Investigating critical factors of budgeting in higher education

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ABSTRACT

The National Development Plan (NDP) of South Africa stipulates that the higher education sector should be an agent for change in a country that is facing a plurality of socio-economic challenges. Achieving this is difficult as the amount of resources being made available to the higher educational sector is limited and steadily decreasing. Given this context, it is of the utmost importance that funding allocated to the higher education sector be utilised in an optimal manner. An efficient budget is one tool that can assist in optimising the allocation of limited resources.

The study investigated the critical factors that might play a role in creating an environment where efficient budgets could be produced, specifically in the higher educational sector. Two critical factors were identified in the study: firstly, giving budgets a strategic focus and secondly, the role the human element plays as part of an effective budget.

An empirical study was conducted to investigate whether the existence or non-existence of the abovementioned factors influenced the perceived effectiveness of budgets in an institution. It was found that communication of strategic and budgetary goals, as well as managerial involvement, can play an important role in creating a budgetary environment where employees are motivated to prepare effective budgets.

Keywords: Higher Education, effective budgets, strategic linking, communication

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American Medical Association (AMA)

Australian Guide for Legal Citation (AGLC)

Correlation Coefficient (CC)

Gross Domestic Product (GDP)

Higher Education South Africa's (HESA)

Massive Open Online Courses (MOOCs)

National Development Plan (NDP)

National Student Financial Aid Scheme (NSFAS)

Sig. 2-tailed (Sig)

Statistical Package for the Social Sciences (SPSS)

United Nation's Educational, Scientific and Cultural Organisation (UNESCO)

United States of America (US)

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CHAPTER 1 – INTRODUCTION AND SCOPE OF STUDY

1.1 INTRODUCTION

Sound financial management lies at the core of any successful business and it is only possible if the necessary financial processes and policies are in place (BIS, 2012:24). An integral part of these financial management systems are budgets (BIS, 2012:8). A budget is a planning tool that can help manage resources and provide a basis to plan for all future endeavours in a business (Duke, 2012; Walter, 2014). Blocher *et al.* (2010:365) describe a budget as "a detailed plan for the acquisition and use of financial and other resources over a specified period of time". Zimmerman (2009:239-240) states that a budget can also serve as a control function by measuring performance. According to the abovementioned definitions, a budget can be seen as a planning tool to help managers allocate resources for a specific time frame and it can be employed as a control tool in measuring performance. This suggests that, without a budget, an organisation can become ineffective and inefficient as certain planning and control functions will be amiss (Anon, 2006; Walter, 2014).

It is important to note that a budget does not automatically guarantee a successful organisation. Certain factors should be taken into account in order to create an environment where budgeting can be conducted effectively (SCI, 2012).

This study aimed to investigate the critical factors essential for promoting effective budgets in the higher education sector of South Africa.

1.2 PROBLEM STATEMENT

According to the World Bank the current funding model for the higher education sector in Sub-Saharan Africa is unsustainable (The World Bank, 2010:194). This problem in its simplest form is a scarcity problem. Scarcity, as defined by Robbins (cited by Nadar & Vijayan, 2012:3), is "a relationship between ends and scarce means which have alternative uses". The researcher contends that this is also the case in higher education; only a limited amount of scarce resources are available to address all the needs in the higher education sector (Price, 2013).

South Africa is clearly not exempt from the abovementioned problem. When looking back at Higher Education South Africa's (HESA) first response to the National Development Plan (NDP) in 2012, Müller (2012:3) noted that funding for higher education in South Africa declined from 0,76% of the Gross Domestic Product (GDP) in 2000 to 0,69% of the GDP in 2009, despite an increase in enrolments (HESA,

2014a:3). This decline equates to almost a percentage year on year in funding received (Müller, 2012:3). Given the decline in funding, future increases in the recurrent budget will be required just to compensate for the historical decline in funding (HESA, 2013a:5-6).

However, the situation remains unchanged. University enrolments have almost doubled in the past 20 years, and although state funding for higher education has increased from R11bn in 2006 to R26bn in 2013, the funds available per student have decreased (HESA, 2014a:11). This downward trend creates pressure in the higher education sector to meet targets. Müller (2012:8) points out that there were 950 000 gross university enrolments in 2010 and, according to the NDP, this figure has to increase to 1 620 000 by the year 2030. It is clear that any increased enrolment targets will be impossible without the necessary state funding (Müller, 2012:3).

Unfortunately, an increase in funding is not as simple as it may seem. Education is only one of the many challenges South Africa faces on a daily basis: job creation, social expenditure, and infrastructure are only some of the areas the national budget has to provide funding for. As it is, education is receiving the biggest allocation of the entire budget, which is a little over 20%. In the 2014 budget speech, R254bn was allocated to education (National Treasury, 2014:1-3).

According to Dr Max Price, interim chairperson of HESA, per student subsidies have declined across the board for all universities in South Africa (HESA, 2014b:1; Price. 2013). Price also points out that not all universities are equally able to cope with the declining trend in government funding (Price, 2013).

Two new universities being built at a projected cost of R17 billion spread over 10 years will further strain available funding (Makholwa & Kamau, 2013). Moreover, the construction of two additional universities is unlikely to close the gap to the NDP goals for 2030, especially with current funding and infrastructure and institutions already operating at full capacity (Müller, 2012:8). If the funding model for higher education is not redressed to the levels of 10 years ago, the only logical outcome would be further reduction of funding to current universities in order to accommodate funding needs (Price, 2013).

Given the discussion above it is of the utmost importance that current resources are managed efficiently. As Müller (2012:3) contends, “The suspicion arises that the National Planning commissioners, along with others in the state, harbour the view

that there is slack in the higher education system that could be more productively deployed. Nothing could be further from the truth". This statement supports the notion that the margin for error in optimal budget allocation and utilisation within higher educational institutions gets smaller every year and can threaten the sustainability of said institutions.

More effective budgeting is one possible way to address certain aspects of the abovementioned challenges. If available funding takes a downward turn as is the case in South Africa, the problem could be addressed by more efficient allocation of funding within an institution. More private funding would also ease budget constraints but with the South African economy being under pressure, more support from private businesses is unlikely in the short run (Marcus, 2014:1). Budgets in an organisation must therefore be as efficient as possible so that scarce resources are allocated in an optimal way. As mentioned before, in order to be sufficient a conducive environment must exist for a budget to be effective and efficient (SCI, 2012).

This study sought to determine the particular factors in the South African higher education sector that foster an environment where budgets are effective and efficient. Considering the funding challenges faced by higher education in South Africa, an effective and efficient budget is essential in helping higher educational institutions better manage their scarce resources.

1.3 OBJECTIVES

1.3.1 Literature objectives

The objectives of the literature review are:

- To define the concepts of budgets and effective management of budgets.
- To describe the context of industry, focussing on the higher education sector.
- To define critical factors for budgeting in the higher education sector.

1.3.2 Empirical objectives

The following research questions will be addressed in the empirical study:

- Does the institutional budgeting context create an environment where effective budgets can be created?
- Are employees involved in the budgeting process aware of the strategic goals of the South African higher education sector and their institution?

- Does the existence or nonexistence of the identified critical factors for higher education budgeting influence the perceived effectiveness of budgeting in an institution?

1.4 RESEARCH METHODOLOGY

In this study an analysis of the literature related to budgeting processes in the general and specifically the higher education sector was done. An empirical investigation was also conducted. Chapter three contains a detailed discussion of the empirical research methodology that was followed.

1.4.1 Literature review

The literature review was done through library searches, journal reviews and internet searches. Available information on South African higher educational budgets and the sector in general was considered in order to understand the uniqueness of the higher education sector and to identify possible industry-specific critical factors for budgeting in this context.

1.4.2 Empirical investigation

1.4.2.1 Method

The empirical part of the research employed a structured online questionnaire for data collection. The empirical investigation aimed to measure whether the budgeting context of the sample group revealed critical factors identified in the literature review. Furthermore, the questionnaire aimed to measure whether the presence of the abovementioned factors posed a difference in the perceived effectiveness of the budget context in question.

1.4.2.2 Population

The population was the 23 universities in the higher education sector of South Africa (HESA, 2011a).

1.4.2.3 Sample

This study was conducted in one of the South African universities. The sample group consisted of employees directly involved with budgeting in the organisation. This included the managers as well as administrative employees with different levels of financial responsibility.

1.4.3 Ethical considerations

Resnik (2011) notes that there are several reasons why ethical considerations in research are important. It is not only limited to health sciences where a researcher must strive not to harm patients; it also has a place in other fields of study.

The empirical research for this study was conducted with due consideration to the participants' wellbeing. The chosen research instrument was a structured questionnaire that was distributed electronically and anonymously so as to protect the identities of the participants. Chapter three focuses on the ethical considerations in more detail.

1.4.4 Limitations

As this study was only conducted at one of the universities in South Africa, the conclusions arrived at may not be statistically valid for the entire South African higher education sector. Broad conclusions on budgeting within the sector will not be possible. However, certain trends may guide future research on this subject.

In the next chapter the literature review will be conducted.

CHAPTER 2 – BUDGETING IN HIGHER EDUCATION

2.1 INTRODUCTION

Chapter one introduced some of the challenges faced by the international and South African higher education sectors. A call to introduce more efficient budgets and to investigate possible critical factors pertaining to budgeting in the higher education sector was made. In the second chapter, more literary resources are consulted to assist in better understanding these challenges and their impact on the sector. An overview of budgets will be provided, after which the focus will shift to budgets in public higher education, first globally and then locally. The chapter will close with a discussion of the two critical factors essential to higher education budgets.

2.2 INTRODUCTION TO BUDGETS

Almost all individuals make use of budgets to some extent, either to plan for future expenditures or to control current spending. These budgets are mostly relatively simple to construct and to manage. However, compared to organisational budgets, the complexity of constructing a budget can rise exponentially according to the size of the organisation (Seal *et al.,* 2012:436).

But despite the complexities of constructing organisational budgets, budgets play an important strategic role in ensuring that a business operates effectively. A budget in itself does not guarantee success, as it is not a magic fix for poor management. It does, however, provide an organisation with a guide or a framework that can be used to measure the performance, plan for future operating results, and control expenditures (Brewer *et al.,* 2010:308).

A budget can be seen as the Swiss army knife of the business environment as it is a tool that can force strategic thinking, help with resource allocation, assist to communicate organisational goals, and facilitate long-term goal alignment between organisational units (Carlson, 2014; Garrison *et al.,* 2012:336). Of course a budget also has its limitations. It can contain budgetary slack and hide inefficiencies, it can be inflexible to adjust to changes in the business environment, it requires a considerate amount of time and effort, and it can have a certain behavioural effect on the employees who work with it (Brewer *et al.,* 2010:310,312; Carlson, 2014).

Despite its limitations, the strategic function of a budget cannot be overlooked as it forms the basis of long-term planning that can pave the way to an organisation's future sustainability and profitability (Carlton, 2014). As Walter (2014) puts it: "Budgets don't guarantee success, but they certainly help to avoid failure."

