured interview, which comprises more or less open-ended questions that the interviewer brings to the interview as an interview guide (Flick, 2002). The semi-structured interview sets the tone but does not assume what the respondents will answer. In this way deeper and various answers specific to each respondent can be obtained. As a result, a semi-structured interview schedule was developed (see appendix B), and a face-to-face approach ensued.

I created a draft interview schedule that was piloted at Rhodes University in the departments of Botany and Zoology. The interview schedule was also piloted on my colleagues and lecturer so as to get feedback and make revisions where necessary to ensure that the questions would help gain data relating to the research. Through piloting some editing was done on the interview schedule, with some questions removed and others added. I treated the interview data as my prime data as I felt that it provided the most insight into the research questions being investigated.

In total I interviewed twenty-eight (28) respondents from three Eastern Cape universities. With regards to black females; 100 % were interviewed at Rhodes University and at Walter Sisulu University in both departments. At the University of Fort Hare, all black female honours students were interviewed in the botany department and three out of four were interviewed in the Zoology department as one was out in the field. All participants were made aware of the purpose and nature of the interviews before interviews commenced and were given ample time to prepare for them, having been notified ahead of time. Staff members who had been in the at the universities in both the Botany and Zoology departments for three years and longer were interviewed so as to understand from their point of view what they see as constraining or enabling to their students, particularly black females. As staff members, they have a general grasp of university affairs and experience of what their students face yearly. All the interviews were recorded to obtain as much detail as possible, and were transcribed at a later stage. This assisted in data analysis (Patton, 1990).

Table 3.2: Total number of black female honours students and staff members who participated in interviews.

University	Department	Number of black female honours students (BFHS)	Total number of staff interviewed
RU	Botany	3	2
	Zoology	1	1
WSU	Botany	4	2
	Zoology	3	2
UFH	Botany	4	2
	Zoology	3	2
Total		18	11

3.4.1.3. Document analysis

During the process of document analysis – defined by Bowen (2009) as a process of reviewing and evaluating documents in a systematic manner – I came across a range of documents. Some of these documents were written by government departments and others produced by private agencies. The documents analysed were those that were relevant to the focus on skill shortages in the form of the lack of staff with advanced qualifications (masters and doctoral qualifications), especially black females in the biodiversity sector. These documents were relevant to the research question. The documents analysed were:

- 1) The Human Sciences Research Council report (Vass et al., 2009) which reports on the results of research done from April to October 2009 on scarce skills in the biodiversity sector and the lack of practitioners with advanced qualifications in the sector. The HSRC informed the BHCDS.

- 2) The Biodiversity Human Capital Development Strategy (BHCDS) (SANBI & Lewis Foundation, 2010), which aims to contribute to the development of skilled and capable biodiversity practitioners across all sectors.
- 3) The Environmental Sector Skills Plan (Department of Environmental Affairs, 2010), which is a core skills planning guide for the environmental and other sectors. It also provides guidance on improving environmental sector skills development planning and implementation and serves as a systems approach to human capacity development.

All of the above-mentioned documents emphasise the need for a skilled workforce in the conservation, research and management of South Africa's biodiversity. They also cite the absence or shortage of such a workforce (employees with advanced qualifications, that is, masters and doctoral qualifications).

Other documents that were analysed and were important in the study were the report by the National Commission on Higher Education (1996), the White Paper 3 (South Africa. DoE, 1997), the National Plan for Higher Education (South Africa). Ministry of Education, 2001), Council on Higher Education (2009), Department of Higher Education and Training (2009), the White Paper on Post-School Education and Training (2013), the National Development Plan (The Presidency, 2012), and the Ten Year Innovation Plan (DST, 2007). These policy documents played a vital role in providing a contextual profile of the South African Higher Education and postgraduate landscape and assisted in painting a picture of the need of upper postgraduate graduates in the country (see section 2.2.).

The documents were first analysed using the process described by Bowen (2009), which involves skimming through them in order to get a superficial overview, then conducting a thorough examination by reading and interpreting them. The process of document analysis involved both content and thematic analysis. In terms of content analysis, relevant and meaningful passages of text in the documents were identified and highlighted. In terms of thematic analysis, I categorised the selected data according to themes that were already defined (I had developed themes according to the research questions) as well as emerging themes. The themes used for document analysis were also used to analyse the questionnaire data and interview data, so that the themes in the questionnaire and interview data have a valid connection to the content of documents. For a full list of the documents used in the

research, see the document log (appendix D) which shows the types of documents used and for what purposes, and the value each document contributed to the research.

3.5. Organisation of data

In qualitative research, one will find that the data gathered is vast and comprehensive and may become a challenge to analyse and translate if it is not organised properly (Patton, 1990). Data organisation is a technique for organising and ordering data into a systematic arrangement for the benefit of knowing the type of data the researcher has and where to start analysing. Managing the bulk of data is an essential aspect of the research process. I organised the data according to the sequence of the data collection process. In order to produce an organised and workable data set that could strengthen and substantiate the research findings, I drew on the work of Lotz (1996). To organise and manage the data, a log in which sources of data were recorded was made (Table 3.3).

Table 3.3: Data source log

Research case	Data source	Data source description	Dates conducted	Code used in appendix
RU	Self-completion questionnaires on constraints and enablements.	An opportunity for honours students to express the challenges they faced and opportunities available in transitioning to masters.	26/09/2013 - 27/09/2013	A
RU	Conduction of interviews with black female honours students and staff (botany & zoology).	Semi-structured questions on students experiences in progressing to masters and staff experiences on these	30/09/2013- 3/10/2013	B

		challenges.		
WSU	Self-completion questionnaires on constraints and enablements.	An opportunity for honours students to express the challenges they faced and opportunities available in transitioning to masters.	26/10/2013-29/10/2013	
WSU	Conduction of interviews with black female honours students and staff (botany & zoology).	Semi-structured questions on students experiences in progressing to masters and staff experiences on these challenges.	30/10/2013-6/11/2013	
FH	Self-completion questionnaires on constraints and enablements.	An opportunity for honours students to express the challenges they faced and opportunities available in transitioning to masters.	21/11/2013-22/11/2013	
FH	Conduction of interviews with black female honours students and staff (botany & zoology).	Semi-structured questions on students experiences in progressing to masters and staff experiences on these challenges.	25/11/2013-28/11/2013	

	Semi-structured interview transcriptions	An example of a transcribed semi-structured interview with one of the black female student and staff member	2/12/2013	C1 and C2
	Documents	Document log detailing documents used and analysed in the research	2/09/2013	D
	Ethical clearance	Letter from Rhodes University approving research	17/09/2013	E
	Letter of Authorisation	An example of letter of approval from universities to conduct research	19/11/2013	F
	Consent form	Form signed by students to agree to participate in research		A
	Data analysis	Analysis of interviews using colour coding for both black females and staff	13/05/2014-30/07/2014	G1 and G2

For better management of the data sources, I assigned an index to each data source so that it was easy to differentiate the data sources from each other, for example, each staff interviewed was given an index from the first to the last according to their universities, Rhodes University Botany Staff (RUBS1), then RUBS2 and so on (for index given, see appendix I).

3.6. Data analysis

According to Stake (1995), data analysis is the process that the researcher engages in in order to make visible the information that is hidden in the data and to convert it into something beneficial and meaningful. The first step in the analysis of the questionnaire and interview data was to read the data and to familiarise myself with it, effectively immersing myself in the data. As previously mentioned, the first layer of analysis was performed immediately after every activity involved in data generation so as to be able to move to the next stage of data collection, bearing in mind issues that had emerged from the previous stage of data collection so as to probe more on these issues. The data from interview responses was coded so as to lessen what is known as data overload (Haberman, 1994).

The next step was the development of categories or themes (as suggested by Taylor-Powell and Renner, 2003), which I did by creating themes from the interview schedules according to the research questions. This meant that my themes were pre-set (i.e. that themes were identified before the categorisation of data). Following this, I coded issues that emerged using different colours so as to separate the issues and so that related and similar issues were assigned the same colour. The same colour coding was performed for both questionnaire data and interview data, and what emerged was that a theme or category present in the questionnaire data could also be identified in the interview data because the colour code was the same. The coding made the data look less complicated and less voluminous. Following the colour coding, analysis was directed by the emerged categories. Further issues emerged throughout the analysis, and these became more transparent and understandable as the analysis process continued. After categorising the data, I summarised the information pertaining to each theme and looked at similarities and differences and key ideas expressed within each theme. I used the themes to try and understand my findings and I wrote down key information that I was looking for in the data as well as emerging information from the data. Categories were developed in relation to the SEPs, CEPs and PEPs (discussed in section 2.6.2).

The qualitative analysis process had features of both thematic and content analysis. Thematic analysis involved categorising the data into pre-set themes (according to the objectives of the study and research questions) and then matching the responses of the participants to the themes. In terms of content analyses, relevant and meaningful passages of text in the responses that fitted into the themes were identified and highlighted.

Following this (the qualitative analysis) was the structure-agency analysis using analytical dualism. The structure-agency analysis assisted in finding out the constraints and enablers to further study and the use of analytical dualism assisted in explaining the outcome of the separate analysis of structure and agency, “for the ultimate benefit of analytical dualism is that it is not a static method of differentiation but a tool for examining the dynamics by which the ‘parts’ and the ‘people’ shape and re-shape one another through the reciprocal interaction overtime” (Archer, 1995: 194).

3.7. Ethical considerations

The concept of ethics in research addresses the moral facet of the research and includes procedural ethics as well as ethical practices associated with the content, research purpose, methods, and outcomes and reporting (Cohen et al., 2007). To ensure that the study met ethical standards, I did the following: at the beginning of the research process, I emailed a formal letter of request to undertake the research at each university and department (appendix H). The letter was a formal introduction of myself and my supervisor and also served as an introduction to the research that I intended to undertake in the different universities. It described the aim and purpose of the research, and provided a description of the research process that I intended to follow. The letter together with an ethical clearance from Rhodes University was sent to the universities’ Registrars as well as the Heads of the departments in which I would conduct my research, so as to gain permission to come to the universities and conduct my research. I gained this permission. At each university, I arrived and presented my research in more depth to each department and thereafter answered any questions and clarified any confusion the department might have had. After my presentation, I sought verbal permission from students and staff to participate in the research and asked for volunteers who could spare the time to participate. I explained that I needed to interview staff and some honours students and that I needed all honours students to fill in questionnaires. I explained how long an interview might take and that interviews were to be recorded for transcription purposes; and how long the questionnaire might take to fill in. All recordings were done with the participant’s permission, as was the taking of photographs. Fortunately, in most cases, all the present honours students agreed to participate as well as a number of staff members. Students were given consent forms to sign that were attached as the first page of the questionnaire (appendix A). It was clearly explained to the participants that their participation was voluntary and un-coerced, and that they had the right not to participate or to

withdraw at any time without prejudice to themselves. I explained that the data collection process was guided by confidentiality, mutual respect and anonymity. All participants involved in the data generation process obtained feedback through member checking. Other respondents who were interested in the outcome of the study had their email addresses written down. A copy of the study will be sent to each when the research has been finalised. Participants were not given anything for participating in the research except for a sincere thank you. The thesis contains only information that was generated from the data collected during the duration of the research, meaning that there was no manipulation of findings on my part.

3.8. Validity

To enhance the validity of the study, methodological triangulation was used. This involves comparing the data that is generated applying different techniques (interviews, questionnaires and document analysis) to the same phenomenon being studied (Cohen & Manion, 1994). Using various sources of information was a strategy to guarantee the trustworthiness of the research findings. Patton (2002) supports the employment of triangulation and states that “triangulation strengthens a study by combining methods”. By using more than one data source I was able to obtain rich data, which allowed me to produce findings characterised by thick description. For the duration of the study, processes of data collection and analysis were steered by the purpose of the research, research questions and research content. Maxwell (1992) supports this and indicates that methods alone cannot confirm validity, because the data, explanations and outcomes from the methods should be answerable to the study’s context and purpose. Validity and trustworthiness were also confirmed by categories cutting across all the data produced by the two methods used in data collection. To ensure that the information from participants was accurate and it was what they intended, I repeatedly did member checking with the respondents after each interview, so that the participants could change the data by adding or removing information as they needed to, thus ensuring that my interpretation of the data corresponded to that of the respondents. Researcher reflexivity was introduced in the form of my noting personal opinions and views in a journal as possible effects on interpretation.

3.9. Reflections on the research methods used

The methods of data collection employed in this study were useful and appropriate. The methods had their strengths and weaknesses. The semi-structured interviews allowed me to address and cover a broad spectrum of issues. By conducting them face-to-face I was able to learn a lot more about the participants and their experiences, building relationships with many of the participants and in doing so establishing a sense of trust between myself and the participants that afforded them the freedom and confidence to tell me a lot more than they would have had I only sent out questionnaires. At the end of interviews participants were asked to mention any other areas they felt were important regarding the research focus and aim, and this proved to be very useful. Some participants raised issues that I had not thought of, like the development of sister clubs by established black females having advanced qualifications in the biodiversity sector to serve as role models and guides to young black females. The questionnaires also gave me some valuable data that I could analyse fairly easily to get an idea of the many issues facing honours students in Botany and Zoology. I was also able to analyse it quantitatively to make inferences, descriptions and comparisons. With regard to time, using questionnaires was less time-consuming than conducting the interviews as the interviews typically varied between 25 and 35 minutes, but in some cases lasted up to an hour. The interviews provided a lot of rich data but transcribing 30 interviews proved to be very challenging and time-consuming for me. A challenge I faced in conducting interviews was scheduling and fitting in the interview times with busy honours students and staff members, and at times I had to change times or even dates in order to accommodate students and staff. The piloting of the questionnaires and interview schedules assisted in focusing questions.

3.10. Conclusion

In this chapter the focus was on the layout of the research and the research decisions that directed the research process. I defined and described the data collection tools I employed in the data collection process, and explained why I chose them. Each data collection tool provided a particular kind of data required in the research. The management of data was also discussed. I performed preliminary analysis of the data so that the ensuing data generation process was informed by emerging issues from the preliminary analysis. I described how I performed data analysis (colour coding, categorising). I also discussed how the research met

ethical standards and how validity and trustworthiness were ensured, and I reflected on the conduct of the research.

In the following chapter, the findings of the study are presented. These findings portray the challenges faced by honours students in proceeding to masters study in three Eastern Cape universities, and they reflect the views of all the participants in relation to the research questions.

CHAPTER FOUR

DATA PRESENTATION AND INTERPRETATION: THE CURRENT STATUS OF HONOURS AND MASTERS STUDIES IN SOUTH AFRICA AND THE EASTERN CAPE, AND VIEWS ON THE CONSTRAINTS AND ENABLEMENTS TO MASTERS STUDY

4.1. Introduction

Higher education institutions worldwide are facing the challenge of transformation (Maassen & Cloete, 2002). This has also been the case in South Africa. Since the democratic elections in 1994, South Africa has experienced extensive political and social transformation which has introduced complicated and at times conflicting challenges. One of the key challenges has been transformation of Higher Education Institutions in terms of addressing equity issues or addressing redress. Still, 20 years later, even though all HEI's have opened their doors to all race groups and interventions have been put in place to ensure that all South Africans have the opportunity of upper postgraduate studies, there is still a shortage of black scholars in general and specifically black female scholars in the field of science and especially biodiversity related fields such as Botany and Zoology. To address this issue directly and efficiently, black female scholars themselves need to be engaged and given a platform to tell their stories and also state exactly what hinders them from pursuing masters studies firstly and later doctoral studies.

In the previous chapter I described the research process as well as the research methodology I undertook in relation to answering the research question of what constrains or enables black female honours students in transitioning to masters studies in Botany and Zoology in Eastern Cape universities. In this chapter I share the findings of the study, particularly those findings related to the main research question and sub-questions. These findings are then discussed using categories of analyses. In this chapter I present the findings from the students and staff from the individual universities that formed part of the study and share their views on a variety of subjects relating to their experiences in making the transition to masters level.

I will follow a sequence in the presentation of data that is related to the research sub-questions in order to ensure that each sub-question is answered competently so that the main question that the study sought to answer is also answered efficiently. Firstly, I present findings on the current status of graduations of honours and masters study in Botany and Zoology nationally as well as in the four Eastern Cape universities from the HEMIS data from 2000-2012 where such data is available and data from 2001 to 2011 where data was not available (The HEMIS enrolment and graduation numbers used here have been rounded off to the nearest ten for the sake of simplicity.). This is to show patterns and trends over a longer period and also to present updated information on the HSRC (Vass et al., 2009) and ESSP (South Africa. DEA, 2010) studies that used HEMIS data up to 2007 to see whether there are any changes in the transition from honours to masters study since the HSRC and ESSP reports. This is in relation to the first sub-question. Following this, I address the second sub-question of investigating the constraints black female honours students experience in proceeding to masters study in Eastern Cape universities by presenting their views, thoughts and experiences. I also present the findings from the staff members regarding constraining factors experienced by their students. The same will be done for addressing the enabling factors of black female honours students in transitioning to masters study in Botany and Zoology in Eastern Cape universities which is the third sub-question. Finally the findings presented illuminate implications for the BHCDS (SANBI & Lewis Foundation, 2010) and its ongoing implementation which is the last sub-question posed. This data should answer the research question which will be addressed in Chapter Five.

4.2. The current status (enrolment and graduation rates) of honours and masters study in Botany and Zoology nationally

In order for us to see whether there has been an improvement in the transition of black females to masters study in Botany and Zoology, we have to look at the graduation rates and enrolment rates in these two fields of study, in this case from 2001-2011. The table below (Table 4.2) illustrates the total number of graduates in Biological Sciences (which is an umbrella discipline in each university that encompasses both Botany and Zoology and other fields of study under Life Sciences which are important to biodiversity management and research). The HEMIS data from 2001 to 2009 did not have a distinction between Botany and Zoology but grouped these fields together under Biological Sciences with other study fields that were put under this category (see Table 4.1). In order to better understand the table;

some background of the HEMIS data is necessary. The HEMIS data from 2000 when the HEMIS was developed used the SAPSE (South African Postsecondary Education) system for subject matter classification developed in 1982 (which is known as Report SAPSE 003 of October 1982 that can be found in the Classification of Educational Subject Matter manual produced by the former Department of National Education). The 1982 Report SAPSE 003 contained a collection of categories that aimed at providing a single, consistent scheme for classifying subject matter, regardless of institution type or instruction level. The 1982 Report SAPSE 003 consisted of 22 extensive subject categories defined as “first order categories”. In the 1982 Subject Matter Categories, Biological Sciences were put under category 15 which was Life Sciences and Physical Sciences and that is the reason why from 2000 to 2009, there is no distinction between the disciplines of Botany and Zoology. In 2007, a project team was set up by the Department of Education because it became evident that the 1982 categorisation was too inflexible to adapt to the changes that had occurred in subject matter from its early conception. As a result, from 2010 there was a CESM category change and there are now 20 subject matter categories that fall under “first order categories” that are then divided into second order as was done in the 1982 Report SAAPSE 003. Since the change in CESM categories in 2010, most of the subjects under Biological Sciences previously between 1982 and 2009 (thirty subjects) were grouped accordingly into twelve Biological Science subject areas under Life Sciences (Table 4.1). The change also resulted in Botany and Zoology to be represented as major subject areas and separately as seen in the table below (Table 4.1) rather than being represented as different segments such as plant anatomy, plant pathology, plant physiology which all fall under Botany as was done before the category change. For simplicity and accuracy, comparisons will be made for Biological Sciences as a whole and not between Botany and Zoology after the category change as there are no numbers available for Botany and Zoology before 2010.

Table 4.1: CESM category changes in subject matter

2001-2009 Biological Science subjects	2010-currently Biological Science subjects
Biological behaviour, cytology, developmental biology, ecology, embryology, evolution, genetics, histology, limnology, marine biology, microbiology, molecular biology, parasitology,	Biology (general), Biochemistry, biophysics & molecular biochemistry

radiobiology, taxonomy & systematics, mycology, phycology, plant anatomy, plant pathology, plant physiology, general zoology, animal anatomy, animal pathology, animal physiology, entomology, herpetology, ichthyology, mammology, ornithology, other biology	Botany Cellular biology & anatomical sciences, Microbiological sciences & immunology Zoology Genetics Physiology, pathology and related sciences Pharmacology & toxicology Biomathematics & bioinformatics Biotechnology Ecology, evolution, systematics and population biology
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Table 4.2: Total number of graduates in (Biological Sciences) 2001-2011

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Honours	384	347	357	397	482	445	488	520	491	1032	1043
Masters	243	226	170	177	482	204	179	227	206	429	460

The purpose of the table above (Table 4.2) is to show a clear picture of the number of students in Biological Sciences irrespective of race and gender in order to highlight the changes in numbers. When we look at the five year window for honours graduations from 2001 to 2005, it is observable that there were some variations in honours graduations and an increase of 20 % is observed from the total number of graduates in 2001 to those of 2005. Still looking at honours graduations from 2005 to 2009 the number of students who graduated with honours varied with a 6 % decrease in graduations between 2008 and 2009. However, a drastic increase in honours graduations is observed in 2010 and 2011. Between 2009 and

2010, an increase of 52 % for honours graduations was observed. The same trend was observed for masters graduations where there were variations in graduation between 2001 and 2005 with a 50 % increase in graduation in 2005 when compared to 2001. When looking at the years 2005 to 2010, there is a decrease of 11 % in 2010 as compared to 2005. Increases in both honours and masters graduations are observed in Table 4.2, from 2010 to 2011. Honours graduates that increased from 2010 to 2011 had positive implications for masters transition as there were more students from honours to transition to masters. Although increase in graduations of honours and masters students can be observed from 2001 to 2011, it is clear that this increase has not been significant in these Biodiversity related fields as suggested by the BHCDS (SANBI & Lewis Foundation, 2010). When looking at transition from honours to masters study, it is observable that in 2001 there was a decrease of 37 % in the number of students who moved from honours to masters study. However, in 2011, the total of number of students who progressed to masters study decreased by 56 % which was quite significant.

As mentioned in the introduction, the HEMIS data presented here from 2001 to 2011 is to update information presented in the ESSP (South Africa. DEA, 2010) and HSRC (Vass et al., 2009) as they reported using information up to 2007. The table below (Table 4.3) shows the number of graduations in 2001 and 2006 in Biological Sciences. If one compares Table 4.2 and 4.3, one will see that in 2001 both tables show that there were more or less 390 graduations for honours study and approximately 243 masters graduates, both tables also show quite similar graduation numbers for 2006. However, what is to be noted is that from 2007 to 2009 graduation numbers for both honours and masters did not vary significantly (by 1 %). From 2001 to 2011, the numbers increased by 63 % for honours and 47 % for masters study (Table 4.3 on the following page). In summation, the updated information for the ESSP report on Biological Sciences suggests that graduations increased in recent years. Also in terms of transition from honours to masters study, Table 4.3 shows a 38 % decrease in the number of students who progressed from honours to masters study in 2001 and a 46 % decrease in 2006. What is important to note however is the comparison of honours and masters graduations in Table 4.3 which are only for two particular years and so this suggests that this is not representative of the proportion of honours graduates who transit to masters. The table serves as a basis for comparison and just to highlight that in some years it has been recorded that fewer honours students transitioned to masters study.

Table 4.3: Comparative graduation figures in Biological Sciences, 2001 and 2006. (Source: South Africa. DEA, 2010)

Number of Graduations: Biological Sciences		
	2001	2006
First degrees, higher diplomas	549	1 318
Professional qualification, Honours	393	446
Masters	243	243
Doctorates, post-doc.	83	89

Although Figure 4.1 (below) does not specifically show postgraduate trends in Botany and Zoology, it does give an indication of the number of graduates in 2000 and 2007 for black females in biodiversity related fields. In figure 4.1 below, I focus on honours and masters qualifications for 2000 and 2007 for black females. What is noticeable from the graph is that transition from honours to masters study in 2000 and 2007 decreased as there was 29.5 % honours qualifications in 2000 and 15.2 % masters qualifications in the same year showing a decrease of 14.3 % honours students transitioning to masters study. This was also the case in 2007, there were 31.8 % honours qualifications and 21.8 % masters qualifications showing a decrease of 10 % of honours students going on to do masters qualifications. This figure indicates that there were problems in making the transition from honours to masters study. What is also evident from the graph is that transition from masters study to PhD study also faces some challenges as there were 15.2 % masters qualifications for black females in 2000 and only 7.7 % PhD qualifications for the same year (7.5 % decrease of black female masters students going for PhD qualifications). This was also the case for 2007 where there were 21.8 % black female masters qualifications and only 8.1 % black women with PhD qualifications in 2007 (showing a 13.7 % decrease in masters students going for PhD qualifications) indicating that transition from masters studies to doctoral studies is also low for black females and this may be due to the low transition that occurs from honours to masters study as depicted in the graph. What will be difficult to compare now with this graph and Tables 4.2 and 4.3 is whether Biological Science qualifications increased or decreased after 2007 as the graph shows biodiversity qualifications and not Biological Science specifically. Also, the graph confirms the lack of black women with masters qualifications as there are more black men, white men and white women with masters qualifications for both 2000 and 2007

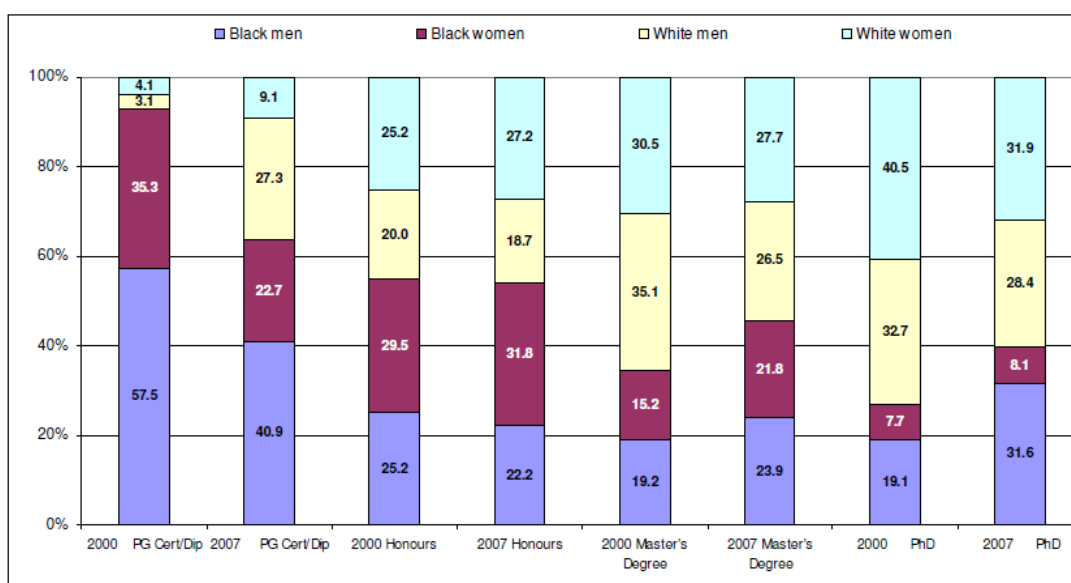


Figure 4.1: Trends in postgraduate qualifications in biodiversity by gender and population group, 2000 and 2007. Source (Vass et al., 2009)

From the total number of graduates shown in Table 4.2, Table 4.4 illustrates the total number of female students who graduated for Biological Science honours and masters between 2001 and 2011.

Table 4.4: Total number of female graduates in Biological Sciences from 2001-2011

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Females Honours	228	231	227	254	312	277	309	339	308	630	686
Females Masters	134	135	93	101	121	131	102	135	132	266	286

A similar trend can be observed for the total number of female graduations from 2001 to 2011 in that from 2001 to 2009, graduation numbers were relatively stable but from 2010 to 2011 both honours and masters graduations for females in Biological Sciences increased significantly (with 67 % more honours students in 2011 than in 2001 and 53 % more masters graduations in 2011 than in 2001) as was the case with the total number of graduates in Table 4.2. Again, the above table shows an increase of females in Biological Sciences honours and masters level of study but displays a decrease in transition from honours to masters study of

58 % in 2011 as compared to the 41 % decrease of females moving from honours to masters study in 2001 suggesting that more females are not progressing to masters study.

With regard to how many black females graduated between 2001 and 2011 with honours and masters in Biological Sciences from the total number of females who graduated nationally (Table 4.4), Table 4.5 below shows evidence that in terms of black females from 2001 to 2011, African females constituted the majority of females who graduated in Biological Sciences for both honours and masters study followed by Indian females for honours graduations. Although graduations for Indian females vary for masters study, it is still considerably higher than graduations for Coloured females for both honours and masters study. The numbers of Coloured female graduates are the lowest overall even though in some years they are higher than those of Indian females. This trend of African females dominating rather than Coloured and Indian females at honours and masters level in Biological Sciences is also evident in the individual universities that formed part of this study (discussed in section 4.3).

Table 4.5: Total number of black female graduates in honours and masters from 2001-2011

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
AF Honours	58	51	60	52	67	76	76	99	78	233	228
AF Masters	27	19	23	16	26	21	24	29	38	52	83
CF Honours	11	6	16	9	10	18	22	22	19	32	45
CF Masters	3	13	12	7	8	10	4	6	6	17	16
IF Honours	26	31	30	27	31	35	47	47	50	53	62
IF Masters	8	7	5	18	13	9	11	11	16	36	34

Key: (AF= African Females; CF= Coloured Females; IF= Indian Females).

Another factor in the graduations of black females is that although the numbers vary between years, in 2011 as compared to 2001 the total number of graduates increases significantly at

honours level and also increases at the masters level for all black females as seen with the number of graduations for all students in Biological Sciences and with the total number of females too (Table 4.2 and 4.4). A 74 % increase is observed for AF honours, 67 % increase for AF masters, 75 % for CF honours and 81 % for CF masters and 59 % increase for IF honours and 77 % IF masters. When looking at transition from honours to masters of black females in 2011, decreases are observed. For African females, 64 % honours students did not progress to masters study while 65 % of Coloured females did not progress to masters study. For Indian females, the numbers from honours to masters study decreased by 45 %.

4.3. The current status (enrolment and graduation rates) of honours and masters study in Eastern Cape Universities

In this section I present the HEMIS data for the four Eastern Cape universities. For each university I present data for the total number of graduates in Biological Sciences irrespective of race and gender, from that I extrapolate data showing the total number of females and then the total number of black females. As mentioned in the introduction, I will use data from 2000 to 2012 in some cases and data from 2001 to 2011 in other cases. During the analysis and organisation of the data, I found I had too much to present in one go and as a result, only specific years will be presented through detailed graphs and all the other data is summarised in tables. To start with, from 2000 to 2012 all universities enrolled varying numbers of postgraduates i.e. up to masters level. However, in 2000, the University of Fort Hare had a significant number of postgraduate enrolments, 39 %, far more than the other three universities, Walter Sisulu University, Nelson Mandela Metropolitan University and Rhodes University respectively. This was also the case in 2004 with 14 % of postgraduates enrolled by the university. Nevertheless from 2005 onwards postgraduate enrolments declined in the university and remained below 10% until 2012.

Rhodes University had constant enrolments with between 8 % and 11 % throughout the aforementioned years. Walter Sisulu University had the lowest enrolment percentage throughout with between 2 % and 3 %. Nelson Mandela Metropolitan University also had constant enrolments with between 6 % in 2000 and 5 % in 2012 (Figure 4.2). The data suggests that Rhodes University is consistent in terms of attracting and enrolling postgraduate students up to masters level whereas Walter Sisulu University has the most difficulty in the group of Eastern Cape universities (Figure 4.2). Enrolments indicate that students are attracted to a particular university and Rhodes University is taking the lead with its

consistency of postgraduate enrolments up to masters level. There are a variety of reasons behind this fact. As stated in Chapter One (section 1.6) Rhodes University has a lot of private funding and a significantly fewer students overall thereby is able to provide good facilities and resources for postgraduate study. Rhodes University is also a research-led institution with a high number of lecturers with PhD qualifications. On the other hand, Walter Sisulu University has a huge number of students at undergraduate level and is very dependent on government subsidy to survive, thus the university does not become attractive for postgraduate study.

