Gordon Institute of Business Science
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Student funding at a South African institution of higher education

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

9th November 2015

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Abstract

Higher education is linked to economic mobility, but demand to fund access to university exceeds supply in South Africa, and elsewhere in the world. Thus, universities are pressed to ensure that in a situation of limited funds, funding is allocated in a strategic and prudent manner. However, little work has been undertaken in this field, and, as such, this study represents an attempt to fill the gap. The purpose of this research was to explore the current student funding model, to gain an understanding the current funding challenges and attempt to find ways in which funding decisions can be improved. The study is limited to one institution of higher education in South Africa, and, as such the results may not be generalizable. A mixed methods approach was used. The qualitative portion focused on establishing what were (1) the current model, (2) the criteria used, (3) the challenges encountered, (4) funding's ability to aid epistemological success and (5) stakeholder management. Interviews were conducted with senior staff involved in a range of student support directorates including Finance, Client Services, Recruitment and Information Technology. The quantitative portion focused on exploring the links between (1) the current criteria and success, (2) student funding and success, and (3) residence placement and success. This sample included all (8099) undergraduates for the 2011 cohort year and tracked them over a period of three years. Results of the study show that student funding is complex and challenging. In terms of academic criteria, the Grade Point Average was found to be the best predictor of success. However, the presence and value of funding does not guarantee success or even improve student performance, whereas the placement of a student in residence generates a statistically significant improvement in performance. Thus, student funding cannot be simply directed at individuals, as a portion must be allocated to student support initiatives such as residence; tutoring; cultural integration; mentorship and early warning systems.

Keywords: Student funding; Transformation; Higher Education; Predictors of success;

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Signature   Date

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Chapter 1: Introduction to the research problem

1.1 Introduction

Higher education is responsible for addressing student demands, with education linked to economic mobility. Thus, institutions are being pressured into resolving financial aspects in a strategic and prudent manner (Aydin, 2014). On average, about 25 percent of students leave higher education (HE) institutions in South Africa due to being excluded either on academic or financial grounds. In fact, this number has grown closer to 50% in recent years (Styan, 2014). With 25% representing over 100 000, mostly black students (DHET, 2013), protests and boycotts have spread throughout the country (Koen, Cele, & Libhaber, 2006). Despite this, the mandates for these institutions are not simple. They need to address the broader definition of transformation by ensuring access to those previously disadvantaged but also increasing quality of its student cohort (Aydin, 2014; Ditabo, 2014). This results in student funding providing unanticipated and contradictory consequences (Callender & Wilkinson, 2013). The purpose of this study is to explore student funding at one particular South African institution of higher education.

1.2. Background of the study

South Africa has 26 public tertiary Institutions (including three new tertiary institutions). Despite this, not everyone who wants to enrol for a tertiary qualification will be able to due to limited number of tertiary education places. Although the number of higher education students has drastically increased in the last 10 years, peaking in 2011, all universities are now subjected to strict enrolment plans (DHET, 2013). Thus, some students will find their applications declined (Walker & Mkwananzi, 2015). Usually this is done using academic criteria, that is, the better the student's matriculation points, the better their chances are of being offered a place. However, even students who get this far and are admitted will not necessarily be in a position to pay their fees. Thus, many apply for student funding. While some qualify for standalone independent bursaries from industry or other donors, and others qualify for National Student Financial Aid Scheme (NSFAS) funding, there are those who do not. In addition there might be those who are not aware that funding support is available (Callender & Wilkinson, 2013) for which they must apply (Walker & Mkwananzi, 2015)

Table 1.1: Number of first time undergraduate students enrolled in public higher education Institutions, from 2009 to 2013. (DHET, 2013:7)

Institution	2009	2010	2011	2012	2013
Cape Peninsula University of Technology	8 244	8 106	7 876	7 949	7 604
University of Cape Town	4 153	3 637	3 464	3 875	3 748
Central University of Technology, Free State	3 941	3 321	2 722	2 803	3 408
Durban University of Technology	6 856	7 096	6 243	6 078	6 842
University of Fort Hare	2 314	2 468	2 592	2 811	2 276
University of the Free State	4 038	5 007	5 829	6 202	5 533
University of Johannesburg	13 168	10 230	12 404	10 181	10 142
University of KwaZulu-Natal	8 048	8 053	7 649	7 150	8 684
University of Limpopo	3 421	4 745	5 288	5 137	4 861
Mangosuthu University of Technology	3 032	2 769	2 510	2 840	2 883
Nelson Mandela Metropolitan University	5 391	5 099	5 815	5 164	5 226
North West University	5 929	7 206	7 526	7 848	8 770
University of Pretoria	8 015	8 124	7 408	7 412	8 497
Rhodes University	1 670	1 451	1 230	1 275	1 372
University of South Africa	40 884	47 208	60 912	52 227	33 828
University of Stellenbosch	4 234	4 599	4 535	3 936	4 553
Tshwane University of Technology	12 760	11 621	10 556	12 184	13 593
University of Venda	1 796	1 680	1 975	2 176	3 457
Vaal University of Technology	5 956	6 073	4 816	4 412	4 010
Walter Sisulu University	6 082	6 078	5 742	5 214	5 956
University of Western Cape	3 251	3 783	3 852	3 871	3 896
University of Witwatersrand	6 590	5 300	4 684	5 349	5 418
University of Zululand	4 745	4 734	3 477	3 671	3 832
Total	164 518	168 388	179 105	169 765	158 389

Once again, however, demand exceeds supply and universities are battling to find the resources required. In particular, universities are faced with competing priorities and certainly not all funds can be re-directed to students based on financial neediness alone (Moloi & Motaung, 2014). In general, universities are facing acute funding shortfalls and so there is pressure to ensure that any student funds awarded are given to the right student at the right time (Harrison-Walker, 2010) that is, there is a balance between economic need, meeting transformational criteria and through-put. Given the need for funding to assist students to positively convert their educational aspirations into reality, as well as pressure on tertiary institutions to use their own resources to effect transformation, the current student funding model, its challenges and areas of improvement are explored in this study (Badat, 2015; Walker & Mkwananzi, 2015).

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1.3. Business need

Student funding has become severely problematic in the South African higher education sector, something the public is now fully aware of due to the #FeesMustFall campaign. Simply put, there is a shortfall of supply to match the excessive demand of learners being eligible to study, but not being able to afford to pay the fees. This has a negative impact on any transformation, as most who cannot afford the fees will be previously disadvantaged individuals. Institutions of higher education cannot sustainably support this shortfall. One solution is to allocate student funding in a manner that is efficient and effective (Aydin, 2014). Students may not necessarily see it this way. For them, the institutions should find ways to fund them. This view was expressed by Walker & Mkwananzi (2015:43) the following response was received "I know that when you finish school and depending if your marks allow you entry into university, if they allow you then you go. If you have problems with money, government has a way to assist, in issues related to money. That's what I know". While the NSFAS goes a long way to fulfilling this perceived promise, there are still funding shortfalls. This is when institutions of higher education (who act as distribution agents of NSFAS funds) are at the receiving end of students' anger due to financial exclusions (Koen et al., 2006). In many cases, these institutions are forced to somehow find money or risk riots and reputational damage. That this is unsustainable has been reported by many Vice Chancellors, such as Ihron Rensburg of UJ. Thus, there is a need to be able to allocate student funding to the neediest, but also academically able students, using defendable criteria and allocation strategies, rather than based on emotional arguments usually put forward by the student body. Such emotional appeals may mean that it is not always the most suitable student who is funded. Thus, this study intends to explore student funding as a tool to ensure more equitable, defendable and sustainable funding for students (Tulasi, 2013), including the challenges an institution of higher education might face in operating such a model.

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1.4. Academic need

In addition, a conceptual and empirical approach to education and development is required (Walker & Mkwananzi, 2015). Added to this is that the current problem is not new but rather building in volume (see background of the study). While there might be models of student funding that exist currently in South Africa, it has not been explicitly and formally implemented and applied within the higher education sector. There are significant gaps in the literature on student funding, bursary allocations, and bursaries in general within the South African higher education sector although there are related studies in the US, UK and Asian environment (Kerkvliet & Nowell, 2014; Harrison, Agnew, & Serido, 2015; Panigrahi, 2015). These studies need to be verified in the South African environment. There are also many studies on the use of academic and non-academic predicators and influences of success (Welsch & Zimmer, 2012; Delaney, Harmon, & Ryan, 2013; Bai, Chi, & Qian, 2014). But there is a lack of these studies within the context of student funding. This gives rise to the final aim of this study is to create a foundation from which further research in the field of student funding could be done. This research intends to combine the above research problems and therefore conduct exploratory studies into a proposed student funding model to be used within higher education at undergraduate level for the purposes of efficient and effective student funding. Part of this will be to understand the possible operational and cultural challenges that could hinder implementation.

1.5. Research objectives

The aim of this research is primarily to conduct exploratory studies into the current student funding model employed within higher education at undergraduate level for the purposes of improving efficiency and effectiveness. Included in this study will be exploration around the implementation challenges and cultural changes the might be needed in order to extract the maximum benefit from the model.

1.6. Limitations of the study

The research will not be based on student input with regards to funding, neither will it include input from executive management. It will also not look at all the data fields related to student funding. In addition, research will only be conducted at a single South African institution of higher education and focus solely on student funding for undergraduate students.

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1.7. Conclusion to Chapter 1

This chapter introduced the background to the research problem, context, the business and academic motivation, the research problem and its relationship to the research objectives. Chapter 2 provides the literature review of the study by examining and summarising the current literature and analysing the gaps and needs in a South African environment. This follows with Chapter 3, indicating the seven research questions based on the gaps and needs identified. Chapter 4 provides details of the research methodology. i.e. The research instruments, data collection and analysis narrative, the limitations of the research and the sample selection and description process. Chapters 5, 6 and 7 provide the results of the research with limited interpretation, and an in-depth discussion of the results in terms of the seven research questions. Lastly, Chapter 8 will conclude with highlights of the main findings of the research, the recommendations for future research and the implications of the findings to various stakeholders.

Chapter 2: Literature review

2.1. Introduction

It is argued here that a strategically well thought-out, efficient and effective student funding model has the potential to help solve some of the social and economic problems in South Africa. For example, young people from impoverished areas and low-income households need resources to convert their aspirations to attend tertiary education institutions (Walker & Mkwananzi, 2015). However, the sheer numbers of such individuals exceeds the money available, or even the places available for study. If higher education chooses to do nothing to solve this problem, it will result in broken aspirations for those with difficult backgrounds (Nussbaum, 2001), causing South Africa to miss opportunities such as economic productivity (Walker & Mkwananzi, 2015). Thus, while there are always some that may be excluded; student funding could help reduce these numbers. Who and why, therefore, become crucial questions. Linked to this is that institutions of higher education should change the nature of their internal workings to address both the institutional and social inequalities of the past, but to also look to the future of the country's economic climate.

In order to address some of the inequalities of previous years and provide support to those from impoverished backgrounds that need additional assistance, government created a student loan scheme called the National Student Financial Aid Scheme (NSFAS), which government supports with R1.1 Billion as of 2008 (Pillay, 2010). These loans, via academic performance can be converted in bursaries up to an amount of 40% of the total study loan (Kwiek, Lebeau, & Brown, 2012) However this amount of money is not enough due to the increase in higher education enrolment (DHET, 2013). Higher education institutions are pressured into bridging the gap. In order to achieve this, institutions in the UK for example, generally choose to focus on merit and subject shortfalls as criteria (McCaig, 2014). Is in this area that this research will focus: What are the criteria that a South African institution selects when put under similar pressure? In the same context, one must be cognisant of the fact that in order for these bursaries to be allocated effectively, a student's perception is that they must be done so in a transparent and predictable manner with early notification (Dewey, 2009; Callender & Wilkinson, 2013).

There is a wide range of criteria available used for selection as well as criteria that could be used, but are not currently available. Of the criteria that are generally

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available a few are internationally acceptable, mainly the academic criteria (Zaaiman, 1998), but these academic criteria have been employed for decades now, and with the constantly changing environment, criteria should be reviewed and new criteria employed (Aydin, 2014). The following chapter looks at the scenario, which was outlined above, covering the current trends in higher education, challenges faced with regards to funding, understanding the need for transformation, the role that student funding plays in higher education, and lastly the predictors and factors of success.

2.2. Student & institution challenges of higher education

The demands and challenges of higher education in the modern environment and specifically in a South African environment have changed in the current millennium. Research by (Koen et al., 2006) examined first entry students between 1999 and 2003, with motivation driven by the student activism and protests, driven by academic and importantly financial exclusion. Over this period, institutions were put under pressure to increase their student numbers in order to meet high-skill labour needs and increase the number of previously disadvantaged students. Koen et al (2006) elaborates that the reasons these disadvantaged students fail is that they are either are not able to cope academically and/or are not sufficiently secure to enable them to complete their studies.

There is an argument that South African higher education institutions are more than just places in which education takes place. Instead, they are social entities, used for societies to shape the way they think about themselves and the way they relate to the rest of society and other societies (Bawa, 2012). Perhaps this is why there is an emotional element to the demand for education at higher education institutions and that there needs to be support for those that endeavour to further their studies. To some extent, Aydin (2014) agrees that higher education has the assumed role of ensuring that there is both social and economic development of countries. The dynamic environment in which South African higher education institutions exists means that demands on them have changed. Not only do they have responsibilities have teaching and researching, but also ensuring that the demands of students, governments and the business world are met, playing a major role in the success and sustainability of a country's development. Demands of student funding and academic student support could be added (Koen et al., 2006). For these students higher

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education is not a luxury but rather a necessity for their own well-being and economic development.

2.3. A quality-only view to student funding

However, higher education cannot be the sole owner and bearer of this burden. In South Africa from the 1990's to the early 2000's national student debt rose to R5.5 Billion as fees increased and little pressure was put on students, who, like today, were prone to rely on protest, which was mostly violent. This resulted in institutions facing bankruptcy, which in most cases was 'solved' by the merger of financially stressed institutions with financially stronger ones. Since that period, things changed as South African institutions vigorously promoted upfront payments and other cost recovery strategies, including debt collection. In some cases this included withholding academic results to force students to pay up (Koen et al., 2006). The OECD countries went through a similar period of struggle and self-reflection. To overcome the problem, efforts were made to diversify the funding base, mostly forced, due to reduction in fee contributions from government. The outcome was that there was a need for great reliance on fee contributions from students, but also that the additional reliance needed to be placed on corporates who benefit greatly from the education that students receive.

While institutions of higher education are not in the business of education to make profits, they need to remain profitable in order to remain sustainable. In order for institutions to be managed correctly, there is a need for them to target students, or rather customers in marketing terms, who are profitable. Institutions need to assess students in terms of risk of failure in terms of characteristics, attitudes and behaviours, which may impact on the students' progress within the institution (Harrison-Walker, 2010). In another sense, institutions already do this, although not in such a stringent manner, by assessing students based on academic and non-academic criteria (covering later in this chapter under predictors and factors of success). The indication is that the time is right for institutions to be more strategic in the manner that they select students as well as the selection criteria they employ, especially where student funding is concerned.

This is confirmed by additional research in recent times (see Paliulis & Labanauskis, 2015), which show that with the constant trend of urbanisation, industrialisation, globalisation and change within higher education has forced institutions to look at new

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instruments for quality assurance. This is not only applicable when looking internally, but also when looking at the students that it selects. This is primarily due to the diverse societal groups caused by the previously mentioned trends that higher education serves, but also by its mission to improve the efficiency and effectiveness elements of its quality assessments. While these motivations originate from Europe, they are no less important or relevant in South Africa, where the mission and vision statements for the bulk of our institutions refer to quality elements.

2.4. Student funding

South Africa has grappled with the concern of making higher education more inclusive, so that the demographic of the institution matches that of the South African landscape and so that the institutions themselves are more inclusive in terms of the environment they provide for students. Student funding attempts to address both areas of concern, but often in determining the nuanced problems that exist in terms of societal justice, Higher Education is often guilty of mis-framing when analysing the situation (Bozalek & Boughey, 2012). This is where the correct insights and models need to be used to ensure that mis-framing does not occur. Currently, the literature in this regard has no explicit model for student funding.

In this area, studies (see Curtis & Kiapper, 2005) conducted between two different societal groups, in this case a French University and an English University showed the differences in quality of education that a particular group received. In this case, the English students, who lived with their parents but who had the financial burden placed on them as well, while the students in France had the financial burden placed on their parents, who could afford it. The suffering in the quality of education was mostly due to the students have the additional load of a part-time job. This study seems to mimic the feel of the South African environment with a comparison between two groups, one, which has, and another that does not have or is unprepared for the demands of higher education. However, given South Africa's unique environment, there is a need for more of these types of studies closer to home. Another undergraduate student debt study completed in the USA argues that debt can affect students' higher education options in terms of what study choices they make, which institution they will attend or even if they would attend a higher education institution at all (Craig & Raisanen, 2014).

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Table 2.1: Motivation and Challenges of Higher Education

Factors	
Motivation	• Economic mobility • Personal development • Social participation and mobility • Contributing to society • Independence • Financial awareness • Improved desire for stability
Challenges	• Financial Constraints • Lack of basic education • Ability and skills to cope Academically • University environment unsuitable to marginalised • Lack of information and exposure to society • Lack of knowledge regarding South African institutions

There are case studies on the most unfortunate of these students, looking at a group of marginalized individual's from the Orange Farm settlement in South Africa. These individuals need higher education in order to participate in society and allow themselves to develop socially. Of course we can also add economic mobility to the list, but in their environment in which they dream of being pilots, doctors and lawyers the status attached to the economic mobility is much more important (Walker & Mkwananzi, 2015). Table 2.1 indicates some of the motivational and challenge factors experienced by these marginalized individuals. Similar factors are experience by most other disadvantaged individuals around the country. In an Indian society with a similar environment in which societal classifications exist, the theory was put forward that for underprivileged, access to higher education is crucial for inclusive growth and social mobility (Panigrahi, 2015). Similarly, a USA study found that while these students faced a high number of challenges, those that were successful received a similar amount of advantages. This included an increased independence from their impoverished families, leading to time for reflection and identifying meaning in their lives, financial awareness due in part to their independence and being forced to

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manage their finances themselves, improved desire for stability (Thompson, Nitzarim, Pa Her, & Dahling, 2013).

With pressure on students, they turn to any form of funding that they can receive. In some cases they turn to part time part in order to primarily fulfil a functional responsibility, others that are lucky enough manage to receive work related to their studies, which allows them to fulfil aspirational responsibilities (Richardson, Evans, & Gbadamosi, 2009). In other cases this might be bank loans or as in most cases in a South African context, NSFAS loans. The thinking is that due to their desperation, they will say yes to any sort of funding that they can get their hands on. Studies indicate, further, that students from poorer backgrounds are 80% likely to defer these loans, compared to 50% from more privileged backgrounds due to inability to find work and complete their studies (Birch & Miller, 2008). In addition to deferment, there is also the risk of defaulting (Craig & Raisanen, 2014). This shows both the benefit of student funding (supporting those that are desperate) and challenge (students struggle to complete studies, which decreases the return on investment.). Still, even with the limited return on investment and the risk of deferment, students need to receive some sort of support. Making students, or by implication their parents, pay has a negative impact in terms of their ability to complete their studies or their performance during their studies. The problem sounds isolated, with the long term effects of reduced quality in higher education is reduced as access it reduced and skill shortages are reflected in the national economy's competitiveness (Thanki, 2000).