2.3 BUDGETS IN HIGHER EDUCATION

Given the general introduction above, it is important to note that much of what was said about organisational budgets also applies to the public higher education budgets. However, certain differences do exist that creates unique challenges for public higher education institutions to be efficient (Beamer, 2011; Poole, 2013).

Financial management, of which budgets form an integral part, is one of the many areas where universities must be efficient in the modern day and age. Higher education institutions have become places where return on investment is fundamental for survival. Return on investment is particularly important as public funds form an important part of the funding mix of higher education institutions (Deem, 1998:47-48; Beamer, 2011; Tatlow, 2013).

2.3.1 Differences between higher education budgets and private sector budgets

Public sector budgets generally have certain constraints and inefficiencies compared to private business budgets (Poole, 2013). It stands to reason that some of these constraints and inefficiencies may also be present in publicly funded higher education institutions.

One difference between a private business and public higher education is the funding model. In theory, a business can increase its revenue or funding up to a point by increasing production and selling more products to meet the demand. The higher education sector on the other hand relies on the amount of funding provided by government; this is determined by funding frameworks that earmark funding for specific purposes (DHET, 2012:14). Although higher education institutions can increase student numbers, the institutions will only receive tuition fee income and no state subsidy if those extra students are not part of the funding formulas (HESA, 2011c:30). This creates a ceiling for the amount of funding that can be expected from public funds year on year.

If a certain product line is unprofitable in the private sector it can be scaled down to profitable levels or be dropped from production. In higher education this is not the necessarily the case. An institution cannot decide to decrease student intake in order to become more profitable, as certain planning targets are set. Universities can even be penalised if they enrol more or fewer students than projected (DHET, 2012:6). Given this context the National Development Plan (NDP) notes optimal productivity in the sector must be achieved (NPC, 2012:319).

One way to help ensure enough funding is to consider some norm for the amount of funds that must be allocated to the sector. The United Nation's Educational, Scientific and Cultural Organisation (UNESCO) recommended that 26% of the public budget be allocated to the education sector (Fatunde, 2014; Nnabugwu, 2013). But given the plethora of different national activities that require public funding, attaining the suggested 26% can be a near impossibility and this places a ceiling on the amount of funds available to the higher education sector. In South Africa the percentage of national funds allocated to education was closer to 20% in 2014, which is 6% below the recommended level (National Treasury, 2014:3).

A decrease in public funding for higher education is also a common trend in Southern African countries. Wilson-Strydom and Fongwa (2012:31) note that it is difficult to pin down a precise percentage or norm for national budget allocation to higher education in the Southern African region, as this type of budgetary data is considered sensitive and is not readily available. Nevertheless it is true that the sector in this region only gets a very small percentage of national funds in relation to other national budgetary allocations (Wilson-Strydom & Fongwa, 2012:11).

Except for the funding challenges, other forms of government influences can also stress the budgets of higher education institutions. Examples of this includes mandatory targets for demographic representation, merging of institutions, and specific enrolment targets (NPC, 2012:319-320; DHET, 2012:4-5). In contrast, most private sector organisations can do business where and how they want within the limits of the law and transformation targets (Standard Bank, 2013).

2.4 BUDGETS IN HIGHER EDUCATION – A GLOBAL CHALLANGE

The trickle-down effect of the global recession of 2008 is still felt internationally through budget cuts in general. Choudaha (2013) notes that the effect of the recession emphasised the need for more proactive recruitment programmes at higher education institutions to counter the budgetary knock-on effect of the recession.

Being able to adapt to an ever-changing environment will be one of the main challenges the education sector will face in the future (Choudaha, 2013; Stanley & Trinkle, 2011). In light of the challenges facing higher education it is important to take note of possible industry drivers that can further strain a system already at breaking point, specifically from a tuition cost standpoint (Jamrisko & Kolet, 2012; Weise, 2013).

2.4.1 Industry drivers

As with all industries, certain drivers in the higher education sector change the way day-to-day business is done. Choudaha (2013) proposes the following drivers or trends to look out for:

- The area of funding and the move for institutions to be self-sustainable and more competitive.
- Changes in government regulations to increase risk management and the production of high quality education.
- Changes in technology, specifically expansion in the areas of Massive Open Online Courses (MOOCs) as alternatives for a traditional academic environment.

Stanley and Trinkle (2011) confirm these sentiments for future change and summarise it as follows: "The landscape of higher education … is changing rapidly and disruptively." These trends and their effects on a budget will now be discussed in more detail.

2.4.1.1 Funding and market orientation

As mentioned before, the influence of the global recession on the higher education environment cannot be underestimated. As spending patterns change in the global economy, so do the amount of funds that flow to the higher education sector (Moody's, 2013). Because of this the higher education sector should take note of the wider context in which it functions. By doing this, higher education institutions can become more proactive in the way they do business, rather than only reacting to external changes in market conditions. One specific area where institutions can actively take charge of their future is with proactive recruitment of potential students within the contraints of the higher educational sector (Choudaha, 2013).

Funding is a worldwide challenge. Moody's Investor Services noted that, in the United States of America (US) alone, 17% of private and public universities experienced a decline in net tuition fees in recent years (Moody's, 2013). In Australia, big budget cuts have already been implemented and will continue to the extent of $500 million in research funding over a period of four years (Trounson, 2012). In the European region budget cuts in the higher education sector are still expected to continue (Mitchell, 2014). These examples serve to illustrate the global scale of funding challenges in higher education and the probability that it will continue into the foreseeable future. This reality prompted higher education institutions to adopt

practices normally encountered in the private sector. This includes supplementing limited public funding with private income generated through industry partnerships, research and consultation commissioned by the private sector as well as passing cost on to consumers or students in the form of tuition fees (Altbach *et al.,* 2009:168; Beamer, 2011; Wilson-Strydom & Fongwa, 2012:32).

Another market condition the international community should bear in mind is possible increases in the demand for higher education worldwide, as this entails an increase in the global higher education population (Ruby, 2013). But where will these students be accommodated? Also, a mere increase in demand does not guarantee a brighter future. The economic principle of supply and demand is clear. A state of equilibrium is reached when supply equals demand (Heakal, 2014). The supply side of the market is also part of the problem as it will be difficult to provide access to a growing student population with current infrastructure and institutional constrains (Ruby, 2013). Australia is an example of one such a market where supply cannot satisfy demand. In spite of the available supply in other countries like Canada, Britain and the US, it is estimated that demand will overshoot supply with an additional 265 000 English-speaking students by 2020 (Ruby, 2013).

2.4.1.2 Role of regulations, risk management and quality control

Pertaining to funding regulations, the US government is scrutinising cost management in the US higher education system. In short, regulatory functions place a cap on the amount that tuition fees can increase from year to year. Regulatory changes to immigration laws can also impact student mobility. Tougher immigration laws are on the horizon in the US but also in the United Kingdom, where it was noted that more than 100 000 potential students will be interviewed in more detail to prevent the risk of immigration scandals (Choudaha, 2013; Mitchell, 2014; The Telegraph, 2013).

Quality of education is also an important factor to consider as governments and multinational councils increase scrutiny of the standard of education provided (Choudaha, 2013; Mohamedbhai, 2012). This is an important factor because of the rapid expansion of the sector in the past years. Just sustaining current levels of quality can become very challenging for higher education institutions worldwide (Altbach *et al.*, 2009: x-xx).

2.4.1.3 Technology and expansion

The question of access to universities and other higher education institutions has seen some interesting shifts in the past years. The dawn of MOOCs in 2012 made it

possible for more people to gain access to higher education by means of technology. It is important to note that this is not an easy fix, as MOOCs do not necessarily equate to more conservative budgets or quality education (Choudaha, 2013). However, one cannot ignore the numbers or the possibilities MOOCs pose for the future. Coursera and edX are two MOOC providers, which collectively enrolled more than 6 million students through the course of 2013. Only time will tell how this new mode of delivery will influence budgets and finances in the international higher education sector in the future.

The trends Choudaha identified correspond to the five themes for tertiary educational reform that Johnstone *et al*. noted more than 15 years ago (Johnstone *et al*., 1998:2-6), namely:

- Expansion and diversification;
- Fiscal pressure;
- Market orientation;
- Accountability; and
- Greater quality and efficiency.

In light of this it is clear that change is the only constant in the higher education sector and budgets in the sector should be adapted accordingly in order to stay strategic and relevant.

2.5 THE SOUTH AFRICAN CONTEXT

2.5.1 Rainbow of challenges

The socio-economic discrepancies of the past and present will continue to create unique challenges to the South African society. On the economic front South Africa recently received a credit rating downgrade. Standard and Poor assessed the business climate of the country and categorised the country's bonds as 'just above junk' (Barry, 2014; Maswanganyi, 2014). Furthermore, the International Monetary Fund and other relevant bodies lowered their economic growth outlook for South Africa (Maswanganyi, 2014).

Given this context, the possible knock-on effect that a slowing economy may have on the higher education sector cannot be overlooked. A slowing economy and lower credit ratings influences the amount of public funds/tax revenue in South Africa which, in turn, has a detrimental effect on the amount of funding available for higher education.

Funding for higher education in South Africa can be a challenging business, especially given the fact that the need for quality higher education is only one of the many different challenges that face the South African community. This can also be seen in the national budget as national funding is assigned to address a myriad of national needs (National Treasury, 2014:3; Nzimande, 2014). For this reason it is imperative that the funds that do reach the higher education institutions be used wisely and as effectively as possible.

It is a fact that educational funding as a whole received the bulk of the budget allocation in 2014. The collective national budget amounted to R1253 billion of which the educational sector received R254 billion. This is R108 billion more than the next highest allocation in the national budget (National Treasury, 2014:1-4). Education is not lagging behind other areas of greater importance; considering the amount it receives it seems to be the government's biggest priority. This will be discussed in more detail later in the text. However, from the sector's point of view, it is not enough for a sustainable higher education future (Price, 2013). There seems to be no easy solution to the problem.

Looking at the general themes that are presented on a global level as well as the broad social challenges that face South Africa as a country, it is clear that sound budgeting and financial management is needed for success and sustainability in the local higher education sector.

2.5.2 The South African higher education sector – a university focus

In a context of constrained resources and ever-shrinking budgetary allocation, the future seems bleak (Müller, 2012:3; Price, 2013). Funding however is not the only challenge the sector has to look out for. The guidelines or trends mentioned earlier may offer a glimpse of the challenges the future may hold for the South African higher education sector. The next section will present data that pertains to higher education funding structures in the Southern African region and South Africa in particular as a background to a more in-depth discussion of guidelines for the future.

2.5.2.1 Quantifying funding in the South African university sector

During the restructuring that took place within the higher education sector from 2004 to 2005, Higher Education South Africa (HESA) was created as a collective representative body for higher education in South Africa. HESA's mandate is to "facilitate the development of informed public policy on higher education and to encourage cooperation among universities and government, industry and other

sectors of society in South Africa." In a nutshell, HESA is the main voice for public Higher Education in South Africa (HESA, 2011b).