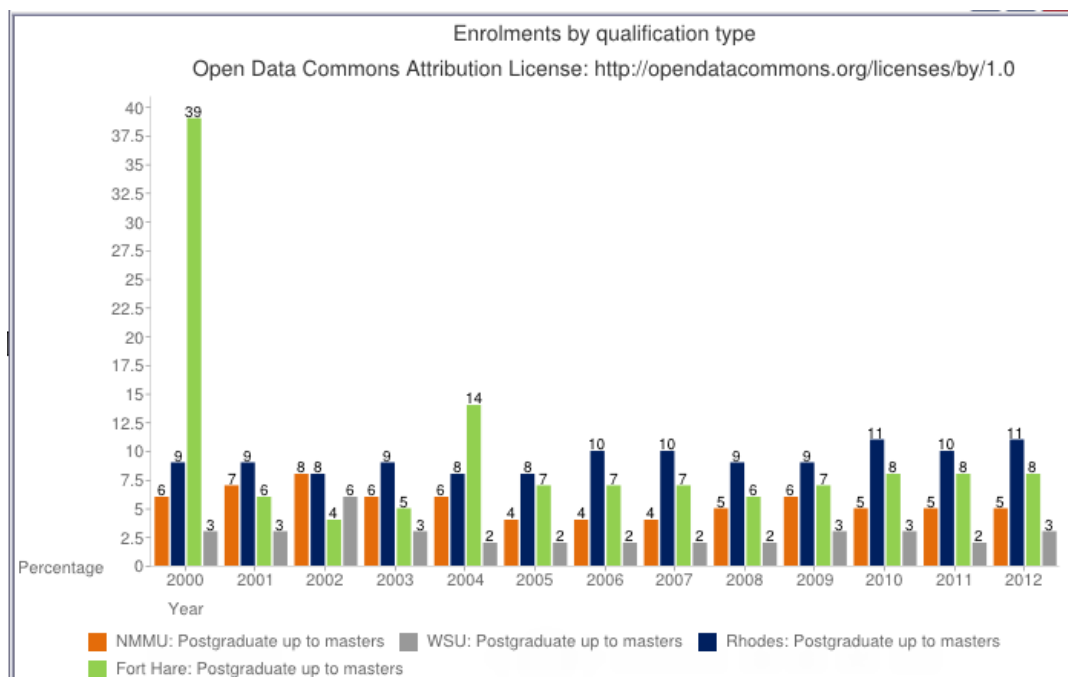


Figure 4.2: Total enrolments by qualification type for four Eastern Cape Universities. Source: (Open Data Commons Attribution License: <http://opendatacommons.org/licenses/by/1.0>).

In terms of graduations of postgraduates in the universities, Walter Sisulu University again falls short when compared to the other universities by producing the least number of graduates from 2004 to 2012 (less than 300 graduates). The University of Fort Hare comes second with rapid increases in postgraduate graduates from 2000 to 2012. Rhodes University observes steady increases from 2000 to 2012 (between 500 and 1000 postgraduate graduates between these years). Nelson Mandela Metropolitan University had the highest number of postgraduate graduates between 2000 (800) and 2012 (1300) with its highest number of graduations in 2004 (1400) (Figure 4.3).

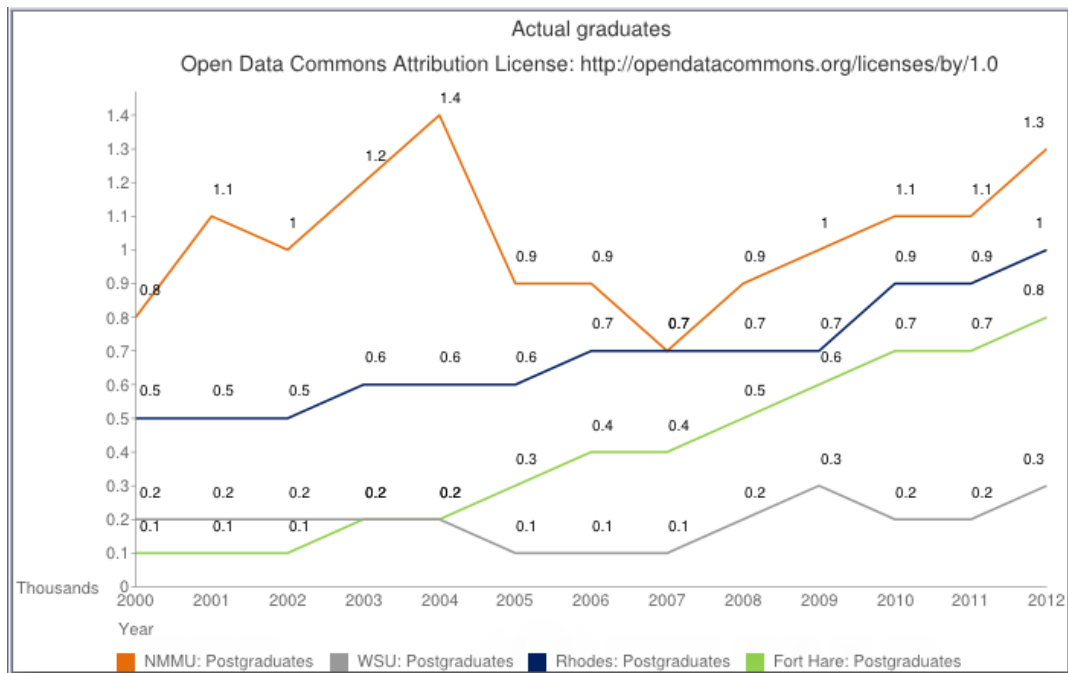


Figure 4.3: Actual number of postgraduates in four Eastern Cape Universities.

In terms of enrolments by race group, again the data below (Figure 4.4) confirms that there were more Africans than Coloureds and Indians in all four universities. WSU had the highest percentage of Africans between 2004 and 2012 (99 %) followed by UFH with 95 % in 2012. NMMU had the third highest number of Africans (with between 60 % and 75 % from 2000 to 2012) and RU had the lowest number of African students when compared to the three other universities (35 % to 55 % for 2000 to 2012) (Figure 4.4). This is in line with the total number of graduates in honours and masters in Botany and Zoology nationally whereby African females were dominant between 2001 and 2011 at the postgraduate level. With reference to Coloureds and Indians, RU had the highest number of Indian students with the other three universities having less than 3 % Indians and UFH having 0 % Indians between 2000 and 2003 and WSU having 0 % Indian students between 2005 and 2010 (Figure 4.5). When looking at Coloured students, NNMU had the highest percentages in all years between 2000 and 2011 (although these were all less than 15 %) followed by RU with percentages not greater than 5 % (Figure 4.5). FH started to have records of Coloured students in 2004 and had no more than 2 % of the student population being Coloured while WSU has no record of Coloureds at all in the years surveyed.

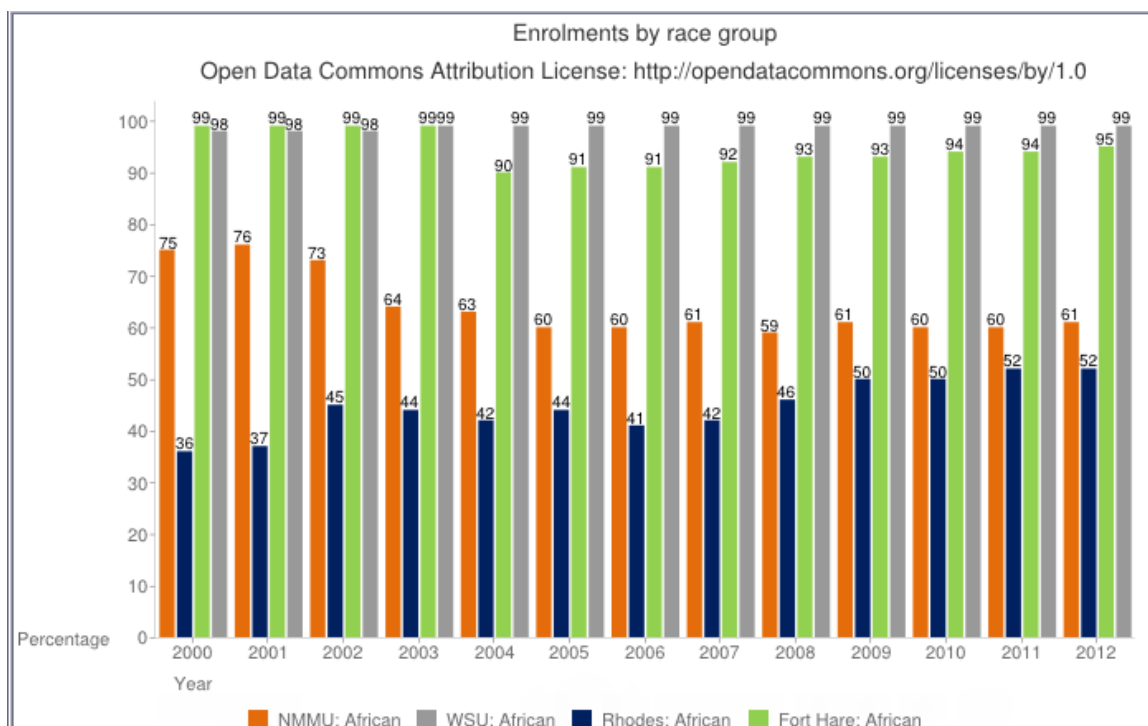


Figure 4.4: Enrolments by race group (Africans).

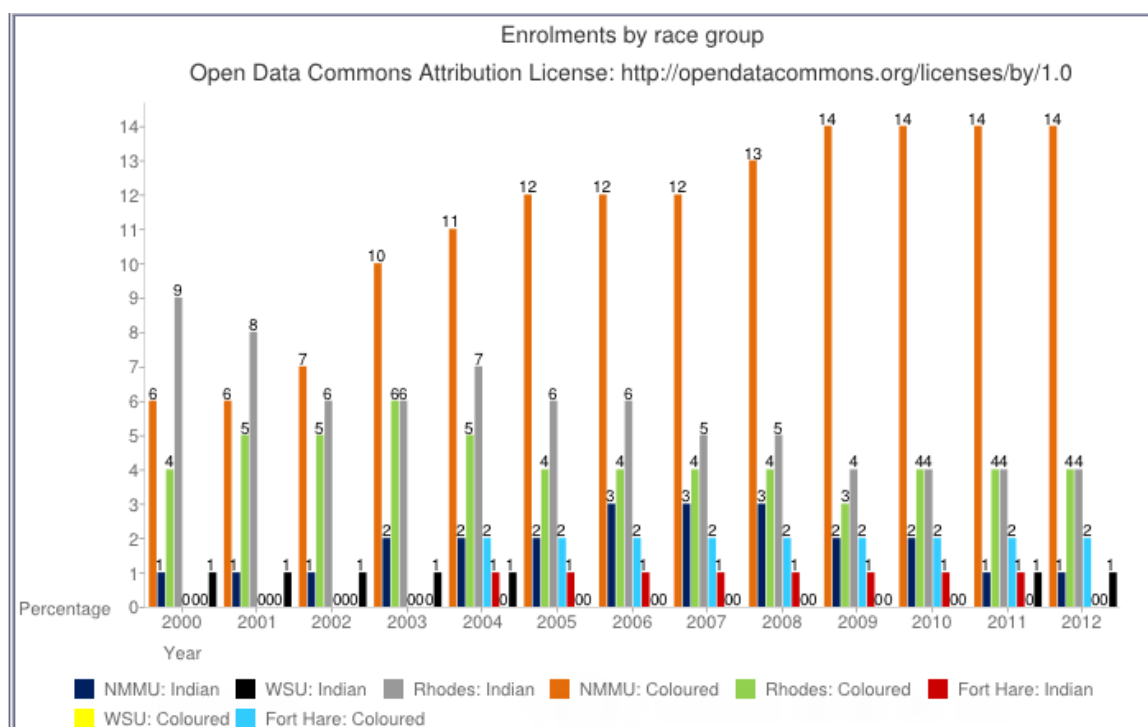


Figure 4.5: Enrolments by race group (Coloureds and Indians).

When looking at enrolments across the Eastern Cape universities from 2000 to 2012, what is noticeable is that in all the universities there are more females than males with UFH and WSU taking the lead in the number of females in most years followed by RU and lastly

NMMU (Table 4.6). The table below (Table 4.6) only shows the percentage of females in the universities and not in Botany or Zoology departments but this shows an overview that in Eastern Cape universities, females are more dominant than in the apartheid era.

Table 4.6: Enrolments by gender (percentage). Source: (Open Data Commons Attribution License: <http://opendatacommons.org/licenses/by/1.0>)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
NMMU Females	57	57	58	55	55	54	55	55	54	54	54	54	54
RU Females	57	58	59	59	57	57	58	58	59	59	59	59	58
FH Females	66	65	67	65	63	61	57	54	55	55	56	57	58
WSU Females	61	61	61	62	62	63	64	59	58	56	56	57	56

4.3.1. The status of honours and masters study in Botany and Zoology in WSU

When looking at the trend of honours and masters study and graduations at WSU from 2001 to 2011 in Biological Sciences, the data presented below in Table 4.7 on the following page shows that in these years the university had a very low number of honours and masters students in Biological Sciences irrespective of race and gender. When looking specifically at female honours and masters students the data suggests that the university mostly had female students in Biological Science honours and a few recorded students for masters and of those females in honours, black females were represented by Africans only with no Coloured or Indian students in both levels. Even though there are black females at honours level, the data for WSU suggests that they are not transitioning to masters study and that the university struggles to attract masters students from outside the university. More simply, the table shows that there was no significant transition from honours to masters study for black females.

Table 4.7: Female honours and masters graduates in Biological Science, 2001- 2011 at WSU

Source: HEMIS DATA (South Africa. DHET, 2001-2011)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Honours	4	1	4	0	0	0	0	3	4	0	7
Masters	0	1	0	0	0	0	0	0	1		0
Female Honours	4	1	2	0	0	0	0	3	3	0	3
Female Masters	0	0	0	0	0	0	0	0	0	0	0
AF Honours	4	1	11	0	0	0	0	3	3	0	3
AF Masters	0	0	0	0	0	0	0	0	0	0	0
CF Honours	0	0	0	0	0	0	0	0	0	0	0
CF Masters	0	0	0	0	0	0	0	0	0	0	0
IF Honours	0	0	0	0	0	0	0	0	0	0	0
IF Masters	0	0	0	0	0	0	0	0	0	0	0

4.3.2. The status of honours and masters study in Botany and Zoology in UFH

The table below shows the trend in graduations of honours students and female students in Biological Sciences at UFH. Table 4.8 shows that from 2000 to 2011 the number of graduates at honours level varied with the years as did the masters graduations but with masters study there are years without masters students in the university. From those honours graduates in the university, one can see that in most years the majority of honours graduates were females but at masters level the table shows that there were very few masters graduates from 2001 to

2011. Of the female honours graduates, the table shows that the majority were African females at both levels of study. Coloured graduations at honours and masters level were almost non-existent except for the year 2009 with 1 % Coloured females at honours level. There were no record of Indian female graduates for the years surveyed. The table shows that there was almost no transition from honours to masters study in most years.

Table 4.8: Female honours and masters graduates in Biological Sciences from 2001-2011 at UFH. Source: HEMIS DATA (DHET, 2001-2011)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Honours	8	10	7	2	8	14	11	18	18	26	26
Masters	3	1	0	0	0	0	3	1	2	5	9
Female Honours	3	9	5	0	7	7	8	11	9	18	19
Female masters	1	0	0	0	0	0	1	0	1	4	5
AF honours	3	9	5	0	7	7	8	11	8	18	19
AF Master	1	0	0	0	0	0	1	0	1	4	5
CF Honours	0	0	0	0	0	0	0	0	1	0	0
CF Masters	0	0	0	0	0	0	0	0	0	0	0
IF Honours	0	0	0	0	0	0	0	0	0	0	0
IF Masters	0	0	0	0	0	0	0	0	0	0	0

4.3.3. The status of honours and masters study in Botany and Zoology in NMMU

The table below (Table 4.9) shows the honours and masters graduations in Biological Sciences at NMMU. When looking at the honours graduations, it is noticeable that from 2001 to 2011, honours graduations varied enormously with the least graduations in 2002 and 2005. But when NMMU is compared to WSU and UFH in terms of honours graduations across all years, one finds that NMMU had a higher number than the other two Historically Black Universities. Variations can also be observed for masters study with 2001 showing the least number of graduations. Looking at female honours students, we can see that in most years, honours students are mostly female and this is also the case for masters study except in the years 2005, 2006, 2007 and 2008. Again in this university, most females at honours and masters level are African females followed by Coloureds and Indians. With all black females at honours level, the transition from honours to masters is minimal as there were only recordings of African females at masters level in 2001, 2003, 2008, 2009 and 2011 and those recordings indicated low numbers of African female masters students.

Table 4.9: Female honours and masters graduates in Biological Sciences from 2001-2011 at NMMU. Source: HEMIS (South Africa. DHET, 2001-2011)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Honours	22	11	14	21	11	16	16	16	18	12	25
Masters	2	4	9	6	11	8	6	12	12	12	25
Female Honours	10	9	8	14	5	8	10	12	9	7	16
Female Masters	1	2	5	4	3	2	2	5	9	7	18
AF Honours	2	0	1	1	0	2	2	0	2	3	2
AF Masters	1	0	1	0	0	0	0	2	4	0	2
CF Honours	1	0	2	0	1	0	1	1	0	0	1

CF Masters	0	0	1	0	0	0	0	0	0	1	3
IF Honours	0	3	0	0	0	0	0	0	1	0	1
IF Masters	0	0	0	1	0	0	0	0	0	0	2

4.3.4. The status of honours and masters study in Botany and Zoology in RU

When we look at RU graduations in Biological Sciences from 2001 to 2011, we notice firstly that RU has the highest number of honours and masters students in the majority of years when compared to other universities in the Eastern Cape. Also, in terms of honours transition to masters, we can assume from the table below on the next page (Table 4.10) that half of the honours students proceed to masters although we cannot tell whether these are students from the university or from outside. For African females, a total of 42 honours students graduated from the university between 2001 and 2011 and of those 25 transitioned to masters study between 2001 and 2011. We can deduce from the table that the majority of honours and masters students at the university are female. We also observe that the majority of black females at honours and masters study at the university in the Biological Sciences are represented by African females with a few Coloureds and fewer Indians.

Table 4.10: Female honours and masters graduates in Biological Sciences from 2001-2011 at RU. Source: HEMIS (South Africa. DHET, 2001-2011)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Honours	18	24	22	35	40	30	38	44	39	54	44
Masters	7	17	15	17	19	14	28	20	17	30	40
Female Honours	10	18	10	13	18	15	20	28	23	28	29
Female Masters	3	11	5	10	13	8	13	7	13	18	20
AF Honours	2	7	2	3	1	1	4	5	3	8	6
AF Masters	0	5	2	1	3	2	1	0	2	3	7
CF Honours	1	0	2	0	0	1	0	1	0	0	0
CF Masters	0	0	0	1	0	0	0	0	0	0	0
IF Honours	0	0	0	0	0	0	0	0	1	0	0
IF Masters	0	0	0	0	0	0	0	0	0	1	0

4.3.5. Comparison of the status of honours and masters study in EC universities in 2001, 2007 and 2011

As mentioned earlier in the introduction of this chapter, some of the data would be summarised. Here, I present a summary of the totals of honours and masters students in Biological Sciences nationally and in each university and the totals of females, African females, Coloured females and Indian females for only the years 2001, 2007 and 2011. I chose these years as the documents that I used (HSRC report and ESSP) provided information up to 2007. The graphs below (Figure 4.6 and 4.7) represent information on

graduates for 2001 and 2007 which is complementary to that used by the documents and the last graph (Figure 4.8) shows data for all universities nationally for 2011, four and five years after the documents were produced. The purpose of this graph is to show the trends that the graduations have taken, have they decreased or increased or more or less stayed the same?

When looking at the three graphs, the national numbers for honours students increased in 2007 but by 2011 had decreased by 66 % which is quite significant. In terms of the masters graduations, they started off high in 2001 but from 2007 to 2011 dropped drastically by 47 % indicating that there was a problem in the transition to masters levels and also because of the CESM category changes mentioned earlier in section 4.2 that occurred between 2009 and 2010. This was also the case for the total number of females in honours and masters in 2011 when it decreased significantly, also confirming that female graduates were becoming scarce. From 2007 to 2011, there was a 67 % decrease in female honours students and a 45 % decrease in masters female students. This was also the case for African females at both levels whereby the numbers decreased significantly too in 2011 from 2007, (63 % for honours and 44 % for masters). For Coloureds and Indians nationally, at honours and masters levels there was an increase in 2007 from 2001 but major drops can be observed for 2011. For Coloured female honours students, from 2007 to 2011 there was a drop of 68 % and a drop of 19 % for Coloured masters students in total. Indian female honours students saw a significant decrease of 93 % between 2007 and 2011 while Indian masters students both male and female saw a significant decrease of 82 %. In terms of individual universities the graphs display information that has already been presented in tables and explained in terms of the numbers of African female honours and masters students nationally and in each university as well as data on Coloured and Indian female honours and masters students under each university in the previous sections (4.3.1. to 4.3.4.).

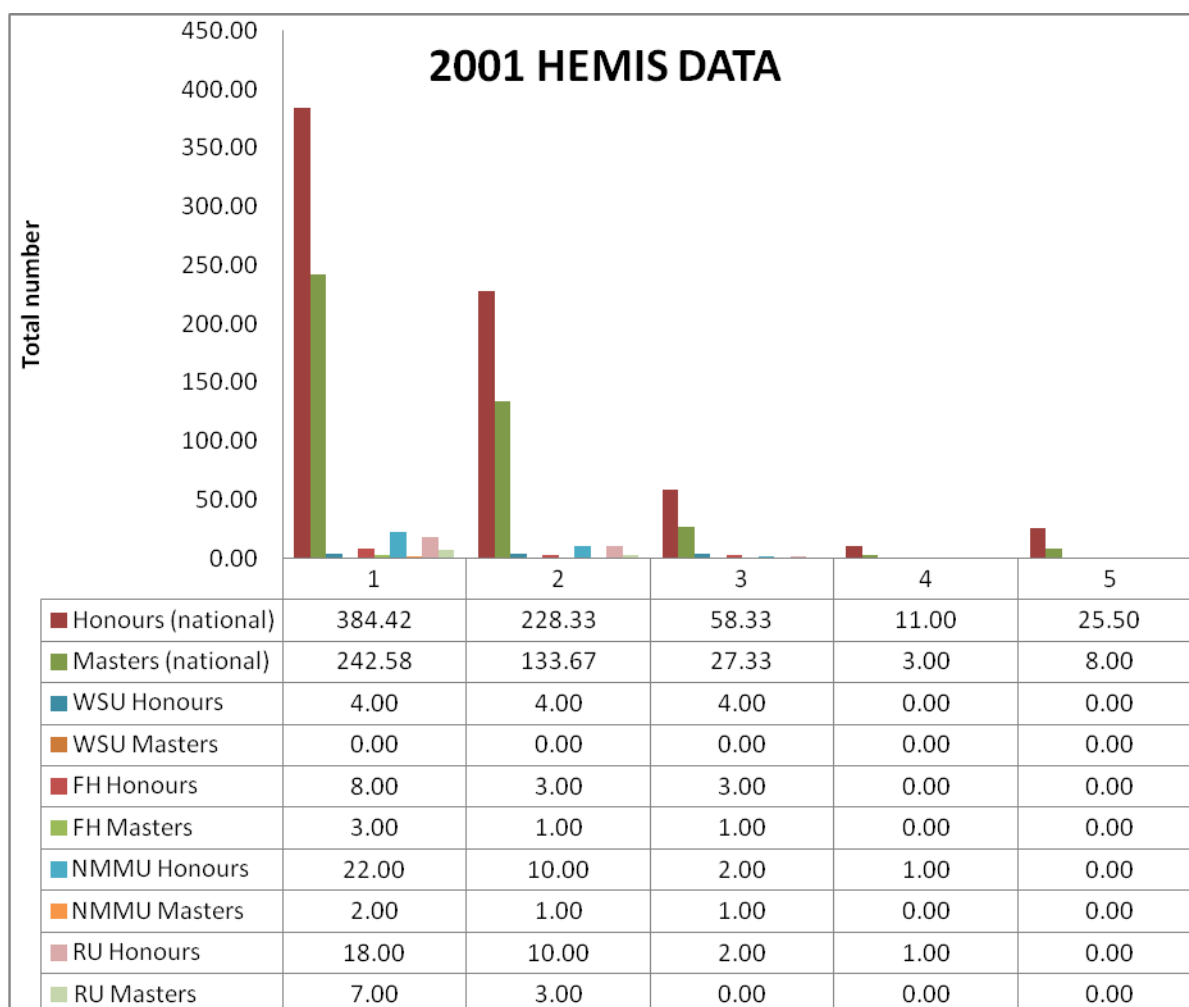


Figure 4.6: HEMIS data showing the total number of honours students nationally and in Eastern Cape universities and the total number of females, African, Coloured and Indian nationally and in Eastern Cape universities at the honours and masters level for 2001.

Key: 1 = Total number of honours and masters students

2 = Total number of females

3 = Total number of African females

4 = Total number of Coloured females

5 = Total number of Indian females

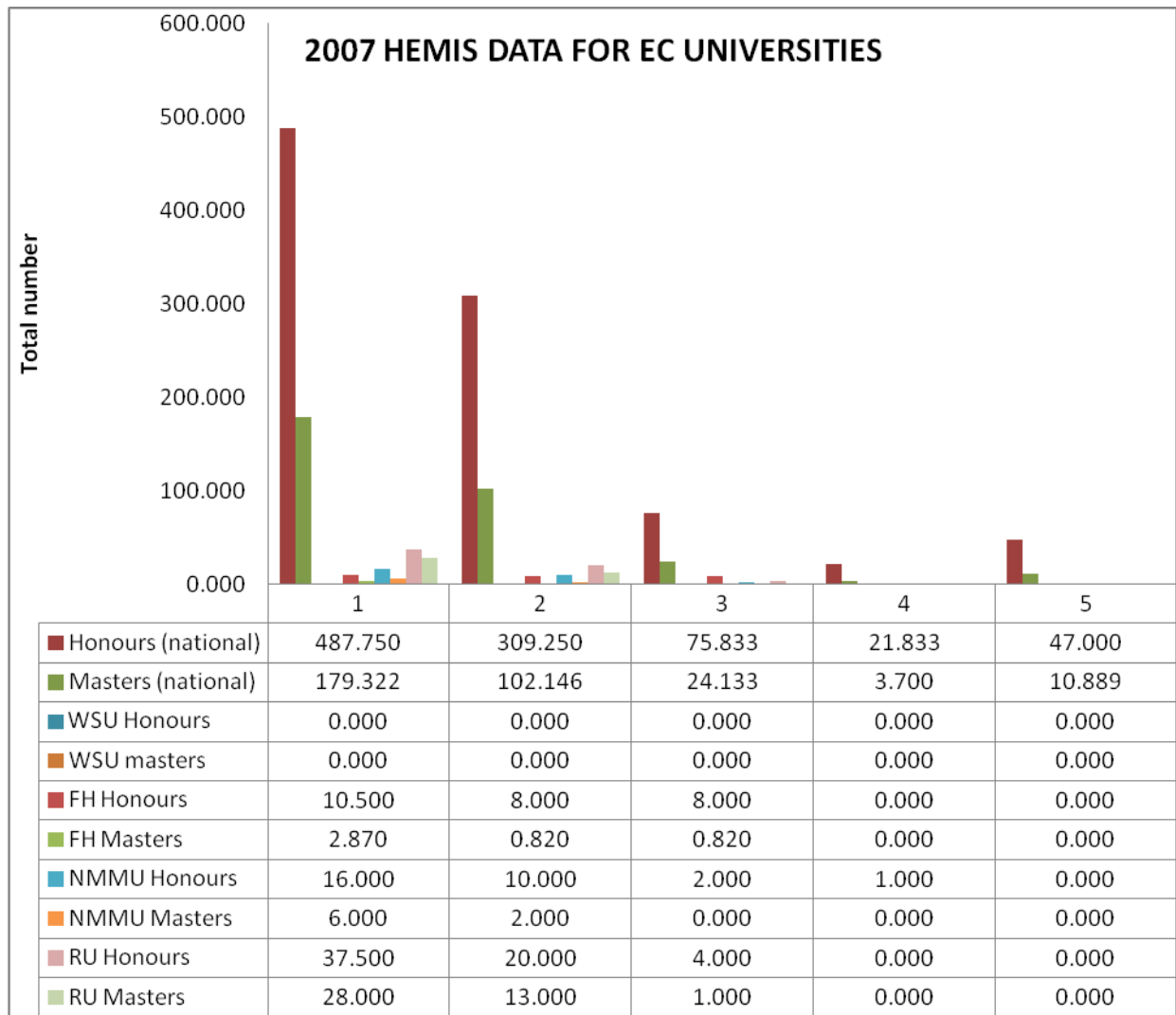


Figure 4.7: HEMIS data showing the total number of honours students nationally and in Eastern Cape universities and the total number of females, African, Coloured and Indian nationally and in Eastern Cape universities at the honours and masters level for 2007.

Key: 1 = Total number of honours and masters students

2 = Total number of females

3 = Total number of African females

4 = Total number of Coloured females

5 = Total number of Indian females

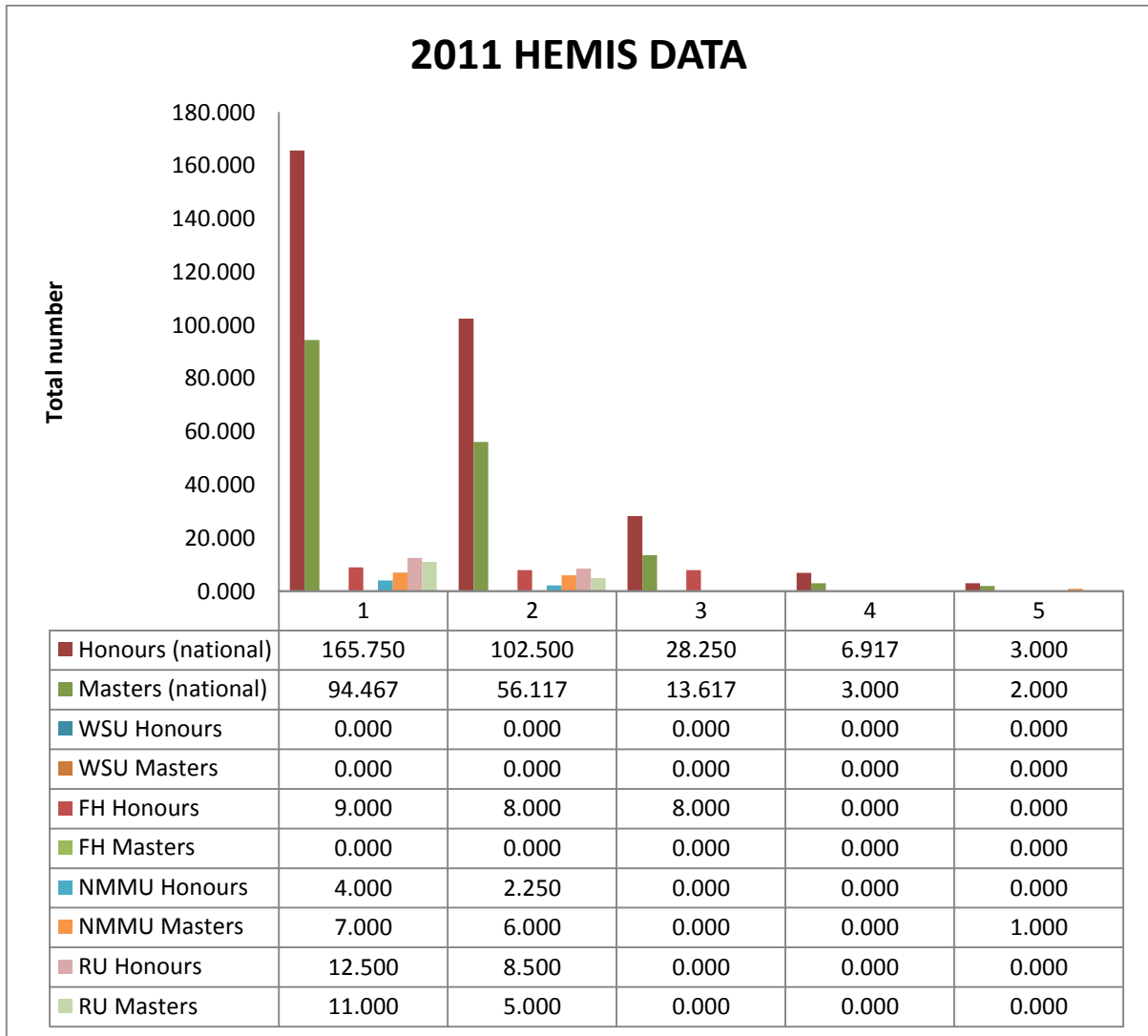


Figure 4.8: HEMIS data showing the total number of honours students nationally and in Eastern Cape universities and the total number of females, African, Coloured and Indian nationally and in Eastern Cape universities at the honours and masters level for 2011.