In practice, though, students manage their financial obligations via a balance of some or all of the following channels: student funding (grants, bursaries, NSFAS loans), bank loans, part-time work, savings and parent contributions (Richardson et al., 2009). Interesting information gathered from research studies is that while Richardson et al. (2009), indicated that state aid has a positive relationship with student performance, there are conflicting studies which claim that the total amount of money spent does not reliably improve results (Forster, 2008). With both of these studies and claims made in first world markets, there would be a need to conduct a similar study in South Africa. Showing a positive relationship between student funding and performance would result in calls for student funding to increase, in order for it to form a larger portion of the channels students employ and reducing their financial stress, but if a strong or moderate relationship is found, there would be a need for researchers to dig deeper to understand the problem.

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Table 2.2: Sources of Funds for Student Expenses

#	Fund Type
1	Student Funds (Grants, Bursaries, NSFAS Loans)
2	Bank Loans
3	Part-time Work
4	Parent Contributions
5	Savings

Table 2.3 indicates the types of costs that students incur while in higher education. Tuition forms a small part of that, but receives the major attention when it comes to student funding.

Table 2.3: Typical costs incurred by students in higher education

#	Cost Type
1	Living costs (food, housing)
2	Tuition fees
3	Sending money back home
4	Lifestyle costs (Cell phone, clothes, entertainment)

2.4.1 Transformation

There are various forms of transformation, relating to language, race, gender, internationalisation or even culture. Most of the literature refers to transformation in terms of equity. In the broad sense, the aim is to provide equitable access to higher education studies for all groups of society (Asplund, Adbelkarim, & Skalli, 2008). In the case of societies in Europe, equity refers to those from low socio-economic, but in a South Africa context, the application is the same. That is, changes need to be made to ensure that everyone in our society is represented in higher education. The answer to this resides in the design of the funding mechanisms used. Funding needs to be modelled in such a way that it contributes to the national effort of transformation. However, in a South African context, there cannot be a one-size-fits-all approach. Government and institutions need to devise a strategy that is student centred, viewing the student cohort as a groups of individuals, each with unique needs (Forster, 2008).

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While complex and therefore challenging to implement, this might be the only feasible way to ensure true and effective transformation.

2.4.2 Predictors of success

In order for student funding candidates to be assessed for risk factors, one needs to decide which criteria would be used and why. In this sense there are academic and non-academic criteria which can be further split in into traditional and non-traditional criteria dependant on the market is it used and the length of time is has been employed in higher education. In 1998 academic criteria were divided into three areas, achievement (example: school marks or achievement marks), aptitude (subject-related skills tests or access tests) and ability (non-subject specific tests or interviews) (Zaaiman, 1998).These are good examples of your traditional criteria. In addition there are other academic criteria, for study choices with specific subject backgrounds such as Accounting and Mathematics results in secondary education, that were strong predictors of success (Al-Twaijry, 2010). However, it is uncommon for academic measures of success to provide inconsistent results in predicting success (in terms of GPA) at higher education institutions. Some studies provided evidence that some academic measures had strong correlations to university A and weak correlations to university B (Al-Twaijry, 2010). This indicates that using multiple criteria increases the consistency of prediction, if diverse criteria are employed. This is where student funding could potentially be improved, by using multiple academic and multiple non-academic criteria in order to select the best group of individuals for the institution. The criteria used would be based on the institutions strategy and long term plan for transformation.

Previous research (Harrison-Walker, 2010) has shown risk of failure should be assessed in terms of characteristics, attitudes and behaviours. This supports findings relating to both the attitude and behaviour criteria in which student attendance has a positive impact on student performance (Westerman, Perez-Batres, Coffey, & Pouder, 2011) and the recommendation from researchers that the non-academic criteria such as additional study absenteeism and student capability or even the teacher style, course content or examination structure of the subject is a factor of success for a study choice (Delaney, Harmon, & Ryan, 2013). There is also a case to be made that characteristics, attitudes and behaviours are not only necessary for student

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performance, but also the success of graduates' ability to perform in the business environment that institutions are mandated to serve (Al-Twaijry, 2010).

Table 2.4. Predictors of success

Criteria	
Academic	• Achievement (School marks or achievement marks) • Aptitude (subject-related skills tests or access tests) • Ability (non-subject specific tests or interviews)
Non-Academic	• Characteristics • Attitudes (Additional Study, etc.) • Behaviours (Absenteeism)

Then there is the non-traditional criteria such as the distance from the environment or even the different between the institution environment and the environment from the student comes. This is offer due to student migrations (Welsch & Zimmer, 2012). While the study focused on the improvement in quality of the school, there is the need, for studies to be conducted in a South African context, to focus on the performance of students. In terms of institutional life, residence activities provide an engaging environment from which the student can adapt and immerse themselves in the learning environment. It allows for integration and social development of students, which could have a positive impact on the students' performance in higher education.

2.4.3 Support structures

Students from disadvantaged backgrounds require more than just financial assistance in order to be successful at higher education. Although they come from different backgrounds, people from underprivileged circumstances face similar hurdles: family stress; education related and non-education related financial strain (such as accommodation and transport costs); and pressure to financially support their families. There are also additional factors such as stigmatism and perceived stigmatism, struggling to connect with others (social integration), lack of information and inability to cope academically (Thompson et al., 2013). Table 2.5 indicates the support mechanism that one can use to address the challenge faced by students.

Table 2.5: Support structures required by students

#	Support Mechanism	Challenge
1	**Psychological support**	Family Stress; Stigmatism (perceived); Social integration;
2	**Student Finances**	Financial Strain;
3	**Residence Lifestyle**	Social development and integration; Lack of knowledge regarding South African institutions;
4	**Career Counselling**	Lack of basic education; Ability and skills to cope Academically; Lack of information;

The above challenges are not only felt by disadvantaged students, as all students would need one or another support mechanism in order to perform that their full potential. There are many resources that are outside of the lecturers' (who student usually interact with most) ability, which are needed to improve a student's ability. Studies conducted, which focused on the writing ability of students to ensure that skills were developed, proved to be a success, improving the ability of all students due to writing being a key skill in the business course used in the study (Tarasovich & Boyer, 2013). In addition, the study found that in order to maximize success, these interventions need to take place as early as possible in the students' higher education career.

The same applies to emotional intelligence and depression, which affects all students regardless of their background. Residence life can assist with functions have depression (escape and avoidance), reducing the risks or eliminating them altogether, through positive reinforcement from fellow students (Takagaki et al., 2013). Given this, there is a need for psychological support to be on offer to ensure that the downward spiral of depression is avoided. In addition to this, there is an essential need to develop students' emotional intelligence to build character and further assist with their performance. There have been many studies on the influence of emotional intelligence throughout the academic program, due to its influence on the mental health and well-being of a student. Furthermore, it is argued that students in general lack sufficient emotional intelligence to succeed in higher education, and therefore there needs to be more emphasis placed on emotional intelligence developed in and particularly outside the classroom with the aid of sufficiently qualified professional personnel (Volberding, Baghurst, & Brown, 2015).

All these support costs become expensive for the institution, especially as there is no immediate link between the cost and income. However, while there is a delay, there is a positive relationship between the expenditure on academic support, student services, financial support etc. and student performance. This is especially so with students who entered higher education with lower academic performance, with expenditure mattering most with institutions that struggle with graduation and persistence rates (Webber & Ehrenberg, 2010). The research goes further by proposing that enhancing the student experience via support services is necessary even if it comes at the expense of instructional expenditure.

2.4.4: Measuring success

There are often two ways in which higher education institutions measure success. These include the ability to perform in each year of study (results or average results for the year of study) and the ability of the student to complete their studies in the minimum time. In the case of most study programmes at South African Institutions of higher education, this time is three years (Al-Twaijry, 2010). However, there is also a need to measure the quality of students based on their employability in order to ensure sustainability (Dos Santos Martins, Correia Loureiro, & Castro Amorim, 2013). In many cases it is show that graduates entering the workforce directly from higher education, and therefore with limited work experience are hesitantly hired by corporates due to the high costs of training them (Phelan & Mills, 2011). Phelan & Mills (2011) indicate that there are five pillars of skills for professionals, planning, professionalism, work ethic personality traits and self-management. These loosely match the non-academic criteria of Harrison-Walker (2010) and it can therefore be argued that there needs to be more reliance on these non-academic criteria not only for institutional performance, but also workplace performance.

Institutions have a responsibly to ensure the development of the national economy via its supply of graduated students, but there are always challenges with measuring employability and quality of students in external environments, which are not as standardised as a classroom. There are 52.1% of students who work part-time with an indication that the work chosen matched their studies in order to gain experience (Richardson et al., 2009). Higher education needs to focus on this link as there is a need ensure that the link between the education the student receives in the classroom matches to the application outside of the institution. If not, it is failing its mandate of

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providing a skilled workforce to the national economy. It should be noted that this would need a significant change of mind-set by institutions and corporates due to the disruptive nature thereof.

2.5: Stakeholder management

A key part of student funding is to ensure that stakeholders are managed effectively and efficiently. Research indicates that there is a four-pronged approach to ensuring this: Connect, create, collaborate and communicate (Dewey, 2009). It proposes that institutions make a fundamental mind-set change to the way it engages with stakeholders. Whereas previously they were managed as an arm's length to ensure a comfortable relationship, today they need to be much closer in order to ensure a sustainable, effective, accountable and flexible mind-set to higher education. These characteristics are critical in relation to student funding with its myriad of challenges and constraints. Institutions need to work very closely with stakeholders in order to allow for innovative thinking and mutual gains in addition to a comfortable relationship.

2.6 Decision making in higher education

Student funding together to student support are important functions of a higher education institution, but it is not a forgone conclusion that they can be implemented. This is due to the multiple elements for which a higher education institution needs to deliver on, each element with its own benefits and costs. Table 2.6 indicates these elements (Begičević, Divjak, & Hunjak, 2010). Each of these elements have conflicting priorities depending on which part of the institution one is placed, due to your specific needs at the time (Asif & Searcy, 2014). However, decisions need to be made by institutional managers based on its own capabilities the areas in which it is lacking in relation to competitors and pressures from various stakeholders (Dewey, 2009).

Table 2.6: Extract of elements of a Higher Education Institution that require prioritisation (Begičević et al., 2010:347)**.**

Categories	Cluster	Element
Benefits	Strategic Factors	- Research Mission - Educational Mission - Contribution to society
	Economic Factors	- Economic benefit for institution - Economic benefit for employees - Economic benefit for society
	Social Factors	- Networking and promotion - Development of society
Costs	Organizational costs	- Management support - Technical and administrative support - Academic Support
	Other resources	- Time - Knowledge - Infrastructure

2.7. Conclusion to literature review

While the is an abundance of literature directed on the challenges and trends of institutions in South Africa, there is very little literature regarding the use of student funding and student funding models in South Africa as well limited research in the use of academic and non-academic criteria for the use of student funding. Institutions around the world face a raft of challenges, but with most literature focused on Europe, USA and Asia or higher education in general. This results in little on the challenges of student funding in higher education. Similarly, one needs to understand how transformation predicators of success, and support structures fit in with the agenda of higher education, specifically in relation to student funding.

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Chapter 3: Research Questions

3.1 Introduction

This research attempts, in terms of the student funding model, to quantitatively explore 1) a variety of success measures and 2) a variety of predicators of success, and 3) The link between residence placement and success. In addition, it also attempts to qualitatively explore, 1) the current student funding model and criteria used, 2) the challenges faced, 3) the use of student funding as a transformational tool and 4) the stakeholders involved. This chapter outlines the research questions that drove the inquiry.

3.2 From a quantitative perspective, the research questions were:

Research Question 1

What is the relationship between the current academic criteria used in student funding and success?

Research Question 2

Is there a relationship between the awarding of student funding and success?

Research Question 3

Is there a link between residence placement and performance?

In order to answer these questions, secondary data will be analysed on particular intake cohort of undergraduate students. Relationships were explored with data spanning three years of study in order to confirm the existence of a pattern.

3.3 From a qualitative perspective, the research questions were:

Research Question 4

> 4.1 What mechanisms are currently used in decision making within the student funding model?

> 4.2 What are the considerations of the criteria used in these mechanisms?

Research Question 5

What are the challenges of current student funding model?

Research Question 6

Should student funding be used as a tool to address transformation?

Research Question 7

Who are the stakeholders in the student funding model and what impact do they have?

An interview schedule was designed to explore various areas and attempt to answer these research questions in a structured manner, using experts with student funding and higher education experience. In applicable areas, the analysis of internally created documentation might be used if needed.

3.4 Conclusion to research questions

The research questions for this thesis are focused on exploring a broad range of components in student funding in order to form the basis for future much-needed research in the area. The data gathered is sufficient to result in achieving the purpose of this study and attempting to answer all seven research questions, which will provide the foundation for results discussed in Chapter 5 (quantitative) and Chapter 6 (qualitative) and analysis provided in Chapter 7. In the following chapter, Chapter 4, the research methodology employed is provided.

Chapter 4: Research methodology

4.1 Introduction

The purpose of the study was to explore the current student funding model using a methodology comprising mixed methods. It was deemed necessary to use a mixed method in order to give the best opportunity to answer the research questions. The research design was therefore developed to be illuminative and not generalizable, although the insights gained may well be applicable in other environments. The initial three research questions were answered by analysing secondary data over a three year period with questions four to seven answered by analysing the responses of experts interviewed in the area of student funding (i.e. client services, student finance, recruitment, and information technology).

4.2 Research design

This research is primarily an exploratory study, with the following process being used:

1. Searching for academic literature and business documentation
2. Experimentation with secondary data over a three year period
3. Interviewing experts in the various subject areas

Advantages of secondary data: The secondary data used for this study came from a reliable source (the university itself) and the challenges of the data set (where the data was collected from and how it was collected) were mostly known. What is more, as the university uses this data for multiple purposes, the rigour with which it was collected gives it a high degree of reliability and validity. Thus, there was confidence that the quality of the data is good and can be trusted. In additional, use of this secondary data was unobtrusive, and open to scrutiny with little chance of the researcher influencing the data with any form of bias. Data sets that were needed / necessary as the research progressed could be readily combined.

Data Fields: Admission tests results (NBT tests); Secondary Education Results (Grade 12); Tertiary Academic Results (GPA for 1st, 2nd and 3rd years of study); Academic status (Dismissal, Complete, Discontinued, etc.); Residence Information; Socio/Economic data, Demographics;

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Advantages of expert interviews: As this study focused on a single higher education institution in South Africa, experts familiar with the inner workings and decision making of the institution were more likely to supply insights than ones outside of the organization. It was these same processes and procedures, which were not likely to be in literature.

4.3 Universe and sample

The universe consisted of all students at the 26 South African institutions of higher education, enrolled for their first year of study after the final secondary education year. This equals to approximately 100 000 students. However, for the purposes of this study only data from students enrolled and experts working in a single higher education institution were used. Thus, the study took the form of a purposeful sample of 8099 first year students enrolled at this particular higher education institution in the year 2011, 7182 for the year 2012 and 6652 for the year 2013. For the expert interviews, a list of 'experts' were split into various disciplines of client services, student finance, recruitment, and information technology. One person or two people were selected from each area based on access and availability of that person. This resulted in eight experts selected. With one expert having not responded to a request for interview, the sample was thus seven.

4.4 Research instruments

4.4.1 Quantitative Research

Research Question 1: What is the relationship between the current academic criteria used in student funding and success?

    Instrument: Experimental Study: Secondary data experimentation

    Relevant Data Fields: GPA, Grade 12 average, Academic Status

Research Question 2: Is there a relationship between the awarding of student funding and success?

    Instrument: Experimental Study: Secondary data experimentation

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Relevant Data Fields: Student Fund Source/Type/Description, GPA, Academic Status

Research Question 3: Is there a link between residence placement and performance?

Instrument: Experimental Study: Secondary data experimentation

Relevant Data Fields: Student Residence Status (Accommodation), GPA

4.4.2 Qualitative Research

The structured interview questionnaire outlined in Appendix A has been categorised below into the relevant research question.

Research Question 4: a) What mechanisms are used in the current student funding model? b) What are the considerations of the criteria used in these mechanisms?

Instrument: Internal and External communication & planning docs, Experimental Study: Expert Interviews

Interview Schedule

1. What criteria are used to make undergraduate student funding (bursary allocation) decisions?
2. In your opinion, what are the advantages and disadvantages of the current criteria?

Research Question 5: What are the challenges of current student funding model?

Instrument: Experimental Study: Expert Interviews

Interview Schedule:

3. What aspects of the current student funding (bursary allocation) system would you change if you could?
4. What inhibits the implementation of changes to the student funding (bursary allocation) system, in your opinion?

5. When last was the undergraduate student funding (bursary allocation) system reviewed? What was the outcome?

Research Question 6: Should student funding be used as a tool to address transformation?

Instrument: Experimental Study: Expert Interviews

Interview schedule:

6. In your opinion, does the current student funding (bursary allocation) system address transformational issues? Could the addition of other criteria assist with regards to transformation? What would these criteria be?
7. Should the student funding (bursary allocation) system be used to address transformational issues? What other tools are available to address transformational issues?

Research Question 7: Who are the stakeholders in the student funding model and what impact do they have?

Instrument: Experimental Study: Expert Interviews

Interview Schedule:

8. Who are the internal and external stakeholders of the student funding (bursary allocation) system? Are they satisfied with the current student funding (bursary allocation) system? How much input do they have with regards to the student funding (bursary allocation) system?

4.5 Procedure for data collection, analysis and interpretation

4.5.1 Quantitative Research

Access to the secondary data was requested from the registrar of the institution. Once the access to the data was granted, a meeting was conducted with the Director (responsible Academic Administration) regarding the data fields available with possible timelines for the reports/data to be made available. The data was readily available, except for that of student funding data. Thus, a similar process to the above was followed with the Director of Student Finance and the student funding data was

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released. The data was then imported into a MS Access database and merged. Thereafter it was exported into excel and the data cleaned. A second meeting was held with the Director of Administration to discuss the cleaning and abnormalities. The data was then subjected to an additional round of cleaning. Thereafter the data was imported into SPSS. Time was spent look for relationships in the data before finally selecting the best method to answer the research question. In total, 50-60 hours was spent sourcing, cleaning and matching the data, with another 50-60 hours analysing the data.

4.5.2 Qualitative Research

Expert interviews were conducted with the aim of answering four broad questions relating to 1) The current student funding bursary model and criteria used, 2) The associated challenges, 3) The use of student funding to address transformation and 4) The management of stakeholders in student funding.

For the purposes of this study, middle managers were best placed to qualify as experts due to their jobs comprising of both strategy and execution components, ensuring that they had a balanced view of the environment in terms of management and "on the ground" challenges. The pool of experts needed comprised of managers from the departments of client services, student finance, recruitment, and information technology. (being the direct touch-points of student funding) in order to complete the "big picture" and allowed for a broad understanding of challenges, disadvantages and considerations, keeping with the exploratory nature of this study. This leaves a limited number of only eight experts available in a single institution, and with one expert unavailable, the final total comprised of seven.

As Table 4.1 outlines, experts interviewed were highly experienced in student funding and higher education, with an average of 17 years' experience in student funding and 21 years' experience in the higher education sector. This allowed for a rich and deep pool of insights to be collected among the seven individuals.

Interview requests were made ahead of time and included the following information: Description of study and purpose, an overview of what information participants would be asked to provide and how, and description of time commitment required. All were told participation was voluntary and that they could withdraw at any time without penalty. Data was confidential, contact details of the researcher and supervisor were

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given, and the consent form was signed. As the researcher was also an employee at the institution, due care had to be taken to ensure that the interviewees did not feel lured, forced or uncomfortable with the process and that interviews were conducted in a fair, open and honest manner. Although a large population of the experts have Afrikaans as their first language, they were fluent in English, thus, the interviews were conducted in English.