Below are the latest figures available on the higher education sector in South Africa for the period 2000 to 2009 as published on HESA's website on 2 April 2013. The report itself was finalised in 2011 (HESA, 2011c:1-6; HESA, 2013b). The table is divided into three funding categories that form the income base of universities in South Africa:

1. **Government grants**, which are made up of specific block grants for teaching input and output, research input and output, etc.
2. **Student fees**, which are tuition-related fees as well as accommodation fees.
3. **Private income (third stream income)**, which includes a list of different activities engaged in for the private sector.

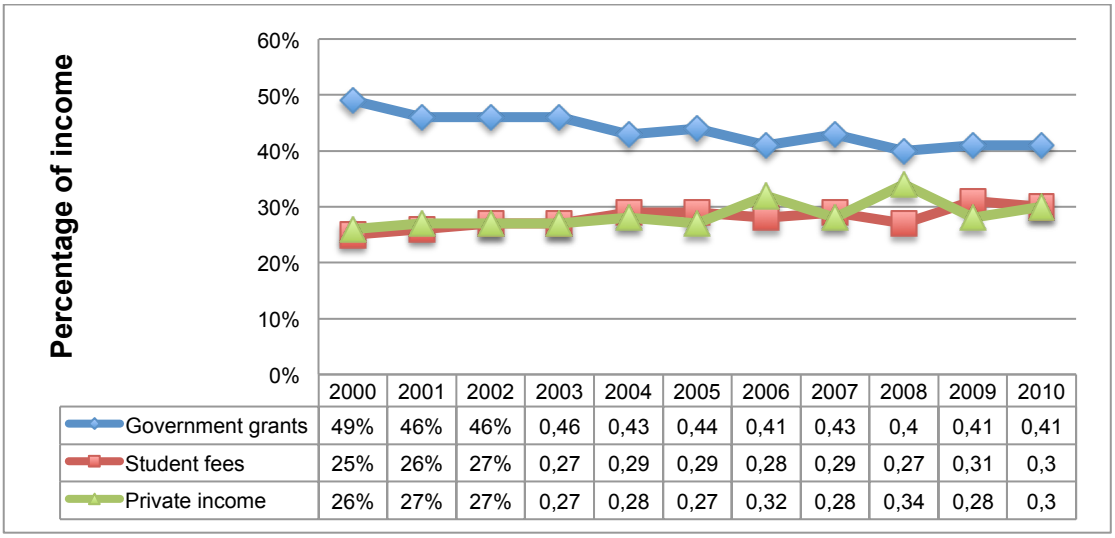
Table 2.1 – Income base of university in South Africa

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average annual increase : 2000-2009
Government grant to HE institutions	6,628	7,082	7,520	8,380	9,301	9,916	10,729	11,941	13,426	15,258	9,7%
Block grants	6,204	6,718	7,123	7,818	7,988	8,541	9,171	10,100	10,853	12,700	8,3%
Earmarked: transfers to HE institutions	424	364	397	562	1,313	1,375	1,558	1,841	2,573	2,558	22,1%
Student fees	3,381	4,02	4,444	5,405	6,236	7,446	7,379	7,698	9,082	10,696	13,1%
Tuition & related fees	2,844	3,434	3,752	4,579	5,330	6,449	6,323	6,606	7,747	9,181	13,9%
Accommodation	537	586	692	826	906	997	1,056	1,092	1335	1,515	12,2%
Private income	3,591	4,136	4,501	5,167	6,060	6,613	8,361	9,099	11,376	11,551	13,9%
Research contracts	948	811	973	950	966	974	1,136	1,205	1,538	1,839	7,6%
Other contracts	197	108	181	464	300	263	324	310	642	606	13,3%
Private gifts & grants	851	1,096	1,128	1,233	1,396	1,068	1,585	1,806	3,585	2,722	13,8%
Investment income	695	1,026	1,018	1,018	1,246	1,573	1,617	2,083	2,503	2,480	15,2%
Sales of good and services	400	608	705	842	1,263	1,511	1,574	1,663	1,759	1,939	19,2%
All other income	500	487	496	570	889	1,224	2,125	2,031	1,349	1,965	16,4%
TOTAL INCOME	13,600	15,238	16,465	18,952	21,597	23,975	26,469	28,738	33,884	37,505	11,9%

Source: HESA, 2011c:4

It is important to note the average annual increase in income pertaining to specific income categories. Table 2.1 clearly shows that student fees as well as private income generated by universities increased at a proportionately higher year-on-year rate than government funding.

Graph 2.1 – Summary of income sources of public higher education institutions



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Government grants	49%	46%	46%	0,46	0,43	0,44	0,41	0,43	0,4	0,41	0,41
Student fees	25%	26%	27%	0,27	0,29	0,29	0,28	0,29	0,27	0,31	0,3
Private income	26%	27%	27%	0,27	0,28	0,27	0,32	0,28	0,34	0,28	0,3

Source: HESA, 2011c:5; DHET, 2013:151

Graph 2.1 also provides interesting results, which show the steady but certain decline in the percentage of public funding in the mix of all funds available to universities. A steady increase in private income as well as student fees are also seen in this graph. The implication is that higher education institutions on average can no longer function on state funding alone, as student fees and private funding is a vital part of sustainable funding in the sector.

Table 2.2 presents a comparison between the nominal growth displayed in Table 2.1 and how it changes when growth is considered in real terms. Available data for 2010 was also added, detailed data pertaining to the sub items of each category was however not available. What is worrying to the higher education sector is that this table confirms that government funding has not kept up with the cost of higher education. HESA also points out a real decline in public funding over a 10-year period (HESA, 2011c:23), which has caused most of the cost being passed on to students and the institutions themselves (HESA, 2011c:9). Table 2.2 also points out that the real growth percentage of student fee income and private income increased proportionately more in real terms than government grants, from 2000 to 2010.

Table 2.2 – Income in 2000 compared to 2010 income (Rands in millions)

	2000	2009		Average annual growth 2000 - 2009		2010		Average annual growth 2000–2010	
		Nominal	Real	Nominal (%)	Real (%)	Nominal	Real	Nominal (%)	Real (%)
Government grants	6,628	15,258	8,923	9,7	3,4	16,655	16,655	9,7	9,7
Block grants	6,204	12,700	7,427	8,3	2	*	*	*	*
Earmarked transfers	424	2,558	1,496	22,1	15	*	*	*	*
Student fees	3,381	10,696	6,255	13,7	7,1	12,132	12,132	13,6	13,6
Tuition & related fees	2,844	9,181	5,369	13,9	7,3	*	*	*	*
Accommodation	537	1,515	886	12,2	5,7	*	*	*	*
Private income	3,591	11,551	6,755	13,9	7,3	12,090	12,090	12,9	6,4
Research contract	948	1,839	1,075	7,6	1,4	*	*	*	*
Other contract	197	606	354	13,3	6,7	*	*	*	*
Private gifts % Grants	851	2,722	1,592	13,8	7,2	*	*	*	*
Investment income	695	2,480	1,450	15,2	8,5	*	*	*	*
Sales of goods & services	400	1,939	1,134	19,2	12,3	*	*	*	*
All other income	500	1,965	1,149	16,4	9,7	*	*	*	*
TOTAL INCOME	13,6	37,505	21,933	11,9	5,5	40,877	40,877	11,6	5,2

Source: HESA, 2011c:6; DHET, 2013:151. *Detail data not available.

Keeping in mind how the higher education sector is funded, the next section will discuss the themes mentioned earlier as well as shifts in funding in more detail. The discussion will cover the following:

- Expansion and diversification;
- Fiscal pressure;
- Shifts in funding;
- Market orientation;
- Accountability; and
- Quality and efficiency.

2.5.2.2 Expansion and diversification

The main roadmap for change in South Africa is the NDP that serves as a guide to strategic targets for the country as a whole (NPC, 2012:1). The NDP also sets specific targets for the higher education sector (NPC, 2012:26).

According to the NDP, universities must increase enrolment targets to at least 1,62 million students by the year 2030 from only 950 000 in 2010 (NPC, 2012:319). With all things being equal, providing for this greater demand for higher education would be near impossible with the current residential university infrastructure in South Africa. These constraints are addressed to some extent in the form of new universities being built, but it is a far cry from the ideal solution. The reality is that enrolments at universities have more than doubled since 1994 and the demand on infrastructure severely exceeds capacity (NPC, 2012:319). From a budgetary standpoint this indicates the need for even more new universities and institutions to house even more students, or more likely a greater drive for openness and access in higher education through distance and online learning. The latter has become a very tangible possibility thanks to the technological advancements of recent years. Nevertheless, not everyone in South Africa has equal access to online classes and content. In many cases online learning is still almost impossible and too expensive for most students (NPC, 2012:299).

Financing all of the abovementioned targets will require clever and effective management of resources.

2.5.2.3 Fiscal pressure

As already mentioned, the National Budget in South Africa is already under pressure due to all the different areas requiring state funding. As mentioned earlier, the 2014 national budget allocated the biggest portion of the budget to the education sector; this R254 billion amounts to round about 20% of the national budget (National Treasury, 2014:3). However, higher education forms only a part of the education sector as a whole.

The national budget speech of 2014 may offer some perspective on funding in the higher education sector. It is noted in this speech that universities received R115 billion in direct subsidies over the past five years (Gordhan, 2014:10), which comes to an average of about R23 billion per year. Thus the university sector only receives about 9% of the educational sector's entire share of direct subsidy funding. In relation to the national budget, however, the university sector received around 1,8% of direct subsidy funding during 2014. In 2012 this figure was closer to 2% (HESA, 2012a:1).

The following table shows estimated figures compiled from national budgetary data as well as estimates in the Ministerial Statement on University Funding. The main limitation of this data is that it is estimated, but it serves to shed some light on the broader context of the funding available to South African universities.

Table 2.3 – Estimated budget allocations to the higher educational sector

Description	2011/12 (R'BN)	2012/13 (R'BN)	2013/14 (R'BN)	2014/15 (R'BN)
Total Budget Allocation to Education Sector	189,5	207,3	232,5	254
Percentage of National Budget: Education Sector	19,44%	19,59%	20,23%	20,27%
Total Budget Allocation to Higher Education Sector	22	24	26	28
Percentage of Educational Budget: Higher Education Sector	11,61%	11,58%	11,18%	11,02%
Percentage of National Budget: Higher Education Sector	2,26%	2,27%	2,26%	2,23%

Sources: National Treasury, 2011:2; National Treasury, 2012:2; National Treasury, 2013:3; National Treasury, 2014:3; DHET, 2012:2

Interestingly, Table 2.3 indicates that the percentage of national funds allocated to the education sector is on a small but steady upward trajectory. Despite this, it is still lower than the 26% suggested by UNESCO (Fatunde, 2014; Nnabugwu, 2013). It is worrying that the percentage of national budget allocated to universities has been declining year on year since the 2011/2012-budget year, especially with regard to the national budget and its portion for the education sector. It is important to note that the figures in the table include earmarked grants that can only be used for specific purposes like the National Student Financial Aid Scheme (NSFAS) and infrastructure. These grants cannot be applied elsewhere at the discretion of a particular institution. This implies an even lower amount of funding available to the sector.