Key: 1 = Total number of honours and masters students

2 = Total number of females

3 = Total number of African females

4 = Total number of Coloured females

5 = Total number of Indian females

4.4. Questionnaire findings

As mentioned in Chapter Three in section 3.4.1, questionnaires were utilised to probe the constraints and enablements for honours students in general, irrespective of race and gender. The questionnaire aimed to investigate the challenges of all honours students at Rhodes University, University of Fort Hare and Walter Sisulu University. The findings presented in this section are findings for all students in these three universities and are presented as a whole and not under universities and departments. This is because even though the study has a focus on black female honours students' constraints and enablements, it also sought to find out what honours students in general find hinders them from moving to masters study and what they believe could enable them to study further. The findings presented here come from a range of questions probing the students from their plans after honours and their intention to do their masters degrees in their respective fields.

4.4.1. Factors considered by honours students in transitioning to masters study in Botany and Zoology in Eastern Cape Universities

In total, 46 honours students answered the questionnaires across the three universities. Of these 18 were male and 28 were female in both departments. At Rhodes University, there were more females than males in both departments. At the University of Fort Hare there were also more females than males whereas in Walter Sisulu University there was an equal number of males and females in the Zoology department and more males than females in the Botany department that responded to the questionnaires (Table 4.10). Not all students in the three universities responded to the questionnaires as some were not available to participate.

Table 4.10: Gender and race distribution in three Eastern Cape universities in the Botany and Zoology departments. **Key: F= Females; M= Males; A= African; W= White.**

University	Gender	Race
RU Botany	7 F; 5 M	5 A; 7 W
Zoology	8 F; 3M	1 A; 10 W
FH Botany	4 F; 0 M	4 A; 0 W
Zoology	3 F; 1 M	4 A; 0 W
WSU Botany	1 F; 4 M	5 A; 0 W
Zoology	5 F; 5 M	10 A; 0 W

Please note that other race groups were not included in the reported findings because among the students in each university only African and White students responded to the questionnaires.

1. When asked about their plans directly after honours, 41 % of the students indicated that they intended to find work whereas 46 % stated that they would do their masters degrees and the rest mentioned that they intended to take a gap year as they were not sure on what to do after their honours year.
2. When asked whether they thought that having a masters degree was important or not, 93 % of the students indicated that they thought a masters degree was an important qualification to have in their field while the rest did not think so.
3. With regard to their intentions to study further to masters level in their fields of study, 46 % of the students intended to do a masters degree in their field, 52 % stated “no” while the rest were not sure. In addition, 72 % of the students indicated that they would prefer to do masters through part-time study if funding was available for that.
4. With regard to whether Botany or Zoology was their first choice of study when applying to university, the majority (54 %) indicated that they wanted to do other courses and not Botany or Zoology.
5. When asked about the availability of work opportunities in the sector for students with their degrees, 87 % of the students indicated that they thought that there were job opportunities in their field of study.
6. When asked about whether the availability of more financial aid would make it easier for them to embark on a masters degree, 85% of the students said yes while 15 % indicated that the availability of more financial aid would not make them go for a masters degree as they had either lost interest in their field of study or did not see the point of having a masters degree. When asked what kind of financial aid they would want, the majority (52 %) wanted an increase in the number and amount of bursaries followed by scholarships (15 %). They wanted more bursaries and scholarships because they indicated that they would not have to pay these back like study loans.
7. With regard to the cost of a masters degree as a factor in preventing further study, 72 % replied yes to the cost being a hindrance to further study.
8. With regard to entry requirements as a hindrance when applying directly from honours into masters, 80 % of the students felt that entry requirements into masters were not a hindrance and that the entry requirements were attainable.

9. With regard to the availability of qualified supervisors who could effectively supervise in specific niche areas being an enablement to masters transition, 93 % of the students felt that a qualified supervisor who could assist them and guide them in the right direction who was also patient and supportive was necessary at the upper postgraduate level.
10. When asked whether the duration of a masters degree hindered or supported masters transition, 52 % felt that two years was a bit long as most would like to start working and a one year masters degree would be ideal. On the other hand 48 % felt that the duration of a masters degree was not a hindrance to them.
11. When asked whether the location of a university would be a factor that could hinder students in embarking on masters studies in specific interest areas, 54 % of the students indicated that location would affect their decision as most would prefer to be closer to home and believe that being at a university closer to home is cheaper. On the other hand 46 % indicated that they would go to any university no matter where it was located if they wanted to study something specific there.
12. A majority of 93 % of students indicated that the status and reputation of a university affected their choice to study further at certain universities. The majority felt that a university that does not have a good reputation is not ideal for upper postgraduate study.
13. When asked about the state of the university and whether it could hinder students to progress to masters study in a particular university, 93 % felt that a university that lacked good facilities, equipment and did not have enough resources discouraged further study. This was the response of students at WSU who did not see themselves doing their masters degree at the university because of the lack of financial aid at the postgraduate level (see section 4.4.5.2.).

4.4.2. Constraints in masters transition for honours students in Botany and Zoology

Other constraints mentioned by the students themselves that were not included in the questionnaire included: family responsibility, being tired of studying, lack of interest in the field, age of supervisors and their retirement, social factors such as having friends who are working being demotivating, having few role models for black students, research not being seen as a career path, lack of support and motivation from lecturers, some universities not

subscribing to some journals thereby making it difficult for students to get scientific papers they need and funding not available for certain demographic groups (whites in this case) making it difficult to afford the tuition and lastly, some students did not want to be stuck in an academic environment. The constraints mentioned by the students were used to probe deeper in the interview process and served as a guide to discovering whether black females specifically also faced such constraints (section 4.4.5.).

4.4.3. Enablements to masters transition for honours students in Botany and Zoology

The students also stated some factors that they felt would enable their transition to masters study. They mentioned a variety of things that they felt would smooth their transition to masters, from getting study grants from supervisors to more funding needing to be allocated for SADC students studying in South Africa. Others felt that family support and encouragement made a big difference in ensuring transition to masters study. Hard work in terms of schoolwork was also mentioned to ensure that a student gets noticed and offered project opportunities. Having good staff in terms of lecturers who motivate students was also mentioned as well as students at the postgraduate level working together and encouraging each other to study further. Good undergraduate training was also mentioned together with the importance of having an interest in and passion for the study fields. Some students also felt that having a sense of achievement and a desire to excel academically was key in facing challenges and overcoming them and transitioning to masters level. The assurance of job opportunities after completion of degrees and postgraduate degrees in the sector was also mentioned as an enablement and incentive to masters study. The availability of internet access at all times was another enabler and the importance of getting guidance in order to choose a good research topic was another. Students felt that these could enable them to progress to masters level.

4.5. Factors constraining and enabling black female honours students in transitioning to masters study in Botany and Zoology in Eastern Cape universities

In this section I present the findings from the interviews conducted with the black female respondents in three Eastern Cape universities. The main aim of this research was to find out the challenges black females face in transitioning to masters study from their point of view. I

wanted to find out what they saw as constraining factors in their transition and their experiences as honours students and prospective masters students. The aim was to let them express their thoughts, views, feelings and experiences as black females in postgraduate studies. In this section, the interview findings are presented according to each university to show challenges unique to each university. Another aim of the study was to ask staff members who were in contact with the students what they saw and believed to be constraining and enabling factors to transition from the experience they have with working with black females in their departments.

4.5.1. Establishing whether there was initial interest of black females in the Eastern Cape in Botany and Zoology

The purpose of this category was to establish whether the black female honours students in Botany and Zoology intended to go into these fields or whether they went in by default. Whether they entered knowingly and willingly or not has an effect on their continuation with the degrees up to upper postgraduate studies. I believe that if they chose these fields knowingly there would be a greater chance of them continuing with these studies. Choosing a study field does not necessarily guarantee successful transition or even continuation with the field but in most cases students continue with a subject that they love and went into knowingly thus making the lack of knowledge about these fields a hindrance in some cases.

When asked about their first choice of study when leaving high school for university, all the black female students at Rhodes University indicated that Botany and Zoology were not their first choice when applying for university. None of the black females in Botany and Zoology honours wanted to study either fields of study initially and went into the studies when they were either not accepted for their first choice of study or because they found what they wanted to do too difficult and turned to these study fields. This is what some of the students had to say, “I think I applied for medicine but I was not accepted ... and I don’t know how I ended up in Biological Sciences” (RUBI1, 2013, p. 1), “I was really into this idea of Biotechnology and Chemistry then I was like I want to do biotech because it sounded nice, even if you don’t really know what’s in it, it sounds good” (RUBI3, 2013, p. 1). Black females from UFH and WSU also shared these insights that they had other study fields in mind when initially applying to university and never intended to do Botany or Zoology, “I wanted to do Microbiology... I found it fascinating but I did it and realised that I was not cut out for it, the smell was what really chased me away from Microbiology” (FHBI3, 2013, p.

2). Another UFH female in the department of Zoology and Entomology added that “Actually I wanted to study medicine but then I didn’t do it (FHEI1, 2013, p. 1) while a WSU female stated that she wanted to be a dermatologist “I wanted to be a doctor, especially a dermatologist” (WSUZI3, 2013, p. 1).

In terms of establishing their awareness of these study fields and their understanding of what they entailed before they went to university or when they were still in high school, the majority of the females from the three universities mentioned that they didn’t know what a BSc was or what Botany, Zoology and Entomology were before they went to university. At Rhodes University, most of the females mentioned that they did not know what these study fields were or what they entailed until they got to university, “Well firstly, I didn’t come to Rhodes to do Botany, I didn’t even know about it” (RUBI2, 2013, p. 1), “ I asked what Botany was [at WSU] and they told me that I would be studying plants and then I asked what Zoology was and they told me that I was going to study animals” (RUBI1, 2013, p. 1). At UFH the majority of females had not heard about these study fields before university, “No I didn’t have any idea about Botany and Zoology, I only learnt about them here but I did Life Sciences” (FHBI1, 2013, p. 1) and “No, I only knew and met Entomology when I got here” (FHEI2, 2013, p. 5). At WSU all six females indicated that they did not know anything about these studies prior to university and even though some had heard their definitions, they did not know what Zoology, Botany or Entomology entailed, for example, “No, there was no mention of Zoology in high school, I don’t remember” (WSUZI3, 2013, p. 1) or “No, I only knew that Zoology has something to do with animals but not how it exactly does that. I knew Botany dealt with plants but I didn’t know what exactly about plants (WSUZI2, 2013, p. 1).

4.5.2. Importance of entering higher education and postgraduate studies

Under this category I wanted to find out how and why these females decided to go to university in the first place. I wanted to use this interview question as a baseline to understand how they viewed higher education. I also wanted to find out whether my respondents recognised the importance of studying further after a junior degree and to find out why they decided to pursue honours after their degrees and why they thought it was important to do so. I felt that this would give me some insights into their way of thinking and reasoning about postgraduate studies in general.

During the interviews, all black females from Rhodes University stated that they knew that after high school they would be going to university. They mentioned a variety of reasons why they wanted to go to university. One mentioned that she always wanted to be “somebody”, a professional and the only way to achieve that was to go to university as it would be difficult getting anywhere with a grade 12. She also mentioned that she always had an image of herself wearing the red graduation gown for doctorates and that is what motivated her to go to university and to also plan to study past her junior degree (RUBI1). Another RU female mentioned that she has a very big family composed mainly of teachers who have all gone to university and in her family, education is important and her entire family is “just big on education” (RUBI2, p. 3). All but one of the black females from UFH intended to go to university after grade 12. The majority mentioned that they wanted to go to university because they wanted to be “somebody” in their villages, some had plans with friends to go, and another wanted to go to university to further her studies because she had role models in her family who went to university and who pushed and encouraged the younger children so that they could take care of themselves later in life. There was only one female at UFH who stated that she did not think she would go to a tertiary institution because of the financial situation at home which was poor, “I knew that there was tertiary but since we didn’t have money I never thought that I would have a degree” (FHBI4, 2013. p. 1). In WSU, the females mentioned a variety of reasons why they wanted a higher education; some wanted to be the first in their families to hold a degree and to get a job afterwards, “At home there is no one who went to university, I am the first to even pass grade 12 so I wanted to study and work afterwards” (WSUZI2, 2013, p. 1); another mentioned that she knew that she would further her education somehow even though they were struggling at home with both her parents not working, in a way she was determined to go to university even though she did not know how (WSUZI1, 2013):

Yes I did know that I would further my education although my background couldn't allow me but I did know that I would further my studies. I mean like, we were kind of struggling a bit at home because my father was not working and my mother was not working and the only person that time who was working was my sister and she was married so we were all dependent on her. (p. 1)

Another mentioned that her parents grew up very poor and in those days when one finished high school they needed to find work and educate the younger siblings resulting in someone not studying what they wanted but something that could get them a job with minimum

education. As a result of this, her father pushed them to go to school and study hard (WSUBI1).

To sum up, it seems that most of the black females interviewed in all three universities intended to go to university and knew that in order to get ahead in life one had to get a higher education.

When asked about their reasons for undertaking an honours degree, black females from Rhodes University cited different reasons, the most common being that they could not find work after their first degree and that most jobs required honours as a minimum requirement “Then I thought, well I can’t get a job and I will stay here in the township and forget the skills I had obtained [at university] so it was better that I went back to school” (RUBI1, 2013, p. 2) and “I went to Pretoria last year, that’s where my brother lives and tried to look for a job and stuff and most of the minimum requirement [*sic*] was honours so I decided to come do honours in Zoology” (RUZI1, 2013, p. 1).

The same applied to the black females from UFH (four out of the seven that were interviewed) explained that their decision to go on to honours was driven by a lack of employment and as they did not want to sit at home and do nothing they decided to go back to school and do honours. Had they been employed or been given internships, most of these students would have gone to work as they had no intentions of applying for honours after their undergraduate degrees as FHBI3 (2013) explains:

I was not going to do honours but in January I got bored firstly and registration hadn't started yet so I thought I didn't apply so I just decided that rather than staying at home let me come and do my honours and so I applied this year, I thought let me just do honours to pass the time. We are passing the time; we don't want to sit at home. (p. 2)

These sentiments were echoed by the majority of black females from WSU who also did not intend to do honours but because they could not find work and had nothing else to do, they decided to go back to university and do their honours degree, “I was tired of sitting at home for so many years so I thought I don’t want to sit at home anymore so let me just go further my studies” (WSUZI2, 2013, p. 5). One of the respondents mentioned that she was motivated in the working environment where she was doing her internship where she felt she was not taken seriously because of only having an undergraduate degree. She saw that at least with an honours degree, people in that workplace engaged with you at some level but with a masters degree you are taken seriously. She [WSUZI5] (2013) noted that:

I decided last year while I was doing my internship because I was in an environment where furthering your studies was very important, the more you continue the more you get that credibility so at CSIR if you only have a degree, they see you as a child but if you have honours then maybe we can have a conversation with you but still you still don't know a lot. So they started taking you seriously when you were at the master's level so when I was there I had to prove myself and that what I was saying was really relevant and true. (p. 6).

An apparent theme from the findings above is that most students in the universities who were interviewed only carried on with honours because they could not find work and did not want be idle at home. Mostly, they had set their hearts on working after their undergraduate degrees and not on doing honours.

4.5.3. Honours specialisation in Botany and Zoology

The intention of the enquiry into honours specialisation was to find out why and how the students decided to do their honours in these study fields. Had they thought about whether they wanted to continue with these subjects when applying for honours and did they investigate other options? Did they think about what having an honours degree in Botany or Zoology and Entomology meant and what they could do with it?

In RU one of the students pointed out that she only chose Botany because when she applied for honours the Botany department responded first before the Microbiology department and so she accepted the offer. She emphasised that she does not even like Botany, “I don't like Botany to begin with ... and I still don't know how I ended up in Botany” (RUBI1, 2013, p. 1). Another female mentioned that she thinks having a postgraduate degree is an advantage in any field including Botany (RUBI2). In Zoology, the only black female there commented that she continued with Zoology in her honours year because she did not like other fields such as Medicine and Microbiology.

When discussing this issue with females at UFH, most of them from the department of Botany ended up choosing Botany for honours because they found it easier than Microbiology and Zoology. One of them disclosed that Microbiology and Zoology were very difficult for her, “I didn't decide, listen, I was doing Botany and Microbiology and then Microbiology also proved to be difficult so I thought let me just hold on to Botany because it seemed easier and then I did it” (FHBI3, 2013, p. 2). She also said about Zoology “Zoology was difficult for me, I got a supplementary for Zoology, ZOO 111, I got a supplementary and I failed even that supplementary so I thought Zoology was not for me” (FHBI3, 2013, p. 1).

Interestingly, the females in Entomology mentioned two different reasons why they went for Entomology honours; the first female saw there were job opportunities in Agriculture for Entomologists so at least she would be employed after she finished her honours. The second female was influenced by her Entomology lecturer while doing her undergraduate degree, the lecturer made a good impression on her as he motivated them to go into Entomology and told them about job opportunities for Entomologists.

At WSU the majority of females in Zoology expressed that they chose to do honours in Zoology because they preferred to deal with animals than with plants and that they found Botany boring and difficult as this female mentions, “I realised that I like the animal side more than dealing with plants” (WSUZI2, 2013, p. 2). She went on to say that “Oh those plants! Botany is boring and difficult and you need to like it” (WSUZI2, 2013, p. 2). The only black female in the Botany department at the university chose Botany at honours level because she felt it was more diverse than Zoology (WSUBI1).

From these findings it can be assumed that most students went into their honours study for a variety of reasons. It would be interesting to see how they would have chosen their area had they been exposed to programmes at other universities.

4.5.4. Plans after honours year

The aim of this category was to find out the students’ plans after finishing their honours degrees to see whether they had any intention of undertaking a masters degree after their honours and or in future. Another aim under this category was to find out whether the students would change study fields if and when they decided to do their masters degree or whether they would continue with their present subjects.

All of the interviewees from Rhodes University indicated that they plan to work after their honours. They cited different reasons for this but half of them wanted to work to gain experience and practical knowledge as they felt that they were learning a lot of theory and not really focusing on the skills that are needed in the workplace. Two of the interviewees felt strongly about gaining experience as they felt that most jobs require experience that they did not have and they were willing to start at the internship level to gain practical experience in the working world. One of the females said “I don’t mind like doing internships and things like that, I really want to learn more because I’ve really learnt a lot here but it’s not practical” (RUBI2, 2013, p. 5). The other two females from Rhodes University wanted to work after

honours because of financial reasons; one stated that her first priority after honours was getting a job although she had not started looking for one at the time of the interview but she wanted to get a job even if it was not in Botany or a related field as long as she could get money to put food on the table. The other student had to work after honours because she had a contractual agreement with her funders that she would do an internship with them after honours but also because her bursary did not even cover the full tuition. She felt that she did not have all the equipment and materials needed for her courses because she could not afford them and so she asserted that she would work after honours and then save up for masters so that she did not experience the same difficulty at masters level (RUZI1).

Of the seven females interviewed at UFH in both departments, four stated that after honours they wanted to work as they wanted to be independent and have their own money, (FHB12; FHB13), needing to support their families and help out at home as they have younger siblings and one female has a child that she wants to provide for and be able to give him the things that she did not have while growing up. FHB14 (2013) stated that:

Oh no I'm not coming back [after honours]. I want a job; I will look for a job. I will do my masters later. I have a kid. He is 7 and he is in grade 2 and I don't want him to go through what I went through. I want him to go to good schools and have everything he needs. The main reason I'm looking for a job is to provide a better life for my child and my family, I don't want my parents to die never having done anything for them or having them not receive even a cent from me, no. (p. 2)

The rest of the females from UFH had a strong interest to do masters next year (2014). One explained that she wanted to do masters in Environmental Management indicating that she intended to change fields and go into the department of Geography for her masters (FHB11). Another mentioned that she just wanted to study and do her masters and get it over with suggesting that was not necessarily thinking about doing a PhD anytime soon or at all (FHZI1). The final student expressed her desire to do masters but also at the same time would like to work. She mentioned that she would apply for both but felt that doing a masters degree was preferable to an internship especially if she received enough funding to support her child and younger siblings, (FHEI2, 2013):

I met Martin [potential supervisor at Rhodes University] so I discovered that at least when you are going to masters you get some pocket money and be able to support my child and my siblings with this pocket money and so it will be the same as if I was doing the internship of which doing masters is more beneficial for me because I will be upgrading my standard. (p. 7.)

At WSU it was a different case. Only one female intended to do masters straight after honours but only if she got funding as her mother made it clear that if she was planning on doing masters and not working then she needed to support herself. She would have preferred not to work and study full time if she could get funding (WSUBI1). The rest of the female interviewees felt that they wanted to work after honours and not do their masters at present. Some felt that they were falling behind their friends and family as most of them were working and have cars. They felt that their lives were not progressing as they have nothing tangible that they can show for studying thus far and they also have their families to contribute towards. WSUZI1 (2013) had this to say:

My knees are chafed from praying for a job, I want to work, I want a job. You know when you see that your cousins and your friends are working and they are driving cars, some of them you started together at university with and for that matter you took the same pace at school, it's not like you were behind them or anything but you see that their lives are moving forward, so life has to go on bethunana [people]. I know going for masters also means that life is still continuing because you are gaining something else and you are gaining more qualifications but now I want something tangible and since I'm expecting a child I am going to have a responsibility. I'm going to be a mother. (p. 4)

Another student felt that she should already be working as she has three families to support, "I have responsibilities, I have 3 families. My family at home, my husband's family and my family with my husband. I have two boys. One is 4 and 2. I don't want to be dependent". (WSUZI2, 2013)

Another felt that as her mother is unemployed she needed to take care of her and support her financially plus she needed to earn money as she has been paying for her honours degree using the money she had saved from a previous internship. That money had run out during the course of the honours degree.

When looking at all females across the universities, the majority (76 %) want to work after honours instead of doing masters. The reasons they gave varied but wanting to be independent and earning money to support themselves and their families seemed to be a common reason especially among the females in UFH and WSU.

When it came to masters part-time study and whether the females would consider doing it or not, the majority of Rhodes females indicated that they would do masters part-time if they got the chance and if they did not find work (those who intend to work) especially if there was

funding. One of them stated that if she got a job she would still do her masters but part-time because she does want a masters degree and wants to obtain a PhD and be called Dr before she dies (RUBI1). Only one female expressed her intention to work after honours and then come back later to study full time.

At UFH the majority of the females also indicated that they would do their masters part-time while working and one even stressed that she was committed to getting a masters degree (although it would be in Environmental Management and not in Botany) either full time or part-time. Two of the female interviewees from the university indicated that they wanted to do their masters full time and one explained that she wanted to get it over and done with while the other stated that she had already been in contact with a potential supervisor and that she had no problem with moving to the university where she would be undertaking her masters full time.

The majority of females commented that they would not mind doing masters degrees part-time. Most of them said since they need and want to be working after honours, they would do their masters on a part-time basis. One emphasised, “Well because I want the title of being Dr. so I want masters in my life because I want that title of being Dr. so I want masters but not full time” (WSUZI3, 2013, p. 4). One female expressed her deep disapproval of the university and indicated explicitly that she wants to do her masters but not in WSU as there is no funding for postgraduate studies. WSUBI5 (2013) said that:

If I were to do masters I wouldn't do them here I don't care what happens, never will I do my masters in this university and stay a further 2 years in this [explicit language] place and struggle with patched lips with no money or anything else, no ways. In future I would love to do my masters and get paid for doing them. I will never stop studying and if I could get financial stability and take care of myself and not be frustrated like a small child in grade 1; there must be a difference because now I'm grown up. If I could get that then I would even be doctor of philosophy and be busy with that. (p. 5).

4.5.5. Constraining factors for black females in three Eastern Cape universities.

The aim of this category was to investigate the constraints specific to each black female in the three Eastern Cape universities. When these constraints are known then appropriate interventions can be created to smooth the transition from honours to masters study of black female students in Botany, Zoology and Entomology.

4.5.5.1. Work opportunities

From the point of view of the majority of the interviewees at Rhodes University, the biodiversity sector does not offer or create enough jobs for graduates. One interviewee commented that as a result of this lack of job opportunities in the sector she would not be looking for a job related to Botany or within the biodiversity sector only because if she did then it would mean that she would struggle to get a job (RUBI1). Commenting on the same point, another interviewee expressed her concern of fields like Botany being too broad and thus making it difficult for people to see where they fit (RUBI3). Only one interviewee felt that there were job opportunities out there for graduates in the biodiversity sector (RUBI2).

At UFH most of the females in the Botany department felt that there were job opportunities for Botany graduates as they had seen job adverts and also mentioned a few places that they knew they could be employed in, for instance, most of them mentioned the Department of Agriculture, Forestry, Environmental Affairs and botanical gardens as places that they knew employed Botanists (FHBI1; FHBI2; FHBI3). One of the interviewees felt that although there are job opportunities out there for Botanists, they are difficult to come by and as a job seeker you need to be the one looking for them as according to her, you will not find them in newspapers or even on television. Most of them when referring to work opportunities were referring to internships as they mentioned that permanent jobs require a few years' experience so their best option is through internships. Interviewees in Entomology also felt that since their field trip to Durban at a sugar institute, they now have an idea where they will work and what they will be doing as Entomologists (FHEI1; FHEI2).

Interviewees from WSU echoed concerns and frustrations over the scarcity of job opportunities for Botanists and Zoologists and the difficulty of finding jobs and internships. One interviewee stated that it was difficult to find job adverts and opportunities for Zoologists but believed that they are there as previous graduates were employed. She mentioned that she knew a few places where she could work but had no idea what exactly she would be doing there as a Zoologist (WSUZI2). Another interviewee mentioned that she had gone to websites that she thought might have jobs for Zoologists and Botanists but had found nothing (WSUZI3). Another interviewee agreed that job opportunities were scarce and that you had to go to specific websites to look for them, WSUZI4 (2013):

I'm beginning to realise it [job scarcity] because I see on the internet when I'm looking for a job or an internship or whatsoever, it's so scarce, I mean you can never find it

everywhere like posts for financial advisors etc. because for those you don't have to go to a certain website to look for a job. With us you have to look at environmental affairs sites or biodiversity sites or whatever. Other fields are everywhere and in the puff and pass sites [website that advertises internships and job opportunities] and others; with us they are non-existent which goes to show that it is scarce. (p. 3)

4.5.5.2. Financial constraints

The BHCDS (SANBI & Lewis Foundation, 2010) gave a number of reasons that were not empirically proven why honours students do not transition to masters study in biodiversity related fields. Finances or lack of financial aid was cited as one such reason. Under this category, the goal was to find out from the students themselves whether financial aid was a major factor that influenced their decision to study further and whether it was an actual hindrance.

When talking about funding as a hindrance to transition of black females from honours to masters, Rhodes University females had varied answers. Two of the females stated that they have never been on any kind of financial aid throughout their studies. They mentioned that their parents have always paid for their education from primary school up to university. One interviewee mentioned that the cost of undertaking a masters degree would not hinder her from embarking on the degree. She stated that her parents would pay for her if she did not get a bursary for masters even though they were not rich but they would sacrifice for her like they always did as they wanted her to study whilst they were still alive (RUBI1). The other felt that it was time to stop studying and get a job because she felt that it was unfair for her parents to keep on paying for her studies with their own money. Although finances have never been a problem for her in terms of paying university tuition and related costs, she did however acknowledge that most of her friends studied via bursaries and the National Student Financial Aid Scheme (NSFAS) and other forms of financial aid which allowed them to carry on with their degrees and get to postgraduate level. She stated that lack of funding could definitely hinder some of her friends from transitioning to upper postgraduate studies (RUBI2). Commenting on this point, two of the respondents from Rhodes University felt strongly that finances are a major hindrance in continuing with studies. One expressed that although her parents paid for her tuition of R80 000 per year for her undergraduate studies, she felt it was too much and that her parents could not afford it and there were still a number of other costs like money for toiletries, pocket money and other related costs that her parents

needed to pay. The last interviewee from Zoology had the most difficult time during her honours year and she was the only black female in her honours class. Although she had a bursary, it did not cover the tuition and so it was difficult for her as she has a single mother who does not earn much and three other siblings at university. RUZI1 (2013) disclosed that:

This year has been the most difficult year ever besides the whole transitioning thing, financially it's been tough because when I applied for the bursary, people will advertise bursaries but not mention how much and when you get there to sign the contract, they will be like, oh we forgot to tell you, we'll only be giving you R25 000. I'm like what the hell! R25 000 doesn't even cover the tuition fees and you still have rent and food and still have to pay the remaining tuition and my mom makes like R60 000 a year and she has 4 kids in school so you see, so it's been tough. Like this year we had to go to field trips, you will need binoculars and the white students will have the binoculars, and they have no problem giving you a list, binoculars, camera, sleeping bag, air mattress (Laughs), whites though, hiking boots, I don't have that sh.. [Explicit language]. I just sit there and I'm like...., reference books, field guides, guys I'm worried about rent and you're telling me about some binoculars and I don't know, I've always been told that I'm a proud person, I don't like asking so having to spend the whole year asking people, please borrow me your binoculars and when we went to this field trip at Mountain Zebra and we had to go hiking and I had my All Stars on and they were like, my All Stars are not good and I'm going to break an ankle and what not so now I had to ask someone to lend me shoes, that's not good for my ego and I don't know, it just made me feel small. (p. 3)

For the interviewees at the University of Fort Hare, most of them had NSFAS loans to pay for their undergraduate degrees and were using funding from the National Research Fund (NRF) for their honours degree. None of them mentioned that they had been paying for their own tuition. Most of the students mentioned that there was funding available for postgraduate study at the NRF office at the university and they were using it for their studies. Most confirmed that funding was not really a problem at the university if someone wanted to study. One of the interviewees used NSFAS to pay for her honours tuition as her supervisor did not organise funding for the students doing honours in Entomology. She felt frustrated that she had to use NSFAS to pay for her tuition and said that it was vital for her to get funding should she want to continue with a masters degree, (FHEI2). Another female revealed that finances related to higher education were always a constraint as her parents could not afford to pay for tuition. From 2006 to 2009 she stayed at home after finishing grade 12 as she had not applied to any university because she did not see the point of applying when there would not be any one to pay for her tuition as she did not know about NSFAS then, (FHBI4, 2013).

In grade 12 I got pregnant in 2005 and people were applying for university because the forms were there, they brought them to us but I didn't apply because I told myself that even if I applied at the end of the day that would pay for the fees, there would be no one to pay for me. So I stayed for 3 years, from 2006-2009. (p. 1)

Interviewees at Walter Sisulu University felt that funding was a constraint for them especially in transitioning to masters as they were struggling to get funding for their honours study even though it was almost the end of the year and they were still waiting for NSFAS and NRF to release a list of students, names whose tuition would be paid for (WSUZI2; WSUZI5). The few who had funding felt that it needed to be increased and handled appropriately by the university and that as black students coming from disadvantaged backgrounds, they needed financial support (WSUZI1). Another paid for her honours degree with money she had saved from working in an internship the previous year but the money had not covered everything so she would be looking for work after honours because she was tired of being dependent on her mother (WSUZI3). Two of the interviewees felt that the university did not treat them like postgraduate students because even the masters students struggle, “When I arrived here at this university, I became demotivated, here you struggle to get even financial support, it's not a big thing that you say you want to do honours or you are doing masters, you have to push yourself and find money and all that, all doors are closed and you have to open them yourself by force” (WSUZI5, 2013, p. 5). The only female in Botany pointed out that she wanted to do her masters next year but (WSUBI1, 2013) stated that:

Another thing is my mother will only give you pocket money and then I have to use my pocket money to buy for example, all these clothes I have were bought with pocket money with the R800 that my mom gives me a month. Like a month I need to buy at least one item of clothing then buy groceries and have money to survive, there is also photocopying and other stuff and toiletries and it's only R800. Imagine if I'm going to do masters and have to live on that, no, I'm struggling now so I can't. (p. 7)

Of all the black females interviewed across the universities, those from WSU had the most complaints about the lack of funding provided by their university.