Table 4.1: Related experience of experts

#	Job Title	Functional Area	Experience in student funding (Yrs)	Experience in higher education (Yrs)
1	Senior Manager: Student Finance	Finance	15	30
2	Business Analyst: Student Finance	Systems	6	18
3	Division Head: Student Finance	Finance	35	35
4	Manager: Bursaries & Loans	Client Services	19	19
5	Manager: Financial Aspects	Client Services	10	10
6	Senior Manager: Recruitment & Retention	Marketing	14	14
7	Deputy Director: Recruitment & International Students	Marketing	18	18

The interviews were semi-structured in order to allow the experts to share their insights, views and knowledge as much as possible. The interview questions were ordered and worded in a manner to avoid any 'coaching' effect. All questions were similar and followed the same order for all interviews, in order to allow for comparison and analysis thereof. In some instances, the interviews diverted from the set agenda, but this allowed valuable insights to be gained. Due to the manner in which the participants engaged with the questions, some interviews were lengthy - around an hour or more, while others were shorter - 30 minutes or less. Interviews were recorded via a standard cell phone voice recorder application. The interviews were then transcribed. For interviews one, two and three, transcriptions were completed by the researcher. This process took ~30 hours for the 115 minute 48 seconds combined total. For interviews four, five, six and seven, a transcription specialist was used at the cost of R6/hour. Transcriptions were translated verbatim to ensure that bias was

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limited. These transcriptions took about 10 hours to be proof-read. In total, transcriptions amounted to 79 pages and 35 300 words.

Content analysis was used to analyse the transcriptions. The data was analysed manually, using themes that emerged from the data. Initially the transcriptions were scanned for themes that directly related to the research questions, but a second scan was made for other themes and indirect answers. In total, 60 hours was spent on analysing the data once it was transcribed, in order to begin chapter 5. Quotes in the results have been altered slightly to ensure that delivery of the intended contents are effectively brought to the attention of the reader without compromising on the original concept of the interviewee.

4.6 Limitations of research method

The study used data collected from a single South African institution of higher education and therefore caution should be exercised when applying any models created. The outcome might be subject to external validity flaws due to the study being conducted at a single institution as there might be some bias towards that institution. Despite this, the method is viewed as acceptable due to this being primarily an exploratory study. It would be recommended that future studies to be undertaken test the robustness of the model created in this study.

Interviews were limited to the "key" internal role players. Stakeholders such as students, parents, support services, residence heads and faculties were excluded for this study. Due to the initial focus of the study on funding, a limitation exists as no direct investigation into student support was undertaken. In addition, the questions asked were semi-structured, whereas additional information may have been gained if they had been more direct and/or structured. With the current design, inferences had to be made from what experts were implying.

In terms of the secondary data: (1) Academic criteria only were used to test the student funding criteria and its relationship to success. Therefore, non-academic data such as lecture attendance was excluded due the lack of available of data. That said, few studies have been undertaken to test a link between success and class attendance (2) Exploration of the disaggregated funds were completed on 2011 data, it could be expanded to other cohorts (3) Residence analysis was conducted as an

extremely coarse level. Thus, there needs to be additional in-depth data analysis (both quantitative and qualitative) to verify this proposed model.

4.7 Validity, reliability, objectivity

As an employee of the institution, from which the data is collected, the author may benefit from the research. That is, the research has the potential to be beneficial to the university and so the author may accrue kudos or even an award or promotion for their role in the modelling of a new student funding model. However, in their capacity at the institution this research did not fall under their responsibilities or scope of influence. Thus, their position at the university will not be directly affected by this research, regardless of the outcome. To remain as objective as possible, all findings will be shared in an open and transparent manner with various key members of staff at the institution although confidentiality and integrity will be maintained.

Validity: The type of study meant that the threat of ambiguity about casual direction, history, testing, and subject selection have been eliminated. The threat of mortality will be monitored and documented as the data is imported, matched and analysed.

Reliability: The use of secondary data means that all the threats of reliability have been eliminated, including subject error, subject bias, and observer error and bias.

4.8 Conclusion to research methodology

The research design was aimed at matching the needs of the research questions, weighing up all the available strategies and options available. The ultimate aim was to arrive at an outcome that is as reliable, valid and objective as possible, whilst ensuring that a contribution is made to both business and academia. To this end, the objective of the research methodology was achieved. The following chapter, Chapter 5, examined the results of the above mentioned research methodology.

Chapter 5: Research Results: Quantitative

As outlined in Chapter 4, secondary data was used in order to explore key areas in the current student funding model. The results of each research question are presented under each of the respective headings. With mixed methods used the results have been split into quantitative (Chapter 5) and qualitative (Chapter 6) sections. All data fields were used (i.e Outliers and other data points were never ignored or omitted). In many cases the sample (*n*) would be lower than the original or intended sample due to the dropout rates, which is natural to higher education and all datasets that one might encounter. For all intents and purposes the data is valid, accurate and complete.

GPA: The grade point average or GPA represents the average of a study grades in higher education. It is weighted by the credits allocated to the modules that the student has enrolled for. It is seen as being a better reflection of a student's performance since the credits are based on duration and complexity of the module. It is internationally regarded as a best practice benchmark.

Grade 12: The Grade 12, NSC or matric results represents the average of the results obtained in the final school leaving year of secondary education.

Academic Standing: The Academic Standing refers to the status of the students studies in higher education. Statuses include complete, discontinued and dismissed.

Funding: Refers to the amount of funds that have been allocated to a student for a given year of study

5.1 Research Question 1: Student funding criteria and performance

The objective of this research question was to investigate the relationship between the current student funding academic criteria and success. In the institution under study, both the Grade Point Average (GPA) and the Grade 12 (i.e. NSC: National Senior Certificate) [known colloquially as the 'matric'] are used as criteria for student funding. In addition, success is also measured according to the standard higher education internal measurement of GPA (individual and cumulative) and Academic Standing. The data was used from the 2011 cohort and data for three years was used, as this is the accepted (minimum) number of years to complete an undergraduate degree. Thus, the Grade 12 results referred to here would be for 2010 as this is when the students would

have written their matriculation examinations. For the purposes of this research, 2011, 2012 and 2013 refer to the 1st, 2nd and 3rd years of study. Outliers were included in the analysis as they were genuine data points and not due to data entry or measurement errors. Not all variables were normally distributed, as assessed by Shapiro-Wilk's test ($p < .05$), but due to the sample size and the robustness of Pearson's correlation, the correlation test was deemed valid. The following relationships were tested: 1) Grade 12 and Individual GPA (2011); 2) Grade 12 and Individual/Cumulative GPA (2012, 2013); 3) Grade 12 and Academic Status (end of 2013); 4) Individual/Cumulative GPA (2011, 2012) and Academic Status (end of 2013) and 5) Individual/Cumulative GPA (2011, 2012) and Individual/Cumulative GPA (2012, 2013).

5.1.1 Grade 12 and Individual GPA (2011)

The first relationship that was tested was that between the GPA and the student's Grade 12 results.

Figure 5.1: Scatter plot of 2010 Grade 12 average percentage and individual GPA 2011.
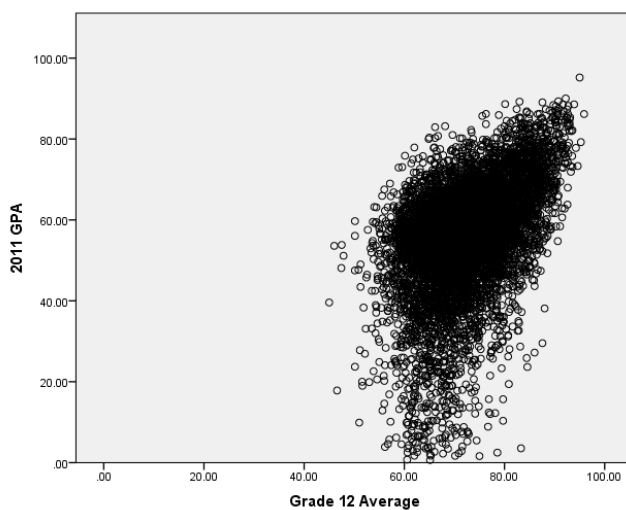
Figure 5.1 shows the relationship between 2010 Grade 12 average percentage and 2011 GPA. There are outliers, which result from genuine data points. There is a moderate to strong relationship between Grade 12 Results and 2011 GPA (see Table 5.1).

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Table 5.1: Correlation between 2010 Grade 12 average percentage and 2011 GPA.

Correlation

		Grade 12 Average
2011 GPA	Pearson Correlation	.465**
	Sig. (2-tailed)	.000
	N	6856

5.1.2 Grade 12 and Individual/Cumulative GPA (2012, 2013)

The second relationship that was tested was that between the individual/Cumulative GPA for 2012 and 2013 and the student's Grade 12 results.

Figure 5.2: Scatter plot of 2010 Grade 12 average percentage and 2012 GPA (Individual/Cumulative).
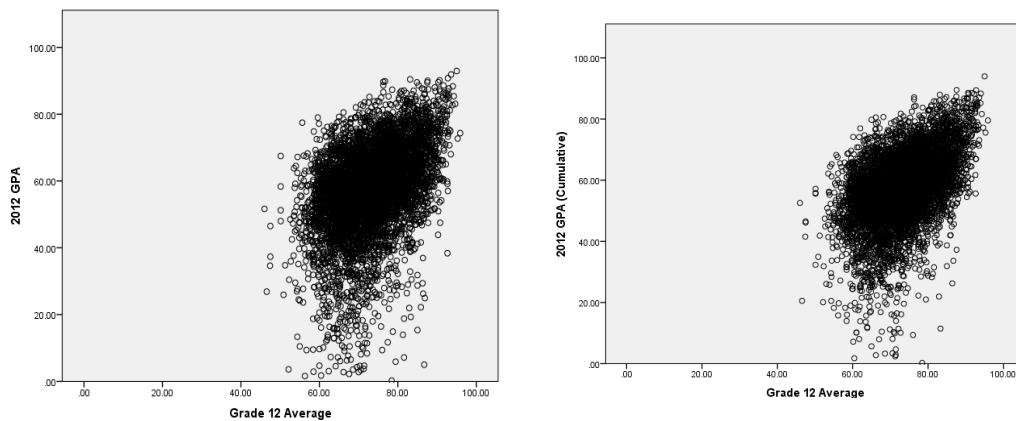
Figure 5.3: Scatter plot of 2010 Grade 12 average percentage and 2013 GPA (Individual/Cumulative).
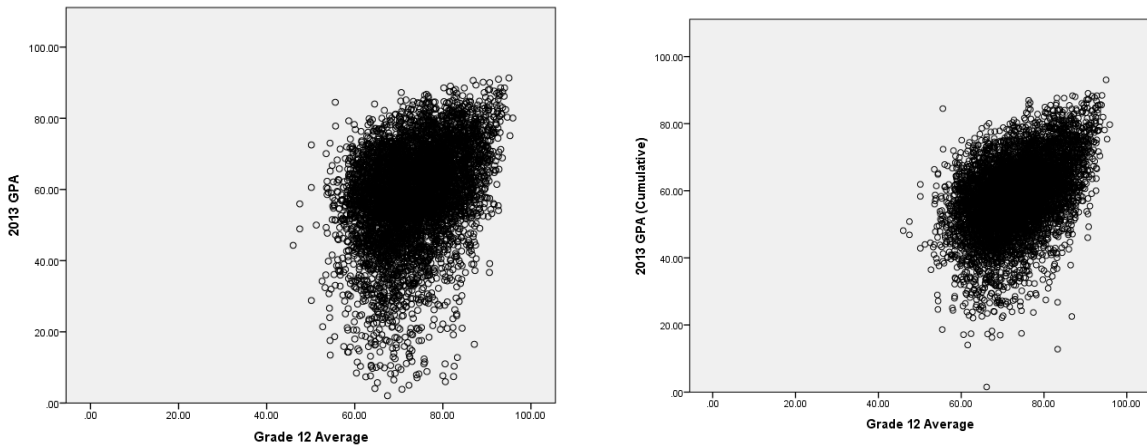
Figures 5.2 and 5.3 indicates the relationship between 2010 Grade 12 average percentage and 2012/2013 GPA (Individual and Cumulative). The data has outliers, which result from genuine data points. There is a moderate to strong relationship between Grade 12 Results and 2012 / 2013 GPA (Individual & Cumulative)

Table 5.2: Correlation between 2010 Grade 12 average percentage and 2012/2013 GPA (Individual/Cumulative)

Correlations

		Grade 12 Average
2012 GPA	Pearson Correlation	.413**
	Sig. (2-tailed)	.000
	N	6145
2012 GPA (Cumulative)	Pearson Correlation	.476**
	Sig. (2-tailed)	.000
	N	6200
2013 GPA	Pearson Correlation	.349**
	Sig. (2-tailed)	.000
	N	5884
2013 GPA (Cumulative)	Pearson Correlation	.447**
	Sig. (2-tailed)	.000
	N	5929

**. Correlation is significant at the 0.01 level (2-tailed).

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5.1.3 Grade 12 and Academic Status (end of 2013)

The third relationship that was tested was that between Grade 12 results and academic status at the end of 2013.

It was found that there is a weak relationship between Grade 12 results and passing in minimum time (see Table 5.3).

Table 5.3: Grade 12 and Academic Status (end of 2013)

Correlations

		Status = Completed
Grade 12 Average	Pearson Correlation	.088**
	Sig. (2-tailed)	.000
	N	10663
2012 GPA	Pearson Correlation	.334**
	Sig. (2-tailed)	.000
	N	7182
2012 GPA (Cumulative)	Pearson Correlation	.353**
	Sig. (2-tailed)	.000
	N	7257
2013 GPA	Pearson Correlation	.308**
	Sig. (2-tailed)	.000
	N	6652
2013 GPA (Cumulative)	Pearson Correlation	.330**
	Sig. (2-tailed)	.000
	N	6719

**. Correlation is significant at the 0.01 level (2-tailed).

5.1.4 Individual/Cumulative GPA (2011, 2012) and Academic Status (end of 2013)

The fourth relationship that was tested was that between the Individual/Cumulative GPA for 2011 and 2012 and Academic Status.

It was found that there is a moderate relationship between GPA, regardless of the particular year of study (see Table 5.3).

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5.1.5 Individual/Cumulative GPA (2011, 2012) and Individual/Cumulative GPA (2012, 2013)

The fifth relationship that was tested was that between the Individual/Cumulative GPA for 2011 and 2012 and Individual/Cumulative GPA (2012, 2013).

Figure 5.4: Scatter plot of 2011 GPA and 2012 GPA (Individual/Cumulative)
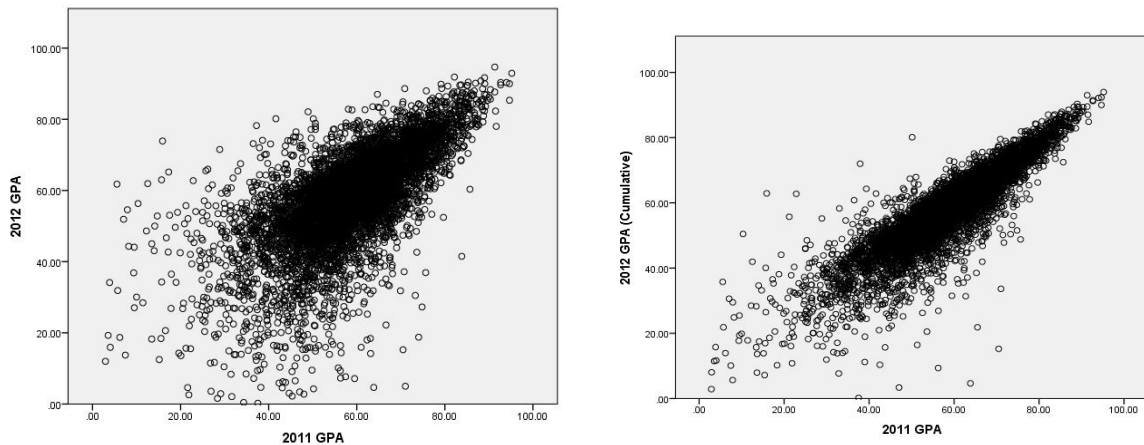
Figure 5.4 shows the relationship between 2011 GPA and 2012 GPA (Individual/Cumulative). There are only a few outliers in the cumulative data. Thus, the outlier effect declines over time.

Figure 5.5: Scatter plot of 2012 GPA and 2013 GPA (Individual/Cumulative)
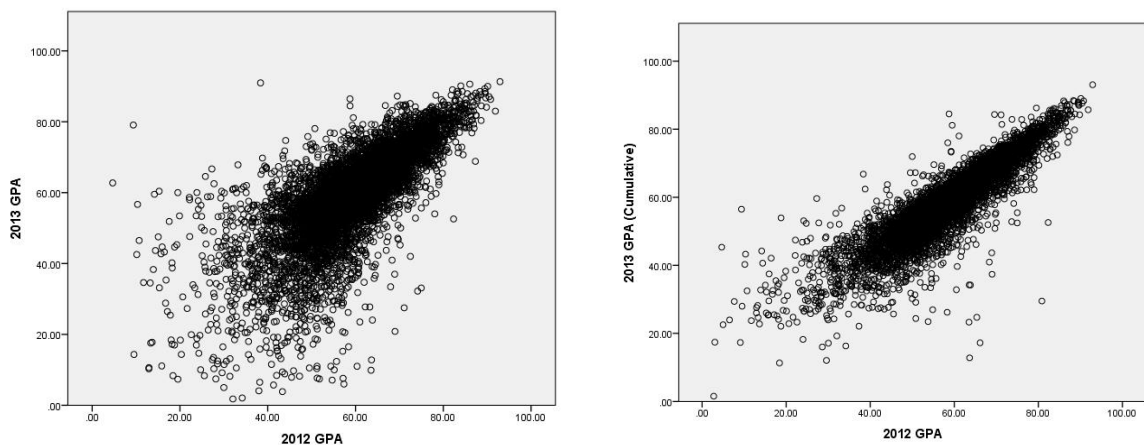
Figure 5.5 shows the linear relationship between 2012 GPA and 2013 GPA (Individual/Cumulative). There outliers are few and have decreased over time cumulatively, although remained the same individually.

Figure 5.6: Scatter plot of 2011 GPA and 2013 GPA (Individual/Cumulative)
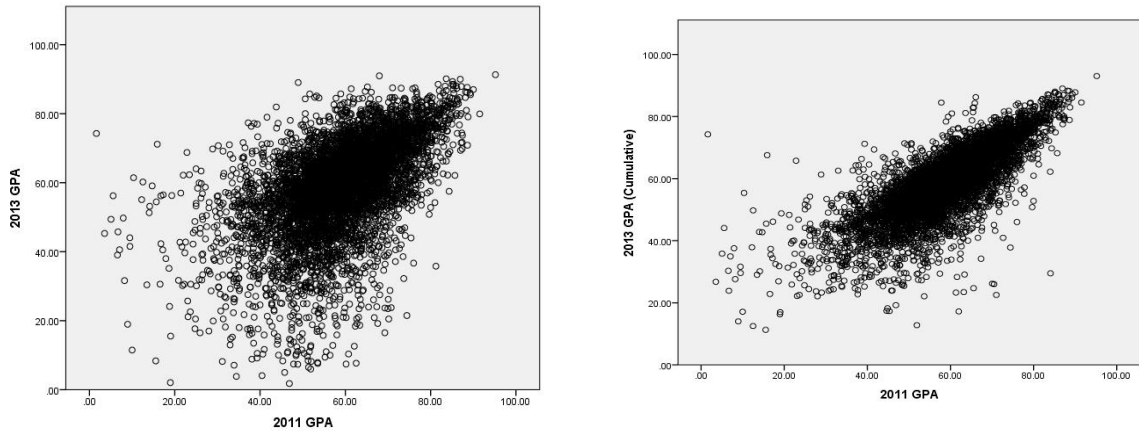
Figure 5.6 shows the relationship between 2011 GPA and 2013 GPA (Individual/Cumulative). The two year gap has resulted in far more outliers and a less linear relationship. There is a strong relationship between GPAs across academic years. This relationship increases in strength when cumulative GPAs are used (see Table 5.4).