In recent years, increased student numbers at South African universities has seen the amount of public funds received per capita decrease across the board (Price, 2013, Müller, 2012:3). The reason for this is obvious when considering Table 2.3. Increased student numbers and less available funds equate to lower funding per student. In its simplest terms, this decrease in funding creates fiscal pressure on university budgets. The easy way to ease this pressure is to increase tuition fees; but this in itself would be a short-sighted solution. High tuition fees are already putting financial strain on students and their sponsors. Unchecked increases in tuition fees have real consequences, as South Africa has seen its fair share of student unrest due to high fees. To make matters worse the NSFAS currently fails to provide sufficient funding for poor students (Nkosi, 2014; Nzimande, 2014). This places universities in a difficult position. NSFAS's failure to provide for the poor could have dire consequences in the face of a growing demand for higher education in South

Africa. From 1994 to 2009 student numbers increased by 67% (HESA, 2012b: vi), and, as mentioned before, this figure is set to expand to a targeted 1, 62 million by 2030 (NPC, 2012:319). Without extra funding earmarked for the improvement and expansion of infrastructure at higher education institutions, catering for growing student numbers will be a very difficult task that could threaten the sustainability of the sector.

The NDP recognises this challenge as it points out that funding for universities has not kept up. It does not, however, explain how the funding must be restored to the required level, but instead stresses that the quality of teaching and learning must improve (NPC, 2012:321-323).

Universities are at a crossroads. Effective resource management as well as strategic management will be required in the years to come for higher education institutions to remain sustainable.

2.5.2.4 The shift from government funding to non-government funding

This decline in direct funding to universities places pressure on universities to seek alternate funding. This form of funding is normally attained from contracted research and consultation work for the private sector (Cloete cited by Wilson-Strydom & Fongwa, 2012:11). This approach is not something new. Johnstone *et al.* (1998:7) already discussed the growing tendency of supplementing the shortfall in government funding through private sector initiatives in 1998. However, this type of funding has become much more important to the higher education sector (NPC, 2012:319). An intensified focus on generating private or third-stream income can actually have a negative impact on an institution. This is because it can compromise the academic nature as well as the core function of a university, which is to produce knowledge (Cloete cited by Wilson-Strydom & Fongwa, 2012:11-12).

Adding to the challenge of fiscal pressure in the higher education system are calls for free education for poor, academically-deserving students (Nzimande, 2014). However, if “free” education becomes a reality, who will be paying for the “free” part? In most cases the burden will most probably fall on NSFAS, which already assists more than 430 000 students in the higher education system (Nzimande, 2014). If more money were allocated to supporting students, it would mean less funding available for universities. All of this places stress on the higher education budgetary system. There is no room for inefficiencies in the system and sound financial governance will be needed to allocate resources in an optimal way.

2.5.2.5 Market orientation

In order to address the national challenges facing South Africa, the higher education sector must be innovative and deliver certain 'scarce skills' graduates (NPC, 2012:317). Universities have the important task of providing an environment where these scare skills can be cultivated so graduates in those areas can help stimulate national economic growth. The other side of market orientation in South Africa lies in proactive recruitment. One way to address funding issues is to ensure that student numbers increase in line with planning. However, this is easier said than done.

International developments in MOOCs could guide similar initiatives for our own country (Choudaha, 2013). The NDP also points out that access should be increased for students who are not ready for the higher education environment. One way to do this is through MOOCs. A student can acquire the necessary basic skills required by such a platform in order to become more eligible for entry into the higher education sector. Still, this is not a quick fix for universities as MOOCs are not really free (Laurillard, 2014). Students will need access – possibly through some form of technology – that is provided, supported and maintained by an institution at virtually no cost to the student. Unfortunately, all possibilities entail some costs. Although MOOCs are 'free' for the student, the same is not true for the institution (Laurillard, 2014). Universities should take advantage of opportunities, but in a well-prepared and sustainable way.

2.5.2.6 Accountability

Universities need to be accountable to all stakeholders. Since a large part of educational funding in South Africa is derived from income tax, working responsibly with tax money is important (National Treasury, 2014:1). The country looks to universities to produce skilled graduates in the scarce-skilled areas, as is the only way in which the South African economy can grow in a sustainable manner (NPC, 2012:316-317).

Universities must also be accountable to students and their sponsors, the industry, and strategic private partners as they play an important role for the future of South Africa (Johnstone, 1998:6; NPC, 2012:317).

2.5.2.7 Quality and efficiency

This theme is broadly applicable as it addresses not only financial matters, but also the quality of students produced by a university. The NDP points to the fact that the quality of university education is not at the desired level: "South African universities

are mid-level performers in terms of knowledge production, with low participation, high attrition rates and insufficient capacity to produce the required levels of skills" (NPC, 2012:317). The plan continues to note that in the area of Engineering and Law, graduates are not entering the workforce with the necessary skills (NPC, 2012:317). If graduates are qualified in the so-called "scarce skills" professions, inferior training defeats the purpose as set forth in the NDP.

When looking at efficiency, the reported levels of quality are a problem. What is the root of the problem? Are students below par or are universities not doing enough to be efficient in the way they engage students and resources? These are not easy questions to answer, but the answers should be actively and urgently sought in the South African context.

In the author's opinion, efficiency in higher education institutions will be a key stepping-stone to a sustainable future for South Africa. Given the local and international contexts, higher education budgets require a unique approach to foster sustainability. Sound strategic leadership is needed and, given the strategic role that budgets can play, the strategic role that a budget can play can form the starting point of future reforms to optimise the higher education sector in South Africa (Garrison *et al.,* 2012:336; NPC, 2012:317)

The context of the local and international industry was discussed in the previous paragraphs. The next section of this paper will define two possible critical factors to be considered when promoting an environment where efficient higher education budgets can be generated.

2.6 CRITICAL FACTORS FOR EFFICIENT BUDGETING IN HIGHER EDUCATION

The first factor that will be discussed is the strategic focus in higher education budgets. The second factor will focus on effective budget processes and the human element. As part of the strategic focus in higher education budgets, the following sub elements will be discussed as well:

- Linking the budget to the NDP;
- Linking the budget to institutional plans;
- Ensuring strategic relevance in unit level budgets; and
- Functions of a budget – Planning and control

2.6.1 Factor 1: Strategic focus in higher education budgets

The strategic role of a budget should be utilised in planning for higher education priorities. But this can only become a reality if there is a connection between the short-term financial goals and long-term strategic goals of a higher education institution (Popejoy & Wright, 2006:1-2). For instance, if an institutional budgeting process is incremental in nature and not strategically linked, the danger of budgetary slack and inefficiencies can arise (Bragg, 2013). To address this and other mismatches between strategic planning and budgeting, the following questions should be considered when preparing a higher education budget within the South African context:

- Is the budget linked to the country's strategic goals as proposed by the NDP?
- Were the strategic goals and plans of the institution taken into consideration when deciding on the budgeted amount?
- Did all parties involved in the budget process stop and re-evaluate their current approach and its strategic relevance?

Managers can easily get caught up in day-to-day operations, but a budget period creates the opportunity to consider the future and plan for it. The opportunity for strategic thinking about the future goals of respective units and what resources are needed to reach those goals should not be missed when budgeting (Garrison *et al.,* 2012:336).

The three questions above will now be discussed in more detail in the context of a South African higher education institution. Each of the questions focuses on a particular institutional level, namely:

- Institutional – the organisation as a whole
- Mid-level – A collection of organisational units
- Lowest standalone unit level

2.6.1.1 Linking the budget to the NDP

Linking the budget to the national strategy set forth in the NDP is important, but not limited to the NDP. Other white papers that may hold specific implications for the sector should also be considered when starting a budget process on an institutional level (CHE, 2012). It almost goes without saying that the institutional strategies should also be aligned with NDP plans and communicated through the organisation. If this is the case, the annual budget process can become a tool to help strategic

goals turn into reality. This however is only possible if the necessary strategic linking is done during budgeting (Popejoy & Wright, 2006:6).

In an example of how budgets should be linked, one can consider how the funding landscape has changed for higher education in South Africa. During the past few years the percentage of earmarked funds has increased. These funds can only be used in a budget for a specific strategic purpose. Without the required strategic link in an institutional budget these funds may be mismanaged. The reality is that public funds can no longer be utilised at the discretion of the particular institution (HESA, 2011c:5).

2.6.1.2 Linking budgets to institutional plans

As noted above, it is important that linking of budgets to strategic plans of an institution as well as the NDP be made. In theory, if institutional goals and strategies are aligned with national plans, mid-level management can focus primarily on aligning the collective budget to institutional strategies. This can be difficult as those involved in strategic planning are not necessary involved in the budget process. Meisinger proposes that if an overlap could be established between those involved in budgeting and those involved with strategic planning, the result would be that budgeters would be better able to prioritise line items in budgets (cited by Popejoy & Wright, 2006:5)

2.6.1.3 Ensuring strategic relevance in unit level budgets

This is the lowest level of budgeting in an institution and, possibly, the furthest from institutional strategic planning. Nevertheless, this does not lessen the importance of strategic alignment. Consider the following: an academic department that is not involved in day-to-day operations has some form of budget allocation. This department then decides to spend their budget on technology X without considering the technological plan of the institution. When this expenditure is made in isolation without consideration of the institution's technology strategies, their spending could be strategically counterintuitive (Popejoy & Wright, 2006:10).

This is why it is important for all parties who participate in the budgetary process to question whether they are still aligned to unit and organisational goals. In order to promote strategic linking of budgets in institutions it is important that those involved in the process take note of the two main functions of a budget.

2.6.1.4 Functions of a budget – Planning and control

As mentioned in 2.2, the basic definition of a budget describes it as a plan quantifying the amount of resources that will be used over a particular period of time. The use of a budget lies in two parts, namely in planning and in control. This holds true for the higher education sector as well (Popejoy & Wright, 2006:1-2). Planning entails setting strategically aligned targets that must be met and then linking the budget to those strategies in order to reach the targets. Control, on the other hand, lies in the measurement of how effectively all the different organisational entities are working towards the strategic targets set in the planning stage (Garrison *et al.,* 2012:336).

It is important to note that there is no magic formula that determines upon which one of the two an institution must focus. The amount of focus on either control or planning can differ from organisation to organisation, depending on its size and internal efficiency (Seal *et al.*, 2012:436).

2.6.1.4.1 Strategic budgetary planning in higher education

Seal *et al.* (2012:436) state that budgetary planning entails the development of objectives and preparation of budgets to achieve these objectives. For higher education institutions, this planning will typically require future enrolment targets for certain graduate programmes. The practical planning phase of budgeting must be linked to the strategic plans applicable to the institution or the relevant unit within the institution. As discussed, all higher education budgets on all levels should link their planning to national strategies in order to ensure that national goals can become a reality (NPC, 2012:318-319; Popejoy & Wright, 2006:1).