4.5.5.3. Knowledge about the problem of the lack of black females in the biodiversity sector

The purpose of this category being put under constraints to masters transition is because I felt that knowing about the sector might influence their decision to study further, especially as

most of them cited the lack of jobs in their fields as a hindrance to further study. All the interviewees from Rhodes University who commented on this did not know about the lack of blacks in general in the biodiversity sector as well as the lack of black females with advanced qualifications, with specific reference to masters degrees. One interviewee mentioned that she only knew that in Marine Biology there was a shortage of black females but did not realise that gender was also a problem in other fields as she knew that race was a problem in terms of black people being scarce in biodiversity related fields. On the same point, a Zoology interviewee stated, “No, I didn’t [know about the lack of black females with masters degrees in the biodiversity sector]. So now I know and I’m thinking that I have to go and do my masters” (RUZI1, 2013, p. 6).

Most of the interviewees from the University of Fort Hare had no idea about this shortage in the sector. The interviewees in the Botany department stated that in their department, the majority of students are black females such as themselves and they heard that most people think that fields such as Botany and Zoology are for females and because of that they had no idea about what is going on in the sector (FHBI1; FHBI2). Another interviewee suggested a reason for the lack of blacks in general goes back to the lack of passion of black people about plants and animals as compared to whites (FHBI4). Another interviewee could not understand how there could be a shortage of black females with masters degrees as there were many blacks in general and black females with a masters who cannot get work in the sector (FHEI1). There was however one interviewee from Zoology who explained that she noticed this shortage at a conference that she attended in Stellenbosch where there were only two black South African females in attendance. She says the shortage is evident in the aquaculture sector that she is part of and that black females are really not visible and that people don’t want to study further as there may still be some form of apartheid in the sector (FHZI1).

Interviewees from Walter Sisulu University echoed different points. Most of them didn’t know and others didn’t bother with knowing as it never crossed their minds or they never thought about it (WSUZI1; WSUBI1). Some felt that there could be a shortage as most of their black female seniors with masters degrees are unemployed and that most people opt for honours and masters in the first place because they can’t get jobs (WSUZI3). An interviewee in the field of Botany said this about the dissemination of information (WSUZI5, 2013):

I didn't know that there was this scarcity in the sector, nobody tells us anything, we don't have that information and in a way it would motivate us to study further regardless of the financial struggles because a person would know that in the end studying further will pay off but we don't know. We are not made aware that there is this scarcity. The thing is information that is important and constructive is withheld in one place and does not reach people and it stays within the same group of people and only the people who are in the inside that they want to promote are told. We, on the outside are not told anything, if you are not connected to these people you will never know hence they say jobs are scarce because they employ around and within the same groups of people. (p. 3).

The majority of black females in the Eastern Cape universities do not know what is going on in the biodiversity sector and also within their fields.

4.5.5.4. Challenges faced by black females in transitioning to masters study

The aim of this section was to find out from the interviewees what they saw as their biggest challenge affecting their decision to continue to masters after honours, they could give a personal account or describe factors that affect their friends.

The biggest challenge that all four interviewees from Rhodes University cited was money or the lack of it. The first interviewee from Botany confirmed that finance was her biggest problem but she added that another factor noted in her friends was laziness. She continued to say that most black females like having boyfriends and depending on them for support and see no need of studying if they have someone to take care of them. She also cited pregnancy as another challenge for black females. She got pregnant at university but luckily for her, her parents raised the child and she continued with university and graduated (RUBI1). The second interviewee in the department of Botany also expressed that if she wanted to continue with masters then obtaining funding would be a major constraint for her. She also felt that her marks may not be good enough to secure funding but she had no plans of doing masters any time soon. She did not feel at a disadvantage by being a black female in Botany as there are few black female Botanists out there and more are needed (RUBI2). The third interviewee also from the department of Botany mentioned finances as her biggest constraint but also mentioned that doing a masters degree at Rhodes University would also be a constraint to her as she would like to get married but she feels that whenever she goes back home she is out of touch with people and therefore is unable to form close relations with friends back home. The last interviewee from the Zoology department stated that her biggest challenge during her

honours year was the lack of funding and she felt that she was not prepared for the year financially and stated that she would save up for her masters degree as she did not want to experience the same hardships, like not being able to buy equipment (RUZI1).

The interviewees from the University of Fort Hare had various responses. One interviewee felt that her biggest constraint was the fact that their family was poor. She felt that even though she has an interest in studying further and doing masters, she could not continue to study while her parents were “dying of hunger” and struggling. She felt it was better to work and support her family financially then study after that (FHBI2). Another interviewee felt that her biggest hindrance to masters transition and for females in general is that Botany is labour intensive, “It's labour, you work in Botany and now we have to go and dig in the ground and do stuff like that and it's hard work. You have to cut down trees and its hard work in the field, the field work is labour intensive and it is something that is a challenge to us females” (FHBI3, 2013, p. 4). An interviewee in Entomology said that her biggest constraint is her family who do not understand why she needed to study and do masters as it was already problematic that she was doing honours instead of finding a job and joining the real world (FHEI1). Another interviewee from the department of Zoology explained that academically she had not experienced any constraints that would hinder her from doing her masters degree. She mentioned that her challenges were only minor, for example, not getting her own room at the residences but in all that she talks fondly about her late father who encouraged her to study further no matter the challenges (FHZI1). The last interviewee had a number of challenges that she was facing during her honours year but her main one was her supervisor. She and her colleagues with the same supervisor felt that their supervisor was not doing enough for them and that discouraged her from applying for masters at the university but that she would not mind doing it at another university if she could get funding. She emphasised her need to get funding for masters as she no longer has a mother and her father had retired and she has her younger siblings to support. Although she fell pregnant in 2007, that did not stop her from continuing to study and she attributes this fact to her boyfriend who is also the child's father who urged her to continue with school while he cared for and provided for the child. Although her father is not very supportive of her and her studies she said she did not mind that as God is the one who will decide her fate and not her father, she has huge family responsibilities but would continue with masters if she could get funding to support herself and her younger siblings (FHEI2).

Walter Sisulu University interviewees also had a range of responses but the lack of finances and insufficient funding at postgraduate level (WSUZI1; WSUZI3; WSUBI5) were the major constraints cited by the majority of respondents. One interviewee expressed that in most universities masters students get pocket money but not at WSU and that caused many students and black females including her to think twice about doing masters at that particular university (WSUZI1). The issue of being a burden on the family was raised yet again. Another interviewee explained that women give birth and doing research takes up a lot of your time and it is hard to sacrifice family time for research (WSUZI2). Another interviewee commented that she wanted to work and gain experience and not do her masters as she was not passionate about the field and felt it was not well paid (WSUZI4). Commenting on a different constraint, one of the interviewees explained how the lack of support from family is discouraging. She said that another challenge and constraint to other people including her is that she often compares herself to her friends who are working and have cars while she is still at university with nothing material to show for it (WSUBI5). WSUZI5 (2013) shared her experience:

At some point you will get discouraged and then not having money from the beginning, you know it's so nice to be stable and have peace of mind and not worry about things, I have enough food, I have nice clothes and I'm ok and people can see just by looking at me that I'm postgrad. You know when you look so scruffy and shabby that a first year student looks way better than you and you are stressed and always thinking, oh I don't even have money for this or that. There is no difference at all! Even here in this university, we are not treated as postgrads, you know as postgrad, younger students should envy you and admire you at the same time want to be like you and want to be where you are and wonder how you got there and how they can also be at that level. So here there is nothing that motivates students, people just want to finish their degrees and go and work anywhere even if they do administration just as long as they are done. (p. 4.)

Another constraint mentioned was the mind-set of parents and elders. WSUBI1 commented that older people including parents do not know and understand study fields like Botany as well as say Law or Medicine. She (WSUBI1, 2013) shared her feelings on the issue:

I think challenges for us, I think it's finance one and two, another challenge is the mind-set of our elders like you are nothing if you are not a doctor, you are nothing if you are not a lawyer. Like how many parents do you know who say ooh, for example, when my father was still alive he used to say my child I tell people you are in university but I don't even know what you are studying and I tell him that I'm doing Biological Science and he would ask what that was and I would need to explain. So I

feel like, another challenge is the people who influence us the most are our parents and those people know nothing about our field so I feel like if they could be taught somehow and they know about the field then they would actually see that we are the most important people. (p. 5)

FHEI1 (2013) added on the issue of parents and community members not knowing about these study fields and regarding them as not important.

I loved everything to do with insects and plants although people would ask what are you doing with insects? That is how it is for me in the rural areas. At one point after my graduation they had a welcome party for me at home and I had to make a speech and they didn't understand what I was doing when I told them, even my father didn't understand and he would say I was wasting money studying insects but I loved it and I knew where it was going. That's why I continued with it and even now I still have interest to continue with Entomology. (p. 5).

4.5.5.5. Geographical location

Under this category the aim was to find out whether the geographical location of a university could influence a student's decision and in this case a black female to study at a certain university because of that university's location?

For the Rhodes interviewees, location did not seem to be a problem or hindrance for all of the interviewees. The majority mentioned that they would apply to any university that offered what they are interested in specialising in for masters. One acknowledged that location might be a hindrance for other people as they might want to be closer to home but it is not a problem for her as she came from Swaziland to further her studies in South Africa. Most of the Rhodes interviewees come from places far from Grahamstown such as Johannesburg, Swaziland and Lady Grey and so location and distance was not a factor (RUBI3; RUBI2; RUZI1). One interviewee said that "I could even go and study in Zimbabwe or in the deepest rural area if the university there had what I wanted to study" (RUBI1, 2013, p. 6).

At the University of Fort Hare, the majority also felt that it did not matter where the university was located and they would go to other universities to study there. Some wanted to study in the Western Cape and leave the Eastern Cape or go to Port Elizabeth but because of financial difficulties, they couldn't go (FHEI1; FHBI1). One mentioned that she would not want to go to another university but not because of location but because in some universities like Rhodes University and University of Cape Town, the standards are too high as she puts it. She feels that she would not cope there and would fail or find it very difficult (FHBI2).

Another interviewee (FHBI3) stated that location and distance would be a problem for her because she did not want to be far away from home and was scared of new environments. An interviewee from Zoology explained that she would not mind changing universities for her masters degree but said that she would benefit by staying at her current university because of the speciality of the project that she wanted to do and felt that Fort Hare is the best place to do it (FHZI1).

At Walter Sisulu University, half of the interviewees felt that location could be a problem for them as they wanted a university close to home (WSUZI2) and another always dreaded going too far from home (WSUZI4) while another mentioned that it was her mother who did not want her to be too far from home (WSUBI1). She (WSUBI1) had underestimated herself and thought that universities such as Rhodes and Witwatersrand were out of her league and admitted that she was anxious about studying at other universities.

4.5.5.6. Supervision

The aim here was to find out whether the students thought about supervision before applying for honours and whether they investigated whether their departments had qualified supervisors who could supervise them effectively and who were specialists in their areas of interest.

At Rhodes University, the interviewees focused on the qualities of a good supervisor and the importance of having a good relationship with a supervisor which encourages one to continue with your studies. Two of the interviewees felt that a good supervisor should be patient and understanding (RUBI1) and should be there for their students and be their guides (RUZI1).

The majority of the interviewees from the University of Fort Hare did think about who they wanted to supervise them for their honours projects and some even went to the extent of asking their seniors whether in their experience the person would do a good job. One interviewer chose her supervisor by speciality because she knew that he was a specialist in her field (FHBI1). FHBI2 made her decision based on the information she received, “I asked from the other students who were doing honours the previous year, and you know we would talk that so and so is not a good supervisor and so and so is a good supervisor so I thought for what I wanted, I considered so and so” (p. 5). One interviewee who wanted to change universities after her honours met with her potential supervisor to discuss progress and what she needed to submit to him in order for her to work with him for masters (FHEI2). Two of

the interviewees admitted that they had not thought about supervision in the beginning when they were applying for honours and one of them stated that she did not have an idea of what she wanted to do in her honours year (FHBI3) but the other knew that she wanted to do Marine Sciences for her honours but did not think about whether there was anyone available to supervise her (FHZI1).

Interviewees from Walter Sisulu University had a range of responses. One Zoology interviewee was lucky to have worked with her supervisor when she was doing an internship after her undergraduate degree and so when she came back for her honours degree she already knew who she was going to work with and what project she would be doing (WSUZI1). One of the Zoology female students was very annoyed at how the honours degree turned out. She disclosed that she had not thought about supervision as she thought that at honours level they would not have any courses but focus on a project which was not the case. She was frustrated, “I didn’t think that we were going to study still. I’m so annoyed now. I really didn’t know that I was still going to study and have courses ...” (WSUZI2, 2013, p. 3). On the same point, one of the interviewees commented that she knew that she wanted to do something in Conservation and knew the people who specialised in the field and who might supervise her (WSUZI3). One of the interviewees had a supervisor in mind, but as that person could not supervise her project, she was referred to someone else.

For the most part it seems as if the interviewees had thought about supervision to some extent suggesting that they knew the importance of a supervisor and good supervision. The Rhodes University students mostly focused on good supervision while the other students from the University of Fort Hare and Walter Sisulu University looked into specialisation.

4.6. Hindrances for black females in general

This section aimed to ascertain the students’ thoughts about the issue of the lack of black females in the field of biodiversity by reflecting on their lives, their friend’s lives and general feelings on the issue as black females. The aim was to reveal their views expressed in section 4.4.5.4 about the constraints they experience as black females.

Two interviews from Rhodes University gave some insight into what they thought might be the problem for black females in general. RUBI2 (2013) felt very strongly that in her honours class black females are very shy to speak out in class and share their opinions.

I think it's maybe, I mean just personally in my class I would say that I've seen that some of my fellow black females are very very shy and don't tend to voice out any of their opinions like, I don't know if they are scared or anything. I don't know but there is also a language barrier as well so I can't just be like ... So I think it's just them not feeling that they have enough to offer or enough to talk about to their lecturers or other fellow people. (p. 5).

When asked whether culture may have something to do with black females in her department not speaking out and being shy to voice out their opinions in class as one of the lecturers had confirmed this (see section 4.7.5), RUBI2 (2013) responded with this:

I don't think it has anything to do with culture because we are all different, we all have different cultures so I think it's more of the fact that because of our pre-historic apartheid and all of that, that most of our black fellow people come from really, like black schools and didn't always have better opportunities, so I think when they get here they feel very overwhelmed and it's not always nice when you say certain words wrong, you have your own accent, it can get a bit embarrassing I know, like with me too. But like I don't care anymore, I just don't care and I think it's very sad that people like the black females care so much about what these other people, these white people in my class, think about them because these people don't think anything about them so all you need to do is just say your broken English. Even if you have the most stupid opinion, because they really, even our lecturers I don't care where you come from, they always make you feel so stupid so it's even worse if you come from a more disadvantaged background. So I think also the way our lecturers go about things also can hinder how we look at things because like I mean tea time is very hard like, it's very white dominated, it's just, they don't try hard enough as lecturers, they are just busy being scientists and pushing their papers and not actually caring about the dynamics that are actually going on around them. (p. 5).

From the above quotation one can almost feel the frustration and intensity of the interviewee when talking about the lack of care from lecturers in her department and how other black females in her class may be afraid to express themselves verbally because of having to use English that they think they are not able to speak properly. She maintained that much of the problem can be attributed to the apartheid era in which blacks did not have equal opportunities as other races, specifically whites, and in which they were subject to poor schooling. She implied that the black females in her class may have come from black disadvantaged schools and so when they get to universities like Rhodes where there are so many whites and other races, they become overwhelmed. In such a situation she felt that lecturers were not doing anything to ease the situation. On the same point, the second interviewee from Rhodes University who is from Swaziland expressed her thoughts on the

issue. She explained that what she saw in black South African students when she was working as a temporal teacher in KwaZulu Natal after her undergraduate degree in Swaziland was that they did not want to do anything for themselves including getting an education for themselves. Instead they wanted the post-apartheid government to do everything for them. Her discussion is on the black students in high school who don't go to university because of this dependence on government. RUZI1 (2013) divulged:

I was in KZN [KwaZulu Natal] for 3 or 4 months last year. It was the worst 4 months of my life, seriously! It's a beautiful place but the kids, I was a teacher hey, the kids don't want to learn, maybe it's because I am not South African, I don't understand how these things work but I think black South Africans are hiding behind this post-apartheid thing too much like now we are free, the government has to do everything for us, we will just sit and do nothing, the government will build schools, we will go and just vandalise them, that's what they do, they go and take the doors home, they take the brooms, they take everything. (p. 6.)

She went on to talk about how young girls get pregnant as young as 14 and 15 years and go to school pregnant. She continued with the view of a black mentality that still exists that stipulates that girl children are not worth much and their only purpose is to get married and have children and have a man take care of them. She said that black people in South Africa are not motivated:

So I think that's the one thing that black people in South Africa are always under represented because we don't want to do anything about it. I think before apartheid ended, we had something to work towards, we wanted to do better and now we have the opportunities we just don't want to use them. (RUZI2, 2013, p. 6.)

She mentioned how the education sector in South Africa is more about politics than education and that parents add to the problem. She suggested sex education for young black girls in order for them to at least have a chance at going further with their studies. Her last point was that for black people in general there is a lack of understanding about fields such as Zoology:

One we [black people] don't get the whole thing you could come to university and study such things, we can't do that; it's just not black enough. We still don't get why you want to study animals, animals are to be eaten, I don't have time to be chasing bats, if I see a bat, I kill it or eat it, you see? So I think we don't understand the importance of Zoology. For us if you want to work, you are going to be a teacher, you are going to be a policeman, a lawyer, work in a bank or start your own business and be a BEE (Black Economic Empowerment). (p. 7).

The University of Fort Hare interviewees' replies ranged from youngsters preferring to have fun that males "like knowledge more than us [females]" (FHBI1) to some females wanting to get married instead of continuing with their studies (FHBI3). One interviewee expressed surprise at the scarcity (FHB12). One of the interviewees said that females including her are very lazy and some think that they are not good enough to study these fields just like she does not believe that she is good enough to study taxonomy. There is also a lack of awareness of these fields (FHBI4). One interviewee cited pregnancy as a possible hindrance to further study as there was nothing else holding them back. A Zoology interviewee (RUZI1, 2013) said:

I don't want to lie, I don't know but I think maybe according to what I saw, maybe other people still have got that thing of whites always undermining black people like before. Honestly speaking, whites always undermine black people you see, so other people feel that when you are black and attend such functions you don't know what you will do there and you feel scared and the way they look at you does not make it easy. So I think people start feeling undermined and doubt themselves and feel unsure that they could do something like that or contribute something. It was full of whites in that conference so they were wearing shorts and a black person just feels like they will never fit in so we as black people tell ourselves that we can't do certain things and I sometimes feel that way and I say to myself that, I will never do this. Maybe people just decide not to do them because Botany and Zoology and other related fields are for white people so people may think that they won't be suitable to do them. I won't say it's because of financial problems because there are bursaries and they want qualifications and average marks that anybody can obtain but then maybe people just feel that it's not suitable for black people, I don't know but I think so. (p. 4)

The major theme in her statement is that black people are scared to go into these fields because they are white dominated. She agreed that financial aid for people who want to study like bursaries are available and can be obtained by most people.

One interviewee felt that most black students give up when they are faced with challenges and that there are few role models for them. She asserted that she was not raised with a feeling of entitlement and that instilling these principles in children are a good foundation for their future as those same principles guided her and got her to where she is now (at honours level going on masters) (FHEI2).

At Walter Sisulu University WSUZI1 commented that she thought that because fields such as Botany and Zoology are not glamorous and require a lot of field work, females in general might not find them attractive. She also explained that because of the democratic South

Africa where females are given first preference in many areas employment is easier and so there is no need for further study. On the other hand, WSUZI2 said that naturally, there are fewer females who are career driven but that could not be the main reason for them not acquiring upper postgraduate qualifications. She also echoed the view of common fields of Medicine and Education being more popular. WSUZI3 also mentioned that these fields are not well advertised and affirmed what FHZI1 said about black people thinking that such fields are only meant for white people. She moved on to suggest that family responsibility may be another reason why they may not be studying further, “I'm not sure but I think females generally have a sense of responsibility. I think that contributes and we want to work, marry and have a car. It feels like you are more successful when you have those things. We don't look beyond or further than that like wanting to be Dr's” (WSUZI3, 2013, p. 5). WSUZI4 attributed the scarcity to the lack of passion and lack of knowledge about the field of Zoology. WSUBI1 stated that she felt financial constraints were the cause of not studying further especially in the Eastern Cape where poverty is prevalent.

Under this category, it is evident that there are quite a number of reasons why the interviewees think that their fellow black females and blacks in general are not studying further.

4.7. Factors enabling black female Botany and Zoology honours students in transitioning to masters study

Earlier the discussion has concerned the constraints on transition to masters study. The following section will look at what enabling factors exist and could exist for black females in transitioning to masters study in Eastern Cape Universities.

Although 13 of the 18 participants indicated that they intended to work after doing their honours degree due to the constraints mentioned in the previous section, a few black females (4) indicated that they would do their masters degrees. One of the participants however intended to do a masters degree in Environmental Management as she felt she liked it more and always wanted to do it (FHBII). One of the participants from Rhodes University said that thanks to family support she could realise her dream of pursuing a doctorate. This is contrary to what most of the participants experienced. RUBI1 (2013) explained that:

I want to die being called, Dr., that is my aim, I don't know why. People ask me if I get tired of studying and I tell them that I will die studying, I will never stop, I might

not even work in my life time and maybe I would study until I am told that I am overqualified, I don't know because I have this thing of wanting to die being called a doctor. I have an image of myself wearing the red gown, that's what motivates me, I also want that gown. Studying is difficult but not hard and when you finish something, it becomes worth it. (p. 3).

On this topic WSUZI2 from Walter Sisulu University mentioned that although she intended to work after her honours degree to help out at home, she would do her masters degree at some point because she too had always wanted a doctoral degree, “I would like to continue to study until the Lord stops me because I want that beret [worn by scholars with PhD’s] on my head, have you seen those beret’s they wear during graduation?” (WSUZI2, 2013, p. 3).

What is evident from these quotations is that these students have aspirations that they want and intend to fulfil; they are exercising their agency in order to achieve their goal of obtaining a PhD.

One of the participants from the University of Fort Hare has experienced many family challenges; she lost her mother during her first year of university and her father does not support her education. She chose not to give up because ‘I want what I want’ as she puts it. For her, it is a combination of determination, motivation and discipline. FHEI2 explained that:

When you upgrade people will say you, will even have masters without ever working or doing an internship, how will you do it? Of which I know people who have degrees and did internships and then just sat at home doing nothing after the end of that internship, they couldn't get anything else after that so that's why I was aiming to do masters. I was also considering my background because my father is not working anymore so for sure most things, even my brother who is not serious about anything and my younger siblings and my sister is not working so she is the one looking after dad at home. So my plan is to, I never planned when I buy a car that I will buy a TATA, no, all those things or going to buy the RDP [Reconstruction and Development Programme] houses of which I have the responsibilities that I have at home so it's possible that if I go for an internship and not upgrade my qualification, the salary that I will get will only allow me to buy the things that I just mentioned, the TATA of which I have my own life that I want to be at a certain level and I also have my life at home that I also want to maintain so that the standard at home does not drop. I think doing masters will be useful to me so that when I get a job I can get a job at a bit higher level. (p. 7)

She goes on to show how determined and focused she is by explaining that:

I also have friends, I have a friend, she drives a GTi and she works at the municipality and she did engineering. I don't have a problem with that, I ride the GTi so I believe that God has a time for everyone when they will get their rewards, my GTi is still waiting for me but it's just a matter of time, people just panic. Parents also put you under pressure when they see other kids your age or your friends working; they also pressure you and that is why I did masters. I told myself that since I got delayed I must push myself and be above those people who were not delayed and when I start working I can buy that GTi and do all those things that took people 10 years to do and I do them in 2 years. (p. 9).

One of the participants from the department of Zoology at the University of Fort Hare expressed that she intended to pursue a masters degree because she enjoyed what she was doing. FHZI1 (2013) reported that:

I just want to finish studying because I noticed that if you do your honours and then go and work it's difficult to come back to further your studies because money is tempting. I think I had that thing that ok, I want to finish studying and I think what I'm doing is more interesting one, two I want to finish studying so that I know that when I get to the stage of working, I work throughout. When you are doing masters, you can get a good bursary that will give you the same amount of money as the internship or even more. In an internship you can earn like R5000 and you still need to rent a flat and buy food and clothes so that money runs out very quickly whilst not having done much with it. I noticed that, we used to go to SAIAB in Grahamstown so I noticed that people doing internships are doing exactly what you are doing, they are doing research, they have to be at work in the morning, they write, so it's the same thing as what you will be doing so I think it's better to study because in the end you are doing more or less the same thing they are doing but in the end you will gain a degree and what do they get? Nothing. In the end you will get a degree. (p. 3)

On this topic, Rhodes University interviewees suggested a variety of factors that could be considered and implemented that could make transition easier for black females at honours level and attract black students in general to these fields. RUBI1 suggested that money was the first thing in that there should be more loans and bursaries available for black females and students and that students need to be motivated before they come to university about these fields. She also suggested that black females need to be taught more about contraception and advised to use contraceptives. She also suggested that research should be started at the third year level so as to introduce research to students and also to motivate them to continue, she however acknowledged that universities such as Walter Sisulu would not be able to do that due to financial pressure. She made an example of Rhodes University as one of the

universities that has been successful in motivating students. RUBI2 felt that it is not always the university's fault or the lecturers' fault that students don't transition to masters study or that they don't choose these study fields in the first place. She explained that it has something to do with the students' background and their schooling and whether the students were exposed to Environmental Studies including Botany or not. She suggested that these fields need to be advertised more, their content be made more interesting and that the lecturers should care more for their students and broaden their topics. RUBI3 suggested that there should be better work opportunities for Botanists and Zoologists as most postgraduate students at masters and PhD level are scared that they will not find jobs that pay well. She maintained that most black students go into fields like medicine and law because there are guaranteed jobs in those fields saying:

You see people getting paid so little money, I'm not saying it's about money issues but let's be honest, most black students go into careers like BCom, law, medicine, things I know that I am being taught this, after this 5 years I am guaranteed money and I'm going to be working in a hospital or whatever. You can pinpoint where you are going to work but for us there is a lot of uncertainty, I need to put myself in there or shove myself in there or post myself in there. (RUBI3, 2013, p. 8).

One interviewee from the Zoology department explained that in order for black females to reach postgraduate level, interventions had to start in high school. She suggested that environmental organisations should go to schools and talk to girls about these study fields and focus more on the rural schools where the students don't have access to libraries and laboratories so that they can be better informed about these fields (RUZI1).

The interviewees from the University of Fort Hare had a number of suggestions about how black females could be encouraged to study further and also how to attract them when they reach high school. They suggested that institutions with Botany and Zoology related mandates should go to high schools and advertise these fields as well as provide information such as which subjects to take if the students want to embark on these studies. This would allow black females in high schools to make informed decisions about these studies. They need information on the type of courses they might do in university, where they would work after they complete their degrees and what they would be doing as Botanists, Zoologists and Entomologists. They should be informed about how much money they might earn when they start working and also let the students know, particularly the black females, about their shortage in the sector especially those with advanced qualifications. They said that black females need to be convinced that it is worthwhile to do these studies and they need to know

the importance of these studies. “Create more jobs because it becomes easy to study for a sector that you know will provide you with a job after you are done and that is why people from Biological Sciences go to education because there are many jobs in education” (FHEI1, 2013, p. 5).

At Walter Sisulu University, the same points and suggestions were raised but there were also new and interesting suggestions. One of the interviewees explained that the writing up of the thesis was very difficult, WSUZI1 (2013) explained that:

Secondly, with those who are already doing honours, try to make it simple, I don't know how but you know the writing of a thesis, English is not our home language as blacks so we find difficulties when it comes to writing and it's one of the reasons why I would say I don't want to go for masters. I feel I'm not good in writing, there is nothing more frustrating for me than a write up, you read so many papers but you can't put something together so if they could have a strategy to deal with the writing part. (p. 5).

WSUZI3 thought because the field is not glamorous women are unlikely to stay in the field unless there was laboratory work and less field work.

WSUZI4 felt that she had lost all interest in the field, “I don't want to go further than this, I don't see the point of studying further in this field” (WSUZI4, 2013, p. 4). But she suggested that interventions should also start at high school level whereby there could be career exhibitions that advertise Botany and “sell” it to the students. WSUZI1 had a similar idea in which she suggested outreach programmes that advertise the fields to students and also advise students on career options and advertise postgraduate studies. During her internship she was part of the outreach programmes from the Council for Scientific and Industrial Research (CSIR) and when they went to schools and told the grade 12 students about masters scholarships that paid for everything and provided pocket money, which sparked a lot of interest in the students. WSUBI1 spoke about her department specifically and what could be done to enable black females to go for masters degrees. She explained that departments should play a role in terms of securing in-service training or internships as was the case with the department of Chemistry in her university. This is what she had to say about the Botany department at Walter Sisulu University, “I think the reason why people don't stick around our department is because they [the department] are not doing anything to attract us to stay” (WSUBI1, 2013, p. 6).

The suggestion from most interviewees that enabling conditions should be created at high school level supports the statements made earlier that they only studied Botany and Zoology at university level because they could not do their first and second choices for a variety of reasons.

4.8. Staff members' views on the constraints faced by black female honours students in transitioning to masters study in Botany and Zoology

The purpose of interviewing the staff members in each relevant department at the university who had been in the departments for longer than three years was to survey their views on possible constraints to black females transitioning to masters study. The staff members commented on a lot of factors ranging from supervision capacity to family responsibility as constraints to masters study. They also commented on enabling factors including the creation of a sisterhood among black females in these study fields. These are discussed in more detail below.

4.8.1. The proportion of black female students in Botany and Zoology departments

The aim of this category was to look at the number of undergraduate students in the departments and the number of black females with a focus on third year students. The number of third year students and black females at that level could determine the number that continued to honours and eventually to masters level. I also examined the ratio of male to female at those levels.

Staff at Rhodes University commented that at the undergraduate level in general there are not many black students in Botany and this decreases as they move to second and third year. One staff member mentioned that the number of blacks in first year is always high and has decreased significantly in third year but that he did not know why (RUBS2). The other staff member in the Botany department mentioned that in the ten years that she had been in the department the number of black undergraduate females had increased, especially in Microbiology, but as they move on to higher levels the number decreased. In terms of the third year classes, she stated that their third year classes are always small and white

dominated. RUBS2 (2013) commented on the number, gender and race of third year students in 2013:

Our third year classes are quite small so it's quite hard to generalise, we get about 15, 20 third years and there is usually only a handful of black students in third year, so at the moment, this year, there is only one and he is a guy, so there are no black females in our third year class out of fourteen or fifteen students. (p. 2).

In the Zoology department the staff member interviewed (RUZI1) also mentioned that the majority of students were white but in their department there were more females than males.

At the University of Fort Hare in the department of Botany, a staff member stated that they had predominantly black students at the undergraduate level including third year (FHBI1). They usually have between ten to twelve students at third year level but in 2012 they had only 4 students and those students were only black females. He also mentioned that even though the majority of students at the undergraduate level are black students, there are very few Coloured students. In the Zoology department, one interviewee explained that they had ten undergraduate students in 2013 and that in past years they had more than that (FHZS2). He went on to explain that at the undergraduate level as a whole, there are very few Indian and White students and that those students never finish their BSc degrees at UFH. FHZS1 stated that of the third year students that they had in 2013, the majority were female.

It was a different case at Walter Sisulu University as the department of Zoology has a high number of third year students with thirty students in 2013 of which all was African. He (WSUZI1) did not mention the ratio of males to females at the undergraduate level.