Table 5.4: Correlation between Individual/Cumulative GPA (2011, 2012) and Individual/Cumulative GPA (2012, 2013)

Correlations

		2012 GPA	2012 GPA (Cumulative)	2013 GPA	2013 GPA (Cumulative)
2011 GPA	Pearson Correlation	.681**	**.888****	.539**	**.781****
	N	6951	**7026**	6385	**6447**
2012 GPA	Pearson Correlation		**.930****	.737**	**.894****
	N		**7182**	6466	**6529**
2012 GPA (Cumulative)	Pearson Correlation			.710**	**.929****
	N			6472	**6536**
2013 GPA	Pearson Correlation				**.893****
	Sig. (2-tailed)				**.000**
	N				**6652**

**. Correlation is significant at the 0.01 level (2-tailed).

5.2 Research Question 2: Student fund allocations and performance

The objective of this research question was to investigate the relationship between student funding and success. To answer this question, the aggregated student funding amount for each year was tested against the GPA for the relevant year of study. Results are displayed in scatter plot diagrams. The tests were run for all three years (1st, 2nd and final) coincide with the expected duration of an undergraduate degree. Thereafter, the relationship between individual funds was explored. Once more there were outliers and they were included in the analysis as they are genuine data points. The following relationships were tested: (1) 2011 Funding and 2011 GPA; (2) 2012 Funding and 2012 GPA; (3) 2013 Funding and 2013 GPA; (4) 2011 Internal Funding only and 2011 GPA; (5) 2011 Institution Controlled Funding only and 2011 GPA; (6) 2011 Institution Administered Funding only and 2011 GPA and (7) All 2011 Individual Funds and 2011 GPA. For the purposes of this research, 2011, 2012 and 2013 refer to the 1st, 2nd and 3rd years of study.

5.2.1 2011 Funding and 2011 GPA

The first relationship that was tested was that between 2011 Funding and 2011 GPA.

Figure 5.7: Scatter plot of 2011 Funding and 2011 GPA
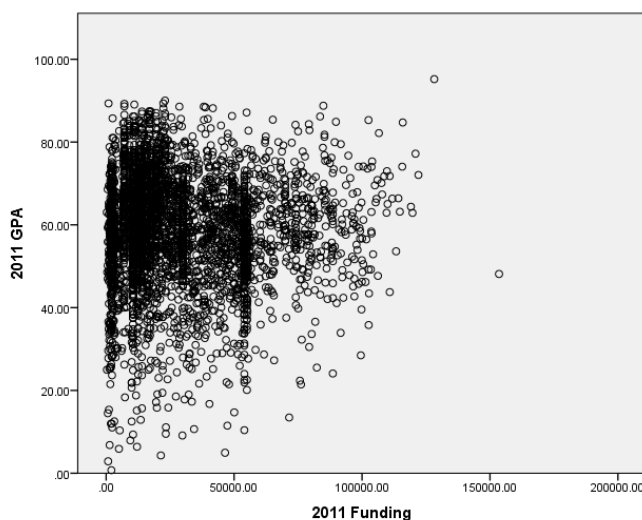
There is no relationship between 2011 Funding and 2011 GPA (see Figure 5.7). The data is clustered below R 50 000, in particular it is clustered between R 0 to R 5 000 due to the manner in which funding is allocated. i.e. Students tend who meet the neediness criteria tend to be allocated funds to match registration fees.

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5.2.2 2012 Funding and 2012 GPA

The second relationship that was tested was that between 2012 Funding and 2012 GPA.

Figure 5.8: Scatter plot of 2012 Funding and 2012 GPA
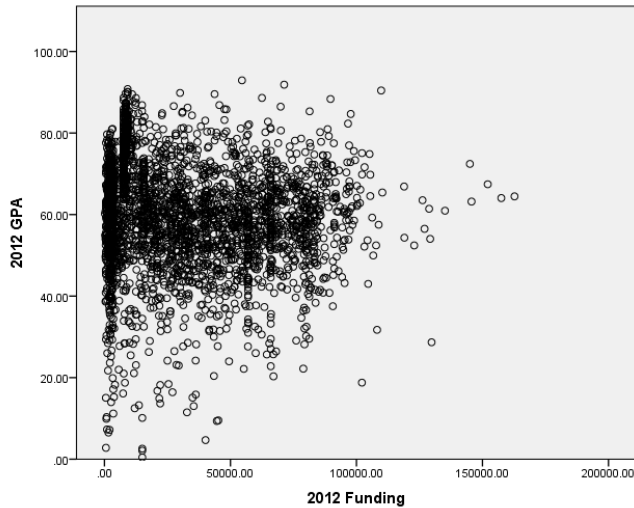
Once more there is no relationship between 2012 Funding and 2012 GPA. In addition, there are substantially more extreme data points, with specific reference to data points above R 100 000.

5.2.3 2013 Funding and 2013 GPA

The third relationship that was tested was that between 2013 Funding and 2013 GPA..

Figure 5.9: Scatter plot of 2013 Funding and 2013 GPA

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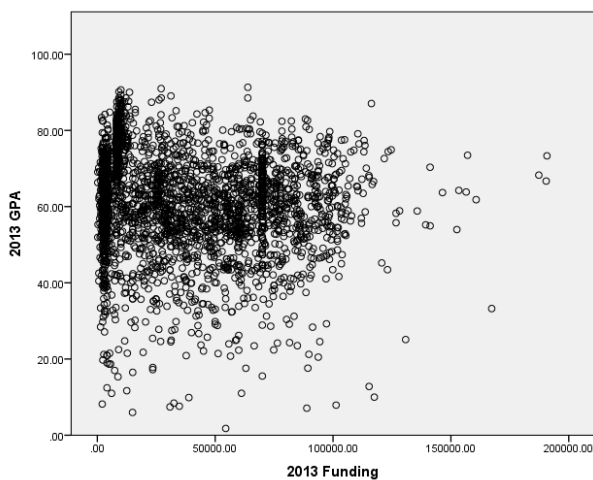
The relationship for 2013 was the same as for 2011 and 2012, that is no relationship between 2013 Funding and 2013 GPA. There are, again, more outliers.

Thus, there is no relationship between funding and academic performance at an aggregated level.

The study now moves on to disaggregate the 2011 funding into (a) internal funding; (b) institution controlled funding and (c) institution administered funding in order to explore the relationship between funding and 2011 academic performance further.

5.2.4 2011 Internal Funding and 2011 GPA

The first disaggregated funding issue that was explored was that of the relationship between 2011 Internal Funding and the 2011 GPA.

Figure 5.10: Scatter plot of 2011 Internal Funding and 2011 GPA
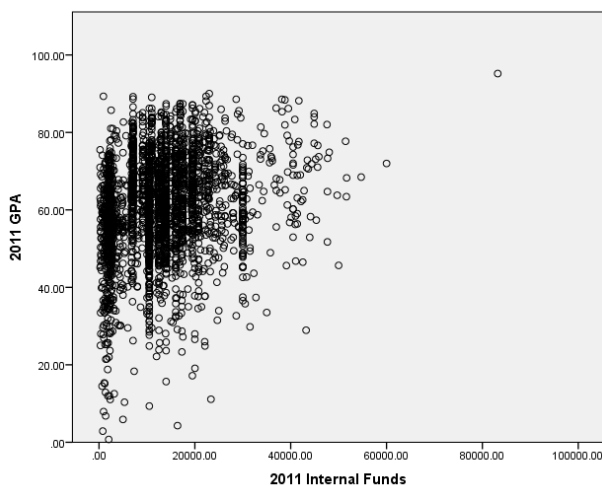
No relationship exists between 2011 Internal Funding and 2011 GPA (see Figure 5.10), although there is one interesting outlier.

5.2.5 2011 Institution Controlled Funding and 2011 GPA

The second disaggregated funding issue that was explored was that of the relationship between 2011 Institution Controlled Funding and 2011 GPA.

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Figure 5.11: Scatter plot of 2011 Internal Funding and 2011 GPA
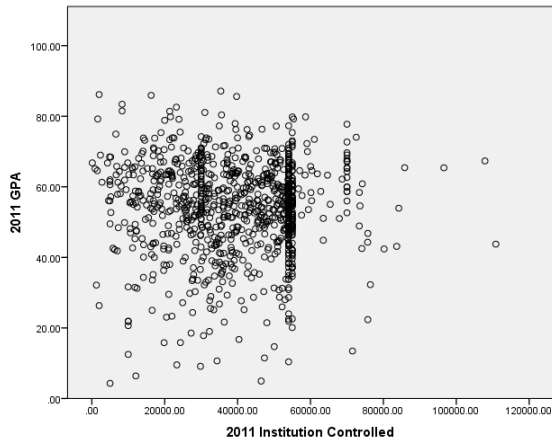
Once more there was no relationship between 2011 Institution Controlled Funding and 2011 GPA (see Figure 5.11).

5.2.6 2011 Institution Administered Funding and 2011 GPA

The third disaggregated funding issue that was explored was that of the relationship between 2011 Institution Administered Funding and 2011 GPA.

Figure 5.12: Scatter plot of 2011 Institution Administered Funding and 2011 GPA
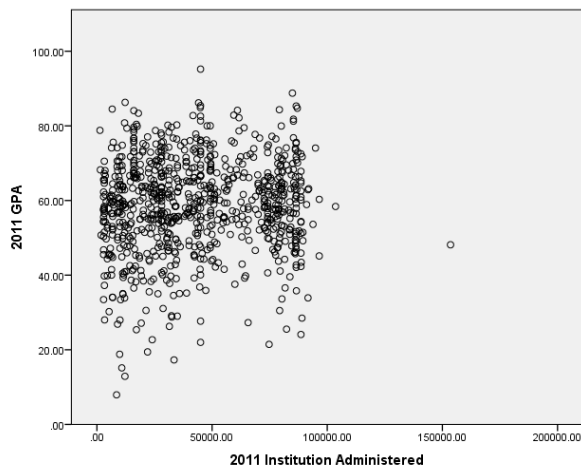
Again, no relationship exists between 2011 Institution Controlled Funding and 2011 GPA (Figure 5.12).

Thus, no relationship between the funding groups and academic performance exists. The study will, therefore now move onto an exploration of the relationship between individual funds and academic performance.

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5.2.7 All 2011 Individual Funds and 2011 GPA

As there were many funds (80), a correlation on all the funds for 2011, 2012 and 2013 was run. This demonstrated that there were only a few funds with moderate to strong correlations, as outlined in the Tables 5.7, 5.8 and 5.9.

Table 5.7: Correlation between 2011 GPA and 2011 Merit Bursaries (Internal Funds)

Correlations

		2011 Merit Bursaries (Internal Funds)
2011 GPA	Pearson Correlation	.173**
	Sig. (2-tailed)	.000
	N	1935

Table 5.8: Correlation between 2012 GPA and 2012 Merit Bursaries (Internal Funds) / 2012 Government Bursaries (Institution Administered)

Correlations

		2012 Merit Bursaries (Internal Funds)	2012 Government Bursaries (Institution Administered)
2012 GPA	Pearson Correlation	.556**	-.453**
	Sig. (2-tailed)	.000	.005
	N	695	37

Table 5.9: Correlation between 2013 GPA and 2013 Merit Bursaries / 2013 Special Project Fund / 2013 Student Loan Fund (All Internal Funds)

Correlations

		2013 Merit Bursaries (Internal Funds)	2013 Special Project Fund (Internal Funds)	2013 Student Loan Fund (Internal Funds)
2013 GPA	Pearson Correlation	.380**	.382	.498**
	Sig. (2-tailed)	.000	.160	.003
	N	452	15	33

Of the eighty funds only six had a significant correlation. Importantly, the 2012 Government Bursaries had a negative correlation. Merit bursaries were the only funds

with a significant correlation across all three years. This is further elaborated on using scatter plots.

5.2.8 2011 Merit Bursaries (Internal Funds) and 2011 GPA

Figure 5.13: Scatter plot of 2011 Merit Bursaries and 2011 GPA
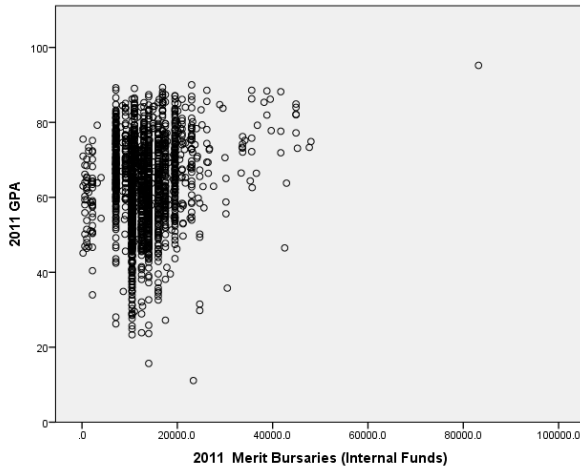
There is limited or weak linearity between 2011 Merit Bursaries and 2011 GPA, as seen in Figure 5.13. Note: Most of the data points are below R 20 000 (on the x-axis) and between 40 and 80% (on the y-axis), which could be an indication of how this fund allocated to students.

5.2.9 2012 Merit Bursaries (Internal Funds) and 2012 GPA

Figure 5.14: Scatter plot of 2012 Merit Bursaries and 2012 GPA
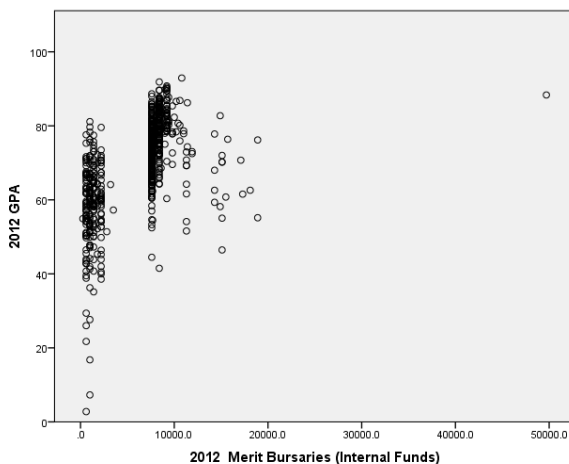
Figure 5.14 shows linearity, with a gap of data between R 4 000 and R 8 000, due to the process of fund allocation. There are a high number of "scattered" data points.

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5.2.10 2012 Government Bursaries (Institution Administered) and 2012 GPA

Figure 5.15: Scatter plot of 2012 Government Bursaries and 2012 GPA
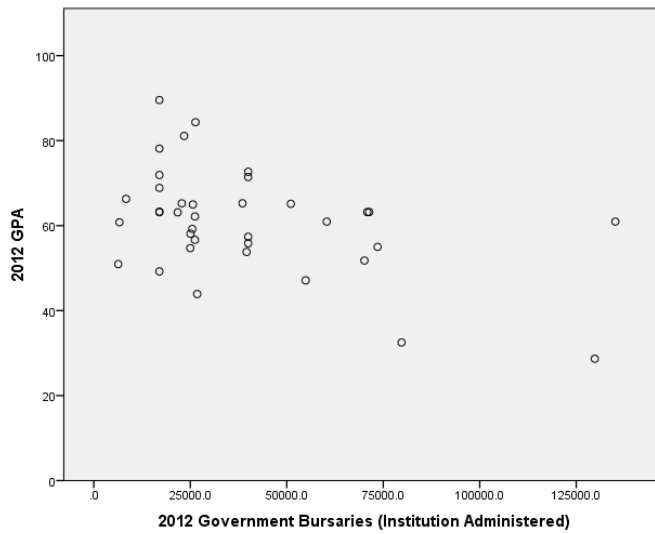
Figure 5.15 shows a negative relationship between funds allocated from government funds and performance of the relevant students.

5.2.11 2013 Merit Bursaries (Internal Funds) and 2013 GPA

Figure 5.16: Scatter plot of 2013 Merit Bursaries and 2013 GPA
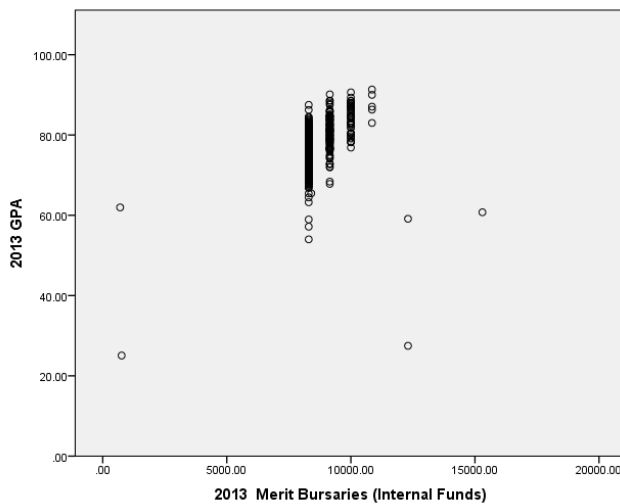
Figure 5.16 shows a strong linear relationship between 2013 Merit bursaries and 2013 GPA, with only five data points posing as outliers.

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5.2.12 2013 Special Funds (Internal Funds) and 2013 GPA

Figure 5.17: Scatter plot of 2013 Special Funds and 2013 GPA
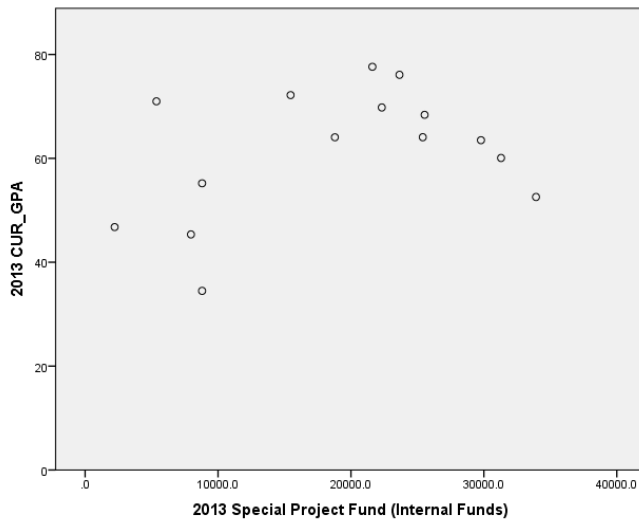
Figure 5.17 shows the weak linearity between special project funds and 2013 GPA.

5.2.13 2013 Student Loans (Internal Funds) and 2013 GPA

Figure 5.18: Scatter plot of 2013 Student Loans and 2013 GPA
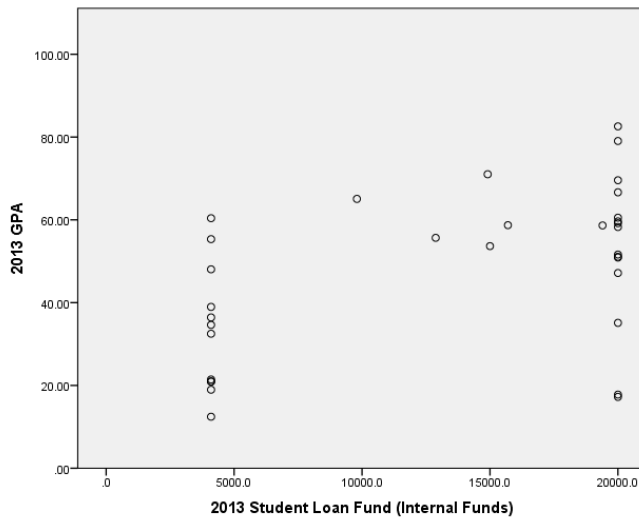
Figure 5.18 shows the weak linearity between student loan funds and 2013 GPA.