2.6.1.4.2 Strategic budgetary control in higher education

An effective budget is a budget that enables the business unit it was created by to reach goals set out in the planning phase (Brewer *et al.,* 2010:308). In theory, institutional strategic goals can be reached if institutional budgets are linked to those goals. But without the necessary verification and evaluation of whether goals were met, management will not be able to make informed business decisions about the future (Popejoy & Wright, 2006:15). Seal *et al.* (2012:436-437) summarise it well: “To be completely effective, a good budgeting system must provide both planning and control. Good planning without effective control is time wasted”.

Budgets in higher education can be utilised as a control mechanism to ensure that an institution adheres to budgetary planning and strategic commitments that were made (Popejoy & Wright, 2006:15). Still, given the reality of unpredictable internal and

external events, full control over planned spending can be difficult in the higher education sector (Popejoy & Wright, 2006:12). How does one then plan for budget deviations caused by unplanned events? The short answer is that you can't. In the end, budgetary planning and control should reflect the institution's best efforts to create and maintain a strategically relevant budget.

2.6.2 Factor 2: Effective budget processes and the human element

As part of factor 2 the following sub elements will be discussed:

- Behavioural effect;
- Role of communication in higher educational budgets; and
- Technical skills and training.

Budgets can force management to engage with issues regarding resource allocation, future success of a business unit, and the organisation as a whole. An effective manager should be able to motivate why his/her unit needs certain resources, otherwise resources may be allocated elsewhere. It forces employees in an organisation to think about what they are doing and how they can work together to reach organisational goals (Brewer *et al.*, 2010:308). Walter (2014) states that, in the absence of an effective budgetary process, an organisation is likely to experience infighting every time resources are allocated. Human interaction on some level is part of the budget process and it is therefore important to understand what behavioural effect it can have on employees involved in the process.

2.6.2.1 Behavioural effect

Possibly the biggest challenge of a budgetary process is the behavioural effects it could have on employees (Brewer *et al*., 2010:312). It can either foster teamwork or demotivate individuals (Raghunandan *et al.*, 2012:112). If managers feel that they are being forced to compile an impossible budget, their motivation could suffer and this could have a negative effect on organisational units (Brewer *et al*., 2010:311). The human factor of budgeting will now be discussed in more detail.

Garrison *et al.* (2012:339) state that management's lack of commitment to the budget process and organisational goals will undermine the effectiveness of a budget. Chabotar (2002:17) supports this view by stressing that the effectiveness of a budget is rooted in the culture of an organisation. Without the commitment and involvement of management and employees in a responsibility-driven culture, compiling effective budgets can be close to impossible.

It is important to note different approaches to budgeting can have different behavioural effects on employees and managers.

2.6.2.1.1 Mandated / Top-down budgets

This approach sees top-level management initiating the budget process and deciding what budgetary targets must be met. Lower-level employees and managers have little or no input regarding budget targets and are not actively part of the process. Disadvantages to this approach is that lower-level managers and employees can get demotivated when unachievable or unrealistic targets are set by top-level management (Garrison *et al.,* 2012:339) Mandated approaches can however provide clear guidelines for an organisation on how it should function, which typically translates into the traditional idea of a "lean and mean" organisation (Walter, 2014).

2.6.2.1.2 Participative / Bottom-up budgets

The idea behind the participative approach in budgeting is to include lower-level employees in the budget process. Top-level management could provide guidelines on how to approach the budget, but the budget is built from the ground up. An advantage of this approach is that these types of budgets are self-imposed and inclusive (Brewer *et al.*, 2010:210). It can increase employee motivation as they feel part of the process. It is, however, a time-intensive approach and can leave room for inefficiencies and budgetary slack (Walter, 2014).

These approaches pose some immediate challenges to the South African university sector. The main challenge is that universities receive public funding that has a limit because of funding formulae and, secondly, because certain public funding is earmarked for particular purposes (HESA, 2011c:4-5). This equates to a typical top-down system, which can have a negative impact on employee motivation. However, because funding at South African universities is not only derived from public funds, opportunities for participative budgeting exist as well. Incorporating the advantages of a participative budget process will require some clever management in higher education institutions.

The gist of the matter is that managers should realise that there are behavioural aspects of budgeting that should be managed in order to increase the likelihood of a successful institutional budget (Owusu *et al.*, 2014:93; Brewer *et al.,* 2010:312)

2.6.2.1.3 Budgetary participation and employee performance

Some interesting results were obtained in a study conducted at public universities in Ghana, which focused on the relationship between budget participation and

employees' performance. The main goal of the study was to ascertain whether increased budget participation yielded commitment to budgetary goals. Although it indicated a positive relationship between budget participation and employee performance, the results were not significant. The authors did however find that budget participation seemed to be the foundation around "which the other behavioral elements to achieving budget goal revolves" (Owusu *et al.*, 2014:85). The other behavioural aspects identified were goal clarity, perception of the fairness in resource distribution, goal commitment, and employee performance (Owusu *et al.*, 2014:93).

Owusu *et al.* (2014:93) point out that no one behavioural aspect alone can ensure that budgetary goals are met, but if employees have negative perceptions about any of the behavioural aspects mentioned above, reaching budgetary goals in an organisation can be a very difficult task. These results support the notion that managing behavioural aspects of budgeting is a very important part of budgeting in the higher education sector; just as it is in private sector budgets (Garrison *et al.*, 2012:339).

2.6.2.2 Role of communication in higher educational budgets

Communicating with all parties involved in the budget process is very important. Parties include donors, the government, students and faculties. This should be done to ensure that all involved understand the needs of the institution and can help to incorporate the strategy accordingly (Garrison *et al.,* 2012:336, 338). Communicating practical budgetary guidelines and organisational goals should be a priority as this can assist in linking budgetary processes to strategic goals.

Information does not always flow as it is supposed to and this could have negative implications for those involved in budgeting in the organisation (Popejoy & Wright, 2006:10). The researcher is of the opinion that employees on all levels should understand how their industry is changing and how the allocation of resources could change, especially with respect to the NDP. Capacity cannot be built overnight. The NDP proposes the expansion of distance learning programmes at universities, but such efforts require upfront investment and long-term planning. If employees involved in the budgeting process are not aware of these goals and their implications, their budgets will not be strategically linked (NPC, 2012:320).

Using budgets as a communication tool to help everybody understand where the organisation and the industry are heading is very important. Without it, budgeting can become a short-sighted excise.

2.6.2.3 Technical skills and training

Generating a budget is only a small part of financial management at higher education level. Still, to do it effectively requires a certain level of skill and practical knowledge. Transferring a unit's budget from a simple spreadsheet to a university-wide system is not an easy task. It requires training and support to provide the necessary guidance throughout a budget process.

Popejoy & Wright (2006:12) points out that in most cases budgetary officers are trained on the job. This has quality implications and without the necessary supervision and assistance, budgets will not be strategically linked. It is important to note that the employees in an organisation will not be able to create effective budgets without proper understanding of basic budgeting principles and limitations. This would leave the budgeting process vulnerable to issues like budgetary slack or indiscriminate pushing for annual incremental increases without reconsideration of the support each element of the budget holds for the organisation's long-term strategy (Bragg, 2014).

In the corporate sector, Berman and Knight (2009) found that although company managers discuss the financial matters of their organisation, it does not imply sound financial knowledge. The same authors developed a financial literacy test and used it to gauge the financial literacy of middle to top-level managers. The results pointed to a below average grasps of basic financial concepts. The average score of the test was 38% (Berman, & Knight, 2009). The reality is that financially illiterate managers can have a negative effect on an organisation. This could hold true for managers and employees in the higher education sector as well. If employees do not understand what goes into a number, how will they be able to improve on it and align it with strategic goals?

Empowering staff lies at the core. Unfortunately, human beings often find it difficult to admit ignorance or uncertainty, and this could complicate matters (Berman & Knight, 2009). In order to address financial illiteracy in a particular higher education institution, care should be taken in how the problem is approached. Such a process should be governed by an appropriate change-management initiative.

In theory, if staff in a higher educational setting has the necessary training and skills as well as clear budgetary guidelines, the higher education sector has taken the first step towards sustainability.

2.6.2.3.1 Focus on responsibility accounting

"Without the harsh reality of an enforced system of responsibility, an organisation will quickly become less efficient," (Walter, 2014).

Garrison *et al.* (2012:337) explain that the basic concept of responsibility accounting entails that a particular manager is only responsible for a particular set of expenditures and revenue items which he/she has control over. Managers are also responsible for the deviations between budgeted and actual amounts. In theory, this eliminates possible blame shifting that could take place if certain budgetary goals are not met.

If all other training aspects have been considered, the concept of responsibility accounting can start a process of more effective budgets, which can be applied to the higher education sector (Garrison *et al.* 2012:337; Popejoy & Wright, 2006:2). If no one is held accountable, no one will be accountable and the strategic goals that budgets must support can be forgotten.

Garrison *et al.* (2012:337) suggest the following guidelines for responsibility accounting:

1. Managers must be made accountable for taking initiative in managing deviances between budgeted and actual expenditures/revenues.
2. Managers must be able to give necessary explanations for deviations between budgeted and actual expenditures/revenues.
3. Managers must react promptly and effectively in response to deviations.

In higher education, the latter approach could prove difficult because of how funding materialises. The practical implication is that an institution like a university only receives subsidy funding two years after the work has been done (Ministry of Education, 2004:7-9; HESA, 2011c:30). On the one hand one could argue that making responsibility accounting part of higher education budgeting is a futile activity. But on the other hand one could actually emphasise that given the uncertainty, it is of the utmost importance that all resources within a manager's control be managed as effectively as possible.

The core concept of responsibility accounting is not to penalise managers but to empower them to better manage their respective part of the budget (Garrison *et al.*, 2012:337). If everyone involved in the budget process takes responsibility for their respective part and ensures strategic linking of budgets in higher education, the goals in the NDP might become a reality.

2.7 CHAPTER CONCLUSION

Chapter two attempted to describe the myriad of challenges that face the higher education sector internationally as well as locally. It was noted that general budgeting principals that hold true for fully commercial organisations, could possibly be implemented and adjusted to fit into the higher education sector with some effort. The two critical factors, strategic focus in higher education budgets and budget processes and the human element, need to be managed in the higher education sector. These factors, as discussed in chapter two, as being critical for successful budgeting, served as basis for the empirical study.

CHAPTER 3 – EMPIRICAL STUDY

3.1 INTRODUCTION

Chapter two described the context of higher education budgets internationally and locally and pointed out the challenges facing this sector. In the light of this context, two critical factors were discussed that should form part of a higher education budget process. The first factor was the strategic focus in higher education budgets. The second was effective budget processes and the human element. These critical factors could help to optimise budgets and make them more efficient, particularly on an institutional level.

Chapter three will start with a discussion of what research entails in general. The next part of the chapter will discuss the specific approach to this study in more detail as well as ethical considerations pertaining to this study. The chapter will close with a description of how the study was conducted and a presentation of results obtained from the empirical data that was collected.