From the number of students in third year, the next step was to determine the average number of honours students that each department enrolled in recent years. In the Botany department at Rhodes University there were approximately ten in the last four years (RUBS1) with 2012 marking a milestone for the department with more black students than white students and more female than male. In the Zoology department they had seventeen students in 2013 of which the majority were female white students, "Traditionally, I'd be lying, I would imagine, in terms of gender we tended to have a more of a bias towards female students, so it tends to be more female students than male students. In terms of race, clearly there is a strong bias towards white students" (RUZS1, 2013, p. 1). From the above information, it can be deduced that the average number of honours students enrolled in both departments at Rhodes

University varies year to year between ten and twenty students with a majority of those honours students being African females (see Table 4.8).

In the Botany department at Fort Hare University, FHBS1 stated that they enrol on average five to six students per year, mostly black and female and that they had four students in 2012 of which all were black females (FHBS1; FHBS2). FHBS2 (2013) stated that, “Since then [1992-1993] as a staff member I don't remember having males, there was only one person and he was also among females, his name is Lwandiso. He was among 4 females, so it's very rare that we have all males”. In the Zoology department the staff members commented that they usually had between five to eight students a year at the honours level (FHZS1; FHZS2) and that the highest number was ten (FHZS2). Of the total number of honours students that they enrol per year, the majority are black females according to both staff members in the Zoology department (FHZS1; FHZS2). (Table 4.7 indicates that both departments enrol an average of five to ten honours students as shown by the number of honours students enrolled in the majority of the years between 2001 and 2011 with a majority of African female honours students).

At Walter Sisulu University, the staff members interviewed in the Zoology department stated that they had between eight to thirteen honours students in the last three years but on average they enrolled eight students of which most were black females (WSUZS1; WSUZS2). According to WSUZS2 (2013), the Biological Science department at the university failed to attract honours students and even undergraduate students from other universities and in terms of race, they also fail to attract other races such as whites and mostly attract black students from within the Eastern Cape. In the Botany department, the number of honours students enrolled per year varies considerably but for 2013 there were four full time students that were all African (WSUBS1) and in most years the classes were African female dominated (WSUBS2). However, these figures contradict what the HEMIS data on Table 4.6 depicts that both departments combined only managed to enrol less than five honours students for a number of years between 2001 and 2011. In terms of having a majority of African female honours students, the information provided by the staff members confirms what is depicted in Table 4.6.

Regarding the number of black female honours students in the departments over the past few years RUBS2 explained that the number had increased to some extent because of bringing in students from other universities, predominantly from Walter Sisulu University and from their

own students. This was not the case in the Zoology department at Rhodes University as a staff member stated that there has not been any increase in the number of students at the honours level (RUZS1). At the University of Fort Hare one staff member explained that the numbers vary from year to year (FHBS1) while the other mentioned that the numbers were level (FHBS2) while FHZS1 stated that in the Zoology department the numbers stayed the same. At Walter Sisulu University, in the department of Zoology staff members were not sure whether there was an increase but knew that there were always more females than males (WSUZS1) but WSUZS2 thought that the numbers were increasing. The Botany department in Walter Sisulu University expressed a different scenario saying that the overall number of honours students had drastically decreased irrespective of gender as race was not an issue as the majority of students were African (WSUBS1; WSUBS2).

With reference to the masters level, at Rhodes University both departments saw an increase in the number of black females. The Botany department increase had been observed at all levels from the undergraduate level to postgraduate level but a noted increase in the number of black students and black females at the masters level was observed (RUBS2) remembering that there are mostly white students at the masters level (RUBS1). In the Zoology department, RUZS1 estimated that the number of African females in masters and PhD studies increased by 50 % resulting in an almost 50/50 ratio of black students to white students in the last few years and that the problem the department faced was not attracting students but attracting and retaining students from within the system at Rhodes University. In the Botany department at Fort Hare University, the numbers fluctuate yearly and in 2013 there were four black females at the masters level out of six masters students (two were males) (FHBS2). In the Zoology department the numbers balanced out at masters level with more males coming in (FHZS2). At Walter Sisulu University, the number of postgraduate students in general were said to have decreased drastically in the Botany department with no students registered for masters study in 2013 (WSUBS2) while in the Zoology department the gender ratio was 50/50 at the masters level for 2013 (WSUZS1).

In terms of race and gender in distribution of honours and masters students , the University of Fort Hare and Walter Sisulu University had the highest numbers of black female students while Rhodes University still had the most white students in both departments especially at the undergraduate and honours level.

4.8.2. Race and gender consideration in applications for postgraduate studies

Under this category, the main aim was to investigate whether race and gender was taken into consideration by the departments when evaluating applications for honours and masters study or whether the dominant criteria taken into considerations are marks.

At Rhodes University Botany department one interviewee said he did take race and gender into consideration when evaluating applications but predominantly he looked at marks and potential, “I do. I pushed to have you guys (black female honours students of 2012 from Walter Sisulu University) on board because I was HOD I could just do it but it's predominantly marks and potential” (RUBS1, 2013). He went on to say that he made a concerted effort to accept applications from Walter Sisulu University students for honours study who were black students but explained that they could only take students with 70 % and above as they cannot benchmark marks from students in Historically Black Universities as often they are behind academically. His colleague (RUBS2) commented that as a department the primary thing they look at are the marks and whether they have obtained the 65 % that is the entry requirement in the department but also the qualities of the applicant. She (RUBS2) said that as a department they are aware of their responsibility to grow the pool of black female botanists and black botanists in general and that is why they have been taking quite a lot of students from Walter Sisulu University. At the Zoology department only marks are taken into consideration (RUZS1).

This is also the case at Fort Hare University where in both the departments the marks are the dominant criteria affecting selection (FHBS1; FHBS2; FHZS1; FHZS2). One staff member in the Botany department explained that as a department they had not yet questioned the lack of males and had not identified it as a problem yet. He mentioned that they looked at the marks and whether people met the entry requirements and that what is interesting in the department is that there are more males coming from other countries such as India and Cameroon but there are more females coming in from within South Africa (FHBS2). The Zoology department also looked purely at marks and one staff member went on to explain that since Fort Hare is a Historically Black University, it has 99 % black students and so they have never had to look at race and they also do not consider gender (FHZS2).

Both departments at Walter Sisulu University stated that only the marks are considered when evaluating applications, this involves assessing whether the students meet the entry requirements of 60 %. WSUZS1 explained that although it is university policy to look at race and gender that normally does not play a role during application evaluation. She explained that what they do consider is potential and if a student does not meet the entry requirements then they interview the student and consider other qualities they might have. Her colleague explained that the number of applications they receive is too few for them to be picky (WSUZS2). This is also echoed by a staff member in the Botany department who said that they did not receive many applications so were not able to pick and choose (WSUBS2).

When asked whether individual staff members thought that race and gender should be taken into consideration when evaluating application forms for postgraduate study, one Rhodes University staff member said he did take race and gender into consideration as he made sure that when he was the head of department he went out of his way to ensure that more black students were accepted for honours in Botany. He explained, “I just think maybe, I am a little bit aware and conscious of the difference between ability or capability or potential ability and capability versus what their background has enabled them to achieve” (RUBS1, 2013, p. 2). He explained that many academics may not see the importance of looking at race and gender because they do not understand or even try to understand other cultures and that is what is needed to open one’s eyes to the different cultures out there and that is what he tried to do. However he does acknowledge that in taking race and gender into consideration that should not compromise the quality and level of education and that when the department is evaluating applications from students from other universities, they do not do so blindly, they investigate to find out what kind of students the applicants are. In the Zoology department, one interviewee explained that as a department they do take an active role in attracting people of colour into their postgraduate programme but the few applications that they get are too weak and it would be unethical on their part to accept those students just because of race and gender. He explained that they study each and every application that comes through because they do want diversity in the department but bringing about that diversity has proven to be more difficult than they initially thought, “I would hate to see a situation where we are accepting African students into the system and they start failing because of insufficient background” (RUZS1, 2013, p.2). He also explained that as a small university and department, they cannot compete with bigger universities in terms of accepting these students and then providing them with sufficient bursaries and financial aid.

In the department of Botany at the University of Fort Hare, FHBSI1 did not think that race and gender should play a role in studies of any kind and that all students should be accepted no matter who they are, male or female as long as their marks are good as they used to do at the University of Port Elizabeth when he was working there. In the department of Zoology, both interviewees felt that race and gender should not play a role and felt that marks matter the most. FHZS1 felt that the issue of race and gender has already been addressed in terms of the provision of bursaries that prioritise black South Africans, as do job applications in the work place and felt that as academics, they should not go that route.

At Walter Sisulu University, staff members in the Zoology department were in agreement that race and gender should not play a role and what needed to be considered is academic merit only. WSUZS1 felt that in the times we are living in now, there is nothing a person can't do whether they are male or female. Her colleague WSUZS2 felt that race should play a role at the undergraduate level as many black students come from disadvantaged backgrounds but in doing so, they should ensure that education standards are not minimised at the university. He (WSUZS2) said that when black students enter university they are usually behind and need to catch up and that is when race should matter. He however asserted that race should not play any role at the postgraduate level as at that level we deal with quality and not quantity. In the Botany department, one staff member commented that she was so bored with this whole race issue and wished people would just drop it and carry on with life. She mentioned that doing things for people based on their race compromised them and their pride. She went on to say that at the university race was not an issue as the university is almost 100 % black but she explained that what she found more difficult was being a woman, "Where I do find it a little more difficult is being a woman, it's a culture shock in many ways because I'm not accustomed to the way some black men think of women generally" (WSUBS1, 2013, p.3).

4.8.3. Problem of few black female honours students transitioning to masters study in Botany and Zoology departments

Under this category, the aim was to find out whether the two departments in each university have experienced fewer black females at honours transitioning to masters study so as to verify the reality of the situation.

At Rhodes University, according to RUBS1, as a department, they have done well in terms of the turnover of black females from honours to masters study. He however presented another worrying phenomenon that of black students in Botany exiting in first year. He said that they do not want to move on as there are only a few black students as you move up from second year to third year. That is an important observation on his part that requires further investigation. His colleague (RUBS2) explained that it varies from year to year but they had a good recapture rate in terms of black females at the masters level in 2013 but there have been years where retention from honours to masters has been really low for black females (RUBS2). At the University of Fort Hare, FHBS1 pointed out that they have had problems in the Botany department of black females not transitioning to masters because of wanting to work and earn money and that jobs go to students doing masters or PhD degrees. In the Zoology department FHZI1 reported that they have experienced lower levels of transition of black females to masters study but asserted that it is not a departmental problem but a national one. At Walter Sisulu University in the department of Zoology both staff members interviewed expressed that very few black females (WSUZI1) and students in general transition from honours to masters study, “So really when it comes to masters intake, no I have not seen any student coming from honours within the department and opted for masters” (WSUZI2, 2013, p. 5). In the department of Botany, staff members reported that black females and students in general change fields and go for medicine and other fields and do not even do honours (WSUBS1; WSUBS2).

4.8.4. Knowledge of fields of study by students coming in at first year

The aim of this category was to establish from the staff member’s observations of first year black female students and black students in general whether they knew about these study fields before coming to university or whether they just ended up doing them because they could not do their preferred choices. This matter is raised in section (4.4.1).

At Rhodes University Botany department a staff member confirmed that students had no idea about Botany when they arrived at the university (RUBS1). He explained that the reason why many black females and black students in general do not know about these studies before university goes back to the colonial era where women especially were expected to do caring jobs like teaching and nursing as those were considered appropriate studies for girls. He says

that kind of mindset could still be entrenched especially in the tribal cultural system and most villagers don't know what Botany or Zoology is (RUBS1). Staff members in the Botany department at the University of Fort Hare (FHBS1) and a Zoology first year course coordinator (FHZS2, 2013) described the difficulties faced by first year students:

I am the course co-ordinator for the first year, so I deal with first year specifically. So the thing is with them is that most of them actually don't have the background like for instance some of the students here have never seen a microscope which is something that if you did biology in high school, it's the first tool that you need to know and have access to. So we have difficulty with that because we have students that do know the basic biology but it's not good enough to sustain them in the zoology field because as much as you might think biology and zoology is the same thing, it's more advanced and you have to have the thinking skills to be able to answer the questions and things like that and that's where they struggle, they are not able to answer questions and explain the concepts in zoology so I think that's what they miss out. (p. 1).

Walter Sisulu University staff members IN both departments also reported that the students had no idea of these studies (WSUBS2) and most wanted to go into medicine but were unable to and went into Biological Sciences because they thought of it as a bridge to medicine (WSUZS1). This confirmed statements by the students to this effect.

4.8.5. Constraints faced by black female honours students in transitioning to masters study in Botany and Zoology: Staff perspectives

In this section the aim was to find out from the staff members what they thought hindered black female students in their departments from transitioning to masters study.

Rhodes University staff members in the Botany department had quite a lot to share on the issue of constraints. RUBS1 focused on how the black females in the department were very hesitant to speak out and ask for help. He mentioned that there were very few black females in the department who actually engaged and most were quiet; even though financial issues were the obvious constraints for black females, there might be other social constraints at home. RUBS1 (2013) explained:

You [me] were bit of an exception, I don't know why but you were, but and especially the girls, they are very very very hesitant to open their mouths, they won't admit that they are struggling, they won't admit to anything. And I still don't know whether it's simply a male or female thing or what but there are many many black students,

especially the girls, they don't want to engage in a discussion as equals or as a discussion to expand their intellectual understanding, they want to be given a piece of paper to go away and write and that is what you guys [previous black female honours students from Walter Sisulu, including me] struggled with in honours because we do not do that and I mean I've seen it again this year. (p. 3).

Another staff member in the department of Botany mentioned a number of obstacles in the way of black female honours students in masters transition. Funding and the struggle to get funding was mentioned as a major obstacle and that even though departments sometimes do have bursaries to offer students; it is about good bursaries that students can live off that matters and not just a bursary of any amount. She also explained that by the time students get to honours level, they have been at a university for four or five years and they start feeling pressure to start earning money and sometimes there is family pressure for them to start working. She also believed that there is a lack of knowledge of careers in these study fields and that people start to feel uneasy when doing their honours about where they might work and become even more reluctant to do their masters without the surety about careers they can go into. She mentioned that when students decide to go and work, it is very difficult for them to go back to university and advance their qualifications because by then they would have had families and children. Lastly, she added expectations from family and partners as obvious constraints. RUBS2 (2013) explained:

I think all the same ones [constraints] plus there might well be extra ones, expectations from families, expectations maybe from partners, you see that's something I don't really know enough about but I think for women especially, now you're in your mid-twenties, you might have a serious relationship, you might not be having kids yet but your partner does not want you to study more especially if you live somewhere else so the same pressures would be on men and so on, but my guess would be that if you are black and female you might experience those sorts of pressures more strongly on average than other groups. (p. 12)

RUZS1 in the Zoology department expressed his belief that there is strength in diversity and that issues of education and transformation should be looked at more closely in order to prevent irreparable damage. However, he explained that gaining diversity is more complex than previously thought and that interventions should start at primary and secondary schools to encourage all students to go into the sciences. He then affirmed what RUBS2 mentioned about the lack of employment opportunities as perceived by students and black females:

I also do think that one of the big concerns and I have alluded to this before is the lack of apparent employment opportunities. The reality is that students are coming in, there

is enormous socio-economic burden on these students, they need to go out and earn money and they have extended family, so for students to spend [time and money] to do honours and to do masters and PhD, it's an enormous financial commitment from families and often those families are struggling so it's about perception as far as I am concerned. (RUZS1, 2013, p. 3)

At the University of Fort Hare, one staff member observed that the two major constraints are that they are females and they are going to have families and children and husbands and that most of the time it would depend on the husband whether he wants his wife to study further or to stay at home and be provided for. He then also mentioned that the females themselves may not want to study further for fear of being more qualified than their husbands. He said there is a cultural factor influencing black female's decision in studying further, "It's also part of the culture that even the females feel that they've got to get a qualification but they must not get too qualified if that makes sense" (FHBS1, 2013, p. 3). However, he did make it clear that in the department they have had more black females than males. A staff member in the same department said that although he did not see the lack of black females as a challenge in the department, the perception that science is a field for males needs to be addressed. Some departments or work places see women as people who don't like to work or people who always have excuses as he experienced with his female student who did not want to do field work. He also stated that females are too attached to home and have social lives that they tend to. He explained that black females need to be more committed to these fields. Lastly, he explained that some black females could be afraid to enter a male dominated area such as Botany.

In the Zoology department, FHZS1 explained that what needed to be understood in a South African context is that people with advanced qualifications such as PhD's tend to be mostly white males and that it is not only black females who need to break through but blacks in general especially in the marine sciences. He said the problem is that many females are not given a chance to do advanced qualifications and some people think about the time it takes to do a masters degree and a PhD degree and so are not given a chance to do them at work or at home. He also mentioned that black females may also lack role models especially in marine science, his specialisation. He also mentioned that there may also be cultural issues especially with studies related to water as many blacks cannot swim and do not want to disturb creatures under water. FHZS2 (2013) asserted that the greatest challenge for black females is the pressure of having a family and children:

The biggest challenge is there is a lot of compromise; you need to compromise a lot so I get a lot of pressure also but because I know where I am going I stick to what I want to do. So I think with females, the most important thing, they get to a certain age and they feel that they need to be married, they need to have kids, they need to have a house and if you are going to do a masters or PhD that is exactly at that time when you want to do these things so it's a matter of, the compromise comes in when you say, ok, I want to put these things on hold and concentrate on my work. Honestly speaking there is no way you can tackle the family life with a masters or a PhD, it's too much work so you need to put one of them on hold. I don't know, most people choose to pursue their families and all of that. I think that is the greatest challenge with females, ja. (p. 4).

She also stated that as a black female it is difficult to enter the field and “crack it” as it is predominantly white dominated and as a result as a female you have to work twice as hard and prove your worth in the field of Zoology. She said that some people don’t take your work seriously especially if you are a black female but that only means you need to work hard and be consistent as she constantly needs to prove herself not only to her colleagues but to her students. She said black females do not want to study further in the field because it is dominated by white males.

At Walter Sisulu University in the Zoology department staff members mentioned that black females tend to start families as they sometimes finish their junior degrees at quite a mature age and by the time they get to honours they may have already have children and if that is the case then the priority would be to work and support their families (WSUZS1). She is a staff member faced with a similar challenge as she wants to do her PhD but the university she wants to attend is far from home and so she does not know who she will leave her children with so she spoke from experience. Her colleague maintained that most black students have family responsibilities and after they finish their first degrees they are expected to work and bring money home. He explained that by the time many students finish their honours degrees they are exhausted from studying. He also mentioned that the field is not exciting and that may hinder black females in transitioning to masters study. He added that in terms of job opportunities in the field, a person relies on luck and not competitiveness and so many black females don’t see the point of doing a masters degree.

In the Botany department, WSUBS1 explained that although she did not know about the family dynamics and difficulties as well as prejudice against education that might exist in the black female homes, she would not be surprised if those kinds of problems existed. She mentioned that she thinks that one of the possible factors in stopping black females in

continuing with their studies is family pressure and those who are married or have boyfriends very often have to balance that and the expectations from spouses that they will remain bosses of the household. She also mentioned that black females may not want to study further because of being afraid of being too qualified in comparison to their husbands (those that are married), “You know if you are married for instance and you now want to maybe study, is your husband going to be upset by the fact that that you now have higher qualifications than he does etc. etc. but this is something that I wouldn't know very much about” (WSUBS1, 2013, p. 3). WSBS2 commented that the saying goes that a woman that is too educated does not get married.

These findings reveal that the majority of the constraints and hindrances to masters study for black female honour students included financial constraints, cultural factors, lack of knowledge of job opportunities in the field, family responsibility, having children and getting married, being too attached to their homes and lacking commitment. Not wanting to be more qualified than their husbands was also mentioned a few times along with students being exhausted by the time they finish their honours and wanting to earn money.

4.8.6. Funding

As most of the students mentioned that one of their biggest constraints was the lack of funding or insufficient funding (see section 4.5.5.2.), the aim of this section was to find out how staff members select students for funding. Since funding is a known problem is there a structure in place or effort made to ensure that black females actually obtain funding to further their studies.

At Rhodes University, staff members in the Botany department mentioned different ways that they used to consider a student for funding at the postgraduate level. One mentioned that a student's interest is all he needed to consider providing funding for a student (RUBS1). On the other hand RUBS2 stated that first of all the student needs to be capable of undertaking postgraduate studies and that they try to aim for a mix in the sense that everyone does want brilliant students but as not all students are very clever each student needed to be considered individually. She explained that for black students they make more allowance as they are aware of the need to train them in the field of Botany but even then they don't just provide funding just because of the colour of their skin as that would not do anyone any favours if the students were not able to cope with postgraduate studies (RUBS2). In the Zoology

department RUZS1 explained that for him it is not only academic excellence that he considers but he also looks at financial need and the willingness of the student to work hard and that he tried to ensure that every student in the department had equal access and equal opportunity to obtain funding and money.

At the University of Fort Hare in the department of Botany, one staff member stated that if a student had good marks and is interested in carrying on with their studies then as a department they can organise funding for them (FHBS1). FHBS2 explained that students themselves go to the NRF offices at the university and apply for funding there. In the department of Zoology the staff members explained that they fund students according to their marks and students also apply for funding through the NRF office at the university (FHZS2).

At Walter Sisulu University, Zoology staff members mentioned that students also get funded through NRF as they don't have internal funding and bursaries (WSUZS1) and that there is no guaranteed funding at the university for postgraduate students (WSUZS2). Staff in the Botany department also mentioned NRF funding and that there was no internal funding for postgraduate students (WSUBS1) and that it was better if students come with their own funding from outside the university (WSUBS2).

4.8.6.1. Financial aid as an enabler for transition of black female honours students to masters studies

In this section, the interviewees were asked whether they thought that the provision of more funding would attract more black females to these studies and actually enable them to transition to masters study. Aid would be in the form of bursaries and scholarships since the majority of students indicated that they prefer these to study loans that needed to be paid back later.

Rhodes University staff members in both departments reported that they do believe that more financial aid would attract more students in general and not only black females (RUZS1) and that more funding could assist any student irrespective of race and gender as the cost of living had risen and bursaries can no longer support the students and all their needs, especially those coming from financially disadvantaged backgrounds (RUBS2). FHBS1 agreed that an increase in bursaries could help all students, male or female because the "cost of living is going up and the bursaries are not enough". He went on to say that even though increased bursaries could help attract students and black females, the basic problem that needed to be

addressed is the lack of job opportunities and that finding students jobs after they finish their degrees could make a big difference. FHBS2 believed that although more money and funding was needed, the most important thing is commitment to the field as he did his PhD without funding because he was committed and wanted to do it. According to FHZS1 funding is available especially for black females as most bursaries try to address the issue of equity, he does however acknowledge that it is insufficient. Like his colleagues, he explained that the students themselves need to want to do these studies and be inspired to do them. FHZS2 also substantiated the notion and said:

There is funding. Like I know here, they really have a lot of funding in terms of attracting students to do postgraduate studies. I think the problem is linked when it comes to funding, is they need to find a way that a student gets enough money to feed their family or give their family or something like that so that they don't have that pressure to get a job, that they can still study and still maintain a family. So I think that is where the funding thing comes in so it's ok now and the problem with funding here is that it's mostly linked to, the money goes to your research and to books and paying tuition but your daily life which is the food you're eating and stuff, that's not catered for so I mean still your parents need to pay something so if they can just cover that aspect of ok, even your food and everything will come out of this funding so that there is no pressure for the parent to say, you need to get a job and things like that, ja. (2013, p. 4)

At Walter Sisulu University, a Zoology staff member felt that more funding could help students support themselves and allow them not to depend on their families. Some families are unable to fund their children for further studies as was the case with one of her students whose family had stopped funding him during his honours year and he was unable to feed himself. She believed that more funding could help in such cases (WSUZS1).

4.8.7. Home background

Many of the staff members mentioned that most of the black females and blacks in general come from disadvantaged backgrounds i.e. school and home background. As this was a recurring issue I decided to investigate it further.

Staff members from Rhodes University expressed the opinion that black students coming from outside the university are conservative and shy and this is attributed to their home background and the type of university that they come from. These students are said to experience a culture shock when they come to Rhodes in the sense that they are not used to engaging with staff members in a casual manner (RUBS1). Also, RUZS1 observed that most

of the black students are the first in their families to come to university and that there is a huge financial burden associated with that. He went on to say that the many black females that he has been in contact with have been under such pressure from home, RUZS1 (2013) explained:

Oh yeah, look, I mean we all know that you know students in many instances, students come to varsity and they are one of only in the whole family [to go to university] and there is a huge financial constraint and I've had a number of black female students who have been under those pressures, the idea of get your degree and go out and pay and then providing an extra safety net in terms of socio-economic stability, there is an enormous burden and I think it's something that I suspect the vast majority of white students don't really understand because they come from a very different background in terms of privilege but also in terms of the way their family structures are organised is very very different. (p. 3).

At the University of Fort Hare a staff member mentioned that he found that the black females and females in general are more attached to their homes,” You will start hearing that a person needs to go home now [when it is time to start their research], that begins to have bad implications” (FHBS2, 2013, p. 1). In the department of Zoology, a staff member asserted that the home background definitely played a role and was the main reason why black students and black females did not pursue their studies. FHZS2 (2013) went on to explain that:

I think it absolutely plays a role and that's the main reason why they don't go further. With my students, all the masters, all the honours students I ask them why don't you do a PhD or a masters or carry on and they say, no we are under pressure from our homes because we need to provide for our families therefore it's really a matter of that they need to get jobs immediately which is why they can't stay for so long because almost getting to a PhD it's like another 10 years added to the 3 years of a BSc degree so they can't wait that long. The parents have exhausted their funds and they need them to get a job so that they can be taken care of or whoever, the siblings can be taken care of. So I think that is the major thing, that's why they don't do it. (p. 4).

Commenting on the same point, staff members at Walter Sisulu University also agreed that the home background of many of the black females they had encountered played a role in hindering their transitioning (WSUBS1; WSUBS2). WSUBS2 (2013) commented that, “ I think that one of the possible factors in stopping them from either studying at all or carrying on after a degree is family pressure” (p. 4). WSUBS2 (2013) also mentioned black females coming from disadvantaged backgrounds and needing to support their families instead of continuing with their studies:

Most of them come from poor and disadvantaged backgrounds so the parents are under the impression that this is the child who will deliver them from poverty so when a student gets their degree they are under pressure to work so as to alleviate poverty at home but unfortunately these degrees don't help them much so how can they be motivated to continue? (p. 5).

4.8.8. Supervision capacity

In this category, the aim was to investigate whether the department's supervision capacity could be a hindrance to the honours students' transition to masters study i.e. whether the availability or unavailability of qualified staff members to supervise postgraduate students especially in the upper postgraduate studies could hinder or enable transition.

At Rhodes University, both staff members in the Botany department agreed that at the honours level, they believed that they were at full capacity in terms of availability of staff members to supervise. Staff members mentioned that because their department is small they cannot take a lot of students especially at honours level because of space and capacity in the department. With regard to masters and PhD students, staff members at the department felt that there was spare capacity there as most staff members were not currently supervising any masters and PhD students. Also, RUBS2 mentioned that additional academic staff members would not mean that they would attract more students as the problem was not the supervision capacity, but lack of enrolment. In the Zoology department, RUZS1 mentioned they limit the number of students they take at the postgraduate level because if they allowed big numbers that would mean they would not be able to provide proper supervision especially at the honours level.

At the University of Fort Hare in the department of Botany, FHBS1 explained that they also do not want too many students at the postgraduate level especially at the honours level because of supervision capacity as staff members also lecture and are also busy with their own research as well as supervising honours, masters and PhD students. His colleague, FHBS2, explained that supervision was a problem in the department with particular emphasis on honours supervision as staff members in the department do not want to engage with honours students and do not want to supervise them because they don't see any incentives in doing that. In the Zoology department, FHZS1 also responded that although they would like to have more students in the department, supervision capacity was an issue.

At Walter Sisulu University, staff members reported that they do not have enough supervisors and especially enough qualified supervisors (WSUZS1; WSUZS2). WSUZ1 explained that as a department they are not equipped in terms of having enough supervisors with PhD's. She has a masters degree and therefore cannot supervise beyond honours level. She mentioned a similar problem experienced at the University of Fort Hare in the Botany department where supervisors who are qualified not wanting to supervise honours students. In the Botany department staff members stated that they lacked supervision capacity (WSUBS1; WSUBS2). WSUBS1 explained that the department lost a number of staff members who were actively involved in supervision and as a result the department was in short supply of qualified staff members. WSUBS2 (2013) reported that:

That is the problem; students are taken for postgraduate studies when there are no supervisors available to supervise them. I think they are avoiding a situation where there are no students at all at the postgraduate level, for example students who were taken at the beginning of the year were meant to be supervised by Dr so and so but the doctor couldn't take more than two and there were five applicants and they were accepted regardless. (p. 4).

4.9. Constraints faced by black students undertaking studies in Botany and Zoology

Since many of the staff members mentioned that these fields of study lack black females but also blacks in general I decided to investigate this further and find out why they thought black students were not interested in the fields from first year through to postgraduate level.

RUBS1 from Rhodes University asserted that the reason why many black students do not study these fields and are not interested in them is because they want to work and earn money. He said that things will only change some decades from now when black students do not have the responsibility of supporting their families, RUBS1 (2013) further explained:

It will come right 50 years from now when there is a big black middle class, a decreased influence of the tribal patriarchy and a social system where there isn't a strong need to support the entire family. So somebody will choose to go do Botany instead of medicine because even though medicine will get them three times a salary to support their family, they don't need to. That is where we will start seeing a difference. (p. 6)

On the other hand, RUBS2 insisted that in her opinion, Botany is probably the least popular choice of study for black students as it is boring in high school and not representative of what

Botany really is. She continued to explain that in high schools Botany is mostly taught by teachers who themselves do not find Botany interesting and who were Zoologists by training. She pointed out that even though there were few blacks in Botany, the situation was better than ten years ago when blacks were virtually absent in Botany as there are more students who nowadays say they love nature and want to do Botany and there is now a higher percentage of black students who go to private schools. In the Zoology department, RUZS1 felt that the reason for black students not going into Zoology was because of the limited job opportunities in Zoology compared to other fields of study. He believed that it was not a gender issue but a race issue in which people of colour are not exposed to studies such as Zoology.

At the University of Fort Hare in the Botany department, the feeling was that black students do not feel that there are job opportunities in Botany (FHBS1). In the Zoology department the feeling was that students in general tend to follow trends and want to do what everybody else is doing in terms of studying. FHZS1 explained that students were once fascinated by Information Technology because everyone else was doing it and it was cool to do it and he believes that the time for Zoology will also come where it is fashionable to do Zoology.

At Walter Sisulu University WSUZS2 explained how black people in general viewed nature and biodiversity and how that view influenced black student's choice of study. He explained that most black people feel that they don't benefit from nature and do not see a link between themselves and nature, unlike white people who have sufficient resources. This was his explanation, WSUBS1 (2013):

There is an old saying that conservation is a rich man's hobby, what that means is that priorities are not the same so if you have enough food, you can protect things, if you don't have food you chop everything so that you can get food first, you don't worry about nature and all those things. So the attitude as it stands with South Africans is that for us [blacks] biodiversity in South Africa is meaningless, why am I saying that? The first thing, no black person owns a Rhino, white people own Rhinos and yet we all have to protect the Rhino and you say a student must study to be a zoologist because zoologists protect nature and yet this person has got no link with that nature because nature never benefited anyone in his or her family or anyone that he or she knows so that's the first thing. There is no link or relationship between black people and botany, there is no relationship between black people and zoology because there is a link with black people with agriculture and not with plants because we try to encourage somebody and say you know we want to know about the diversity of plants and animals and they will say why, that's the first question they will ask you, what am

I going to do with that? Knowing the plants so what, I know the necessary plant that I need in my life but why do I need to know about a Buffalo because whether the buffalo exists or not it is worthless to me, I never benefited from any natural product from this country so that's the first thing. (p. 11).

He suggested that for these studies to be appealing to black students, their mindset needs to be changed towards these studies and in order to do that, people should be shown the benefits of doing these studies. As it stands now, these fields are dominated by white people and he used as an example the small number of blacks registered with the Zoology and Botany Associations of South Africa.