Note: Although both student loans and special funds (Figures 5.17 and 5.18) have a moderate correlation to 2013 GPA, a Pearson's correlation would not be run due to the lack of a linear relationship.

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5.3 Research Question 3: Residence placement and performance

Is there a link between residence placement and performance?

The objective of this research question is to investigate the relationship between the residence placement of a student and their performance in a given year in higher education. To answer this questions the cohort was split based per academic term based on whether they are in a higher education residence or not. These two groups were compared against their each other for their 1st, 2nd and 3rd years of study. As outliers were included in the analysis, due to them being genuine data points and not due to data entry or measurement errors, a Mann-Whitney U test was used instead of an Independent samples t-test. The following relationships were tested (1) 2011 Residence placement and 2011 GPA, (2) 2012 Residence placement and 2012 GPA, and (3) 2013 Residence placement and 2013 GPA. For the purposes of this research, 2011, 2012 and 2013 refer to the 1st, 2nd and 3rd years of study. In terms of the data, 'yes' refers to the student being in residence, with 'no'

5.3.1 2011 Residence placement and 2011 GPA

A Mann-Whitney U test was run to determine if there were significant differences in 2011 GPA between students in residence and students not in residence.

Distributions of the 2011 GPA performance for students in (yes) and out (no) of residence were similar, as seen in the Figure 5.19. 2011 GPA performance for residence students (mean rank = 4285.68) were statistically significantly higher than for non-residence students (mean rank = 3936.21), $U = 7823142$, $z = 6.303$, $p < 0.05$.

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Figure 5.19: Results of Mann-Whitney U Test (2011 Residence Students)
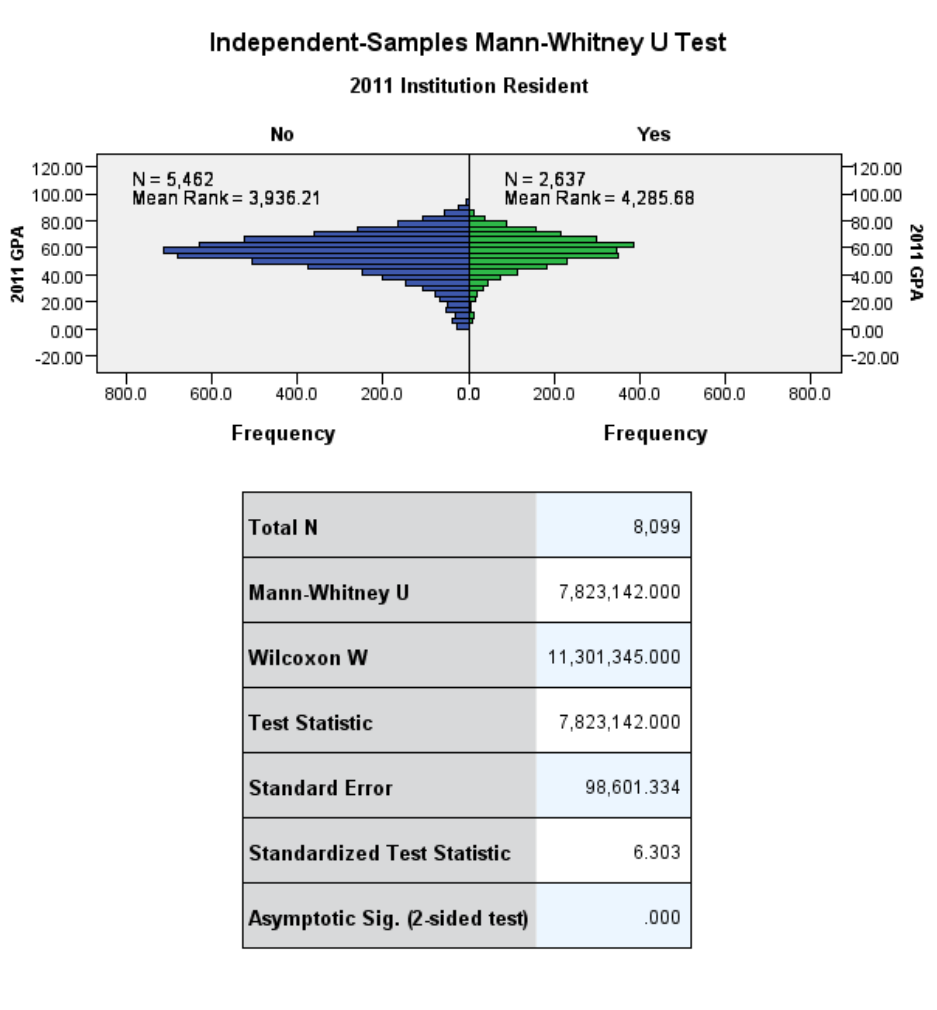
Table 5.11: Hypothesis Test Summary of 2011 Residence and 2011 GPA

Table 5.12: 2011 Means report of students in (yes) and out (no) of Residence

Report

2011 GPA

2011 Institution Resident	Mean	N	Std. Deviation
No	54.9674	5462	15.65618
Yes	57.4381	2637	12.90496
Total	55.7719	8099	14.86096

Table 5.12 illustrates the significant difference between students in and out of residence. Note: The significantly lower standard deviation of the "yes" category.

5.3.2 2012 Residence placement and 2012 GPA

A Mann-Whitney U test was run to determine if there were significant differences in 2012 GPA between students in (yes) residence and students out (no) of residence. Distributions of the 2012 GPA performance for students in (yes) and out (no) of residence were similar, as seen in the figure below.

Figure 5.20: Results of Mann-Whitney U Test (2012 Residence Students)
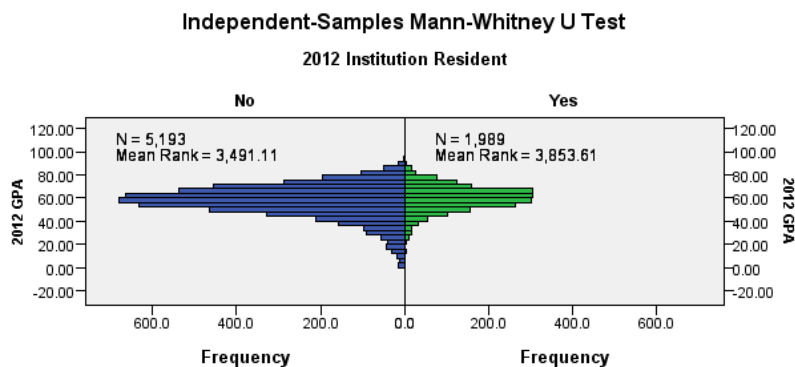
Total N	7,182
Mann-Whitney U	5,685,776.000
Wilcoxon W	7,664,831.000
Test Statistic	5,685,776.000
Standard Error	78,630.104
Standardized Test Statistic	6.630
Asymptotic Sig. (2-sided test)	.000

2012 GPA performance for residence students (mean rank = 3853.61) were statistically significantly higher than for non-residence students (mean rank = 3491.11), $U = 5685776$, $z = 6.630$, $p < 0.05$.

Table 5.11: Hypothesis Test Summary of 2012 Residence and 2012 GPA

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of 2012 GPA is the same across categories of 2012 Institution Resident.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 5.13: 2012 Means report of students in (yes) and out (no) of Residence

Report

2012 GPA

2012 Institution Resident	Mean	N	Std. Deviation
No	57.0139	5193	14.30119
Yes	59.7416	1989	11.10539
Total	57.7693	7182	13.54650

Table 5.13 illustrates the significant difference between students in (yes) and out (no) of residence. Note: The significantly lower standard deviation of the "yes" category.

5.3.3 2013 Residence placement and 2013 GPA

A Mann-Whitney U test was run to determine if there were significant differences in 2013 GPA between students in residence and students not in residence. Distributions of the 2013 GPA performance for students in (yes) and out (no) of residence were similar, as seen in the figure on the following page.

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Figure 5.21: Results of Mann-Whitney U Test (2013 Residence Students)

Independent-Samples Mann-Whitney U Test
2013 Institution Resident

No — N = 5,141, Mean Rank = 3,199.06	**Yes** — N = 1,511, Mean Rank = 3,760.11
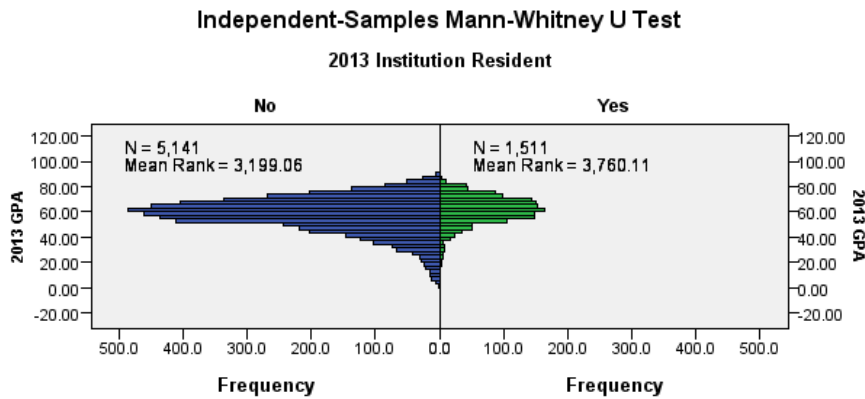
Total N	6,652
Mann-Whitney U	4,539,216.000
Wilcoxon W	5,681,532.000
Test Statistic	4,539,216.000
Standard Error	65,625.725
Standardized Test Statistic	9.984
Asymptotic Sig. (2-sided test)	.000

2013 GPA performance for residence students (mean rank = 3760.11) were statistically significantly higher than for non-residence students (mean rank = 3199.06), $U = 4539216$, $z = 9.984$, $p < 0.05$.

Table 5.14: Hypothesis Test Summary of 2013 Residence and 2013 GPA

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of 2013 GPA is the same across categories of 2013 Institution Resident.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

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Table 5.15: 2013 Means report of students in (yes) and out (no) of Residence

Report

2013 GPA

2013 Institution Resident	Mean	N	Std. Deviation
No	57.6701	5141	14.18664
Yes	61.7666	1511	11.29065
Total	58.6006	6652	13.69036

Table 5.15 illustrates the significant difference between students in and out of residence. Note: The significantly lower standard deviation.

5.4 Conclusion to quantitative research results

The data collected during the quantitative research method described in this chapter was sufficient to understand the current student funding model, explore the links between (1) the current criteria and success, (2) student funding and success, and (3) residence placement and success. The secondary data provided information of rich quality, which were sufficient to address the research objectives of each research question. The following chapter will explore the current student funding model in terms of, (1) the current model and criteria used, (2) challenges encountered, (3) funding's ability to aid transformation and (4) stakeholder management.

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Chapter 6 Research Results of the Expert Interviews

The results of each research question are presented under each of the respective headings. As mentioned in Chapter 4, mixed methods were used, therefore the results have been split into quantitative (Chapter 5) and qualitative (Chapter 6) sections.

6.1 Research Question 4: The current student funding model and its criteria

The objective of this research question was to understand the tools available in the student funding model as well what criteria, academic and non-academic, are used directly or indirectly for student funding.

6.1.1 Outline of Student Funds and Internal Hierarchy

According to the documentation and transcription from Participant one, the institution divides their student funding into three different fund codes, (1) Own Funds, (2) Controlled Funds and (3) Administered Funds. As displayed in Table 6.1, fund codes are further divided into fund groups.

Table 6.1: Fund Codes and Fund Groups

University's Own Funds	Funds Controlled by the University	Funds Administered by the University
• Merit Bursaries	• NSFAS	• City Council
• Sport Bursaries	• NRF	• Provinces
• Loans	• Studentships	• Government
• Special Projects	• Donors with M.O.U	• Other
• S-Funds Bursaries		
• Family Discounts		
• Staff Rebate		
• Edu loan		

Each group comprises of individual funds, example: Merit Bursaries include Achievement, Leadership, Olympiads, and Open Day student funds.

As can be seen in Figure 6.1 there are 1 698 individual funds managed by the university. As Participant 1 pointed out "*they have different criteria and different reasons why each is awarded, and the processes, marketing and communication for each is different*".… "*It's quite complicated*". … "*There are different stakeholders…finance, client service, faculties, external donors, education innovation…*"

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Figure 6.1: Hierarchy of Funds

Student
Funds: 1

Student Fund
Codes: 3

Student Fund
Groups: 16

Student
Individual
Funds: 1698
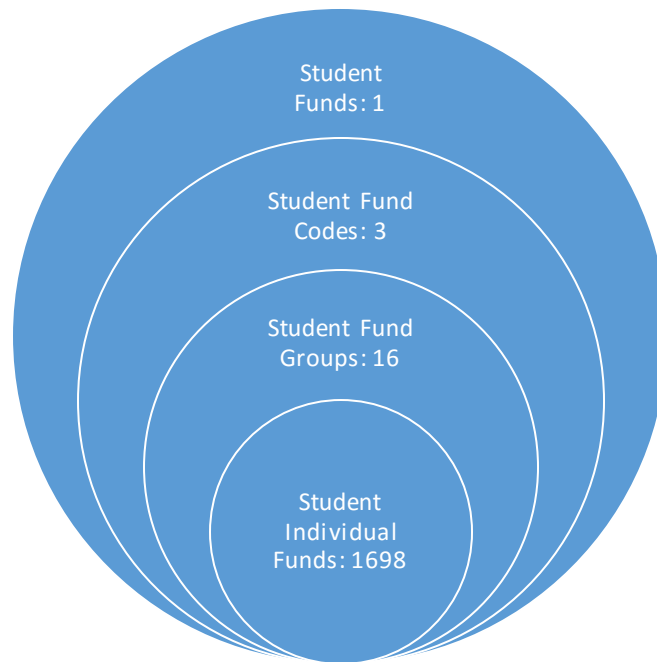
6.1.2 Criteria used to make undergraduate student funding decisions?

Each individual fund has its only set of criteria based on the strategy and/or needs of that particular fund. Table 6.2 below lists the types of criteria that individual student funds use. Some use a combination of these criteria.

While the number of non-academic criteria are more than the academic criteria, the institution puts an emphasis on academic criteria in most of their funds. 100% of the interviews mentioned the use of academic criteria during the interviews, with only 43% of interviewees mentioning the non-academic (excluding neediness) criteria. In each of these cases, only a subset of the non-academic criteria were mentioned. The rest of the criteria are sources from the documentation supplied by Participant 1.

Participant 1 noted that academic criteria was used as the institution wants to attract "*top students*". Participant 2 indicated that the settlement of previously outstanding debt and/or the efforts made in terms of securing their own funding via loans, etc. should also be a non-academic criteria. "*Diligent students… will put in a lot of effort to get the funds…. the biggest disadvantage is that they don't help these students*". Participants 3, 4 and 5 all emphasised the Expected Family Contribution in terms of the neediness criteria due to NSFAS substantial impact with regards to student funding. Participant 6 discussed the various academic and non-academic criteria,

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giving a view consistent with the documentation. Participant 7 took a more philosophical view of the criteria, indicating that criteria are used to "*tailor-make your offering to suit an individual or that market… you are trying to capture*".

Table 6.2: Various Criteria used in student funding

Criteria	
Academic	• Grade 12 Results (Individual subjects, Admissions Point Score, etc.) • Grade Point Average
Non-Academic	• Financial Neediness • Sports Achievement • Extra-curricular activities (Head boy/girl, etc.) • Employment Status (Institutional Staff) • Disability Status • Application for funding • Faculty and/or Study choice • Population Group/Race • School • Loyalty (Development or school programmes)

6.1.3: Advantages and disadvantages of the current criteria?

The responses to the above question have been summarised and captured in Table 6.3. Many interviewees misunderstood the question, thinking it referred to the student funding system, instead of simply the criteria.

There were a wide range of advantages and disadvantages with 3 participants indicating advantages and disadvantages. In general, advantages centred on the wide variety of criteria being used in order to give the institution options. The main disadvantage was the emphasis of academic criteria. Interesting to note that one participant felt that the incorrect behaviour was created by not rewarding students who settle their debts.

Table 6.3: Advantages and Disadvantages of current criteria

Participant #	Advantages of criteria	Disadvantages of criteria
1	Student funding offering is more comprehensive and competitive in relation to other South Africa Higher Education Institutions	Too much emphasis on academic criteria. More emphasis could be placed on head boy/girl, etc.
2	N/A	Students are not rewarded for attempted to source their own funds via loans, etc.
3	Academic criteria drives the performance of students	Students are only funded for the minimum period plus two years; They are only funded by NSFAS for their first qualification;
4	There are a variety of criteria available for funding students	N/A
5	Needy students are catered for	N/A
6	Students are rewarded based on performance, which motivates students	Rewarding performance in GR12 based on study choice is perceived as being unfair by parents/students; Criteria for sports bursaries are unknown;
7	Criteria are customised based on the need/objective/strategy of each individual fund	N/A

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6.2 Research Question 5: The challenges of the current student funding model

What are the challenges of current student funding model?

The objective of this research question was to understand what the challenges of the current student funding model are, what inhibits changes from being made, and the type/rate of changes being made.

6.2.1. What aspects of the current student funding model require change?

Due to the unstructured nature of this question, the responses were split into themes, with key quotes displayed under each theme.

Figure 6.2: An indication of where the main areas of change need to occur

What would you change? - Classified into themes

■ Finance   ■ Communication   ■ Funding Design   ■ Student Support
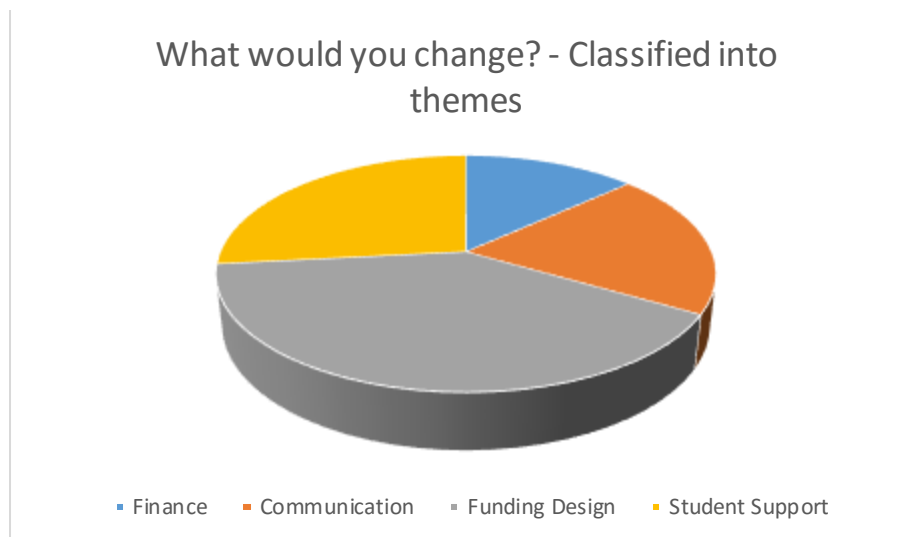
6.2.1.1 Finance:

Experts felt that funding was a challenge in terms of limitations as we can see from Participant 1: "*The budget is under constraint*", and "*The institution can't make up the shortfall, we don't have the money*", and in terms of how funds are allocated as expressed by Participant 7: "*Inherently I feel that's unfair*" "*We front load the offerings, meaning… offers to a large extent are given to you at registration*". "*I would actually say that we need to stagger that through the years and pay ourselves first, so it's not actually an award for the student to take out and go do something else*". They elaborated further indicating that students who receive a bursary, have it converted to a loan if they leave. In the opinion of this participant, this reduces the return on

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investment and acts as a deterrent to the student returning, due to this loan hanging over their head. In addition, it was felt that staggering the award over the duration of the study provides consistency for the student. "*I know that I got that left for 2ⁿᵈ year*" and "*I know that I got that left for 3ʳᵈ year*".