3.1.1 Purpose of the empirical investigation

The purpose of this empirical investigation was to answer the following research questions proposed in the first chapter of this study:

1) Does the institutional budgeting context create an environment where effective budgets can be created?
2) Are employees involved in the budget process aware of the strategic goals of the South African higher education sector and their institution?
3) Does the existence or nonexistence of the identified critical factors for higher education budgeting influence the perceived effectiveness of budgeting in an institution?

To summarise: does the presence of the two critical factors discussed in chapter two have an influence on the perceived level of institutional budgetary efficiency?

3.2 CONDUCTING RESEARCH

Shuttleworth (2008a) broadly defines research as: "…any gathering of data, information and facts for the advancement of knowledge." Given this definition, it is not strange to learn that there are multiple types of research, each of which has a set of rules and assumptions that frames each approach (Jankowicz, 2005:105). Research approaches are also not necessarily the same in all fields of study (Shuttleworth, 2008b).

Choosing a particular approach is important, as some approaches are better suited to some fields than others. The approach to a particular study can be determined by the constraints of the study. This might include the amount of money, the available time, as well as the ethical requirements for a particular study (Blakstad, 2008).

3.2.1 Empirical investigation

Moody (2002:1) defines empirical research as research where the researcher observes or collects data in order to answer a research question. Another way to frame empirical research is to call it primary research, as primary research entails the asking of questions and collection of results. Secondary research analyses data already collected. The empirical part of this study will also collect new data and not analyse existing data. These empirical research methods can be divided into two categories, namely qualitative research methods and quantitative research methods (Moody, 2002:1).

Qualitative research methods normally utilise case studies of real world settings as well as action research in order to gain more insight into a specific topic. It focuses on collecting data by observing what people do or say in order to find in-depth descriptions on the topic in question (Anderson, 2006:1) The challenge of quantitative methods is that it can be subjective and this should be considered when conducting research in this manner (Anderson 2006:1, Moody, 2002:2).

Quantitative research methods, on the other hand, are more concerned with relationships that can be attained through analysis of collected data. It normally includes a large number or respondents in order to collect hard objective data that is statistically valid (Anderson, 2006:1). Quantitative methods will typically include surveys, analyses of historical data and experiments with pre and post-tests (Moody, 2002:2)

When conducting research, one should also consider the different research techniques available. Jancowicz (2005:221) describes research techniques as the step-by-step procedures that can be utilised in order to collect data. These include:

- Semi-structured or open-ended techniques that collect data through personal interviews, focus groups and conversations with respondents.
- Fully structured techniques that include structured questionnaires and structured face-to-face interviews.

This study follows a quantitative research approach with a structured questionnaire. More detail on the particulars of the study will be discussed under the in the next part of the text

3.2.2 Methodology and research techniques

Jankowicz (2005:220) describes a research method as “a systematic and orderly approach taken towards the collection and analysis of data so that information can be obtained from those data.” In a sense, this could entail that if the approach followed in a particular study were flawed, the research might be flawed as well. This stresses the need to take care when deciding how research is approached. Jackowicz proposes the following methods for data-collection purposes within the context of a business research project (Jankowicz, 2005:220):

- Explicatory method

With this method questions are directed at individuals as well as written resources in order to better understand specific topics. The results of this approach yield a better understanding of the present or provide an ability to propose possible future scenarios. In short, this type of research tries to explain the research topic rather than just giving descriptions (Jankowicz, 2005:220; Maxwell & Mittapalli, 2008)

- Case-study method

This method is concerned with a holistic unit of an organisation where specific topics in the past and the present are analysed. This approach yields recommendations about the future. Shuttleworth (2008c) notes that the case-study method has been used frequently in fields like the phycology, anthropology, ecology as well as social sciences. A case study also goes deeper than mere statistical analysis; it can also assist in testing theories within a real-world setting (Jankowicz, 2005:220; Shuttleworth, 2008c).

- Experimental method

This method focuses on specific variables rather than specific issues and is normally conducted in a field experiment setting. Blakstad (2008) gives the following definition of experimental method: “The experimental method is a systematic and scientific approach to research in which the researcher manipulates one of more variables, and controls and measures any change in other variables.” This would imply that experimental research would work well in a setting where relationships are to be

found. In its simplest terms, the experimental method aims to provide predictions of day-to-day situations based on researched relationships between variables (Jankowicz, 2005:220; Blakstad, 2008).

- Survey method

This method normally includes a large group of respondents, called the sample group, which represents a population and usually focuses on present issues. In the context of this study the survey method was used, as it was best suited to the research that needed to be done in terms of available time, money, as well as ethical considerations (Phellas *et al.*,2011:184). This method will therefore be discussed in greater detail.

The sample survey is one of the most fundamental research methods available to the field of social sciences and has been a part of research for more than 50 years (Wright & Marsden, 2010:3). Wright and Marsden (2010:3-4) note that, in modern times, the sample survey method consists of the following elements:

- Sampling:

  This includes the collection of a sample from a population in order to understand the population better.

- Inference:

  This includes statistical work done on the data in order to better understand certain population parameters.

- Measurement:

  This includes preparing the questions in order to gain insightful data.

- Analysis:

  Analysis entails the generation of more in-depth statistical data through the investigation of internal relationships in the data.

Sincero (2012) adds to this the notion that more than one type of survey method exists. These can include surveys utilising interviews and questionnaires, cross-sectional surveys, as well as longitudinal surveys, or even a mix between some of them. Each approach has its own advantages and disadvantages. For example, one of the main advantages of utilising face-to-face interviews within the survey method

is the fact that follow-up questions can be asked. With questionnaires, close-ended questions can be handled more efficiently (Sincero, 2012). The data required for this study was more close-ended in nature and therefore the questionnaire was used. Another advantage relating to ethical issues was that a questionnaire could be distributed anonymously, whereas with face-to-face interviews participants cannot hide their identities.. The type of data that was generated by the questionnaire was quantitative in nature. However, there were instances of open-ended questions where participants were granted the opportunity to express qualitative data. A more detailed discussion of the questionnaire itself follows below.

3.2.3 The questionnaire

The study utilised a structured online questionnaire that was distributed via email to participants that formed part of the population in question. A copy of the questionnaire is attached in appendix A.

Wiggins and Bowers (2000:6) note that, in order to design a quality questionnaire, one should consider the objectives to be measured and draft questions based on those objectives. Thus, the empirical research objectives of chapter one were considered when developing the questions for the questionnaire. A questionnaire should also include the necessary testing in order to promote its quality. Finally, a questionnaire should be formatted in a manner that promotes ease of use. Krosnick and Presser (2010:263) stress the importance of the questionnaire by noting that it is the “heart of a survey”. If the questionnaire fails to ask the correct questions, the data collected might not be as useful.

This study required specific insights into certain aspects of budget practices. The structures questionnaire enabled focused research as it ensured specific answers. The drawback, however, was the fact that a structured questionnaire does not leave room for follow-up questions. It is also difficult to be absolutely certain that all the participants understood the questions correctly (Phellas *et al.*, 2011:184). For this reason, a single open-ended question was included at the end of the questionnaire in order to mitigate possible misunderstandings in the and provide participants with the opportunity to express nuances not covered in the questionnaire itself. O’Cathain and Thomas (2004) note that this strategy should also be approached with care, as data collected in such an open-ended question may not be properly analysed.

Krosnick and Presser (2010:264) suggest that questionnaires should be kept simple. One should attempt to avoid difficult terms or concepts. Response options should be

mutually exclusive and double-barreled questions should be avoided. Krosnick and Presser (2010:634) also note that easy questions should be placed at the beginning of the questionnaire and questions of more sensitive nature should be placed later in the questionnaire.

These suggestions were also confirmed when the questionnaire for this particular study was evaluated by the NWU's Statistical Consultancy Services Recommendations were made on how to optimise the questionnaire to gain the maximum amount of insight into the topics being investigated. As mentioned earlier, the questions in the questionnaire were structured to meet the empirical research objectives described in chapter one. The questionnaire was also formatted accordingly.

The questionnaire was divided into 4 parts:

1) Biographic information;
2) Strategic elements of budgeting;
3) Behavioural elements of budgeting; and
4) Perception of budgeting in the institution.

Part one focused on the biographic information of the respondents to determine the level of management the respondent was involved in. It also provided insight into the respondents' involvement with budgetary and strategic activities in the institution in question.

Part two focused on whether the respondents were aware of the challenges facing higher education in South Africa. Questions were also posed in order to assess the level at which the budgetary processes were strategically linked to institutional and national strategic objectives.

Part three focused on the possible behavioural aspects that impact upon budgetary activities in a higher education institution. This includes aspects like motivation, personal capabilities, as well as communication.

The final part of the questionnaire gauged the perceived level of effectiveness of the budgetary processes in the institution where the study was conducted. This part also provided one open-ended question for some personal input from the participants

3.2.4 Population

The population was the 23 universities in the higher education sector of South Africa (HESA, 2011a). The population included senior management, general administrative employees, full-time financial employees as well as some academic employees. All of these roleplayers are directly or indirectly involved with budget processes in a higher education institution in South Africa.

3.2.5 Sample group

Two sampling methods exist, namely non-probability sampling and probability sampling. With probability sampling, individuals included in the sample are chosen at random. With non-probability sampling, specific individuals are targeted in order to gain insight into their respective opinions on a topic (Jancowicz, 2005:202-203).

In this study a non-probability sampling method was used. Specific employees were chosen in a non-random manner. These employees were involved with budget-related matters at the institution where the investigation took place. Due to time as well as budget constraints, attaining a representative sample of the entire population described above was not possible. Thus the group had to be reduced to a sample that met the criteria of the population within one of the higher education institutions that formed part of the total population.

A convenience sampling approach was utilised in this study, as conducting a random sample survey across all 23 South African universities was not possible. Convenience sampling entails choosing research participants on the basis of their close proximity to the researcher (Explorable.com, 2009). However, the main advantage of this approach, which is ease of access to the participant, could be considered a sampling bias. This limits the extent to which the results can be considered representative of the population as a whole (Explorable.com, 2009)

3.2.6 Distribution

A link to the online questionnaire was distributed to the respondents via email.

3.2.7 Data processing

The quantitative data collected by the questionnaire was analysed by making use of IBS's Statistical Package for the Social Sciences (SPSS). The analysis was done with the help of the Statistical Consultancy Services on Potchefstroom Campus of the North-West University. The analysis included investigations of possible correlations between variables as well as the validity of the data. These correlations

and results were utilised to provide answers for the research questions described in 3.1.1.

3.2.7.1 Statistical validity

Kalla (2010) notes that "statistical validity refers to whether a statistical study is able to draw conclusions that are in agreement with statistical and scientific laws". In other words, the conclusion drawn from a particular study can be applied to the larger population under scrutiny. The concept of statistical validity includes other subcategories, such as face validity, content validity, internal validity, external validity, content validity, construct validity and conclusion validity. Conclusion validity has direct implications for this study, as it questions whether the conclusions made can be seen as valid for the larger population (Kalla, 2010).