4.9.1. Enablers to masters transition

The purpose of this section was to find out what the staff members thought could enable and motivate black female students in transitioning to masters study in the respective universities. Staff members were also asked what suggestions they would make to create enabling conditions for master's transitions from their experiences and observations.

RUBS1 from Rhodes University in the Botany department believed that the only way enabling conditions could be created for black female students to study further beyond honours was if the question being asked was not what can be done by other people but what can they do with an enabling and sympathetic environment for themselves. He believed that the only other way that black females could be encouraged to study further was if a sisterhood was created and if they had access to mentors who are successful black females in these fields, "And the only way it's probably ever going to work is if successful black female students like yourself, like Fiki [his former black female Botany student who is now working as a botanist] and whoever, are allowed to be mentors, advisors, what have you, and that there is a sisterhood which helps everybody through the system" (RUBS1, 2013, p. 4). He further explained that interventions cannot come from white males and females and even black males but need to come from African women themselves who need to realise that in today's South Africa they can do anything. RUBS2 also in the department of Botany believed that it really helped and motivated black female honours and undergraduate students when they saw other black female students doing masters degrees and that is what they try to promote in the department by taking black female masters students on field trips to show there are black females who are enthusiasts about Botany and who are furthering their studies in the field. She also believed that there should be more emphasis on employers in the biodiversity sector

to give time off to those employees who want to go and further their studies because it is very difficult to go back to university to do your masters and leave work and a monthly income behind. She also emphasised that she knew from experience that it is difficult to study and work at the same time so employers need to make it easier and possible for their employees to do their masters and PhD's. RUBS2 (2013) explained:

So part time studies are very difficult for the student and for the supervisor but I totally understand the trickiness and if the biodiversity sector identified this critical hole.... There should, I think also be some support from their side to allow employees to focus on their studies for the two years or whatever that is required because it's actually going to be productive all round, I mean they should obviously be doing research that is relevant but they would have their salary and they would be able to study. (p. 8).

In the Zoology department a staff member pointed out that black female students and black students in general need to see a future in terms of job security and to know that they will find work after studying. He explained that there needed to be a working relationship between government and universities as government is the largest employer of natural scientists and then students would know that they are secured jobs. He added that career exhibitions could also play a bigger role in terms of advertising Zoology and what Zoology entails. He said that most black female and black students who come to the university come from poor homes and they need jobs so their career choices are determined by doing something that would lead them out of poverty and so they choose careers where they can be paid well.

I think, my feeling is if you grow up surrounded by poverty which I think a lot of these kids do, when you make choices in terms of what you are going to do, the foremost thing in your mind is that I don't want to be poor so you then have to deal with people, change their perceptions and then to a large extent their career choices are made by those decisions and I think it is a tough career, it's a career in terms of making a really good living because the salaries that are paid whether it's in academia or whether in government is not as much as what you could earn in industry. (p. 7)

At the University of Fort Hare FHBS1 believed that interventions should start at school level where all students and not just black females are taught about Botany and what it is and what botanists do and what job opportunities are out there. He suggested that students should be taken to universities to visit Botany departments to see what the subject entailed. He added that Kirstenbosch Botanical Garden should play a bigger role in advertising Botany and raising its profile. His colleague felt that as a department they should start moulding their

students who are at the masters and PhD level to fill the posts for employment in the department. He believed that the only way to change the ratio in the biodiversity sector of 80 % males and 20 % females to 50/50, would be to give black females a chance at employment.

At Walter Sisulu University, WSUBS1 explained that the only way to spark interest in students and encourage them to study further is if they saw active research in their departments taking place. Part of this was having the necessary facilities in the university and department to undertake projects that could help retain students in upper postgraduate studies as not having facilities limited the kinds of projects that can be offered as is the case in her department where most of the equipment they have is old and broken.

In summation, in this section staff members highlighted interventions that need to start at the school level, black females creating a sisterhood and having access to black female role models and also seeing other black female student at masters level. Another issue that was raised was that the biodiversity sector, as an employer, should play its part in allowing those who are working to take time off to do their masters and PhD's while still getting their salaries. Creation and promotion of jobs in these fields was also a popular suggestion as well as having career exhibitions to promote these studies.

4.10. Conclusion

This chapter presented the data generated during the data collection process. Findings from the questionnaire analysis and interview analysis were presented. The chapter gave an outline of the current status of honours and masters study in the country and in each university under review as well as an overview of the constraints and enablements to masters transition from both the students' and staff points of view.

Between the years 2001 to 2012, the number of honours and masters students and black females in particular in Botany and Zoology varied but decreased in 2010. This decrease in graduation numbers of honours and masters students can be attributed to the CESM category change that was enforced in 2010 that led to the separation of Botany and Zoology (no longer Biological Sciences) resulting in the numbers of graduates not being combined under one banner (Biological Sciences) but being presented separately for each study field (see section 4.2. for further explanation). Data also showed that female graduates also declined between 2009 and 2012. This was also the case for black female graduates. When looking at black females nationally in these two fields, it became evident that there were more African

females than Coloured and Indian females as was the case in the individual universities (see section 4.3).

The chapter also looked at the factors constraining and enabling honours students in general and black females specifically. Constraints ranged from the lack of work opportunities, family responsibility, financial constraints, lack of understanding of study fields by parents and communities and wanting to be independent and wanting to work to black females being lazy and being afraid to enter male dominated fields among others (see section 4.4.5.). Enablers (section 4.7.) ranged from having aspirations and a desire to succeed, having family and financial support as well as support from supervisors, working hard and not giving up when faced with challenges as well as job security to allowing other black female masters students to be mentors to their juniors as well as creating a sisterhood where black females could help each other to succeed and study further. These constraints and enablers emerged from information obtained from both students and staff.

The next chapter discusses these findings in depth and relates them to relevant literature and theoretical grounding. The chapter focuses on explaining what the findings mean and their implications for the implementation of the Biodiversity Human Capital Development Strategy of 2010.

CHAPTER FIVE

Why few black female honours students proceed to masters study: Implications for the biodiversity sector

5.1. Introduction

This study was an investigation into black female honours graduates' decision-making regarding why they do or do not continue to masters study in Botany and Zoology in Eastern Cape universities (see section 1.4 regarding the research focus). The study had four research sub-questions that aimed at answering the main research question: What are the factors that constrain or enable black female Botany and Zoology honours students in making the transition to masters studies in Eastern Cape universities? The four sub-questions were as follows (sub-questions one to three are discussed in Chapter 4):

1. What is the current status (enrolments and graduation rates) of honours and masters studies in Botany and Zoology in the four Eastern Cape universities and in South Africa more widely?
2. What are the constraints that influence black female Botany and Zoology honours students with regard to the transition to masters studies in the four Eastern Cape universities?
3. What enables black Botany and Zoology honours students to transition to masters studies in the four Eastern Cape universities?
4. What are the implications of these constraints and enablements for the South African Biodiversity Human Capital Development Strategy (SANBI/Lewis Foundation, 2010) and its ongoing implementation?

In the previous chapter I reported on the current status of graduations of honours and masters students in Botany and Zoology countrywide as well as in the four Eastern Cape universities on which the study focused. The previous chapter also presented findings on constraints and enablers as reported by black female students and staff members in Botany and Zoology in three Eastern Cape universities. With reference to the findings on constraints from the black females' point of view, the major ones mentioned were insufficient funding for postgraduate study, family responsibilities and expectations, scarcity of work opportunities in the biodiversity sector generally and in these two fields of study in particular, lack of awareness

of these study fields on the part of the students themselves before going to university as well as their parents' not understanding these study fields, pressure to start earning money and being independent, and cultural issues such as feeling that these study fields are for white people only. In terms of enablements, family support, availability of sufficient funding to live on and support family at home, better and visible job opportunities, motivation, determination and aspirations to succeed at all costs, as well as the need to improve life for themselves and their families were stated as the major enablements to masters transition by black female honours students. Staff perspectives on constraints and enablers to masters study among black female honours students in Botany and Zoology were also presented in Chapter Four (from section 4.8.5.). In this chapter I will discuss these findings in relation to the theoretical orientation of the research: that is, a social realist ontology, with specific reference to Margaret Archer's morphogenetic approach. Within this orientation, I will discuss the constraints and enablers using the structure and agency approach. Finally, I will discuss the implications of these findings and what they mean for the Biodiversity Human Capital Development Strategy of 2010 and its ongoing attempts to address gaps in human capital development in the biodiversity sector. Recommendations to inform the BHCDS (SANBI & Lewis Foundation, 2010) and other organisations including higher education institutions are also presented in this chapter.

5.2. Archer's social realist theory

As mentioned in Chapter Two (section 2.8.), the study used social realism as its ontological lens. Aspects of Margaret Archer's theoretical framework were introduced and employed to help answer the research question. Archer's theory rests on the notion that for structure/culture and agency to be studied successfully, it is necessary to separate theoretically the "parts" and the "people" (a move that Archer terms analytical dualism [section 2.8.1.]). According to Archer, in order to understand the interplay between structure/culture and agency it must be appreciated that each maintains distinct properties and powers that are real but complexly interconnected (section 2.8.2.). This meant exploring the relationship between the systemic level (actual structures and ideas associated with higher education and transition in higher education) and the individuals within the context of the study. Social realism is based on a view of society that is stratified, in the sense that both people and society possess emergent properties and powers irreducible to each other (section 2.8.2.).

To restate, the constituent parts of social structures are conceived as emergent properties known as structural emergent properties (SEPs). Carter and New (2004) indicate that social structures have the following general properties: they predate characteristics of the world that we are born into; they are in comparison to other properties enduring and they possess constraining and/or enabling powers. SEPs differ from other emergent properties because they are, for the most part, reliant on human and physical material resources. Culture also possesses such emergent properties, cultural emergent properties (CEPs), and individual agents have personal emergent properties (PEPs). These properties wield an original influence on consequent interaction: “They do so by shaping the situations which later “generations” of actors find themselves [in] and by endowing various agents with different vested interests according to the positions they occupy in the structures they inherit” (Archer, 1995, p. 90). Usually social groups are influenced by these properties to either manipulate or operate towards changing or maintaining a certain property, depending on how they are affected by that property. In the context of this study, this would mean determining whether black females want to change the phenomenon of few black females transitioning to masters study or whether they are content to leave things as they are.

5.2.1. Archer’s Morphogenesis: A social realist methodology

The morphogenetic cycle was discussed in depth in Chapter Two (section 2.8.2.). Here, a summary is provided, together with an indication of its relevance to explaining black female students’ constraints and enablements to proceeding to masters study. The morphogenetic/morphostatic approach allows a researcher to give an explanation for structural elaboration – why and how things have changed or remained the same (reproduction). Continuous three-part cycles constitute the occurrence of morphogenesis: structural/cultural conditioning —→ social/socio-cultural interaction—→ structural/cultural elaboration. Archer claims that this methodology has the ability to allow the researcher to unfold the dialectical interaction between structure and agency and culture and agency over time. To examine efficiently any kind of morphogenetic cycle, it is important to understand that the starting point (present time T¹) is historically situated, that is it is always “conditioned” by history, because, as Archer explains, we are all born and live in a context that we do not choose. Therefore, in order to examine and understand any kind of morphogenetic cycle it is imperative to begin by investigating the history that led to how things became so (in both structural and cultural domains) and how things are currently.

5.3. Structures historically constraining and enabling the transition of black females in South Africa

As explained in Chapter One (section 1.2.), the historical landscape of South African higher education was mapped by racism and discrimination. Discrimination in terms of gender, race and class, was reinforced by spatial and institutional bias. However, during the apartheid regime, blacks and females were the most affected by social inequality and to a certain extent excluded from higher education. This applies particularly to black females who have parents with little or no formal education and/or higher education (Herman, 2011). Most of the participants in this study had parents without tertiary qualifications (this was established during the interviews in which the majority of participants indicated that they had parents with little or no tertiary education). The study by Herman (2011) on black South African doctoral students suggests that there is a perception that studying further and having an academic career is not remarkably appealing to black South Africans because most of them have few role models in academia and most black South Africans have parents with no formal education or minimal formal schooling: “No, they [parents] don’t even have a grade one to their credit. Where will they get a tertiary education when they don’t even have Grade one? Even my grandparents never went to school” (FHBI2, 2013, p. 1.).

Even though the apartheid regime ended in 1994, the country’s education system was left fundamentally impaired. Transforming black schools into competitive centres of quality education has been a difficult task for South Africa. In the Eastern Cape especially, most black students attend schools in rural areas where there are insufficient resources to assist students to reach their potential. Many black students and black schools thus still bear the burden of the apartheid era, when education for blacks was not at the same level as that of whites, and as a result many black students are at a disadvantage when it comes to higher education. After secondary school only a few black South African students show the potential to undertake higher degrees in subjects that are in demand, such as science. Some of the respondents, especially those who went to rural schools, had applied for social sciences or education in university and not studies in the science field. FHBI4 (2013) is an example of a black student who chose what was familiar to her and what other black students were studying at the time.

Another inherited challenge for black students in general and black females in particular is that historically, biodiversity-related fields have been dominated by white males (Akkers et

al., 1999), and there were very few black females in such subjects. Although the focus is now on affording previously disadvantaged groups access to higher education and on attracting black females into the biodiversity sector, this has proven difficult because of this legacy.

Financial aid was another constraint for many black South Africans during the apartheid era; post-apartheid this is being addressed through government financial aid (NSFAS) as well as bursaries targeting black females (for example NRF) in order to attract them into the sciences in higher education. Most black females currently feel that there still is not sufficient financial aid, especially at the postgraduate level. Funding for postgraduate study is not enough for students to live on and support themselves and their families (Herman, 2011).

On the cultural front, black females, as some of the staff members explained, have a lot of responsibilities at home. As evidenced in this study, postgraduate black female students nowadays tend to be more mature: some are married with children and need to take care of their families (Herman, 2011). Staff members also indicated that most of the black females they had encountered at both undergraduate and postgraduate levels are very shy and hesitant to engage in conversations with their lecturers. This is regarded as a cultural phenomenon, in that in African culture one does not look directly at an elder. This forms part of the students' home backgrounds. The perception of Zoology and Botany being for "white people only" may also be linked to culture, where women were had to do the more "caring jobs" such as nursing or teaching (RUBS1, 2013); as a result, the majority of the participants in this study did not see themselves carrying on with these fields of study. Institutional culture and racism also play a significant role in black students dropping out from their postgraduate studies, which was the case for me. In HWUs black students feel alienated and uncomfortable and find it difficult to engage with a physical, administrative and emotional setting that they are not used to (Herman, 2011). Such institutional factors when coupled with personal factors can affect transition to master's study.

Although in some years the number of black female masters graduates has increased, this has not been significant as many sectors, especially science still report a shortage of black females. Clearly something is happening on a national level to cause fewer black females to go to masters studies. Certain structures may be hindering this transition, and although not empirically proven, it seems likely that financial aid (Higher Education South Africa [HESA], 2014), entry requirements, and supervision capacity (the number of staff with adequate qualifications to supervise) (SANBI & Lewis Foundation, 2010) could be partly

responsible for this. These constraints are as real now as they were a few years ago. The White Paper of 2013 recognises that poverty is a major constraint to students in acquiring masters degrees and PhD's because poor students experience significant pressure to get a job and leave university. The redefinition of universities as being "universities" or "comprehensive universities" may have been a factor in the decline of staff with PhDs and supervisory capacity at WSU and FH as well as the decay of equipment some of the respondents reported.

5.4. Structural Emergent Properties of black female honours students

When looking more closely at the SEPs of black female Botany and Zoology honours students in the three Eastern Cape universities, the major constraints alluded to by the students and staff included the lack of awareness of these study fields and the lack of access to information about them, the perceived lack of job opportunities, insufficient financial aid at the postgraduate level (referring to the amount of funding whether it be bursaries or scholarships and not just funding itself), pressure to start earning money and gaining work experience, the lack of family support to continue studying and problems with supervisors. These all fall within the SEPs as defined by Archer (1995, p. 176): "distributions, roles, institutional structures, social systems".

As mentioned previously, SEPs often induce social groups to work at sustaining a certain property or work towards changing that property, depending on the vested interests of the people and how the property affects those interests. In this case, such SEPs could have influenced black female honours students either to maintain the phenomenon of not proceeding to masters study or to change the current trend of few transitions to masters study, depending on how they felt affected by not obtaining a masters degree and what consequences they foresaw for black females without masters degrees in their respective fields. To place the SEPs of black female honours students in the morphogenetic cycle of structure, see Figure 5.1, below.



Figure 5.1: The morphogenesis of structure (Archer, 1995, p. 193).

T^1 is the structure that exists at the beginning of the cycle and that programs the action at T^2 . Past actions that have led to the current situation of few black female honours students proceeding to masters study have been discussed above, in section 5.4. As seen in the diagram above, the line from T^1 which represents the primary structural influence goes further than T^2 , indicating that “it takes time to change any structural property and that period represents one of constraint for some groups at least” (1995, p. 78). This is indeed true for higher education transformation in South Africa, especially at the upper postgraduate level. For some of these females, aspects of structure such as the provision of adequate postgraduate funding, the lack of knowledge or access to information about the study fields, the perceived lack of job opportunities as well as the need for family support, have been difficult to change as they are historically entrenched in our higher education system. Although there have been interventions directed at addressing issues such as financial aid and affording access to information about these fields of study, these all take time to effect change and so “later generations” who have “inherited” such problems find themselves at a continuing disadvantage. The phase between T^2 and T^3 is known as social interaction, a phase in which agents can effect change over time and influence the type of change that occurs. As Willmott has said, agents possess the “reflective ability to mediate emergent structural properties in creative and fundamentally non-deterministic ways” (2000, p. 101). This means that during this time “prior structures are gradually transformed and new ones slowly elaborated” (Archer, 1995, p. 157).

Unfortunately, the majority of black females who participated in this study were apparently unable to change or transform the SEPs which they found themselves facing. The majority did not intend proceeding to masters study, resulting in structural reproduction. Perhaps in time some will succeed in mediating these SEPs, as many of them claimed that they would

undertake masters part-time study at some point in their lives. At T^4 , structural elaboration occurs, whereby the prior structural attributes are replaced by new ones. In the next morphogenetic cycle, T^4 becomes T^1 .

It is important to note that available resources will determine whether reproduction or transformation takes place. Archer proposes three motions that connect resources and agents to interaction. One is that those agents who have little access to available resources will be in a weakened stand to negotiate and consequently they will be highly unlikely to effect any change. Most of the black females in this study had faced constraints, such as a lack of financial aid or coming from poor families that needed urgent support from them financially. Such students are unable to bargain about their future as their future is intertwined with that of their families. They are obliged to seek work rather than studying further, thus reproducing existing structures and not changing them as they enter a continuous cycle of working to support themselves and their families.

Then there are those who have access to different resources that put them in a better position to negotiate. This set of agents in this context are those who have some access to funds and information on these study fields, but not, for example, an income to support their families. Some of these students/agents are thus possibly in a position to manoeuvre among the SEPs that they face and so as to proceed to masters study. Lastly, agents with the greatest access to available resources will be in the best position to bargain and significantly transform their social context. An example of such an agent would be RUBII (section 4.7.), who has family support, desires and intends to study further, is financially secure and knows about what she wants to become in the field of Botany. As a result of these factors, she has elaborated and not reproduced the SEPs that challenged her.

What also needs to be pointed out is that even though the majority of the students were constrained by SEPs, this does not mean that they had no agential power: rather, it indicates that they did not exercise that power for various reasons specific to their different circumstances and contexts. For example, some students at the University of Fort Hare had mentioned that postgraduate funding was not a problem at the university and anyone who wanted to study and qualified for such funding could get it. To an extent one could say that the availability of funding could be seen as an enabling condition, but for many it was still not enough to keep them from needing to work directly after their honours degrees as they felt that the money would not be enough to support themselves as well as their families. This

means that creating enabling conditions does not necessarily mean that people will change their actions. There is also another dimension to this argument, that is, the structures were not adequately enabling (for example, even though funding is available, it is too low) and by not choosing to use the available resources, these students were still exercising their agency (making a conscious choice not to take up the funds). Agents choose from a range of structural conditions which they may not influence. Structural reproduction may therefore be a result of the fact that the agents have not much influence on existing structures. In addition, it is not 100 % true to say that those who don't pursue or don't intend to pursue masters studies are not exercising their agency. The argument here is that, of course for some it may be true (for those who want to continue but then face constraints); but for others (for example, those who argued that if they continue, they will choose a different programme altogether due to a belief that there are no job opportunities in the biodiversity sector) they exercised their agency by consciously considering other options and deciding that they will not continue into masters studies.

5.5. Cultural Emergent Properties of black female honours students

Archer perceives culture to refer to beliefs, ideas, values and ideologies important in social life. As mentioned previously, the social realist framework assumes that social reality is stratified, with both society and individual people having emergent powers and properties that cannot be reduced to one another. These include CEPs, which perform similarly to SEPs but display essential logical connections in contrast to the necessary material connections displayed by SEPs.

The major cultural emergent properties identified in this research for black female honours students include family responsibilities and family expectations, being shy and hesitant in engaging with staff members (superiors), feeling that these kinds of study fields are not for black people, not being career driven and teenage pregnancy issues. Some CEPs came out more strongly than others, but all served as constraints to the majority of the participants and cited by 76 % of them who indicated that they were not intending to do their masters directly after their honours degrees. With culture, one has to ascertain whether logical relations known as CEPs affect the people involved at the socio-cultural integration level and what the consequences are for people holding particular beliefs and how these CEPs impinge upon the people so as to determine whether the interplay between the ideas and beliefs that people have and their responses result in reproduction or change. In the context of this study, the

CEPs mentioned previously have negative effects on the students' transition to masters study. Most of them believe that it is their duty and responsibility to take care of their parents after studying and that they need to do that whilst their parents are still alive. So it is deemed better to get a first degree and maybe an honours degree and then work, so as to “repay” or “thank” their parents for raising them. Some always knew that it was expected of them to work after a junior degree and then support their parents because it is what their parents did and what their grandparents did. In the case of this study, there was cultural reproduction and not change for most of the students.

As mentioned previously, CEPs occur in the same way as SEPs, as the Figure below (Figure 5.2.) suggests.

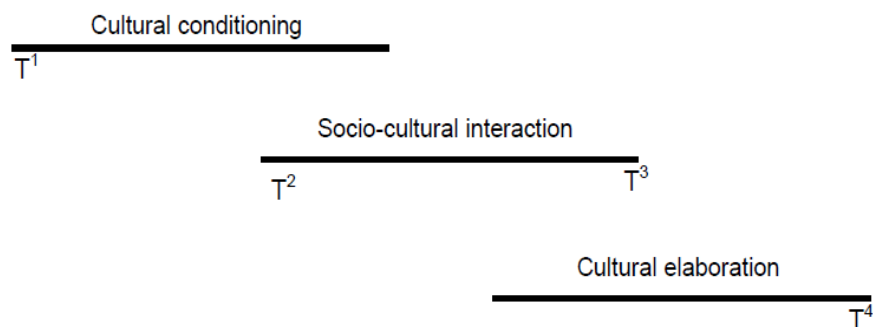


Figure 5.2: The morphogenesis of culture (Archer, 1995, p. 193).

According to the diagram, CEPs occur in T^1 (thus providing cultural conditioning) before socio-cultural interaction constructs the situation that people involuntarily find themselves in and influences them to take certain courses of action non-deterministically. Agents are conditioned by this structural distribution of benefits and costs in that it affords them reasons legitimizing their actions, which have in fact been chosen from conventional discourses and ideas that are given (CEPs). Cultural conditioning is therefore already in place prior to when human actors with particular concerns, projects and intentions begin interacting with one another, which is at $T^2 - T^3$ (socio-cultural interaction). With this group of participants it is not yet “culturally” acceptable for blacks and specifically black females to be studying in fields like Botany or Zoology, and so it is not understandable to most of their parents and community members why they would study in these fields in the first place, let alone continue with them up to and beyond the masters level. The students themselves acknowledge that these fields are perceived as for “whites” only. Also, findings revealed that

some of the black females were “shy” and hesitant to engage with their lecturers, and this was attributed to culture by one of the staff members. In their interaction with staff members and other students, these students were said not to want to engage and as a result struggled quite a lot during their honours year. Being shy to talk to elders on the part of black females may be attributed to cultural conditioning (it being seen as disrespectful to converse with elders), though this is not the case for all black females. But among the former, it seems so hard to change this pattern that they would rather suffer than attempt to change it. The same applies to family assumptions about the study of Botany and Zoology; the result is cultural reproduction and not elaboration (T⁴), as the students fail to change their cultural circumstances and instead re-enforced prevailing CEPs. Getting pregnant while still at university is also a hindrance to some of the black females interviewed. Most of the females with children stated that they had to work after their honours degree in order to support their children. In some black cultures, once you become a mother you need to start “acting” like one in terms of taking care of your children either by staying at home with them or by finding work to support them and not stay in school like a young person and you are supposed to be mature as a mother.

5.6. Personal Emergent Properties of black female honours students

The findings of this study suggest that most of the participants are constrained by certain SEPs and CEPs that hinder their transition to masters study in Botany and Zoology in Eastern Cape universities. However, the findings also reveal that some students have decided to find ways around those constraints and “make a plan”, which implies a capacity to respond smartly to unfavourable and disadvantageous circumstances, an expression borrowed from the Afrikaans “maak ‘n plan”. Four of the students indicated their intent to continue with their masters degrees directly after their honours degrees and so used their agency to manoeuvre around their constraints. Some made plans to work part-time if they did not receive financial aid to fund their studies because they were so determined to get their masters degrees. According to WSUBII (2013):

I want to do my masters but the problem is when I told my mom that I wanted to do master’s, she said my child I gave you money to obtain a degree and even the money for honours was a bonus so for master’s you will have to sort yourself out but I want to do master’s but obviously I want to do them part-time because I will have to support myself. (p. 3).

This section explores how agency contributes to social and cultural morphogenesis and how it is transformed in the process. As discussed previously (sections 5.4. and 5.5.) structure and culture condition agency (at T^1), but because agency possesses its own powers and properties (PEPs), cultural and structural elaboration (at T^4) can come about through the action of people. It is in the second stage of morphogenesis between T^2 and T^3 (social and socio-cultural interaction) (Figure 5.3.) that human agents exercise their agency in the form of personal emergent properties (PEPs). What emerges exactly from a certain period of social and socio-cultural interaction is conditional on the particular context and it is impossible to anticipate. The consequences of morphogenesis are determined by what type of agency a certain group of people put to use. Archer distinguishes between primary agents, corporate agents and individual social actors. Primary agents are defined as “collectives who share the same life chances” (Archer, 2000, p. 263) and they are born into and shaped by cultural and social structures which determine how they act in terms of constraining and enabling them and shaping their context. Primary agents (T^1) “play no part in the strategic guidance of society because they literally have no say” (p. 268), simply meaning in that society they do not exercise any agential power other than as an inarticulate combined effect, that is, simply because of their numbers they exercise a “demographic effect”. In the context of this study, black females are generally interpreted as only using their primary agency; they only affect the situation through the significance of their numbers and their very low transition rates to masters study.

The findings of this study also revealed that almost all of the black female participants were not aware of the lack of black females with masters degrees, specifically in biodiversity-related fields such as Botany and Zoology. For this reason, they could be identified as primary agents, because there was a big number of them who did not know what was going on with their demographic group and as a result were not doing anything about it.

On the other hand, at T^1 , some people transform into “corporate agents” or groups of people “who are aware of what they want, can articulate it to themselves and others, have organised in order to get it, can engage in concerted action to reshape or retain the structural or cultural feature in question” (1995, p. 258) (Figure 5.3.). In this context, the biodiversity sector and environmental sector can be seen as corporate agents with a coherent goal for change: to address the problem of few black females transitioning to masters study in biodiversity-related fields, so as to ensure that there are sufficient qualified professionals to manage, research and conserve South Africa’s great biological diversity. With that goal in mind, they

work consistently and collectively within a South African context to find out why so few black females proceed to masters study. This study is in fact an attempt to contribute to this initiative.

Between T^2 and T^3 social interaction occurs between the primary agents and the corporate agents, and it is here that individual social actors emerge in the form of “social selves” “at the interface of structure and agency” (1995, p. 186). This means that during the process of cultural and social interaction and change, PEPs develop for the personal agents concerned. I would like to argue that the four black female honours students who decided to study further to the master’s level directly after their honours developed such PEP because they transformed from primary agents who were not exercising their agential powers to their full social selves. For some PEPs came out strongly and resulted in both structure and agency being transformed and not reproduced. These few participants showed determination and courage in finding ways around the different structures that attempted to constrain them (section 4.7). An example of determination and the will to succeed is evident in one of the participants, who despite her father not supporting her studies is determined nevertheless to study further to master’s and is determined to get to where she wants to be and change her circumstances (FHEI1, 2013):

Even when I was graduating my father was not happy because he wanted my brother to be the one graduating because he likes males to females, he preferred my brothers to us girls but the problem is that most males are not very clever so this is one of the challenges that I faced and still face. Even the last born at home discovered that no, dad likes our brothers more than girls so I tried to comfort her and told her that look, I did my licence on my own but my brother was given money to do his licence, he was assisted and my father does everything for him but unfortunately he is not progressing in life, it's like that. So when I was graduating he said that he wished it was my brother who was graduating so I told him that even though the plans maybe theirs but the decision is God's, so they can plan and plan but the final decision is God's and he has decided that I will graduate so I didn't mind that challenge and I don't mind it even now. (p. 6).

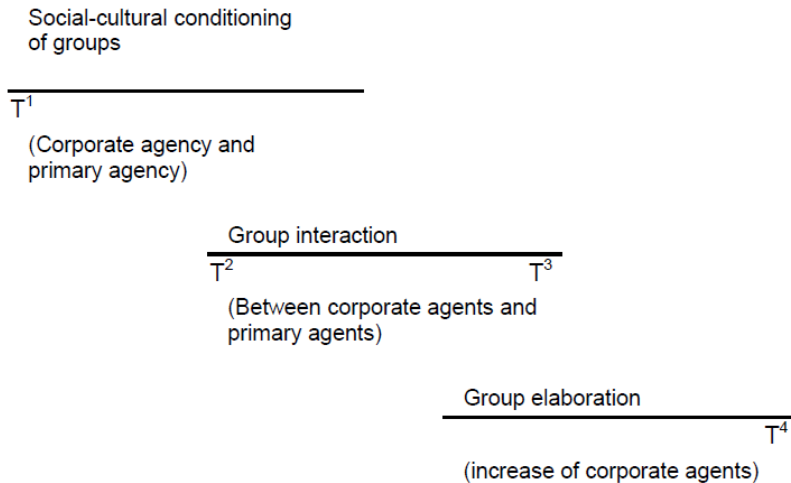


Figure 5.3: Primary and corporate agency in the cycle of morphogenesis (Archer, 2000, 268).

The fact that some students can find ways to transition to masters study means that they act strategically, finding ways around obstacles or looking for a second best outcome (for instance, instead of not studying at all, some are willing to work and do their masters at the same time). It is safe to say that all students possess “properties and powers to monitor their own life, to mediate structural and cultural properties of society” (Archer, 2000, p. 19). From the findings of the study it is clear that all the participants had some form of agency and that some exercised that agency while the majority did not in relation to pursuing masters studies. Archer’s concept of reflexivity also contributes a description of how choices are made in the face of structural conditions, when she describes how a continuous assessment is conducted by subjects or agents of whether devoting time to a project is worth it and whether the price to be paid for accommodating other interests and concerns is one that the subject can live with. The participants who decided to work instead of embarking on their masters degrees weighed their options in their minds to find out what not working would bring them, and what it would mean for their families and themselves; could they continue studying knowing that their families were struggling to get by? On the other hand, those who decided to study further to masters level looked at what getting a masters degree would mean to them, what it would bring them and whether they could live without a masters degree, and many more such questions leading them to a conclusion that it was worth devoting time to masters study no matter what the challenges.

5.7. Implications for the Biodiversity Human Capital Development Strategy

As I mentioned in this chapter's introduction when recapping the research questions, the fourth research question looks at the implications of the findings of this study for the South African Biodiversity Human Capital Development Strategy of 2010 (SANBI & Lewis Foundation) and its on-going implementation. The strategy has a twenty-year implementation window and focuses on the conservation and management of the country's biodiversity through nurturing professionals with advanced qualifications, with a special though not exclusive brief for black South Africans. It is this strategy that informed this research too, as it reported on the scarcity of black females with upper postgraduate qualifications in the biodiversity sector and related fields. It is also this strategy that indicated that the lack of upper postgraduate graduates in the sector is because honours students were not progressing to masters degrees. Although the strategy had identified the problem, it could not discern why transition from honours to masters degrees was difficult and not occurring faster. This is where this study came in.