6.2.1.2 Communication:

Participants felt there were two stakeholders where communication could be improved with Participant 2 indicating that: "*If the student didn't apply for funding, then he isn't going to be on the list*". Participant 4 concurred with a potential solution: "*A funding application should be automatic*", arguing that the application for study should automatically be accompanied by an application for funding, reducing the chance of missing links with students. Participant 7 felt that in order for students to understand the "strings" attached to a loan, they need to "*view the terms and conditions on the bursary website*", this is unnecessary and causes stress and anxiety "*…just giving finances is not enough to see a difference in the success rate of the students… if the rules and regulations are quite clear about the funding and people get it, there is less stress… but if the rules and regulations creates uncertainty or an anxiety factor attached to it… they are not as successful as the other guys who might get less money, or the same amount of money*"

The second stakeholder is that of potential stakeholders who, as Participant 4 remarked "*Potential funders are sent from one person to the next*", meaning that there is not a single central point which engages with them, which causes them to be sent to multiple staff until the correct person is found or they become fatigued and give up.

6.2.1.3 Funding Design:

The complexity of the fund design was also a pain point for participants. Participant 1: "*There are different criteria and different criteria why the award is given… they have different processes, the marketing, and the communication… it's quite complicated… it's a lot of admin*", added to this was the need to manage the limited funds well ahead of time "*We try to forecast a year or two in advance*". This causes issues, as there could be multiple changes internally and externally which impact on these forecasts, such as inflation, strikes, budget cuts, fee increases, etc. Participant felt that there were inherent flaws in the way outstanding balances were dealt with: "*Many students put a lot of effort into getting money to settle their outstanding balances… but… then*

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we help students [who have] outstanding balances… that is a big disadvantage [as diligent students are ignored in favour of those who made no effort]."

A couple of participants acknowledged that NSFAS provides a lot of financial support for students, but wished that they could do more as outlined by Participant 3: "*Most of them find that what we offer to the student is not enough to cover all their fees and for instance the hostels… in terms of NSFAS….our biggest source of funding*". Participant 5: *"[NSFAS] have a capped amount of R67000… and often a change can't fund the additional R20 000 or what's needed*". *While* Participant 7 felt that excellence/quality should be a criteria for NSFAS: *"I would like government to reward academic excellence"… "Look at neediness coupled to academic excellence*"

6.2.1.4 Student Support:

Lastly, even though not directly related to the question, many participants felt that student support was critical to student funding success. Participant 2 was explicit: "*There is a huge lack of support for the students*". With Participant 3 indicating that support is vital to student life: "*It must be compulsory for students to receive counselling so that they fit in,*" as did Participant 4, who felt they needed support in an environment they do not feel comfortable in: "*Students feel that this is not my first choice…in terms of culture I would chose university [x], [y], [z]…. But I chose this institution as I was not accepted elsewhere". "[Creating] a culture at university*"... where students are more comfortable. Lastly, Participant 7 felt that those that receive funding need to be monitored closely with full support given based on the student's need: "*I would probably introduce… a type of monitoring system… to know that these kids [who have] gotten funding from us… might be at risk or might not be at risk*". "*These students might need more help, whatever kind of help is necessary*".

6.2.2 What inhibits the implementation of changes to the student funding system?

Only two major themes emerged from the question relating to inhabitants: Finance and hierarchy (red tape). In terms of finance it was clear that the university was under financial pressure. Participant 2: "*The University needs the money*" and Participant 6: *"Financial Constraints"*. Participant 7 was particularly concerned that universities were spending their reserve funds: "*Money is not kept in reserve*", which is detrimental to the long-term survival of the university "*You are cutting off your own sustainability if*

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you offer too many of these [bursaries]". In terms of Hierarchy it was felt that it was not possible to have, a direct say in how the university funds were managed Participant 6: *"I don't have the authority, but I can have input"*.

6.2.3. When was the undergraduate student funding system reviewed?

The funding system is reviewed annually and all the participants indicated that they were involved in it. Overall, the challenges remained the same, money, communication, funding model and student support. However, participants did indicate that they were always concerned with improving their practice. Participant 5: "*We try to see if we can do it better, faster, communication"* and Participant 1: "There's a lot more communication than before". Participant 7: *"We were specifically looking at… losing out on market share, especially in the top [Grade 12 results] category… so in the beginning of this year it was reviewed and a new model [Vice Chancellor's award] has been put in place for 2016*". Participant 4: *"Bursary values were more enhanced and much more competitive to other universities"*. This reveals a tension between helping needy students Participant 1: *"The amount bands have changed"* and Participant 6: *"Amounts were adjusted upwards and there was a new category put in"* but attracting in the academically best students.

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6.3 Research Question 6: Student funding and transformation

The objective of this research question was to understand the role (if any) that student funding could play in addressing transformation.

6.3.1 Q6a: In your opinion, does the current student funding (bursary allocation) system address transformational issues?

With Q6a, there was a 60/40 split on whether the student funding addresses transformation. In the case of the two Nos, both came from individual who do not work with the equity or special funds aimed at transformation. Participant 1 mentioned equity: "*Yes, there are equity awards*", Participant 3 referred to both gender and race: "*Yes, I know in many cases they tell me they want a list according to race and according to gender*". Participant 6 kept it simple: "*Yes*". Lastly, Participant 7 gave indication to the strategic nature of transformation: "*Yes… if you take the broad sense of transformation from equity to demographics… we have a wide range of bursaries*".

Participant 4 on the other hand took a firm stance in the negative: "*No, we don't look at that at all*" with Participant 5 implying no, but with doubt: "*as far as I know, it's a free for all, so if you qualify then you get a loan*". "*Its [academic performance] and family background [income]*".

6.3.2 Q6b&c: Could the addition of other criteria assist with regards to transformation? What would these criteria be?

Figure 6.4: Additional criteria for transformation

Can additional criteria assist with transformation? If yes, which criteria

- No - Yes, more non-academic criteria - Yes, strategy for particular programmes
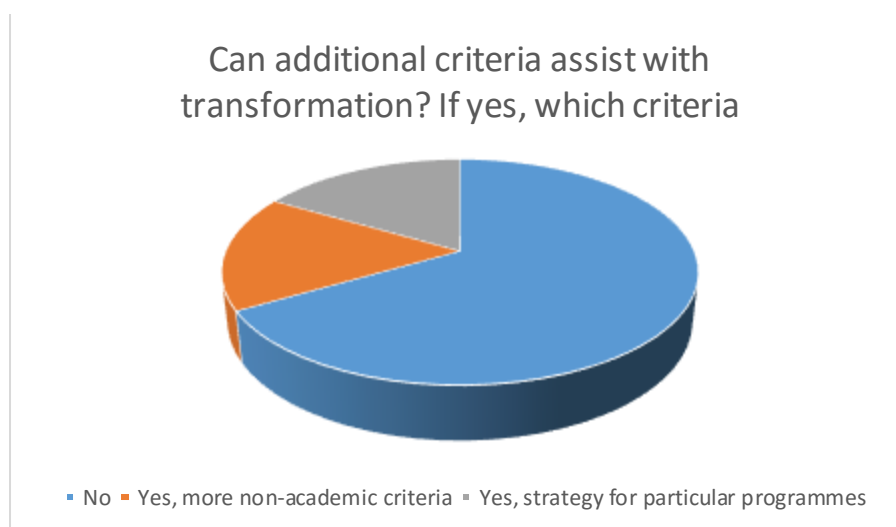
In terms of additional criteria, most said not (Participant 1; 3; 4 and Participant 5): *"No, it's a [currently] fair process".* Two (Participant 6 and 7), however wanted to look at non-academic criteria and one wanted a focus on particular degree programmes respectively.

6.3.3 Q7a: Should the student funding (bursary allocation) system be used to address transformational issues?

Generally participants were in consensus that it should be, with one exception that student funding should be used to address transformational issues. Participant 7: "*Yes, but not just race at the end of the day, demographics, but also academic excellence, quality, diversity, all those things that make us part of a global community as a tertiary institution".*

6.3.4 Q7b: What other tools are available to address transformational issues?

Figure 6.5: Tools for transformation in additional to student funding
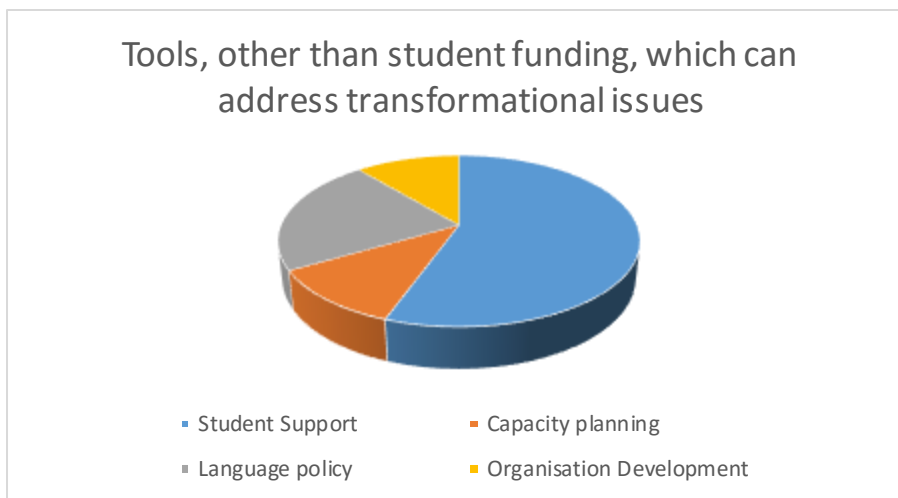
It was clear that a lot of additional support – beyond funding was thought by the participants to be relevant: Participant 2 made reference to an early warning system: "*There is a huge lack of support for the students… There is lack of support and you must get them in the beginning of their studies, otherwise they get discouraged and they just drop out*". Participant 3 indicated that one needs to dig deeper to find the root cause of the problem and address that: *"Support services, to see really where the problem is and pin point that".* Participant 4 took a view that by increasing capacity, there would be a natural progression in terms of transformation as the institutions

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demographic starts to resemble that of the nation: *"Open the gates of higher education… in terms of capacity"* and also ensuring that cultural integration programmes are implemented: *"[Creating] a culture at university... [where students are more comfortable].* It could also mean looking at the language policy as said by Participant 6: *"Language policy",* and a *"A quota system", "We have a quota system in residence, which I think is good".* Lastly, Participant 7 summed it up well: *"Your environment should be changed that it's welcoming to all people from different race groups… and it's something that needs to be addressed then also looking at accommodation and they now need to stay in our residences". "Language Policies".* *"HR policies… if you don't address it at an institutional level and cascade that down to departmental levels… they become embedded in what you do".*

6.4 Research Question 7: Stakeholders in the student funding model

The objective of this research question was to investigate the number of stakeholders that exist in the current student funding model as well as the role that they play.

6.4.1 Q8a: Who are the internal and external stakeholders of the student funding (bursary allocation) system?

Participants were asked who they felt were stakeholders of the current student funding system. Table 6.3 lists there combined responses.

Table 6.3: List of stakeholders (By group, listed alphabetically)

Stakeholders		
Administration Department	Faculties	Research & Innovation Support
Career Counsellors	Finance	Residence
Client Services	Government Departments	Schools
Education Innovation	Institutional Advancement	Student Affairs
Executive Management	Institutional Planning	Students
External Funders	Parents	University Relations

6.4.2 Q8b: Are they satisfied with the current student funding (bursary allocation) system?

The general, participants were unanimous that stakeholders were satisfied, although Participants qualified this with certain areas that they feel stakeholders might want improvements. Participant 4: *Yes, but potential funders are unhappy due to the process followed to become a funder".*

6.4.3 Q8c: How much input do they have with regards to the student funding (bursary allocation) system

It was felt that there was consultation. With Participant 1: *"They have a lot of input";* Participant 5: *"Yes, we sit around a table often, everyone is notified"* and Participant 7 confirming: *"We have developed a bit of a policy, so I think there is lots of opportunity to give input".*

6.5 Conclusion to qualitative research results

The data collected during the qualitative research methods described in this chapter was sufficient to understand the current student funding model in terms of, (1) the current model and criteria used, (2) challenges encountered, (3) funding's ability to aid transformation and (4) stakeholder management. The Participants selected provided information of rich quality, which were sufficient to address the research objectives of each research question. The following chapter will discuss the findings of Chapter 5 and Chapter 6.

Chapter 7: Discussion of results

7.1. Introduction

The research findings are discussed in this chapter. Findings are discussed and linked to the literature reviewed in chapter two, in order to ascertain if they contradict, confirm or support the theories put forward. Thereafter, the findings are discussed in terms of their implications for business and for future research. Finally, a concluding statement is made for each research question and for the findings in their entirety. As the study made use of a single institution's data only caution should be exercised when applying any models created. It would be recommended for future studies to be undertaken to test the robustness of the model created in this study. Interviews were limited to the "key" internal role players. Stakeholders such as students, parents, support services, residence heads and faculties were excluded. Only academic criteria were used to test the student funding criteria and its relationship to success. Non-academic data such as lecture attendance was excluded. Exploration of the disaggregated funds were completed on 2011 and Residence analysis was conducted at an extremely coarse level.

In the case of this institution, the interviews revealed that a deliberate attempt is made to have as wide and as varied an applicant pool as possible. The institution is trying to capture an extremely varied group of students in order to achieve transformation targets ranging from race to quality. However, in South Africa, due to previously discriminatory practices, the notion of 'quality' can be construed as controversial due to past false perceptions that quality is linked to race and gender. Internationally, however, quality is considered one of the most important elements in a student pool (Paliulis & Labanauskis, 2015). For South African institutions, faced with ever growing applications, yet limited space, it is crucial to ensure that places are allocated to the most appropriate students (Harrison-Walker, 2010). That is, students must be able to achieve within the academic system. This was true for the institution under study as well.

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7.2. Bursaries amounts and bursary allocations

The interviews revealed that there are numerous challenges with the current funding mechanism. Key is that the total bursary money is insufficient, in part due to the increase in higher education enrolments (DHET, 2013). Thus, even students who perform well, will not necessarily receive funding. The second challenge is the effective allocation of bursaries, an issue found worldwide (Callender & Wilkinson, 2013). The institution does attempt to allocate bursaries in a transparent, predictable and timeous manner. However, the range of funds from which bursaries must be allocated means that this is not always the case. In addition, not all the funding information is communicated to all the students. Thus, some students do not apply, without realising that unless they do apply, they will not be eligible for funding. In other cases students hear too late that their funding has been granted or declined, leaving them either unable to take up the bursary or unable to find alternative funding. In some cases, this causes students to feel that they are unsupported. In addition, the allocation of bursaries can result in some students being awarded multiple bursaries, with other similarly performing students – or even more needy students - left out. Thus, the student funding pool is not as effective as it could be. This is borne out in the literature, as there is not a relationship between financial aid amounts and student academic performance (Kinnucan, Yuqing Zheng, & Brehmer, 2006). That is, more money does not equate to higher marks or better academic performance. Based on this, and resonating with the literature (see Dewey, 2009) is it clear that the institution needs to improve the way in which they communicate with their students. Although the multiple funds available cannot (and should not) be reduced, there should be limitations on amount of money a student can be allocated and the available funds used more strategically. Institutions should be able to use their own funds to attract students, but a cap should be placed on how much funding an institution can allocate to bursaries to ensure that money is not wasted and that the institution is financially stable in the long term. Overall, there needs to be improved rules and regulation pertaining to the allocation of funds.

7.3. Exploring the bursary allocation criteria

The interviews revealed that transformation in terms of race, gender and disability are not the main drivers behind bursary allocations. This results in a varied pool of criteria currently used. Currently, in terms of academic criteria, the institution makes use of

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Grade 12 Results (Individual subjects, Admissions Point Score, etc.) and Grade Point Averages. This reflects a focus on academic quality and is consistent with what happened historically and what happens elsewhere in the world (Zaaiman, 1998; McCaig, 2014). However, academic skills can be divided into: Achievement (school marks or achievement marks); Aptitude (subject-related skills tests or access tests) and Ability (non-subject specific tests or interviews) (Zaaiman, 1998). The interviewees felt that there was a need to use aptitude and ability in student funding decisions in order to improve success rates and ensure fair funding allocations. In addition using multiple criteria would result in increased success of prediction. Thus, it was proposed that the institution explore the possibility of using aptitude tests (subject-related skills tests or access tests) and ability (non-subject specific tests or interviews) tests. The interviewees also highlighted the use of a number of non-academic criteria. These included: Financial Neediness; Sports Achievement; Extra-curricular Activities (Head boy/girl, etc.); Employment Status (Institutional Staff); Disability Status; Citizenship; Application for Funding; Faculty and/or Study Choice; Population Group/Race; School and Loyalty (development or school programmes). Although multiple criteria are already being used, it is suggested that additional measurements could be added to the student funding criteria measurement-kit. This would allow the institution to not only improve the fairness in bursary allocations, but also improve success rates. For example, Richardson et al., (2009) demonstrated that students who were in part-time employment are more likely to succeed. Westerman et al., (2011) suggests that class attendance is positively related to exam performance. In addition, research from this study indicates that being in residence results in improved performance. In conclusion, the student funding model can be improved with the addition of both academic and non-academic criteria.

7.4. Exploring the challenges of current student funding model

There were four challenges that emerged from the interviews. These were Finance; Fund Design; Communication and Student Support. Firstly, it was found that the student funding model is always under review and in practise changed annually, with additional ad-hoc changes made during a cycle based on need. The four areas will be discussed separately, below.

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7.4.1. Finance

Interviewees concerns over money mirrored that of the #FeesMustFall campaign, even though the interviews were completed prior to the commencement of the student action. This finding was also in alignment with the literature (see Koen et al., 2006; Aydin, 2014 ; Styan, 2014; Mulaudzi, 2015). Participant 1 summed up the problem well: *"The institution can't make up the shortfall, we don't have the money".* This was said with both emotion and desperation. It was clear that the institution was doing everything within their power to assist students, but was simply overwhelmed by the size and scale of the problem. In addition, the interviews revealed that the institution was grappling with the challenge of racial transformation on the one hand yet needing to also attract quality students. This mirrors the literature (Craig & Raisanen, 2014).

7.4.2. Fund design

The interviews revealed that with multiple stakeholders a huge variety of needs must be met. This involved juggling issues pertaining to research performance, programme delivery and service performance. Each has a unique requirement in terms of student funding. Dealing with this sorely tests the institution's core capabilities, and gives administrators a moving target to meet. Participant 1 provides a clear outline of the difficulties of the current system: *"There are different criteria … why the award is given… different processes… it's quite complicated… it's a lot of admin".* These challenges are an indication of the conflict and constant changes of the higher education landscape (Begičević et al., 2010; Harrison-Walker, 2010; Asif & Searcy, 2014). Sometimes the complex rules and criteria result in unintended consequences. For example, the administrative decision write off outstanding student fee balances is fundamentally unfair to students who do settle their accounts and creates an incentive to not pay at all. Participant 2 outlined: *"Many students put a lot of effort into getting money to settle their outstanding balances… but… we help students with outstanding balances… that is a big disadvantage [as diligent students are ignored in favour of those who made no effort".* The interviewees pointed out a heavy reliance on NSFAS yet; the cost of attending the institution was not fully covered by the fund. *"Most of them find that [it] is not enough to cover all their fees"* Participant 3 and Participant 5: *"[NSFAS] have a capped amount of R 67 000… and often a student can't fund the additional R 20 000 or what's needed".* There is also a need to stagger the financial aid [Participant 7] as this improves emotional support by being consistent: *"In addition*

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staggering the award over the duration of the study provides consistency for the student." "I know that I got that left for 2nd year" and "I know that I got that left for 3rd year". Thus, there is a need for more innovative approaches to funding. NSFAS needs to be re-examined and an increase in the availability of loans looked at (Greenaway & Haynes, 2003).