Unfortunately, the conclusions drawn in this study cannot safely be extrapolated to the larger higher education population, as convenience sampling was used. The results do however give some insight into the particular institution that was investigated.

3.2.8 Ethical considerations

Ethical consideration is very important when it comes to research. Data can easily be misrepresented if ethical norms and procedures are not followed for a particular field of study.

Resnik (2011) describes ethics as norms of conduct that aid in deciding between right and wrong. In some societies certain ethical codes can be seen as common sense, but Resnik (2011) points out that problems could arise due to the ways in which these codes are interpreted.

Ethical conduct can also differ from one field of study to the next or according to the methods, procedures or perspectives in a particular field. These ethical norms help to establish public trust and serve the same function when it comes to research (Resnik, 2011).

Resnik (2011) notes the following pertaining to ethical norms in research:

- Ethical norms in research advance the aims of research. This includes the search for truth, expanding knowledge and evading error.
- Ethical norms are very important for collaborative work. Authorship and copyright are two important elements that must be taken care of, as most

researchers do not take kindly to their intellectual property being stolen or used without credit.

- As mentioned earlier, ethical norms hold the researcher accountable to the public as well as engendering public support for certain research endeavours.
- Ethical norms in research can also promote other societal values and morals, for instance human rights.

Without ethical norms to guide it, research could cause harm to participants and other researchers (Resnik, 2011). The questionnaire was distributed on the basis of voluntary participation, so no compensation was offered. The questionnaire was also distributed in a non-traceable manner so as to ensure the anonymity of the participants. The data was collected in such a way that it included nothing by which to personally identify a participant, so the wellness of each participant could be protected.

3.2.8.1 Plagiarism and ethical behaviour

Plagiarism is defined as "the practice of taking someone else's work or ideas and passing them off as one's own" (Oxford Dictionaries, 2014). In academic writing in its simplest form, plagiarism entails the use of another author's text without giving credit to the source material. In order to avoid this, referencing styles are required in academic writing and there are software packages that help to "check" for plagiarism (Turnitin, 2014). More than one style exists, like that of the American Medical Association (AMA), Chicago manual of style, and the Australian Guide for Legal Citation (AGLC) to name only a few (UQA, 2014). The Harvard referencing style (NWU, 2012:2) was prescribed for this study.

Vijetha (2014) cautions that even with prescribed referencing styles, students sometimes manage to work around plagiarism checks, This defeats the end of research and reflects a lack of respect for intellectual property. As Resnik (2011) says, even though many ethical considerations are common sense, not all individuals have the same interpretation of wrong and right.

The study aimed to follow the referencing guidelines as closely as possible. The final version of the document was also submitted to an originality checker at the NWU, where the dissertation was submitted.

3.3 ANALYSIS AND DISCUSSION OF DATA

This section presents the data that was gathered through the questionnaire and analysed with the help of the Statistical Consultancy Service of the NWU. The data

was analysed utilising the SPSS software package. The questionnaire was distributed to a total of 345 participants who had the option of completing the survey in Afrikaans or English. The list was obtained from the financial department of the institution where the study took place. All participants were reportedly in some way involved with day-to-day financial matters and in budgeting in particular. A total of 76 questionnaires were received back, but levels of completion varied and the SPSS reported one record as missing or totally incomplete. The response rate was 22%. Appendix C contains documentation that was generated by the statistical analysis. The data will be presented in summarised format.

The discussion will address each of the four categories of the questionnaire, namely:

1) Biographic information;
2) Strategic elements of budgeting;
3) Behavioural elements of budgeting; and
4) Perception of budgeting in the institution.

Deeper analysis of data will follow in the final section where correlations between data will be discussed. The descriptive statistics are presented first, with the responses to each particular survey item discussed individually and collectively where applicable.

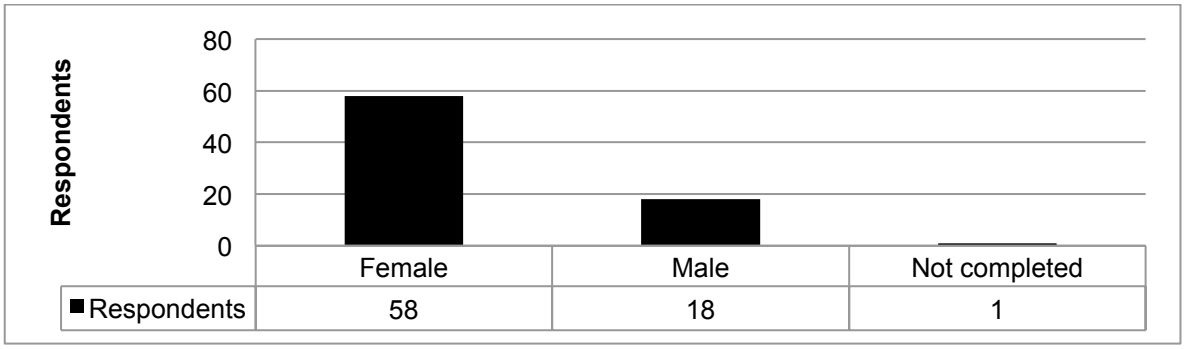
3.3.1 Biographic information

The biographic information provided some insight into the profiles of the participants. This section entails the results of questions 1 to 7 of the questionnaire.

3.3.1.1 Gender

Chart 3.1 shows that 58 (75%) of the participants were female and 18 male. One respondent did not complete this question.

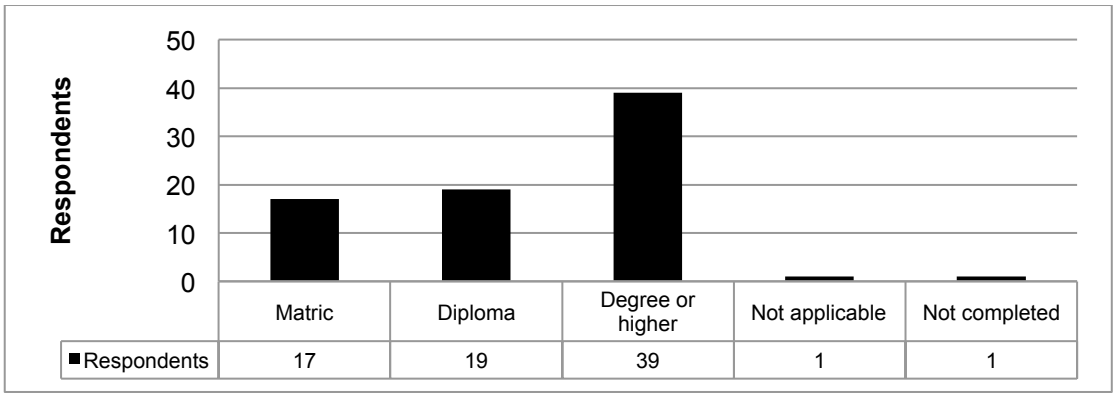
Graph 3.1 – Gender



3.3.1.2 Highest level of qualification

The purpose of the question was to determine the participants' qualification levels. Graph 3.2 shows that 17 (22,1%) respondents only had matric, 19 (24%) indicated a diploma as highest degree, and 39 (50,6%) indicated that they had a degree or higher. More than 75% of the respondents had some form of tertiary qualification. Although it appears that the group of respondents are highly educated, the type of qualification will be more closely considered in question 12.

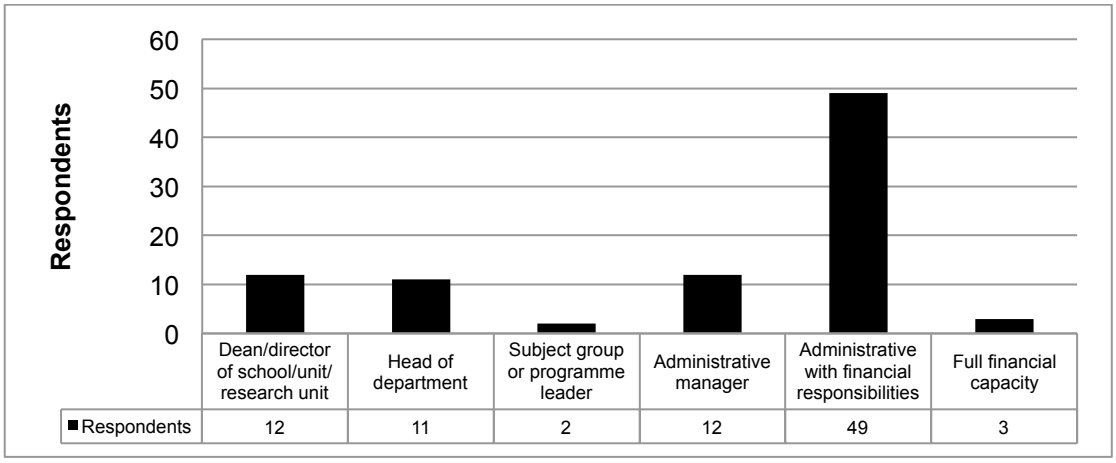
Graph 3.2 – Highest level of qualification



3.3.1.3 Level of organisational involvement

Question 3 enquired as to the level(s) participants functioned on in the organisation. What was interesting here was that it seemed that some participants functioned on more than one level within the institution under investigation. Most participants functioned primarily on an administrative level with financial responsibilities. This has important implication on the strategic linking of budgets, which will be discussed later in the text.

Graph 3.3 – Level of organisational involvement



3.3.1.4 Strategic involvement

Questions 4 and 5 had a possible bridging function. If a respondent indicated that they were involved with developing strategy in their departments, a follow-up question was generated. The purpose of this follow-up question was to determine how frequently the respondent worked with strategy-related tasks.

Of the 77 respondents, 32 indicated that they are involved with developing strategy in their work environment. That equates to 42,9% of the participants. Those involved in strategy-related tasks had to indicate how frequently they worked on these tasks. The breakdown in chart 3.4 shows that more than half of the respondents involved in strategic tasks work with strategy-related tasks on a daily basis. The mean of this question is 3,72 with a standard deviation of 0,851. The data is shown in table 3.1.

Table 3.1 – Strategic involvement and budgetary involvement.

	Response options					Descriptive statistics		
Question	Almost never (1)	Rarely (2)	Sometimes (3)	Often (4)	Almost always (5)	Mean	Standard deviation	Number of respondents
Question 5 Strategic involvement	1	0	11	15	5	3,72	0,851	32
Question 7 Budgetary involvement	0	1	10	27	9	3,94	0,704	47

3.3.1.5 Budgetary involvement

The purpose of question 6 was to determine whether participants were involved in budgetary tasks. Question 7 followed up by asking how frequently participants worked on budget-related tasks in their work environment.

Of the 77 participants, 47 indicated that they were involved in budgetary tasks. That is around 61% of the participants. Those involved in budgetary tasks had to indicate how frequently they were involved with these tasks. Table 3.1 indicates the breakdown.