The findings of this study reveal that there is a big gap in terms of research on the transition of honours students to masters study, most especially on black female students within a South African context. The study has shown that the honours-masters transitions of black female students are complicated and depend on the context of the students. The findings also suggest that transitions are hindered by certain constraints and enabled by others, and that there are real structural factors faced by black females that hinder their transition. Although there have been some studies on transition in South Africa, none have looked at transitions from the student's point of view and in this case, from the point of view of black females and their decision-making processes.

With that said, the BHCDS needs further to investigate transitions of black female students so as to come up with relevant interventions and strategies that have a better chance of addressing the issue directly.

5.8. Recommendations

To start off, the findings of the study (Chapter Four) revealed the following states of affairs: Participants in this study had no idea about these study fields before they reached university, most of them not having heard about the fields in secondary school. Secondly, it came out

that these study fields were not their first choice of study and that they had the perception that the biodiversity sector did not have job opportunities for students with their qualifications. Most of the students felt that the biggest constraints to masters transition were of a financial nature, including lack of family support and pressure from home to work and assist financially, as well as their parents not understanding what they were studying and believing that Botany and Zoology were not for black people. Staff felt that black female students were shy and hesitant to talk, that they were too attached to home and had a lot of family responsibilities and not enough postgraduate funding to support themselves and their families. Some staff members felt that being female and black was in itself a constraint, partly because such students had no role models in these fields.

To address some of these challenges the students themselves as well as the staff members had a few interventions in mind. These were closely related to those I had conceived of myself. Interventions that needed to be made include: career exhibitions focusing on rural schools where Botany and Zoology are clearly advertised and sold to high school students, so as to alert them to the fact that these study fields exist and explain how they can get into them, the kind of work they will be doing, where they can work and how much they might earn, depending on what they do and where they work. Also, there is a need for outreach programmes to spark interest in learners at a young age: organisations with biodiversity mandates going to schools to “sell” these fields and explain their importance and the benefits of studying them. Secondly, these students need to see role models and examples of other black females who are botanists and zoologists with masters and doctoral degrees. Successful black females in the field need to be mentors to up-and-coming young professionals and create a sisterhood where there is support of all kinds. In terms of financial aid at the postgraduate level, more financial aid and larger bursaries are needed, to enable both young and old black females to support themselves and their families if they need to. Parents also need some form of education about these fields so that they know what they entail and don’t view them as unimportant thereby discouraging their children from studying them. Black females should be made aware of their scarcity in the field so as to encourage them to study further. They should also be empowered in the sense of believing that they can do anything and achieve anything they want to achieve, and that studying further is a good thing not only for themselves but for their country as well. They must be reassured that they don’t need to sacrifice themselves and their dreams if they want to study further and become what they want to be. There should be centres of support at universities where black females with

problems and dilemmas such as their spouse not wanting them to study further can air their problems and get guidance. Another problem cited by the respondents was getting pregnant while still in school and they themselves recommended that young black females should be taught about contraception at an early age and education on teenage pregnancy and contraception should be made available to young ladies while they are still in school (high school and even primary school as every year younger and younger children become sexually active).

In terms of further research, more investigation is definitely needed in the general area of black female transition to upper postgraduate studies. This research should focus on sectors that have a scarcity of black females, such as the biodiversity sector. This study has only revealed a sampling of the challenges faced by black female students in transition, and of the ways in which such challenges can be overcome. The funding possibilities available to universities to offer masters students are not explicitly explored in this research and they need to be as funding was a major issue for the majority of the students. More questions relating to funding need to be asked such as; Are bursaries limited to the NRF bursary scheme and why is this not a higher amount? If you have an NRF bursary are you prevented from taking another bursary or scholarship? How universities are paid by the government for taking masters students; in other words would there be a greater potential for the institutions themselves to support graduates? Such questions were not deeply discussed in this research as it was mentioned earlier that this research focuses on the perceptions of individual black female students. However, a deeper analysis of such questions could lead to more specific recommendations in this area. There are also conflicting discourses from the research of skills shortage in the biodiversity sector versus problems of graduates finding employment; something is not adding up and it would be useful to explore this in further research.

5.9. Concluding summary

To conclude this study, I again emphasise the complexity of investigating transitions and the complexity of transitions themselves. The study looked at black female transition to masters study and found a number of constraints and challenges faced by honours students in transitioning to masters study in Eastern Cape universities in Botany and Zoology. The study also revealed that black females have agency and that some exercised that agency in order to proceed to masters study. The study also showed up the paucity of studies focusing on transition within a South African context, especially studies focusing on masters transitions.

The study provided a historical account of postgraduate studies in the country, showing where inequality in the biodiversity sector stems from and the inequalities in upper postgraduate studies in the country as a whole. The study shows that inherited structures hinder transitions but that such structures can be overcome through determination and a passion to succeed.

The findings and recommendations of this study should encourage the BHCDS and higher education institutions to start addressing the issues involved. The BHCDS can use the findings to develop interventions that are specific to attracting black female students to the sector. To finally conclude, the results display that structural and cultural attributes still in most cases inhibit progression to upper postgraduate study even though some manage to study further as seen from the results of this research.

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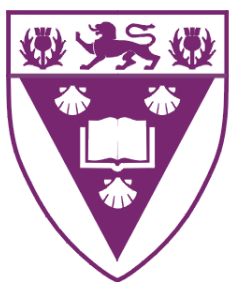
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APPENDIX A



RHODES UNIVERSITY

Where leaders learn

Hello, my name is Aphiwe-Zona Dotwana. I am a Masters student studying at the Environmental Learning Research Centre in the Department of Education at Rhodes University, Grahamstown. I am doing a Masters study entitled: “The factors that constrain or enable black female botany and zoology Honours students in transitioning to Masters studies in Eastern Cape universities”. The purpose of this study is to find out what hinders Honours students who do not progress to Masters and what enables those who do and also to provide a description and explanation of the challenges that many graduates face in moving to Masters studies. This is to inform the Biodiversity Human Capital Development Strategy (BHCDS, 2010) and to begin to address an identified problem of few black professionals in the biodiversity sector.

Participation in this study is voluntary. Any information given will be kept private and confidential and you have the right not to participate or to withdraw at any stage during the research process. Feedback of the findings of the study will be given either by mail, email or telephone to interested participants. Further information regarding the study can be obtained from the principal researcher (Aphiwe-Zona Dotwana at zonadotwana@yahoo.com). Thank you for your time.

Your signature below indicates that you have read the above information, are at least 18 years of age and agree to participate in this study.

Printed Name

Signature

Contact details: Email_____

Cell:_____

The following questionnaire aims to get your views and experiences on the factors that influence your decision to study Masters in Botany/Zoology. The questionnaire should take only 15 to 20 minutes of your time.

Date: _____ University: _____

Department: _____ Name: _____

INSTRUCTIONS: Please indicate your response to each item by ticking the appropriate box.

SECTION A: Respondent profile

In attempting to interpret and understand the range of results of the survey it is useful to record some background information about each respondent and seek patterns between respondent profile and responses. This will be kept confidential. Even so, if there are any questions you do not wish to answer please say so.

1. Age

a. 18 – 25		c. 31 - 35	
b. 26 – 30		d. older than 35	

2. Race

a. African		d. Indian	
b. White		e. Other	
c. Coloured			

3. Gender

a. Male	
b. Female	

4. Home language

a. English		c. Zulu		e. Other	
b. Afrikaans		d. Xhosa			

5. Marital status

a. Married		d. Widowed	
b. Single		e. Other	
c. Divorced			

6. Children

a. None		c. Two	
b. One		d. More than two	

7. Parents level of education (tick twice to represent both parents or guardians)

a. Phd		c. Honours		e. Diploma	
b. Masters		d. Undergraduate degree		f. no tertiary qualification	

Section B: Constraints and Enablers

1. What are your plans for next year after completing your Honours?

a. Working		e. Other (please specify)	
b. Doing Masters			
c. Take gap year			
d. Doing other degree in other field of study			

Why? -----

2. Do you think that a Masters degree is an important qualification to have in your field of study?

a . Yes	
b. No	

Why? -----

3. Was botany/zoology your first choice of study when you applied for your undergraduate degree?

a . Yes	
b. No	

Why?-----

4. Did you have intentions to study further to postgraduate level (specifically Masters level) in this field of study when you commenced your studies?

a. Yes	
b. No	

Why? -----

5. Do you think that there are work opportunities in your field of study?

a . Yes	
b. No	

Please explain further-----

6. Would the availability of financial aid enable and motivate you to study further to Masters in your field of study?

a . Yes	
b. No	

If yes, which form of funds?

a . Student loans (loans given based on student's need and family income and needs to be paid back with interest)	
b. Scholarships (usually awarded for academic achievement)	
c. Bursaries (offered on the basis of financial need and usually does not need to be paid back)	

Why?-----

7. Would the availability of financial aid for Masters part-time study make it possible for you to study further to Masters in your field of study?

a . Yes	
b. No	

Why? -----

8. Would the geographical location of a university (where the university is situated) influence your choice to study further to Masters?

a. Yes	
b. No	

Please explain further: -----

9. Would the type of courses or Masters package (e.g. research only/ research and course work) offered by a university in your field of study influence your choice to study further to Masters?

a. Yes	
b. No	

Why? -----

10. Would a university's field of expertise/ specialism influence your decision to study further to Masters in your field of study?

a. Yes	
b. No	

Why? -----

11. Would the cost of courses or Masters Degree offered at a university in your field of study influence your choice to study further to Masters?

a. Yes	
b. No	

Why? -----

12. Would the duration (length of time) of a Masters degree at a university in your field of study influence your choice to study further to Masters?

a. Yes	
b. No	

Why?-----

13. Do you think that entry requirements (in terms of marks required) to Masters degree in your field of study hinder or support you as a Honours student to progress to Masters?

a . Hinder	
b. Support	

Why? -----

14. Would the availability of a supervisor and the probability of getting individual attention from a supervisor in your field of study encourage you to study further to Masters level?

a . Yes	
b. No	

Why? -----

15. Would the status and reputation of a university offering a Masters degree in your field of study influence your decision to study further to Masters?

a. Yes	
b. No	

How? -----

16. Would the state (condition e.g. available facilities, proper functioning of university etc.) of a university offering a Masters degree in your field of study influence your decision to study further to Masters?

a . Yes	
b. No	

How? -----

17. Do you think that having a Masters degree in your field of study could increase your employment opportunities when you decide to look for work?

a. Yes	
b. No	

Why? -----

18. Over and above the factors already covered in this questionnaire, are there any other factors that hinder your progression to Masters in this field of study? Please list and explain them.

19. What factors not covered in this questionnaire enable you to study to Masters in your field of study? Please list them and give a brief explanation.

20. What does studying botany/zoology at Masters level mean to you?

Thank you!

APPENDIX B

Interview Schedule

Name of university :

Department :

Interviewee no. :

Position :

Interview time :

Date :

Introduction

My name is Aphiwe-Zona Dotwana, a Masters student at the Environmental Learning Research Centre at Rhodes University, Grahamstown. I am doing a Masters research study entitled: The factors that constrain or enable black female botany and zoology Honours students in transitioning to Master's studies in Eastern Cape universities. I thought it would be a great idea to interview you as a staff member so as to get better insights on the impediments in the advancement from Honours to Master's studies of black female students. Please note that black in this context refers to African, Coloured and Indian Honours students.

Purpose

I would like to ask you some questions about black female Honours students and the factors that constrain or enable them in embarking on Master's studies in this department. The purpose of this study is to find out what constraints Honours students who do not transition to Masters and what enables transition for those who do.

Motivation

I hope to use this information to provide a description and explanation of the challenges that many graduates face in moving to Master's studies so that more informed interventions can be created and implemented that will have a better chance at addressing this issue.

Time line

The interview should take about 30 minutes of your time.

Questions.....

Let me begin by asking you some questions about yourself and your job.

*employment, position,

***Honours students:**

- how many would you say your department enrolls per year?
- in the years that you have been here, what has been the distribution of Honours students in terms of race and gender?
- why do you think that is?
- from those Honour students who progress to masters, how many would you say constitute black females?
- when the department is evaluating applications for Honours study or Masters study, does race and gender play a role?
- if so, in what way? And if not, why?
- what do most students from this department do after completing their Honours? (why?)
- in your experience what do most black female Honours students from this department do after completing their Honours? (why?)
- over the years, has the number of black female Honour students increased, decreased or stayed the same in this department? (why)?
- what about at masters level? Have any increases been observed there? (why)?

Constraints and enablers

- Background (family, home etc.)
- Funding

-Courses offered

-Student's performance in terms of marks (but I do not require students marks, just a general overview

-do you think that entry requirements to Masters in botany/zoology constrain or enable black female Honour students in embarking on Masters level of study? (why?)

-Educational Background

-Supervision

-Status of university

-Location

-What other constraints would you say exist for honours students in transition to masters?

More specifically, what other constraint could you say affect black female students in transitioning to masters?

-What else do you think could be done to enable honours students in general in transitioning to masters level in EC universities?

What else could be done to encourage or enable black females in transitioning to masters?

APPENDIX C1

[00:00:19.11] Interviewer: Introduction of myself and more about the study and how the interview process will be.

[00:00:20.04] Interviewer: Please tell me a bit about yourself, where you are from like your background, family, educational background etc.

[00:00:27.25] WSUZI5: I'm from Libode, that's where I was born but I did my grade one in Kokstad because my dad bought another house in Kokstad because he was a police officer so he was transferred there and we stayed there. At home there are seven of us and I'm the fifth one but even though there are seven of us, we were not the only responsibility of my father, everyone else also depended on him in our family so it doesn't matter even if I say he was a policeman and he could take care of us sometimes he didn't have the means because he also had to support our cousins you see so that's how we grew up, with our cousins and all. I did my high school in Malcomase and I did very well and it was a good school. It was a public school but it was under Denaledi so it was good. And then I came to do my first year in this university, WSU, I did biological sciences because I thought it was in line with what I wanted because I loved biology in high school and so I thought with biological science I would do what I love and work will also not be hard to find. So I did my first year to third year in this school.

[00:02:04.25] Interviewer: So since you are the fifth born, there are two behind you.

[00:02:08.21] WSUZI5: Yes there are two behind me.

[00:02:09.23] Interviewer: So what are your older siblings doing?

[00:02:10.22] WSUZI5: The first born is working but just to take care of himself not to support the whole family because he works in insurance and sometimes you don't get paid with insurance because sometimes they will say there are lapses so you don't get paid that month and you get paid three months later so it's the same as not working. The one who is more stable is the second born, he works in Statistics South Africa, he is a statistician, he did computer sciences here at WSU and then went on to do his honours at Wits and then he got a job in Stats SA in Pretoria. The third born is a male and he is a policeman but he is still struggling because there isn't anything that can tell you that he is working and he started working in 2007 but there is nothing to show from his side, he is that kind of person. The fourth one didn't pass matric so he has been in college trying to upgrade himself of some sort and then it's me doing honours at WSU. So imagine in that up and down going on with family members, you also need something to support the family so if you want to continue with your studies and at the same time you have to support the family it becomes a struggle because now I'm also at a point where I need to be helping out at home, the two younger ones after me need things, my dad has retired now so he is no longer a policeman since 2008, it's been a while since he stopped working so he isn't getting money like he used to so it's difficult. So whatever we can get and assist him with it he is grateful. My mom is a businesswoman, she has a small shop at home in the village so she maintains herself with that and she also

supports us with that money otherwise she doesn't work and after dad retired she thought that it would be a way for her to gain another source of income so he assisted her and it became a joint venture so now both of them are busy with the shop. They even have a licence for that shop so they can even make it bigger if they wanted to but since they don't want anything bringing unwanted attention to them, they will just make it enough for them.

[00:05:08.04] Interviewer: When you were in high school, did you know about zoology or botany?

[00:05:13.29] WSUZI5: No. Even in high school we didn't even get a definition of what they were or even that they existed out there. Biology was just a mixture of everything, there was no distinction of fields like botany or zoology, I didn't know anything about. I knew about them when I came to this university and I learnt that there was a zoology side and a botany side, otherwise in high school it was just biology and natural science.

[00:05:43.29] Interviewer: So you are doing your grade and thinking about university, what was your first choice of university?

[00:05:48.29] WSUZI5: Listen, when I applied in grade 12 for varsity I wanted to be a physiotherapist. The thought of biological science and the plants and the animals never crossed my mind but unfortunately I didn't get accepted for physiotherapy so I had to come to WSU because my sister told me to come because they would take me and I would get into something no matter what it was and also because I had good results, so I came and the person who was helping me apply when I got here looked at my marks and saw that I had a good mark for biology so they said they would put me in biological sciences and I heard the bio and I said wow that's fine. So I didn't do a full background check on what I wanted to do here, I just thought ok it's biological sciences and I want it so I don't want to do anything else, I didn't have a lot of choices.

[00:06:40.27] Interviewer: So you came to WSU to.....?

[00:06:46.05] WSUZI5: This was my last option of university, I even came here on the 14th of January 2007 and I was stressed because time was running out and it was quiet in Kokstad because people were leaving for school and I panicked I called people asking for help and they told me to come here and I did and I got in very easily.

[00:07:11.04] Interviewer: So even zoology was not your first choice?

[00:07:11.04] WSUZI5: No. I came to love zoology as I continued to study towards my degree and I thought that I want to know about the behaviour of animals especially the wild animals. What interested me was when I came to know that there were these families that took pythons as pets and I wondered how they knew that these wild animals would not turn on them at some point? Do they know their behaviour, do they know their psychology and all that, so I wanted to study that because even black females practised that, in Soweto there is this family that is busy brooding these pythons and then after that sell them or give them to people for skill and do whatever with them. So I wanted to know because at some point a wild animal even if you may tame it will reveal it's true nature so how would you manage

that, how do you control it, so I wanted to know about those things. So I had that interest. But when I came here Dr Okuthe sold me this topic about Nano particles, it's a new field and it instils interest to so many researchers and she said if I also do it I would be gaining a lot of skills that I didn't have and Dr Dlaza who is the co-ordinator for honours also said I should do it because he said I will be doing something unique so I said ok at the end of the day even if you are studying Nano particles, you will also learn about the behaviour of animals exposed to these Nano particles so I did that topic this year.

[00:09:02.10] Interviewer: So how are you finding it?

[00:09:02.10] WSUZI5: It's nice, I like it, and it's interesting.

[00:09:09.22] Interviewer: So since you are doing your honours this year, how are you financing them?

[00:09:12.04] WSUZI5: I'm still in the shitty business of waiting for NSFAS to pay for me. The thing is, we applied to an NRF bursary for R35 000 for scarce skills and at the same time we applied for NSFAS and since I am doing this project, they told me they would fund me with R20 000 specifically for this project and my project costs. So NRF called and said they can't give me the bursary because I am a grant holder to the R20 000, and I said how can you do that because that R35 000 bursary covers my whole tuition and not specifically the project only so the R20 000 is for the research only because I need to buy chemicals and many more other things so that money will be used up by the research so what will I do at the end of the day and they said well both the bursaries are from NRF so I have to choose so I told them that in that case I choose the R35 000 and not the R20 000 for the project and they said no they can't because I'm already a grant holder because I have already signed so I had to choose the R20 000. Now I'm waiting for NRF to release the honours list for people who will be funded and so I will only know then what I'm going to do.

[00:10:37.16] Interviewer: So you don't have bursaries from within the university?

[00:10:44.18] WSUZI5: I will not say it's a bursary but there is this thing called advanced something that you get in January for registration but it is also included in the institutional grant of R15 000 that is also research orientated and not for fees but for research related costs so it doesn't help because the tuition is still waiting for you to pay it, I don't know who is going to pay it because I told you about my struggling family, so it's stressful.

[00:11:23.18] Interviewer: Before I came and explained the project that I'm doing and told you about the research from the biodiversity sector that zoology falls under and told you about the lack of people with advanced qualifications with a majority of people in the sector having national diplomas and more especially the scarcity of black females with advanced qualifications with a focus on masters. Did you know that there is such a problem in the sector?

[00:12:10.23] WSUZI5: I didn't know that there was this scarcity in the sector, nobody tells us anything, we don't have that information and in a way it would motivate us to study further regardless of the financial struggles because a person would know that in the end studying

further will pay off but we don't know, we are not made aware that there is this scarcity. The thing is information that is important and constructive is withheld in one place and does not reach people and it stays within the same group of people and only the people who are in the inside that they want to promote are told. We on the outside are not told anything, if you are not connected to these people you will never know hence they say jobs are scarce because they employ around and within the same groups of people.

[00:13:03.25] Interviewer: So from last year, your friends from third year or undergrad, do you know what the ones not doing honours with you this year are doing?

[00:13:33.08] WSUZI5: I only know a few friends of mine. One is doing her masters at Rhodes and she is doing well, her name is Likho. Siwe is in Cape Town, I think she is doing her internship and then Simthembilie is in East London doing design, she always loved design and now she is pursuing her passion in a way and she is working at another call centre so that she can support herself and then Nonelwa is doing her fourth year in medicine at UKZN, I don't know about the others. The guys because I was talking about the girls just now, one of the guys is still doing medicine and then another is doing his masters in physiology and then others dropped out.

[00:14:39.14] Interviewer: What about your friends from high school? Are you still in contact with them?

[00:14:43.27] WSUZI5: Yes, one of my high school friends is the one doing medicine in UKZN. My other friend Dineo dropped out and is in Cape Town and then other were doing engineering and then one of them, Bathandwa Vazi is a singer of afro soul or something so she was nominated for the SAMA awards, she is famous now, I saw her on Facebook, and she is busy pushing her passion. Her stage name is Bathandwa; she was so clever, she left high school and went to do town planning in Durban so what she was studying was not biological even though she was one of the brightest in high school.

[00:15:41.05] Interviewer: So I want us to zoom in on the issue of black females now, so maybe some challenges won't apply to you but you've seen other people experience things or you've heard of other people's experiences. What would you say the constraints to females not studying further to masters?

[00:16:11.06] WSUZI5: It's the lack of financial support, not only in the form of bursaries only but at home too. It would be so nice and encouraging for your family especially your parents to say, study further my child but there is a point when your parents reach the stage where they get tired and want you to support them so you have to choose and if your parents are unhappy then you have to choose work whether you like it or not. So I would say that is one of the major problems of not getting the support from home to study further and not having people support you and say study further and even if it's difficult don't give up because you are doing a good thing and don't compare yourself to other people. And another problem is comparing ourselves to other people, that is deep within and we can't help it. You compare yourself to people you used to go to school with and say you know so and so has a car and they are progressing well and you are still struggling with your degree and you have

nothing to show for it, you are pushing an invisible passion (Laughs). At some point you will get discouraged and then not having money from the beginning, you know it's so nice to be stable and have peace of mind and not worry about things, I have enough food, I have nice clothes and I'm ok and people can see just by looking at me that I'm postgrad. You know when you look so scruffy and shabby that a first year student looks way better than you and you are stressed and always thinking, oh I don't even have money for this or that.

[00:17:44.23] Interviewer: You know some students from FH also said a similar thing that nowadays there is really no difference between undergrads and postgrads.

[00:17:51.13] WSUZI5: There is no difference at all! Even here in this university, we are not treated as postgrads, you know as a postgrad, younger students should envy you and admire you at the same time want to be like you and want to be where you are and wonder how you got there and how they can also be at that level. So here there is nothing that motivating students, people just want to finish their degrees and go and work anywhere even if they do administration just as long as they are done.

[00:18:23.20] Interviewer: So in terms of next year, what are your plans after honours?

[00:18:23.20] WSUZI5: Last year when I was doing the internship at CSIR, there is a studentship there for people who want to do their masters and you earn a lot of money just by saying you are doing masters. So that motivated me and I thought, god I wish I could finish my masters and go and do that you see but when I arrived here at this university, I became demotivated, here you struggle to get even financial support, it's not a big thing that you say you want to do honours or you are doing masters, you have to push yourself and find money and all that, all doors are closed and you have to open them yourself by force so there is nothing that says, like I was saying at CSIR you get paid just for studying, it's what motivates you and when we went for the outreach programs during my internship and go to grade 12's and say look if you apply at CSIR for a bursary or studentship you will get paid for merely studying and they would say we are lying and Thuli, another girl who was doing honours at the time and now she is doing her masters, would come and tell them look, I came from TUT and I got a position at CSIR for a studentship and now I get paid for studying and the money is not less than R15 000, and they would say she is lying too. So students would be motivated and we would say just try and get 60 % and they would say, oh that is nothing, we will be there at CSIR and we would see that the students are motivated. So Thuli doesn't stress about money where she is because she knows that she has money and she has her own flat that she rents for R4000 and has her own car that she maintains well and every Friday she meets up with her friends and they do something together and she is happy because there is no stress about thinking that you don't have money and you don't know how you will survive tomorrow, your fridge is empty and you don't even have money to print, no stationary. Here in this university you struggle, I have two friends doing masters here and there is no difference that they are doing masters and there is nothing about them that says they are doing masters, they even look more stressed than us. I feel like we could reach a point in this university whereI don't know whether it's because it is a disadvantaged university or what but no there needs to be a change.

[00:21:46.16] Interviewer: I think this university focuses more on undergraduate enrolments rather than postgraduate enrolments and graduations especially because that is what counts the most. So really change is needed here.

[00:21:49.16] WSUZI5: I don't know who can come with that change for the sake of the students who are coming behind us because it is too late for us, we have given up, we are die hards!

[00:22:01.25] Interviewer: So what are your plans for next year?

[00:22:01.25] WSUZI5: Next year I applied for a lot of internships. If I were to do masters I wouldn't do them here I don't care what happens, never will I do my masters in this university and stay a further 2 years in this shitty place and struggle with patched lips with no money or anything else, no ways. In future I would love to do my masters and get paid for doing them. I will never stop studying and if I could get financial stability and take care of myself and not be frustrated like a small child in grade 1, there must be a difference because now I'm grown up. If I could get that then I would even be doctor of philosophy and be busy with that.

[00:22:55.22] Interviewer: When you were applying for internships, did you find it difficult to find them?

[00:22:59.27] WSUZI5: No, there are a lot of posts from your newspapers to online; it's just that someone just needs to take that step and start looking.

[00:23:10.00] Interviewer: Do you think other students in zoology including yourself, did you know where you would work when you finished studying and what kind to work you would be doing?

[00:23:26.22] WSUZI5: I only thought we could work in environmental affairs. I didn't know there was such abundance in places for us to work, I didn't know until I went to work in one of those places and I was so embarrassed. I didn't even know that we could also go in the department of agriculture because they are biologically related because other places are not that apparent or obvious so you don't know about them until someone gives you a correct reference and you apply.

[00:23:57.03] Interviewer: So do you think that other students also don't have the whole information about work opportunities?

[00:23:58.14] WSUZI5: I don't think they have the whole story.

[00:24:09.20] Interviewer: But you do believe that work opportunities are available easily?

[00:24:09.20] WSUZI5: I do but I think they end at the internship part. Otherwise there is a platform for you to get that work experience and then from there it's up to you to prove yourself where you are. Some people are lucky and while they are still working in a certain place, they are encouraged to upgrade themselves and the company may pay for certain courses so that a person can upgrade themselves. Once an employer wants to upgrade you it

means they have seen something in you and you have proved your worth and they can even find you a good position within the organisation.

[00:25:01.29] Interviewer: In terms of supervision, when you were applying for honours did you know what your area of interest was, and whether there was supervision available for you and a qualified supervisor at that or you just applied?

[00:25:19.06] WSUI5: I had a project in mind that I wanted to do but when I got here I found out that the person that I wanted to supervise me did not really specialise in that area so they referred me to another supervisor, Dr Okuthe who said I should look at the topic and that's how I did my project.

[00:25:43.29] Interviewer: So last year, when did you decide to do honours?

[00:25:50.20] WSUZI5: I decided last year while I was doing my internship because I was in an environment where furthering your studies was very important, the more you continue the more you get that credibility so at CSIR if you only have a degree, they see you as a child but if you have honours then maybe we can have a conversation with you but still you still don't know a lot. So they started taking you seriously when you were at the master's level so when I was there I had to prove myself and what I was saying was really relevant and true. In the beginning they would go and confirm with another person and that made me angry and I would tell them guys just because I have a degree does not mean I don't know anything, there are some things I know and not because I was from WSU and maybe they think at WSU we were not taught, we were even if it was not the way they taught at Wits or UCT but we were taught something, so whatever that I say you must listen to it. Then after some time, when the end was almost over they had seen that I'm also ok.

[00:27:11.05] Interviewer: Then lastly, what suggestions would you give to the sector and other institutions to firstly attract students to study further in these types of studies?

[00:27:36.22] WSUZI5: They need to do outreach programmes, they need to take someone from somewhere, even if they take interns that they will teach about the career options and then do out reaches and go to universities, there aren't so many universities in SA. There are halls here in the university to invite us postgraduates and tell us about career opportunities and we discuss and tell us ways of getting to these places that they want us to go to or fill in because we don't know them. They must not sit there with information and say there is a lack of females, what are they doing about it? Why don't we at the bottom of the food chain know about it? They must cater for the people at the bottom who don't have the knowledge about what's happening at the top. We don't know those things. If they could try and be in touch with universities and tell the co-ordinators if possible to do it. It's not always the case that you search for something on line because sometimes it's not credible. They must come to the people, I'm sure they have enough for to come to the people around or hire someone if they are too busy who will do it for them, the outreaches.

[00:29:04.05] Interviewer: From your opinion, would you say that females are facing different challenges to say males or if it is said they are scarce, why are they scarce?

[00:29:19.06] WSUZI5: I thought that thing of females not getting hired was over, I thought now we got first preference so I don't understand why it is said we are scarce. Why don't they take a chance, I think the biodiversity sector management does not want to take a chance on women and maybe we also don't prove ourselves enough that we are worth to sit on the top tables in the sector so I think it's give and take so we also need to push ourselves to get there and they also need to meet us halfway and attract us but there is nothing we can do.

[00:30:03.03] Interviewer: THANK YOU FOR YOUR TIME!

APPENDIX C2

[00:00:02.05] Interviewer: How many years have you been lecturing?

[00:00:01.05] RUBS1: 17

[00:00:01.05] Interviewer: At Rhodes?

[00:00:01.05] RUBS1: 17

[00:00:01.05] Interviewer: How many years were you HOD?

[00:00:15.14] RUBS1: It was 3 and half years.

[00:00:19.12] Interviewer: I'm going to ask about the department even though you are on sabbatical.

[00:00:23.26] Prof Barker: (Laughs) Ok. [00:00:23.26] Interviewer: In terms of honours students, in the years that you've been here, how many would you say you enrol per year in average?

[00:00:34.21] RUBS1: In the last 4 years there have been about 10.

[00:00:43.04] Interviewer: Do you guys have a maximum number of honours students that you enrol? Is that the maximum number?

[00:00:43.04] RUBS1: We sort of have a(inaudible), so about 12 or 14, ya, space in the department as well as capacity. So supervising honours students is quite time consuming, I have 4 this year so, Ya, it takes a lot of time.

[00:01:09.00] Interviewer: I want to go back to undergrad, if you can remember the % of black students firstly, irrespective of race and gender, what would you say it usually is?

[00:01:21.05] RUBS1: In first year it's always quite high, I can't give a %. Second year it's lower, third year it's even lower. I don't know where they go; I don't know what happens to them. You could probably, if you wanted to get the data management unit to pull all the figures and see what the story is, whether they go into science or whether they fail, I don't know.

[00:01:56.19] Interviewer: Looking at the honours level now, in terms of race and gender, how has the distribution been at that level?

[00:02:06.05] RUBS1: Predominantly White obviously, when I was HOD I made a concerted effort to try and get students from outside like yourself and Aviwe and so your year was exceptional, there were more black than white students in your year. The DVC of academics was very happy when I told him that and that's never going to happen again. So this year there is one, Ayanda, no there is two, there is Phumlile. So ya, but that reflects the number of third year. This year's third years there are two as far as I can remember.....Ya.