7.4.3. Communication

It became clear that there was a gap in communication between what the university could offer in terms of funding and what the students knew was available. As Participant 7 indicates, having the terms and conditions on the website would already be a step in the right direction, making the rules and regulations clear would help. Therefore, as Dewey, 2009, points out there is a need for clarity and transparency of rules and regulations.

7.4.4. Student support

Although the study focussed on student funding, and all the participants were involved in distributing student funding or making student funding decisions, it became clear that funding alone will not solve the problem. According to the interviewees, students require a level of emotional intelligence and social support. This is consistent with other studies such as Webber & Ehrenberg (2010) and Volberding et al., (2015) who found that offering emotional support and other similar support services expense positively influences success rates, in particular graduation and persistence rates. The interviewees indicated that a range of support services is required due to the varied needs of the students: language and cultural support; integration support; career support and psychological support. In some cases, this will have to be compulsory, as said by Participant 3: *"It must be compulsory for students to receive counselling"*, as well as monitoring at risk students suggested by Participant 7: *"I would probably introduce… a type of monitoring system… to know that these kids [who have] gotten funding from us… might be at risk or might not be at risk".* Thus, the institution faces two main challenges – the overall amount of funding is too low to meet the demand for funding and the source of funding requires management of multiple stakeholders. This results in the institution struggling to meet the requirements of the various funds but at the same time ensure that what limited funding there is goes to the most worthy or in need student.

7.5. Student funding and transformation

While transformation of higher education, is of primary concern to the State, the institution is primarily concerned with improving the quality of its applicant pool, as is the case with many American and UK based institutions (Moloi & Motaung, 2014). In order to radically and rapidly transform higher education to align it with the racial profile of the country, institutions need to (and have) vastly increase the number of African students. Many qualify for funding based on 'neediness' but not all. This is especially true for NSFAS funding. Thus, the institution often has to use their equity and "discretionary funds" to fund African and Coloured students. As such a situation is not sustainable due to the mismatch between supply and demand, the participants felt that more emphasis should be placed on non-academic and faculty/department specific criteria. What is more, as funds are usually directed to African students, little remained for top academic performers who are not African, but cannot afford the fees. Thus, such students often elect to enrol at another institution. Thus, the interviewees argued that student funding alone is not the answer to addressing transformation. Participants felt that there are four additional tools that can and should be used: 1) Student Support, 2) Capacity Planning, 3) Language Policy and, 4) Organisation Development. Student support has been dealt with, so will not be discussed again. Capacity planning refers achieving a balance between massification and staff to student ratio. That is, simply increasing enrolments will not, in the long run, reduce inequality because when the staff to student ratio becomes too large, excellence in tuition is sacrificed. Language policy in the context of the institution under study refers to teaching in a language that students are comfortable with but also levels the playing fields for all students. This is most likely going to be English, for multiple reasons. Lastly, organisation development refers to the transformation of the organisation to match the objectives of government, to ensure staff to buy-in to the requirements of transformation. Thus, transformation is complex and nuanced and the debate needs to be widened beyond that of funding.

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7.6. Stakeholders – demands and management

Participants identified a combined 18 stakeholders (see Table 7.1). The key stakeholders being the Finance Department, External funders (including NSFAS) and students. In most cases, participants also mentioned parents.

Table 7.1: Internal and external stakeholders

Internal Stakeholders	External Stakeholders
Administration Department	External Funders
Career Counsellors	Government Departments
Client Services	Parents
Education Innovation	Schools
Executive Management	Students
Faculties	
Finance Department	
Institutional Advancement	
Institutional Planning	
Research & Innovation Support	
Residence	
Student Affairs	
University Relations	

Overall it was felt that the stakeholders were satisfied, but with room for improvement. In the light of the #FeesMustFall movement this was clearly a misconception by the staff of the institution under study. However, also interestingly, the participants did not actually list the stakeholders but rather viewed them as 'challenges' relating to the registration and funding of students. This then explains why all stakeholders are not explicitly consulted with regards to the student funding system. Instead key stakeholders "sit around the table" to raise their concerns, with non-key stakeholders managed by the relevant staff member who relays concerns to those in authority. This might, then, also explain, in part, the #FeesMustFall movement. The complexity of the student funding problem means that this institution reflects a need to improve in this area, as indicated by the literature (see Dewey, 2009).

7.7. The relationship between the academic criteria and success

The study sought to investigate the relationship among the various academic indicators used by the institution of higher education under study used in awarding of student funding and academic performance. The results are detailed in Table 7.2

Table 7.2: Correlation between Performance Indicators and Performance

		Correlations (Ranked per Academic Year)		
		2011 GPA	2012 GPA	2013 GPA
Grade 12 Average	Pearson Correlation	.465**	.413**	.349**
	N	6856	6145	5884
2011 GPA	Pearson Correlation		.681**	.539**
	N		6951	6385
2012 GPA (Cumulative)	Pearson Correlation			.710**
	N			6472
2012 GPA	Pearson Correlation			.737**
	N			6466

Whilst all the criteria employed by the institution have a moderate to strong relationship with GPA (both individual and cumulative), the relationship becomes stronger the closer the students are to the final year. Thus, the 2012 GPA has a stronger relationship to 2013 GPA than the 2011 GPA, which in turn has a stronger relationship with the 2013 GPA than the Grade 12 Average. Although further research and statistical analysis will be needed in order to unpack the case of this strengthening of the relationship over time, it can be linked to drop-out rates, as the absolute student numbers in the data set declined year-on-year (Koen et al., 2006). Alternatively it may be that student support structures, which students are more likely to use the longer they are enrolled, is helping to improve academic performance, with success breeding success – that is, students who attain academic success are more motivated to find ways to retain this success and, thus, make use of student support services (Volberding et al., 2015).

From the data is seems that the Grade 12 results average is the not the best criteria to use for student funding. Rather GPA should be used, especially for 2nd and 3rd year students. Where applicable, sponsorships from outside sources should rather fund based on Grade 12 results at the first year level.

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7.8. Completion rates

The data, as reflected in Table 7.3, indicates a moderate relationship between GPA and passing in minimum time, with Grade 12 results having a weak relationship. All the relationships were far stronger when correlated to Cumulated GPA. So, if GPA and Grade 12 results are used as for student funding criteria then success outcome should be cumulated GPA. Additionally, if the passing in minimum time success factor is used, then the Grade 12 average criteria should not be used. Further research is however needed on other indicators of success such as lecture attendance; language proficiency, study habits and passing in minimum time (Delaney et al., 2013). Measuring success is always a contentious point. For this institution, success is defined by the internal performance measures of the GPA and the ability to pass in the minimum time i.e. three years. The literature mentions various other measures, with an external focus such as a student's ability to be employed (Dos Santos Martins et al., 2013) and ability of student's to be meet the pillars of HR (Phelan & Mills, 2011). However there is a heavy reliance on the use of the internal data, due to a lack of available external data, and on ensuring the correct success measures are used. However, in this instance passing in minimum time is not the correct success factor.

Table 7.3: Correlation between Performance Indicators and completing in minimum time (3-years)

Correlations

		Status = Completed
Grade 12 Average	Pearson Correlation	.088**
	Sig. (2-tailed)	.000
	N	10663
2012 GPA	Pearson Correlation	.334**
	Sig. (2-tailed)	.000
	N	7182
2013 GPA	Pearson Correlation	.308**
	Sig. (2-tailed)	.000
	N	6652
2013 GPA (Cumulative)	Pearson Correlation	.330**
	Sig. (2-tailed)	.000
	N	6719

**. Correlation is significant at the 0.01 level (2-tailed).

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However, with strategic planning pivoting around academic measurements in terms of inputs (Grade 12 results, GPA) and outputs (GPA, Passing in minimum time) indication as that as an input and an output measure, GPA is the most reliable measure of success. The use of the Grade 12 results and passing in minimum time data provides only modest reliability especially when used together. In terms of long term future improvements, there is a need for the use of both external measures (job success factors, etc.) and internal measures (lecture attendance, study hours, etc.) in order to improve the prediction and measurement success of the student funding model.

7.9. The relationship between student funding based on performance and success.

A strong relationship exists between the amount of funds allocated for merit bursaries and academic performance. With Merit bursaries awarded based on performance in the previous year of study (either in secondary or tertiary), this finding supports earlier findings that GPA and Grade 12 are strong predictors of success. Put another way, if you award funding based on GPA or Grade 12, then the success of that will be highly likely. This supports findings that institutions need to pick the right student to award financial support to (Harrison-Walker, 2010).

Table 7.4: Correlation between GPA and Merit Bursaries (Internal Funds)

Correlations

		2011 Merit Bursaries (Internal Funds)
2011 GPA	Pearson Correlation	.173[**]
	Sig. (2-tailed)	.000
	N	1935
		2012 Merit Bursaries (Internal Funds)
2012 GPA	Pearson Correlation	.556[**]
	Sig. (2-tailed)	.000
	N	695
		2013 Merit Bursaries (Internal Funds)
2013 GPA	Pearson Correlation	.380[**]
	Sig. (2-tailed)	.000
	N	452

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The correlation between Merit Bursaries and GPA, outlined in Table 7.4 are not as strong it is thought they should be, having weakened when compared to correlation between the predictors and success in earlier findings, presented in Table 7.3. Therefore further research is needed in this area to understand and improve the relationship between the funding amount and performance, to ensure that the amount allocated matches the predicted success of the student. This is not to say that it is the only indicator of success, as financial strain is just one of the stresses that students are exposed to (Paliulis & Labanauskis, 2015) (Kinnucan et al., 2006). The data also confirms the theory put forward by Kinnucan et al., 2006 that funding should not only go towards students, but also structural expenses such has support services, etc.

7.10: The relationship between student funding and student performance

With the exception of funding based on academic performance, there is no relationship between the amount funded and the success of a student. The research concurs with (Forster, 2008) who indicated that just raising the amount of funding does not necessarily result in improved results. In the case of this cohort, the only funding that showed indications of improved results were those with the purely academic criteria of GPA and Grade 12 results. Funding based on neediness showed no improvements in performance of students, which indicates that institutions need to carefully consider what factors they use when allocating funding.

Even with the many strategic considerations that are made in terms of student funding, as is evident by the multiple fund groups and large group of individual funds that sliced and diced for specific needs, academic reward and non-academic reward, the current model is ineffective. It lacks the ability to maximise the amounts allocated to students and therefore a great deal of research is needed in this area in order to improve the return on investment for the bursar. Further strategic considerations (Forster, 2008) need to be made in how much is allocated in order to maximise the impact of the limited funding available and not just if the funding should be allocated. It is possible, by allocating funding on the correct basis, to increase in performance. In this case it was based on academic performance, but there has also been evidence of non-academic performance (Delaney et al., 2013) being a justifiable indicator of performance.

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7.11 Residence placement and academic performance.

Students performed significantly better in all three years of study, if they were in residence than those who were not in residence. This contradicts the findings of Welsh & Zimmer, 2012, who found that students from out-of-town perform worse than in-town students. It shows that one's environment can counter other negative factors. Some of the performance advantage of residence can be explained by the social aspect of residence life, which causes a more encouraging academic environment, resulting in increased attendance, which directly affects student academic performance (Westerman et al., 2011). The results also support 1) Curtis & Kiapper, 2005, who found that studying while at home with parents, tends to reduce the quality of the educational experience 2) Volberding et al., 2015 who found that academic programs should place more effort in incorporating emotional intelligence in their curriculum, and 3) Webber & Ehrenberg, 2010, who found that non-instructional expenditure influences the rates of success of undergraduate students.

Figure 7.1: Performance vs Residence Placement over three years
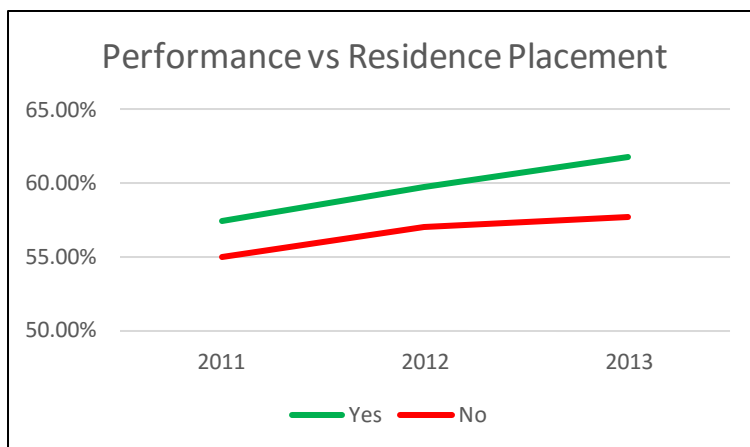
Funding practices should therefore be student centred (Forster, 2008) and with residence accommodation giving students an advantage and /or an improved chance of success, a portion of student funding should be allocated towards residence financial support. In addition institutions should include residence expansion and funding in their corporate strategy and project planning prioritisation due to its ability to improve student performance (increasing quality) and ensuring the success of funding and capacity allocated to individual students (Begičević et al., 2010) (Asif & Searcy, 2014)

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7.12. Conclusion to discussion

The research study comprised of two phases.

Phase one resulted in the creation of mini-models relating to 1) The current funds available to students with areas for improvement, 2) The criteria used in making funding decisions as well as additional proposed academic and non-academic criteria, 3) The four key areas of challenges the institutions face in higher education, 4) Where transformation should sit in the student funding model and the tools that can be used to address transformation and, 5) The stakeholders that form part of the student funding model.

Phase two found that 1) GPA is a substantially better predictor of success, although the Grade 12 results can be used when moderate levels of correlation are sufficient, 2) There is no relationship between the amount of money that a student receives and performance where funding is allocated using criteria unable to predict success and 3) The placement of a student in a university residence results in significantly improved performance.

Viewing the study and model in its entirety, there can be improvements by simplifying the model is divided into pull and push factors.

Pull factors refers to the factors of attracting students to the institution. This is achieved by funding transformation to match the vision and strategy national, local institutional needs. To do this one would have a portfolio of funds, with various amounts and criteria depending on the varied needs of the institution. There are multiple areas that need to be addressed and therefore multiple funds are necessary. I.e. needs of addressing gender, race, international exposure, language, culture and quality transformation, etc. These groups are cross-cutting, which adds to the complexity. Lastly stakeholders that need to be manged include (alphabetically) Client Services, Executive Management, External Funders, Finance, Government Departments, Institutional Planning, Schools, and University Relations

Note: A fund needs to consider the academic and non-academic criteria, but most importantly it needs to have strong management with stakeholders (most importantly funders and students) to ensure buy-in, sufficient transparency and communication.

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Push factors refers to ensuring the ability of a student to be successful. I.e. Graduation. All students have particular needs that have to be met in order for them to perform optimally These needs include financial support, psychological support, and residence placement, society integration, career development, etc. From this study the major areas of need for improvement being language policy, organisational support in terms of staff culture (which trickles down to student support) and emotional support. For push factors the stakeholder that need to be managed are Administration Department, Career Counsellors, Client Services, Education Innovation, Executive Management, Faculties, Finance, Institutional Advancement, Research & Innovation Support, Residence Department and Student Affairs.

Note: Students which, include parents due to many being under 18, are the centre of this model and it should be explicit within the organisation that they are the priority.

Chapter 8: Conclusion

8.1 Introduction

Following the presentation (Chapter 5 and 6) and discussion (Chapter 7) of results, Chapter 8 concludes with the academic and business implications of the study, originating from the findings and/or limitations of this study. This research study set out with the purpose exploring the current student funding model, understanding the current challenges and attempting to find areas that can be improved upon. This was achieved by combining a literature review, Participant interviews with seven senior managers from multiple areas of expertise and secondary data analysis of ±8099 students over a three year period. The hope was that it could be used as a foundation for future research within a South African context, ensuring that both business and academia operating in the area receive benefits. To this end, the study has achieved its objective, using quantitative research to form a foundation and quantitative research to unearth some of relationships (or lack thereof) in key areas of the model. This has allowed a proposed model to be created with multiple findings and recommendations for further research

8.2 Main findings

Results show that student funding is a complex and challenging function, and not the process of simply giving funds to students who can't afford. Institutions need to consider the funding limitation imposed on them as well as quality standards in relation to international standards. The main findings of this study are listed below:

1) The considerations on funds implemented and criteria used, need to match the strategy of the institution in terms of its broader transformation agenda. Emphasis is placed on performance criteria, matching the need for excellence. However, based on the research conducted, the current funding model can be improved with the addition of both academic and non-academic criteria as indicated in Table 8.1.

2) Challenges can be grouped into four key areas 1) Finance, 2) The Fund Design, 3) Communication and 4) Student Support. Improvements are made on an annual basis in all of these areas with each area is equally important to institutions in order to create a balanced, effective and efficient student funding model.

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Table 8.1: Various Criteria used in student funding

Academic	Non-Academic
*aptitude (subject-related skills tests or access tests)	*University Residence status
*ability (non-subject specific tests or interviews)	*Employment status (Related to studies)
	*Class attendance

* Proposed additions to the current student funding model.

3) Student funding may be used to address transformation, but should not be the primary tool used (Harrison-Walker, 2010), instead emphasis should be on addressing transformation in terms of support structures provided by institutions (Aydin, 2014). i.e. Student support, Capacity planning, Language policies and Organisation Development.

4) The complexity of the student funding model is visible in the number of stakeholders that are managed, directly or indirectly by the institution (refer to Table 7.1 on page 69), however there is room for growth in this area in terms of maximising the value from relationship with stakeholders (Dewey, 2009):

5) GPA is the most reliable measure of success with the use of the Grade 12 results and passing in minimum time providing only moderate reliability. Therefore emphasis should be placed on the use of GPA instead of Grade 12 where possible. In the case of many institutions, this could mean a change of strategy with regards to criteria employed and/or which years of study are funded using internal funds.

6) Strategic considerations (Forster, 2008) need to be made on how much is allocated to individual students in order to maximise the impact of the limited funding available and not just if the funding should be allocated. In general with the current student funding model there is no relationship between the amount funded and performance of the student, although data indicates that if allocated on correct basis (i.e. academic performance criteria), there can be an increase in performance. There has also been evidence of non-academic performance (Delaney et al., 2013) being a justifiable indicator of performance in other higher education environments, which South African institutions should explore.

7) If placed in an institution's residence, students performed significantly better in all years of study in relation to those that were not in residence. Not only does residence status allow for better prediction of success for student fund allocation on tuition, but also there is an indication that allocation of a portion of the student funding should go towards residence placement and / or invested in improving residence capacity.

8.3 Recommendations for future research:

With the aim of the study being explorational and their being limited literation in the area of student funding in the South Africa higher education sector, there are a number of areas for further research.

1) The mirroring of this study at least one other South African Institution of higher education, testing the viability and feasibility of the proposed model. In addition, the study should include the student in order to understand the student's perception of student funding. i.e. Is there a "pull" (Richardson et al., 2009) or a "push" factor (Panigrahi, 2015)? If so, can students be segmented into groups, where there could be "pull" or a "push" factors dependant on the profile of that student (Birch & Miller, 2008) (Curtis & Kiapper, 2005).

2) A Student Funding formula for a South African higher education institution used to calculate the optimal allocation amount for a student i.e Currently there are a range of amounts allocated to students based on a strategy (Forster, 2008) for each fund type against the relevant student that fund is attempting to attract. Further research is required in this area, whereby these particular ranges are tested against the performance of a student. The hypothesis is that there is a "Goldilocks" range, which is not too low that the student still incurs financial strain and not too high that the institution is wasting money (Paliulis & Labanauskis, 2015) (Kinnucan et al., 2006);

3) An investigation into how to ensure the sustainability of a) institutional, b) government and c) corporate student funding in a South African context;

4) In a South African context, creation of a model that allows for efficient, effective student funding communication, both internally and externally;

Figure 8.1: Areas for further research based on proposed undergraduate student funding model
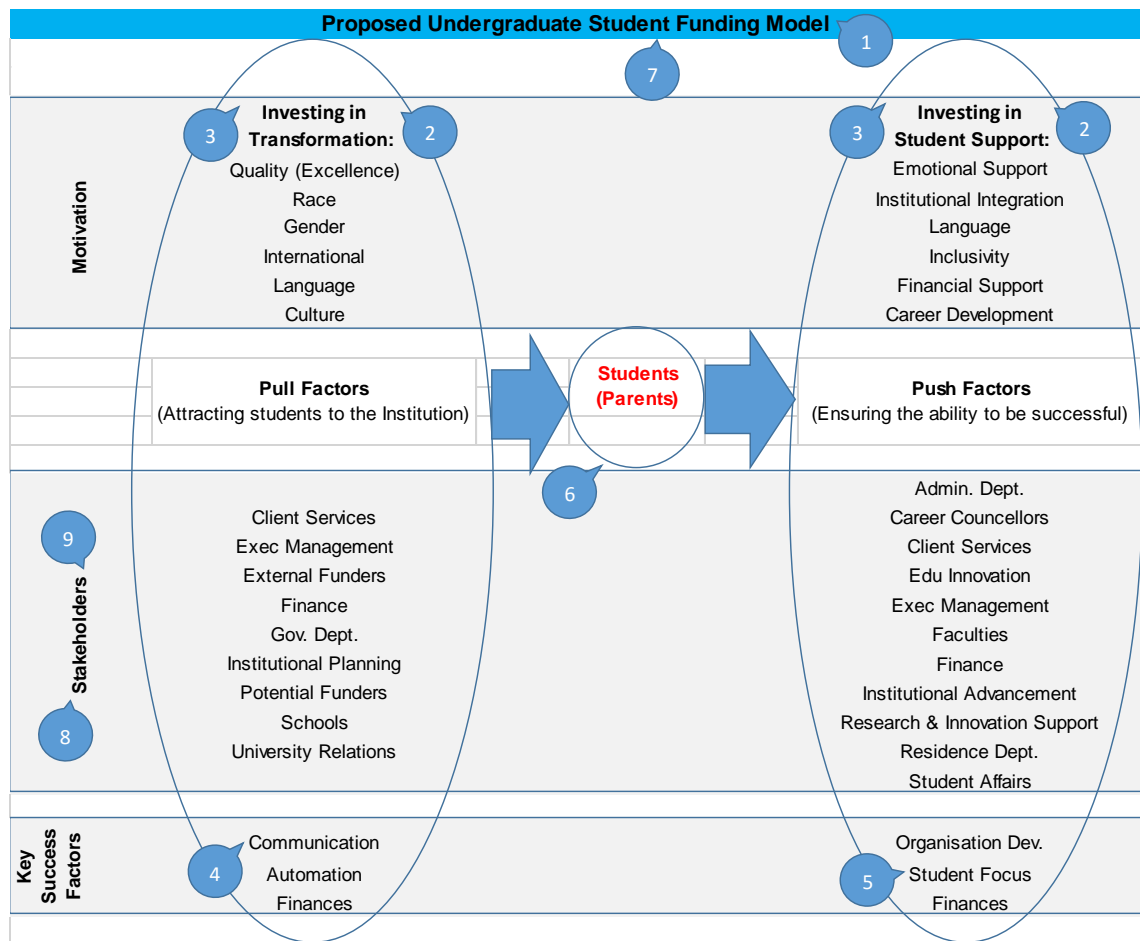
5) A model for student support needs to be investigated, exploring the diverse needs of a South African higher education cohort and their respective expectations.

6) An investigation into the use of other non-traditional non-academic criteria and its ability to predict success such as residence placement, lecture attendance, and amount of study hours in relationship to passing in minimum time. (Delaney et al., 2013).

7) The use of (1) Student Support, 2) Capacity Planning, 3) Language Policy and, 4) Organisation Development to drive transformation, their feasibility and knock-on effects to the entire cohort. This factors are inherent in the entire model.

8) There is a need develop a stakeholder framework of roles and responsibilities based on data collected from multiple South African institutions of higher education.

9) Stakeholder management research should be conducted at a higher level, such as executive management as this could be where most of the explicit management takes place.

10) Lastly, there needs to be more in-depth research into the drivers of the improved performance. i.e. Elements such as language, distance, school, residence head, and residence culture all might play a role in the unique value offered by each residence.

8.4 Higher education management implications

The model created (Figure 8.1), is a visually representation of the student funding model. It allows managers across the organisation to understand where they should fit into the bigger picture.

The proposed strategy of push and pull factors is based on this author's insight and institutions should adapt this model to fit their strategy and management style with regards to student funding.

With regards to the individual findings, the hope is that this research provides an indication to higher education managers of the areas in which improvements can be made. i.e. Criteria employed (academic vs non-academic and the predictive nature of individual criteria), communication (internally and externally), stakeholder management, the use of student support mechanisms to ensure the success of students and the role of residence placement in ensuring success.

8.5 External stakeholder implications

The research should provide an indication to external higher education institutional stakeholders that the student funding model is not as simple as many think. There is a complex multi-strategy need for student funding, which cause many challenges. Yes, there are areas in which improvements could be made, but as seen by this institutions yearly review, all areas of concern where address and Participants are aware of the areas the need to be addressed in the future.

This research would help stakeholders to understand the challenges faced by a South Africa institution of higher education, which in turn will allow stakeholders to with higher education management to resolve the student funding challenges in a sustainable way.

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8.6 Limitations

The study uses data collected from a single South African institution of higher education and therefore caution should be exercised when applying any models created. The outcome might be subject to external validity flaws due to the study being conducted at a single institution as there might be some bias towards that institution. Despite this, the method is viewed as acceptable due to this being primarily an exploratory study. It would be recommended that future studies to be undertaken test the robustness of the model created in this study.

Interviews were limited to the "key" internal role players. Stakeholders such as students, parents, support services, residence heads and faculties were excluded for this study. Due to the initial focus of the study on funding, a limitation exists there was no direct investigation into student support was undertaken. In addition, the questions asked were semi-structured, whereas additional information may have been gained if they had been more direct and/or structured. With the current design, inferences had to be made from what experts were implying.

In terms of the secondary data: (1) Academic criteria only were used to test the student funding criteria and its relationship to success. Therefore, non-academic data such as lecture attendance, etc. was excluded due the lack of available of data. That said, few studies have been undertaken to test a link between success and class attendance (2) Exploration of the disaggregated funds were completed on 2011 data, it could be expanded to other cohorts (3) Residence analysis was conducted as an extremely coarse level. Thus, there needs to be in-depth data analysis (both quantitative and qualitative) in order for a more reliable and true theory to be proposed.

8.7 Conclusion to research study

This study was conducted with the objective of 1) exploring the current student funding model in the hope of finding areas of improvement and 2) using this exploration to provide a foundation for future research. In both cases, the objective has been reached. This study has used the current literature, based primarily in the US and UK context, together with Participant interviews and secondary data analysis at a South Africa institution of higher education to create a model that is of value to higher education management, external stakeholders and academia, in particular those in the South African markets.

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Reference List

Al-Twaijry, A. A. (2010). Student Academic Performance in Undergraduate Managerial-Accounting Courses. *Journal of Education for Business*, *85*(6), 311–322. http://doi.org/10.1080/08832320903449584

Asif, M., & Searcy, C. (2014). Determining the key capabilities required for performance excellence in higher education. *Total Quality Management & Business Excellence*, *25*(1/2), 22–35. http://doi.org/10.1080/14783363.2013.807676

Asplund, R., Adbelkarim, O. B., & Skalli, A. (2008). An equity perspective on access to, enrolment in and finance of tertiary education. *Education Economics*, *16*(3), 261–274. http://doi.org/10.1080/09645290802338102

Aydin, O. T. (2014). Current Developments and Trends in Higher Education. *Journal of Business, Economics & Finance*, *3*(4), 471–489.

Bai, C., Chi, W., & Qian, X. (2014). Do college entrance examination scores predict undergraduate GPAs? A tale of two universities. *China Economic Review (1043951X)*, *30*, 632–647. http://doi.org/10.1016/j.chieco.2013.08.005

Bawa, A. C. (2012). South African Higher Education: At the Center of a Cauldron of National Imaginations. *Social Research*, *79*(3), 669–694.

Begičević, N., Divjak, B., & Hunjak, T. (2010). Decision-making on prioritization of projects in higher education institutions using the analytic network process approach. *Central European Journal of Operations Research*, *18*(3), 341–364. http://doi.org/10.1007/s10100-009-0113-3

Birch, E. R., & Miller, P. W. (2008). The impact of income-contingent provisions on students' loan-taking behaviour. *Journal of Economic Studies*, *35*(1), 4–25. http://doi.org/10.110&/01443580810844406

Bozalek, V., & Boughey, C. (2012). (Mis)framing Higher Education in South Africa. *Social Policy & Administration*, *46*(6), 688–703. http://doi.org/10.1111/j.1467-9515.2012.00863.x

Callender, C., & Wilkinson, D. (2013). Student Perceptions of the Impact of Bursaries and Institutional Aid on their Higher Education Choices and the Implications for the National Scholarship Programme in England. *Journal of Social Policy*, *42*(02), 281–308. http://doi.org/10.1017/S0047279412000992

Craig, J. D., & Raisanen, S. R. (2014). Institutional determinants of American undergraduate student debt. *Journal of Higher Education Policy & Management*, *36*(6), 661–673. http://doi.org/10.1080/1360080X.2014.957892

Curtis, S., & Kiapper, R. (2005). Financial support systems: the student experience in England and France. *International Journal of Social Economics*, *32*(1/2), p121–132.

Delaney, L., Harmon, C., & Ryan, M. (2013). The role of noncognitive traits in undergraduate study behaviours. *Economics of Education Review*, *32*, 181–195. http://doi.org/10.1016/j.econedurev.2012.07.009

Dewey, B. I. (2009). Through Any Means Available: Connecting People With Scholarship. *Journal of Library Administration*, *49*(5), 533–544. http://doi.org/10.1080/01930820903090912

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DHET. (2013). *Statistics on Post-School Education and Training in South Africa: 2013.* Retrieved from http://www.dhet.gov.za/SitePages/Doc_Publications.aspx

Ditabo, T. (2014). Student loans: Worth it in the long term. *Finweek*, 44–44.

Dos Santos Martins, H., Correia Loureiro, S. M., & Castro Amorim, M. P. (2013). Quality and Sustainability in Higher Education Institutions: Key Factors. *International Journal of Management Cases*, *15*(4), 315–330.

Forster, G. (2008). Free Marketeers Should Support Student-Centred Funding. *Economic Affairs*, *28*(2), 74–75. http://doi.org/10.1111/j.1468-0270.2008.826_b.x

Greenaway, D., & Haynes, M. (2003). Funding Higher Education in the Uk: The Role of Fees and Loans. *Economic Journal*, *113*(485), F150–F166.

Harrison-Walker, L. J. (2010). Customer prioritization in higher education: targeting "right" students for long-term profitability. *Journal of Marketing for Higher Education*, *20*(2), 191–208. http://doi.org/10.1080/08841241.2010.526355

Kinnucan, H. W., Yuqing Zheng, & Brehmer, G. (2006). State Aid and Student Performance: A Supply–Demand Analysis. *Education Economics*, *14*(4), 487–509. http://doi.org/10.1080/09645290600854177

Koen, C., Cele, M., & Libhaber, A. (2006). Student activism and student exclusions in South Africa. *International Journal of Educational Development*, *26*(4), 404–414. http://doi.org/10.1016/j.ijedudev.2005.09.009

Kwiek, M., Lebeau, Y., & Brown, R. (2012). Who shall pay for the public good? Comparative trends in the funding crisis of public higher education. *British*

Association for International and Comparative Education. Retrieved from http://repozytorium.amu.edu.pl/jspui/handle/10593/9864

McCaig, C. (2014). The retreat from widening participation? The National Scholarship Programme and new access agreements in English higher education. *Studies in Higher Education*, *0*(0), 1–16. http://doi.org/10.1080/03075079.2014.916672

Moloi, K. C., & Motaung, R. R. (2014). Challenges of Total Quality in Education through Quality Assurance Principles in One Institution of Higher Education in South Africa. *Mediterranean Journal of Social Sciences*, *5*(1), 137.

Mulaudzi, S. (2015). University students battle to get funding. *Finweek*, 37–39.

Paliulis, N. K., & Labanauskis, R. (2015). Benchmarking as an Instrument for Improvement of Quality Management in Higher Education. *Business, Management & Education / Verslas, Vadyba Ir Studijos*, *13*(1), 140–157. http://doi.org/10.3846/bme.2015.220

Panigrahi, J. (2015). Growing private providers and constraints in the choice of higher education institutions: Impact on access to higher education. *Economic Affairs: A Quarterly Journal of Economics*, *60*(1), 41–47. http://doi.org/10.5958/0976-4666.2015.00004.2

Phelan, K. V., & Mills, J. E. (2011). An Exploratory Study of Knowledge, Skills, and Abilities (KSAs) Needed in Undergraduate Hospitality Curriculums in the Convention Industry. *Journal of Human Resources in Hospitality & Tourism*, *10*(1), 96–116. http://doi.org/10.1080/15332845.2010.500244

Pillay, P. N. (2010). *Higher Education Financing in East and Southern Africa*. African Minds. Retrieved from https://0-

books.google.co.za.innopac.up.ac.za/books?hl=en&lr=&id=UOVLjNZWHKQC&oi=fnd&pg=PP2&dq=Higher+Education+Financing+in+East+and+Southern+Africa&ots=8kOsLtkm7b&sig=1ULqdY68HJllHwqtgx4T76ljckM

Richardson, M., Evans, C., & Gbadamosi, G. (2009). Funding full-time study through part-time work. *Journal of Education & Work*, *22*(4), 319–334. http://doi.org/10.1080/13639080903277394

Styan, J.-B. (2014). The State of Sa's Tertiary Education. *Finweek*, 10–15.

Takagaki, K., Okajima, I., Nakajima, S., Ishikawa, S.-I., Kunisato, Y., Kanai, Y., & Sakano, Y. (2013). Preliminary Assessment of the Behavioral Activation Model in Japanese Undergraduate Students. *Psychological Reports*, *112*(1), 47–59. http://doi.org/10.2466/02.15.21.PR0.112.1.47-59

Tarasovich, B. M., & Boyer, B. N. (2013). Introducing a Writing Skills Intervention into an Undergraduate Financial Accounting Course. *Journal of the Academy of Business Education*, *14*, 85–96.

Thanki, R. (2000). The Ulster Way? Student Support Systems and Choices Under Devolution. *Regional Studies*, *34*(9), 889–893. http://doi.org/10.1080/00343400750050144

Thompson, M. N., Nitzarim, R. S., Pa Her, & Dahling, J. J. (2013). A Grounded Theory Exploration of Undergraduate Experiences of Vicarious Unemployment. *Journal of Counseling Psychology*, *60*(3), 421–431. http://doi.org/10.1037/a0033075

Tulasi, B. (2013). Significance of Big Data and Analytics in Higher Education. *International Journal of Computer Applications*, *68*(No 12, April 2013).

Volberding, J. L., Baghurst, T., & Brown, T. C. (2015). Emotional Intelligence Levels of Undergraduate Kinesiology Students: Brief Report. *North American Journal of Psychology*, *17*(1), 37–44.

Walker, M., & Mkwananzi, F. (2015). Challenges in accessing higher education: A case study of marginalised young people in one South African informal settlement. *International Journal of Educational Development*, *40*, 40–49. http://doi.org/10.1016/j.ijedudev.2014.11.010

Webber, D. A., & Ehrenberg, R. G. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in American higher education? *Economics of Education Review*, *29*(6), 947–958. http://doi.org/10.1016/j.econedurev.2010.04.006

Welsch, D. M., & Zimmer, D. M. (2012). Do student migrations affect school performance? Evidence from Wisconsin's inter-district public school program. *Economics of Education Review*, *31*(1), 195–207. http://doi.org/10.1016/j.econedurev.2011.11.003

Westerman, J. W., Perez-Batres, L. A., Coffey, B. S., & Pouder, R. W. (2011). The Relationship Between Undergraduate Attendance and Performance Revisited: Alignment of Student and Instructor Goals. *Decision Sciences Journal of Innovative Education*, *9*(1), 49–67. http://doi.org/10.1111/j.1540-4609.2010.00294.x

Zaaiman, H. (1998). *Selecting Students for Mathematics and Science: The Challenge Facing Higher Education in South Africa.* Human Sciences Research Council, 134 Pretorius Street Pretoria, Private Bag X41, Pretoria, South Africa 0001

(98.02 South African Rand). Web site: http://www.hsrc.ac.za. Retrieved from

http://eric.ed.gov/?id=ED439908

Appendix A: Interview Schedule

#	Title	Years of Experience in student funding	Years of Experience in Higher Education	Date/Time	Duration
1	Senior Manager: Student Finance	15	30	2015/09/18: 10:05	1h01
2	Business Analyst: Student Finance	6	18	2015/09/18: 12:00	0h29
3	Division Head: Student Finance	35	35	2015/09/22: 10:36	0h27
4	Manager: Bursaries & Loans	19	19	2015/09/25: 10:53	1h05
5	Manager: Financial Aspects	10	10	2015/09/25: 12:29	0h14
6	Senior Manager: Recruitment & Retention	14	14	2015/09/28: 11:07	0h24
7	Deputy Director: Recruitment & International Students	18	18	2015/10/05: 11:12	0h51

Appendix B: Structured Interview Questions

4. What criteria are used to make undergraduate student funding (bursary allocation) decisions?

5. In your opinion, what are the advantages and disadvantages of the current criteria?

6. What aspects of the current student funding (bursary allocation) system would you change if you could?

7. What inhibits the implementation of changes to the student funding (bursary allocation) system, in your opinion?

8. When last was the undergraduate student funding (bursary allocation) system reviewed? What was the outcome?

9. In your opinion, does the current student funding (bursary allocation) system address transformational issues? Could the addition of other criteria assist with regards to transformation? What would these criteria be?

10. Should the student funding (bursary allocation) system be used to address transformational issues? What other tools are available to address transformational issues?

11. Who are the internal and external stakeholders of the student funding (bursary allocation) system? Are they satisfied with the current student funding (bursary allocation) system? How much input do they have with regards to the student funding (bursary allocation) system?

Appendix C: Consent for Participation in Interview

(Adapted Consent form of Stanford University)

I volunteer to participate in a research project conducted by Mr Anban Naidoo (Cell: 0788041411) from the University of Pretoria, supervised by Tracey McKay (Cell: 0732649496). The interview is part of the search into the topic "Student funding at a South African institute of higher education". The research has the primary aim of exploring the student funding model with the aim of forming the basis for future research. I will be one of approximately 8 people being interviewed for this research.

1. My participation in this research is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty.

2. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. The interview will last approximately 30-45 minutes. Electronic notes will be made during the interview. After the interview the notes will be finalised and sent to me for approval or comment. The interview is scheduled to take place in English, however, if necessary I may request a translator. The translator should be requested ahead of time in order to allow one to be sourced.

4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.

5. I have been given an electronic copy of this consent form.

_____   _____

Signature   Date

Appendix D: Ethics Approval

Gordon Institute
of Business Science
University of Pretoria

Dear Mr Anban Naidoo

Protocol Number: **Temp2015-01336**

Title: **Can big data be used to allocate internal undergraduate student bursaries at a South African institution of higher education?**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

GIBS Ethics Administrator