[00:03:07.01] Interviewer: At the masters level now, can you remember the distribution there?

[00:03:11.26] RUBS1: Also mostly white, I mean the only black students are mine, Sivu and Aviwe. I think that's it. Ya.

[00:03:22.15] Interviewer: So when you guys are evaluating applications to honours and masters, do you take race into consideration and gender or it's predominantly marks?

[00:03:36.22] RUBS1: I do.

[00:03:39.28] Interviewer: And I want your own personal thoughts on this.

[00:03:39.28] RUBS1: I pushed to have you guys on board because I was HOD I could just do it but it's predominantly marks and potential. Look, with you guys we phoned around you know, what do you guys know about Zona, what you know about Aviwe, because we know people who know people (Laughs). It wasn't blind, it wasn't mail order bride stuff, you had a little bit of input you know because when someone says oh yes I remember her and she was good and she was motivated and she was happy. So when so and so says so, we will take a chance. To be honest the marks that applicants from HBU's have we can't benchmark, you know, 65 % is our benchmark but what is 65% at WSU compared to us, we don't know so we get very much more conservative and we will say well you know, 70 % maybe, you know we might have you. It's not the right to do and you've got an indictment against us....And we've only really ever had black students from WSU and then I think once or twice from FH. I don't know whether it's true or not but FH seems to have a strong resistant to letting their students come to Rhodes. Is it true? They do have some sorts of propaganda there, I don't know why but then you know they want us to collaborate with them and do all sorts of things so it's quite strange. I had one black male undergraduate who came to do honours from QwaQwa and he was a playboy and I chased him away after 3 months, all he wanted to do was do basketball. Uhhhhm and he came with glowing references, this chap I know said no he is good and he came here, earring in the ear, attitude, chicks everywhere and no work just basketball and I said you choose so he left. I haven't had honours students from Limpopo, I've masters and PhD from Limpopo and also Venda, they are really good and I don't know what it is, if I get an application from a Venda students, I always think about it very carefully because for some reason either culturally or something from that university, they are different, they work hard and the marks you see on the form are usually fairly accurate so there is no one recipe that gets applied it's couple of years, it's a phone call or two, it's whatever, ya. That's me.

[00:06:37.05] Interviewer: Yes I can see that this is a personal thing for you, but why the effort? Why do go the extra mile for black students?

[00:06:42.13] RUBS1: I don't know, I just think maybe, I am a little bit aware and conscious of the difference between ability or capability or potential ability and capability versus what their background has enabled them to achieve. I think that the first person who really woke me up to this was Fiki because I got to know Fiki when she was in second year and I was taking them up the hill for a practical and I heard her yeadering something to her friends, that she did an internship at SANBI so my ears picked up and I said well ok, who did you do the internship with and she said so and so and I said oh I them well. So I said why did you that at SANBI and she said well no no, well she wanted to do herbarium taxonomy so then on I knew she was my project, for years she has been my project and ya she's got a job at SANBI but I don't think she's happy there I think she's disappointed but I realised, and Fiki didn't come from a disadvantaged background but she was an insight into a completely different culture and the way of thinking about the students. I mean I've also simply been conscious of the political differences and the history and stuff and you know, knowing teachers and having got to know people who live in the township and going to the township schools, you know, I know the difficulties. So if somebody comes and says they want to do this, it's fine but my attitude is well, don't expect hand-outs ok, if you want to do this you've got to acknowledge that you're going to be behind and you've got to acknowledge that you have to work your backside off and you've got to acknowledge that you know, you're entering a different culture and it's not your culture, it's our culture and unfortunately we can't change our culture to your culture but we need to understand each

other's culture and I think that's where a lot of academics go wrong that they are not prepared to understand or even try to understand other cultures. One of the recent ex-deputy registrars wrote a little book on Xhosa culture which I read and it opened my eyes a bit, but all sorts of things and one of the things that disadvantage students facing.....and you were bit of an exception, I don't know why but you were, but and especially the girls, they are very very very hesitant to open their mouths, they won't admit that they are struggling, they won't admit to anything. And I still don't know whether it's simply a male or female thing or there is a superior underling thing or what but there are many many black students, especially the girls, they don't want to engage in a discussion as equals or as a discussion to expand the intellectual understanding, they want to be given a piece of paper to go away and write and that is what you guys struggle with in honours because we do not do that and I mean I've seen it again this year in Thandiwe and with Uviwe (I didn't have much to do with Uviwe but she was in one of my courses), she didn't say a word in 6 weeks except when she did her little presentation. I still don't know how much she actually understands because I can't engage her in a discussion and Thandiwe comes to me and says that she wants to do my project and I say ok fine you must do this, you must do that, do you understand and she says yes, but I can see that she is actually saying no and only when I say are you really really sure, are you going to start? Then it come ups that she is not that sure so that aspect of.....(just call it black) black culture, it may not be black, it maybe Xhosa culture because the Venda students may be different in that regard, that is something that innate, that students have to be aware of, that they need to take into consideration. So you know it's all very well having orientation week and all the rest of undergrad stuff but the biggest orientation that needs to happen is someone actually has to take these students aside and say you can have your culture but now you are going to have to understand that you are in a different culture, you travelled overseas, you didn't like travelling overseas, this is what we expect of you uhhh. I don't know, you know, to actually implement that, the university will probably be accused of racism or be accused of in some way belittling another culture but the fact of the matter is if we want black students, male, female, to succeed there has to be cultural understanding on both sides and there has to be a willingness to become part of the university culture. And yes we can Africanise our university culture to some extent, if we still want to have a degree that's internationally recognised we have to be careful about that. I don't believe we should go down the route of mother tongue teaching, that's not going to help anybody. But you know, an idea among students themselves, they bust stuff to each other and I hear them talking about and I start picking up things about the culture. Uviwe talks a million times an hour, she is full of nonsense but I gather things and I file them away and I remember these things and she in a way has got the cross over almost right because she comes from a slightly advantaged background but she's got deep traditional routes and so she's quite interesting, others are deeper and quieter so and I mean also who knows apart from the financial and whatever disadvantage, there is the social issues at home. Are they supporting grandparents, have their parents died of aids, have they got aids? All those kinds of things that you never get to the bottom of. We can only guess, but, you know, that is a disadvantage that no amount of teaching or money or..... is going to change so I think when talking about disadvantaged students, who have to be very careful by what you mean by that because it's financial disadvantage, there's intellectual disadvantageness and there's social disadvantage, so it's... you know, comes in many many ways. You can have somebody from Sandton who drives a fancy car, who is black and female but whose boyfriend and father rape her for example, in a radical case. That is serious social disadvantage that child is never going to come right so the word disadvantaged needs to really be carefully thought through. So in terms of going back to your thesis of black and female students through, the question really needs to be turned around, it's not what we can do, it's what can they do with an enabling environment and a sympathetic environment for themselves. Now, universities are not enabling or sympathetic, that's just not their business, I mean we have the counselling centre etc. etc. and as I said the minute we do something formal then

we are going to be labelled and the only way it's probably ever going to work is if successful black female students like yourself, like Fiki and whoever, are allowed to be mentors, advisors, what have you, and that there is a sisterhood which helps everybody through the system. That's the only way it's going to work. White males intervening, white females intervening, it's not going to work, black males definitely won't work because we live in a patriarchal society which comes from Jacob Zuma downwards, and it won't work. The women of Africa need to do it themselves and there is countless things and quotes and other people who've said all sorts of amazing things about the women of Africa. In this country, the women of Africa have to realise that they are empowered, they don't have to take abuse, they don't have to take financial what have you, and their future is in their hands, that's what's needed and the patriarchal tribal system very often limits that so the very first thing that needs to happen is the epiphany of out of that system at least temporarily. I can be a chameleon, I can go home and be that, I can go here and be that, I can go to a conference in New York and be an international scientist. There is no reason why not.

[00:16:26.13] Interviewer: You see, I knew there was a reason I came to you (Boasts into laughter).

[00:16:44.11] RUBS1: You know you need to go and talk to Professor Tobello Nyo'kong, do you know the famous chemistry prof? [00:16:51.03] Interviewer: Yes.

[00:16:51.03] RUBS1: She started out herding goats in Lesotho, or so she says, I'm sure she did. Go and talk to Nox although she is in Stellenbosch, maybe telephone her, Nox Makhunga. Her father was the HOD of botany at FH, Oswald Makhunga, he may have not been there when you were there, he is quite old. She is, I don't know if she is professor now but she is in botany or biochemistry, lovely girl, from the EC. Ok, she went to a fancy school, she went to DSG but she is a black academic in botany. You know there aren't many of them who stay because anybody who is well paid and is black gets sucked into the corporate world because all corporates also want to have equity and blah blah blah. Fiki said to me the other day she has not been to SANBI for 2 months and she received 2 telephone job offers, how they got hold of her, I don't know. Once you are in the system and you are known then ya.....

[00:18:37.09] Interviewer: So Prof, did you know that there was this problem in the sector, the lack of black females?

[00:18:42.29] RUBS1: Ya ya ya. Everyone knows and I attend most of the conferences but Rhodes pays and Rhodes pays so little compared to other universities.

[00:19:26.10] Interviewer: Would you say that this department particularly, botany, would you say over the years there has been the problem of black females not transitioning to masters, PhD or most of them ending at honours?

[00:19:42.18] RUBS1: Well firstly who has there been in honours, I don't know, it's a big class, but Aviwe went on to do masters, you have, Sivu has, apparently Nozuko is coming back, one of my ex-students applied for a masters at Wits. So I think the record is good, uhhm and Brad had one and Phumza who had a baby which was silly but I mean again that's going back to sort of tribal expectations etc. and you know problems with putting her career first. And maybe she wanted a family which is fine but she must just be honest with herself and say a higher degree is not for me. So I think by and large we have been pretty good in terms of the turn over from honours to masters. The problem is where are they going at first year, why do the first year students who are black not want to move on, you know, we have a few in second year, a lot of them doing really badly so they scrape through first year and second year and then they are scarce, I don't know what happens and they are

actually quite a frustrating group second year because they all click together and they think they are helping each other but they are actually pulling each other down and they not engaging with their peers. If they get to third year again, they usually struggle quite a lot. There's a third year guy at the moment whose marks aren't that great but he is enthusiastic and I will take him with me next year to do some consulting work in Lesotho. He said to me, now I am a man and I said really? We will see whether you will come crying like a baby to me.

[00:22:15.08] Interviewer: When I was talking to the honours students (the black females), for example in FH, even here at Rhodes, I was asking them like was botany or zoology their first choice of study and I think one said yes and most of them said no. They say they didn't know what botany or zoology was and when they came they didn't know what BSc was.....

[00:22:51.09] RUBS1: Yes, and again that goes back to the colonial era where especially women were expected to do caring jobs, jobs with care like being teachers or nurses those were considered appropriate studies for girls and so all the girls left and became teachers and nurses and that could still be entrenched especially very much in the tribal cultural level system but the villagers don't know what botany is or zoology is.

[00:23:48.27] Interviewer: That's true Prof because most of them, especially there ones from FH and WSU are from rural areas and they mentioned that people in their villages don't know what a botanist or zoologist is. Another perception they had was that botany and zoology were studies for white people.

[00:23:48.27] RUBS1: Yes, and that's an unfortunate perception but it's like chicken and egg, there reason why it's for white people is because there are no black people who've actually gone in there and stuck their necks out but it's slowly happening you know, people like Nox and the other guys. Are you going to go and talk to girls in matric like in VG? The head of biology there is Nadia Shredrick or something, I don't know. She would be very interested and I'm sure she would allow you to chat with some of the students there and find out what they think. And VG is one of the good schools, it was in Fair Lady's top 25 schools in SA, government schools and they have a very strong biology programme there so the girls there would've been exposed to biology so in a sense they would be unusual. So interview them as a potential cohorts for the future and say, can you see yourself as a marine biologist, can you see yourself being an ecologist or physiologist or whatever? They will look at you and say, what's that? But then explain it and say well you are going to put on a scuba and go and catch fish and some of them might say, oh that's cool.

[00:25:34.27] Interviewer: So Prof in terms of funding now, do you choose your students by looking at their marks? I mean students to fund; do you look at their marks?

[00:25:52.00] RUBS1: No, if a student is interested and I know that they are interested, that's all I need.

[00:25:56.22] Interviewer: In terms of black females, elsewhere, do you have any thoughts on firstly why blacks in general are not interested in these types of studies?

[00:26:20.01] RUBS1: Yimali [money], Umsebenzi [work]!

[00:26:38.20] Interviewer: Even if sometimes they are interested and do it up to third year but after that they change and do something totally different like for example another student said she is not going to masters in zoology but will do an MBA instead.....

[00:26:35.13] RUBS1: its money, ya it's money. It will come right 50 years from now when there is black middle, a big black middle class, a decreased influence of the tribal patriarchy and a social system where there isn't a strong need to support the entire family. So somebody will choose to go do botany instead of medicine because even though medicine will get them three times a salary to support their family, they don't need to. That is where we will start seeing a difference.

[00:27:16.17] Interviewer: Are there any suggestions on what could be done to encourage these females to study further because they are there at the undergrad level but then decrease as they progress to postgrad.

[00:27:21.25] RUBS1: There has to be a sisterhood you know, where they are encouraged to say, be a man (Laughs) you know. You think you're in a patriarchal system and the man do everything, rubbish, pick what you want and find out how to do it, you know. The bottom line is also, you have to work really really hard.

[00:28:44.29] Interviewer: THANKS PROF!

[00:28:44.29] RUBS1: OK ZONA, GOOD LUCK!

APPENDIX D: Document log

Title	Date of issue	Author/s	Type of document	Main focus	Value in research
National Biodiversity Strategy and Action Plan	2005	Department of Environmental Affairs and Tourism	Policy	Strategic objectives (capacitation of agencies responsible for biodiversity management)	Highlighting the need of biodiversity practitioners with advanced qualifications and skills
National Biodiversity Framework	2007	Department of Environmental Affairs and Tourism	Policy	Strategies and actions necessary for biodiversity management	Highlighting the need for biodiversity management in South Africa
Guidelines for a Human Capital Development Strategy in the Biodiversity sector (HSRCR)	2009	Vass, J.R., Rood, J., Wildschuit, A., Bantwini, B., Reddy, V.	Report	Results on scarce skills in the biodiversity sector	Description of the problem of the scarcity of blacks and particularly black females in the biodiversity sector with detailed percentages and graphs
Biodiversity Human Capital Development	2010	South African National Biodiversity Institute and the Lewis	Strategy	Strengthening of institutions, critical skills, suggestions on	Description of the focus on the need of a greater pool of biodiversity

Strategy		Foundation		improving capacity	professionals with advanced qualifications particularly but not exclusive to black South Africans providing the context for the study
Environmental Sector Skills Plan	2010	Department of Environmental Affairs	Report	Core skills planning guide for the environmental sector and all other sectors	Information on improving environmental sector skills development planning and implementation



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17 September 2013

To whom it may concern

Approval of Masters Proposal: Aphiwe-Zona Dotwana 12d4142

This letter confirms that Ms Dotwana's Masters in Education proposal was approved at a meeting of the Faculty of Education Higher Degrees' Committee on 8 August 2013. Her study is provisionally entitled:

The factors that constrain or enable black botany and zoology honour students in transitioning to masters studies in Eastern Cape universities.

In the event that the proposal does not present particularly difficult ethical issues and that the proposal demonstrates an awareness of ethical responsibilities and a commitment to ethical research processes, the approval of the proposal by the committee constitutes ethical clearance. This was the case with Ms Dotwana's research proposal.

Yours sincerely

Professor Sioux McKenna
Chair of Education Higher Degrees Committee
s.mckenna@ru.ac.za

APPENDIX F

University of Fort Hare

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November 19, 2013

Ms. Aphiwe-Zona Dotwana
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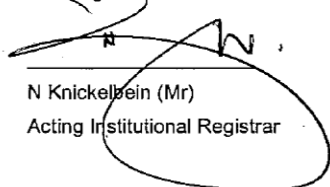
Dear Ms. Dotwana

Approval from the Registrar's Office to Conduct Research

Having consulted the Chairperson of the Research Ethics Committee, I hereby grant permission for Ms. A Dotwana to conduct research relating to her thesis "The factors that constrain or enable black botany and zoology honours students in transitioning to masters studies in the Eastern Cape Universities".

We look forward to reading the research report.

Kind regards



N Knickelbein (Mr)
Acting Institutional Registrar



Recipient of the
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APPENDIX G

Category 2: Plans after honours year.

RUBI1. My plans for next year are to do my masters but I also want to work. So what I will do is apply for jobs and if I don't get a job I will do my masters but the first choice is getting a job. But if I don't get a job, I won't stay at home and do nothing, I will do my masters. I have started looking with my mouth, I haven't applied to any jobs and I don't know why, I think I've been busy, my mind has been busy and I haven't had a chance to apply. (94-99). Anything that can put food on my table and the Rand even if it's not in the field of botany. I will get a job in the field while working. I will struggle to get a job if I'm looking for jobs related to botany. (101-103). The bursary thing is dependent on the job, if the job pays well and I am satisfied, then I would do my masters part-time, I would do them but part-time. If I get a job that I'm not satisfied with financially then I might as well do my masters full -time. If I do get a job I would do my masters part-time because I do want to have a masters degree, actually I want to die having gotten my doctorate, which is what I want. (105-109).

RUBI2. Hell no! No, because I feel stuck in just the way that Rhodes works and the way that we are studying here that it's just books and its books and actually I would rather go work and learn outside first and then bring that back and I feel if I keep studying, they always ask for like 5 years' experience and I feel like I won't get a job so I just want to start on it now and maybe do it part-time, it's not out of the way, I could do it part-time but definitely not full time. (40-44). Definitely if I had my masters I think it would up my chances but as well, apparently it could also hinder my chances because sometimes some firms will be like we actually can't afford you know and some firms also like to grow people from within the firm so this is why I also just want to go and start working, just grow. I don't mind like doing internships and things like that, I really want to learn more because I've learnt a lot here but it's not practical, like it's, I'd be so lost if I were to go work outside so that's what I want. All I want to do is just to go out there and learn and be that first year person in the working world. That's what I'm looking for right now and not sitting in front of the computer and having hand INS, I don't think I would learn like that (151-158).

RUBI3. Hey you were so lucky to get so many internships, I need those internships bra, and I have been applying and the NRF internship I'm still busy with. I haven't seen the agriculture one. For me, the idea of masters, I'm very happy for it and stuff but I feel like things that have happened this year, I'm just wondering can I do another 2 years of something, it's just one of those things. Especially like Rhodes, I have already decided, I haven't even applied to Rhodes and did not even go for the funding because in my department, obviously I know my department and what's going on and stuff, looking at it I don't see something like, oh this is going to be my 2 years and this is what I want to do. I know I've been saying ya plant pathology, plant biotech, but realistically even when I

read about these things I'm like really? It's this really what I want to do, so I'm feeling like I need that break to just go find myself. I just need to go like go out there and put on my skills and stuff, get experience because I really feel that I need the experience, especially like other things, especially when you are in the field of botany you always feel that you are under a certain bar already because you don't come with a particular background and I just feel like in the career that I'm going into, it's more like very research based, your skills matter the most, what do you know. So if I'm just coming with some theory that I only have from a classroom or things that I'm researching myself, I don't know if it's going to help me in the future. (89-104). Ya, like it's one of those like I am planning to not sit at home, like I 'm planning to be doing something in my life even if, I don't want it to be a serious gap year if I don't get something, I don't want to be doing something not related to what I studied, that would be a bit of a sad case for me, finding myself just waitressing and doing funky things. I know I'm a hard worker but I don't know if I'm ready to be put in such a position because I want something where I am taking off this year to get something that's going to give motivation, give me experience, give me that thing like when I get to masters I know what I'm here for, I want to look at that plant and do this and this. (125-131). I don't know, I think there are so many interesting things around plants; I'm just a lover of biology. I love that kind of research that are very, that's the thing; I want something that is current. If I get that internship from sugar cane I know that they are only paying R3500 but I would take it. It's in KZN and I want to go to KZN bra, ngi khulume you know. I want to be in KZN, seriously I feel like, things that are very like food security vibes, water research, those are the things that I want to do (118-123).

RUZI1. Next year I'm taking a gap year, will probably do an internship or not probably I will or my funders will be cross with me because they are paying for my honours in zoology and I came here and I changed slightly and did honours with African vertebrates so they might have a problem with that and might want their money back. We'll see. (79-82). I need a break from school, I'm 25 years old, I've been in school since I was 5 so I need a break, when you ask me, so what, you sound like my brother. This year has been the most difficult year ever besides the whole transitioning thing, financially it's been tough because when I applied for the bursary, people will advertise bursaries but not mention how much and when you get there to sign the contract, they will be like, oh we forgot to tell you, we'll only be giving you R25 000, I'm like what the hell! R25 000 doesn't even cover the tuition fees and you still have rent and food and still have to pay the remaining tuition and my mom makes like R60 000 a year and she has 4 kids in school so you see, so it's been tough. (85-92). I think it's a bit of everything but I think more than anything it was the financial thing because as much as my brother wants to support me and everything, he has a family of his own. Like this year we had to go to field trips, you will need binoculars and the white students will have the binoculars, and they have no problem giving you a list, binoculars, camera, sleeping bag, air mattress (Laughs), whites though, hiking boots, I don't have that shit. I just sit there and I'm like...., reference books, field guides, guys I'm worried about rent and you're telling me about some binoculars and I don't know, I've always been told that I'm a proud person, I don't like asking so having to spend the whole year asking people, please borrow me your binoculars and when we went to this field trip

at Mountain Zebra and we had to go hiking and I had my All Stars on and they were like, my All Stars are not good and I'm going to break an ankle and what not so now I had to ask someone to lend me shoes, that's not good for my ego and I don't know, it just made me feel small. So I'm hoping that although this internship thing won't pay much, but I'm hoping I'll be able to make enough to buy the little things because if I'm going to do my masters and I want to do my masters studying monkeys and baboons and what not, which means I can't really work in the lab which means I'm going to need these things so I want to make enough to buy myself these things so that when I go for masters, I'm prepared because I think, I wasn't prepared for this experience, they wanted a lot of things that I didn't have and I've always been taught that, be content with what you have so I can't really be shouting all the time, I want binoculars, from who, because my mom was like dude really, school and I was like oh ok and as much as she didn't support the going back to school thing, in July when she made, I think she made R63 000, she gave me R20 000 and when I called her 2 weeks later she was like, I am broke, don't talk to me, my little sister was like she needs a laptop in school because she doesn't stay in residence on campus, she needs a laptop so she had to buy my sister a laptop, my brother wants a drivers licence and he wants money and my other brother is doing Architecture and every week they want portfolios and what not so he wanted money so my mom was like don't talk to me, I have no money. So I can't really ask my mom for money because I understand she doesn't have money, as much as sometimes I feel like I could ask my brother, he has a wife and a kid and I'm 25, I should be doing this myself. I've always thought that 24 is old so 25 is very old to be going home and saying to your brother you need money for hiking shoes, binoculars. He borrowed me the sleeping bag. Before the Mountain Zebra trip, I went home because they gave us a week off and I took 2 weeks, even then I didn't have money so I called my mom and my mom told me she'd only have money in July 3 but I told her that I wanted to come home and she was like dude there is no money so just stay there and I was like, that's not going to happen. I called my friends and I was like please borrow me money but I will pay you back when I have it so don't borrow me if you will soon need it, so I got money and going home like from here to Pretoria is like R500 so I went home to my brother and told him I'm going for a hiking trip and I need your air mattress and he was like ooh, ok, I need a sleeping back and he said ok you can get that so now I have an air mattress sorted. I don't have a sleeping bag though; he gave me his sleeping bag which I have to return. (95-132). It's in Pretoria **but if I apply for masters and I get accepted for 2014, I, but they will have to forgive me, I will have to leave the internship before it ends and it's a year from April to April. I will tell them, niggas; I have to go to school** (142-144).

Summary: All four students from RU chose work as their first preference. They all want to do masters but most of them want to do masters part-time while they are working. Two of them have

stressed that they want to work after honours so that they can get experience, practical experience because they only have theoretical experience which won't mean much in the working world when they decide to join it. Two of the students also stressed being tired of the way their current university and department is doing things and feel the projects offered at honours level and masters level were not interesting to them anymore. Two of the students wanted to work after honours because of financial need, they say they need money to put food on the table and also to buy themselves small things and not rely so heavily on their parents and siblings. One particularly felt that her single mom was struggling with other siblings in university too so working would provide her with money to buy the things she couldn't buy during her honours year. Another student felt that any job that would bring her the right amount of money will do and it does not necessarily need to be related to her field of study while another felt that it was very important for her to get a job or internship in a related field otherwise her studying in that field for so many years would be a waste. Two of the students who wanted to work had different views about what kind of jobs they wanted and one did not care what kind of job it was just as long as it would provide money and the other felt that she had to get a job related to botany as she studied botany for so long and felt that it would be really said if she ended up not working in the sector she studied for.

FHBI1. Next year, you know what, I also wanted to do environmental management, I think I will do environmental management, I have already applied for scholarships and finance (44-46). Not in the botany department but in the geography department. I went there to ask and they told me if you have honours in ecology then at least they can accommodate you (48-50).

FHBI2. My plans for next year, ok first, since I'm already doing biological sciences I decided to finish my degree and do my honours, I decided that this year that I was going to do honours in botany and then next year or some other time, but soon, I want to do my masters in environmental sciences through UNISA, I will apply maybe next year, I don't think I want to do them here at FH. I don't want to do all my qualifications here. So since I want a job, I won't be able to go to maybe Rhodes and stay there for 2 years, I don't have the time, I'm getting older so I want to correspond through UNISA so that I know that I'm working and at the same time I'm doing my masters and PhD and stuff (87-94). I wanted a job, I want money and I want to be independent and have my own things. I'm old now and I can't still be dependent on my family, asking for money for this and that (78-80).

FHBI3. Next year I want to work but finding work is complicated but I will apply for masters and I will decide in January whether I am coming back or not. I have already started applying for internships and I am serious this year in terms of looking for a job and at least I can also look on the internet but maybe last year we weren't looking for them (112-115). I want money. Everybody wants money and I love money and that's why I want to work. I want to buy a car (85-86). Yes because my friends have cars and my friends are older so I want to be in their level (88-89).

FHBI4. Oh no, I'm not coming back. I want to a job; I will look for a job. I will do my masters later (68-69). I have a kid. He is 7 and he is in grade 2 and I don't want him to go through what I went

through. I want him to go to good schools and have everything he needs. The main reason I'm looking for a job is to provide a better life for my child and my family, I don't want my parents to die never having done anything for them or having them not receive even a cent from me, no (71-75).

FHEI1. To find a job (55). I'm tired of studying now, I need a break because I've been studying since grade 1 up until now so I need a break (57-58). No. **I also have responsibilities at home and my mom is a single parent so I need to assist her** but my brother is working but he has his own family to support and **you know how males are, how brothers are, it's like I'm the eldest now you know** (60-62). **Yes only internships** (101).

FHZI1. I was thinking I'm going to do my masters (11). I want to finish studying and I think what I'm doing is more interesting one, two I want to finish studying so that I know that **when I get to the stage of working, I work throughout** and at the same time **for internships, I might need to relocate from here to Johannesburg and when I reach Johannesburg I might need to rent a flat of which internships don't pay much. When you are doing masters, if you get a good bursary that will give you the same amount of money as the internship or even more.** In an internship you can earn like R5000 and you still need to rent a flat and buy food and clothes so that money runs out very quickly whilst not having done much with it. I noticed that, we used to go SAIAB in Grahamstown so I noticed that **people doing internships are doing exactly what you are doing, they are doing research, they have to be at work in the morning, they write, so it's the same thing as what you will be doing so I think it's better to study because in the end you are doing more or less the same thing they are doing but in the end you will gain a degree** and what do they get? Nothing. In the end you will get a degree (102-113).

FHEI2. If I don't get funding I will not do my masters but I want to do my masters that's why I have an agreement with Martin because he made it clear that if I wanted to do masters he will provide me with funding but what he needs from me is for me to move to Rhodes and I don't have a problem with that I have the ability and I'm confident in that regard and I'm not worried at all. If he tells me how to do something then I will do it, I don't have time to waste (246-250). I have two options, if I get an internship but unfortunately an internship in science is not for everybody, not just anybody can get it so that's why I had an option that says if I don't get an internship I must do masters because what I don't want is to sit and look for a job while doing nothing, I will find a job and then I don't know how the funding will go for masters but then I met Martin so I discovered that **at least when you are going to masters you get some pocket money and be able to support my child and my siblings with this pocket money and so it will be the same as if I was doing the internship of which doing masters is more beneficial for me because I will be upgrading my standard** (254-259). I think doing masters will be useful to me so that when I get a job I can get a job at a bit higher level (274-275).

WSUZI1. My knees are chafed from praying for a job, I want to work, I want a job (127-128). You know **when you see your cousins and your friends are working and they are driving cars**, some of them you started together at university and for that matter you took the same pace at school, it's not like you were behind them or anything but **you see that their lives are moving forward so life has to go on bethunana. I know going for masters also means that life is still continuing because you are gaining something else and you are gaining more qualifications but now I want something**

tangible and since I'm expecting a child I am going to have a responsibility. I'm going to be a mother (130-136).

WSUZI2. Oh it's to find a job. I should have been working already (87). Yes I am applying (89). No. I want to get a job anywhere; I will also apply to education (91). I have responsibilities, I have 3 families. My family at home, my husband's family and my family with my husband. I have two boys. One is 4 and 2. I don't want to be dependent (96-98). Yes he works at build it, is that even a job, but it's better than nothing. But if I could get a job, he would leave that place. I would like to continue to study until the lord stops me because I want that beret on my head, have you seen those beret's they wear during graduation? (100-103).

WSUZI3. I intend to get a job, I need to work (78). I am tired of being dependent as I've said before that my mother is not working and this year I'm paying for my education by using the money from the internship I did last year but it's finished now so I feel I need to work next year because I'm tired of being dependent and at the same time research, no, you know the writing up the thesis is hitting left and right, left and right so it's one of those things (80-84). Yhuu if you don't have money no and my mother, I need to help her, I need to give her money for luxury and she must get so much money that she doesn't know what to do with it. When they get older they are like that (87-89).

WSUZI4. Next year I want to work, I want to be an intern somewhere. I want to be exposed to the field (163-164).

WSUZI5. Next year I applied for a lot of internships. If I were to do masters I wouldn't do them here I don't care what happens, never will I do my masters in this university and stay a further 2 years in this shitty place and struggle with patched lips with no money or anything else, no ways. In future I would love to do my masters and get paid for doing them. I will never stop studying and if I could get financial stability and take care of myself and not be frustrated like a small child in grade 1, there must be a difference because now I'm grown up. If I could get that then I would even be doctor of philosophy and be busy with that (193-199). So imagine in that up and down going on with family members, you also need something to support the family so if you want to continue with your studies and at the same time you have to support the family it becomes a struggle because now I'm also at a point where I need to be helping out at home, the two younger ones after me need things, my dad has retired now so he is no longer a policeman since 2008, it's been a while since he stopped working so he isn't getting money like he used to so it's difficult. So whatever we can get and assist him with it he is grateful (29-35).

WSUBI1. My plans for next year, by the look of things I think I will finish my honours next year probably in the middle of the year. I want to do my masters but the problem is when I told my mom that I wanted to do masters, she said my child I gave you money to obtain a degree and even the money for honours was a bonus so for masters you will have to sort yourself out but I want to do masters but obviously I want to do them part-time because I will have to support myself. I want to do them because gosh, honours no bra, it's like my mom has honours so we are on the same level so I want to be on a higher level. Besides that, now I've seen that I want to specialise in in botany. I want to do plant biotechnology, like I don't want, like I want to be Bulelwa Philani Buhlungu the plant biotechnologist, I don't want to be just a botanist (84-92). I think I'm brushing it off. Ok first and foremost I feel like I'm not ready to be working type of girl. I think I'm brushing off the work thing because at the back of my mind and in my heart, I still want to do my masters but the

reason I need to look for a job is because I don't know who will pay for my education so that's another story. I guess NRF, ya. And the bursary that was paying for my education didn't want to pay for my masters, it's only for a degree and they didn't want to pay for my honours and my aunt had to beg so yhoo bra. Next year just stresses me out (121-126).