Of the group of 47 participants with budgetary tasks, 75% were involved with budgetary tasks. The mean of the responses for question 7 was close to 4 (“often”) with a standard deviation of 0,704. This is clearly indicated in table 3.1. This has

important implications for the strategic linking of budgets. Looking at the data from 3.3.1.4, 33 respondents where involved with crafting strategy for their business unit whereas 47 of the respondents indicated that they were involved in budget-related activities.

The next section will describe how participants responded to questions related to the strategic elements of budgeting. As noted in chapter two, the linking of strategic goals within budgetary planning is important in order to achieve more effective budgets. Section 3.3.2 will seek to determine whether respondents were familiar with strategic goals within their work environment and whether these goals where clearly communicated to all participants.

3.3.2 Strategic elements of budgeting

This section focused specifically on strategic elements of budgeting. The aim of the questions was to shed some light on the extent to which the strategic linking of budgets was possible in the institution. Data for 3.3.2.1 to 3.3.2.4 is presented in table 3.2.

Table 3.2 – Strategic elements of budgeting

	Response options					Descriptive statistics		
Question	Almost never (1)	Rarely (2)	Sometimes (3)	Often (4)	Almost always (5)	Almost never (1)	Standard deviation	Number of respondents
Question 8 Familiarity with higher education goals	6	10	35	10	2	2,87	0,907	63
Question 9 Familiarity with institutional goals	2	3	15	32	11	3,75	0,915	63
Question 10 Clear future strategy of respective organisational units	1	6	8	35	14	3,86	0,924	64
Question 11 Communication of strategic goals	1	11	12	29	11	3,59	1,019	64

3.3.2.1 Familiarity with higher education goals

The purpose of question 8 was to determine whether the participants were familiar with the current goals of higher education as set forth in the National Development Plan of South Africa.

55,6% of respondents indicated that they had no opinion on this matter, while 81% of respondents indicated that they are not knowledgeable about the current strategies for the higher education sector in South Africa. This can be seen in table 3.2.

The mean response for this question was 2,87 (option 3 - “no opinion”) with a standard deviation of 0,907. The respondents to this question had close to no opinion on the question. Ideally. respondents should have been familiar with these goals as they form part of South Africa’s proposed future plans. 14 respondents did not complete this question.

3.3.2.2 Familiarity with institutional goals

The goal of question 9 was to determine whether the respondents were familiar with the strategic priorities of their institution.

This time only a total of 31,7% of the participants indicated that they were not familiar with the goals. 68,3% of the respondents indicated that they were in agreement with the statement. This is indicated in table 3.2.

The mean this question was 3,75 – close to the option “agree”. This would suggest that most of the respondents where knowledgeable about their organisation’s strategic goals. This is an improvement on the previous question in terms of familiarity with strategy. 14 respondents did not complete this question.

3.3.2.3 Clear future strategy of respective organisational units

The purpose of question 10 was to establish whether the respondents felt that their organisational unit had a clear strategy for the future.

Only a total of 23,4% indicated that they disagreed with the statement or had no opinion on it. A total of 76,6% indicated that their unit had a clear strategy for the future. Table 3.2 shows this in more detail.

The mean of this question was 3,86 (close to the “agree” option), with a standard deviation of 0,924. Most of the respondents felt that their organisational units had a clear vision for the future. It was noted in chapter two that planning is one of the functions that a budget can fulfil. If future goals are clear, effective planning can

become a reality as participants know where their unit is heading and can budget accordingly. 13 respondents did not complete this question.

3.3.2.4 Communication of strategic goals

The goal of question 11 was to determine whether the respondents felt that strategic goals were clearly communicated by management.

62,5% of respondents felt that strategic goals were clearly communicated by management. A total of 37,5% of respondents noted that they either felt that strategic goals where not communicated, or they had no opinion on the matter (see table 3.2).

The mean of this question was 3,59 (close to the "agree" option) with a standard deviation of 1,019. Most respondents felt that management communicated strategic goals clearly, although the standard deviation is quite significant. Communication plays an important role in facilitating effective budgets (chapter two). Without clear communication of a unit strategy, the planning function of a budget is of no use. It was encouraging to see that most respondents felt that strategy was clearly communicated. Still, table 3.2 shows that 12 respondents did not agree that communication was effective. Ideally, all participants should have felt that communication is effective. 13 respondents did not complete this question.

The next section describes how participants responded to a question on the behavioural elements of budgeting.

3.3.3 Behavioural elements of budgeting

In chapter two, the behavioural aspects of budgeting were identified as one of the critical factors for successful budgets in the higher education context. This section focuses on the question that gauged the behavioural aspects of the institution that was part of the investigation.

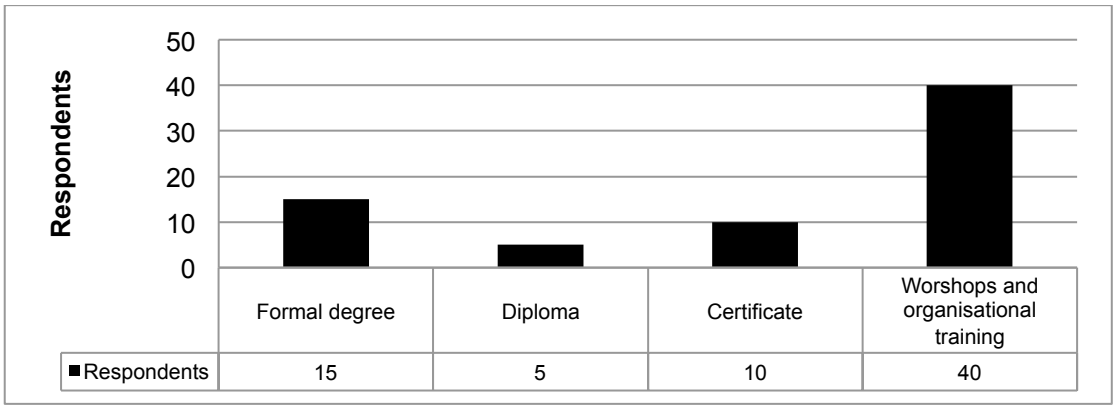
3.3.3.1 Prior financial training

The purpose of question 12 was to determine what prior financial background the participants had.

The participants were able to choose more than one item. Graph 3.4 shows that few of the 76 participants indicated more than one of the options. It is clear that most of the participants' financial training was limited to training and workshops attended as part of organisational training; thus no formal financial training. Graph 3.4 indicates that only 15 of the respondents had degrees in financial fields. This expands on the information gathered in 3.3.1.2. There 39 participants indicated they had a degree or

higher as a highest qualification. Less than half of the participants actually held degrees in financial fields. This points to the importance of effective in-house training as most participants make use thereof and it is the only financial training some of the respondents will receive.

Graph 3.4 – Prior financial training



3.3.3.2 Financial environment experience

The goal of question 13 was to determine how long the respondents had been working in a financial environment. Most of the participants, as can be seen in graph 3.5, indicated they had been working in a financial environment for more than 3 years. That is a total of 81,7% of the participants. A total of 18,3% of the participants indicated that they had been working in a financial environment for less than 3 years. Work experience can be an important contributor to success in the workplace. One could argue that, if a participant had been doing budgets for a considerable amount of time, their respective budgeting skills may become more efficient over time as their experience grows. However, this is not a guarantee as a particular respondent might have been compiling budgets incorrectly for many years. 17 respondents did not complete this question.

Graph 3.5 – Financial environment experience

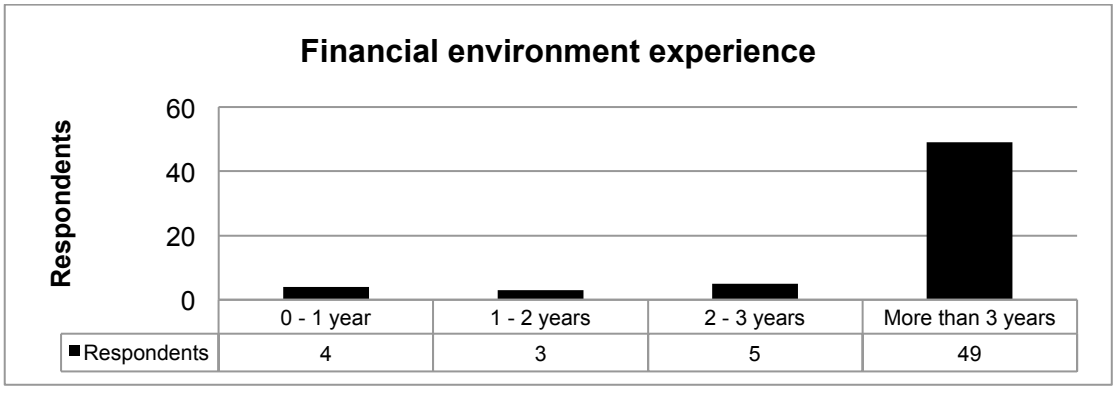


Table 3.3 presents a summary of the questions that focused on the behavioural elements of budgeting.

Table 3.3 – Behavioural aspects of budgeting

Question	Response options					Descriptive statistics		
	Strongly disagree	Disagree	No opinion	Agree	Strongly agree	Mean	Standard deviation	Number of respondents
Question 14 Availability of financial training	0	12	8	28	12	3,67	1,020	60
Question 15 Budgetary skills of participants	0	5	11	35	9	3,80	0,798	60
Question 17 Managerial involvement	1	11	12	32	4	3,45	0,928	60
Question 18 Communication of budgetary goals	1	10	13	31	5	3,48	0,930	60
Question 19 Budget preparation within communicated goals	2	5	12	1	10	3,70	0,962	60
Question 21 Deviance reporting	0	6	7	29	6	3,73	0,844	48
Question 22 Motivation	2	14	15	23	6	3,28	1,043	60

3.3.3.3 Availability of financial training

Question 14 intended to establish whether the participants knew that budgetary training was available at their institution.

Table 3.3 shows that 66,7% of participants knew that training was available, while a total of 33,3% indicated that they were unsure or felt that training was not available. This can be seen in table 3.3. This is a problematic figure as training is in fact available at the institution that was being studied. If this figure were used as an indication of the larger financial environment at the institution, it would imply that more than 100 employees were not up to date with training relating to year-on-year budgets at the institution. Still it is clear that most of the respondents did in fact know about training. This also correlates with 3.3.3.1, where it was noted that most of the participants received organisational training presented at some point in time.

The mean of this question was 3,57 – close to the "agree" option – with a standard deviation of 1,020, which is quite large. Most of the respondents agreed that organisational budgetary training was available. 17 respondents did not complete this question.

3.3.3.4 Budgetary skills of participants

The purpose of question 15 was to establish whether the participants felt competent when working with budgetary concepts.

73,3 % of the participants noted that they felt capable when working with budgetary concepts. 18% of the participants indicated that they had no opinion and only 5 indicated that they did not feel capable of working with budgetary concepts. This can be seen in table 3.3. It is a positive sign that most of the participants felt that they were capable when working with budgetary concepts. Nevertheless, this is not ideal; all employees involved should feel capable when working with budgetary concepts.

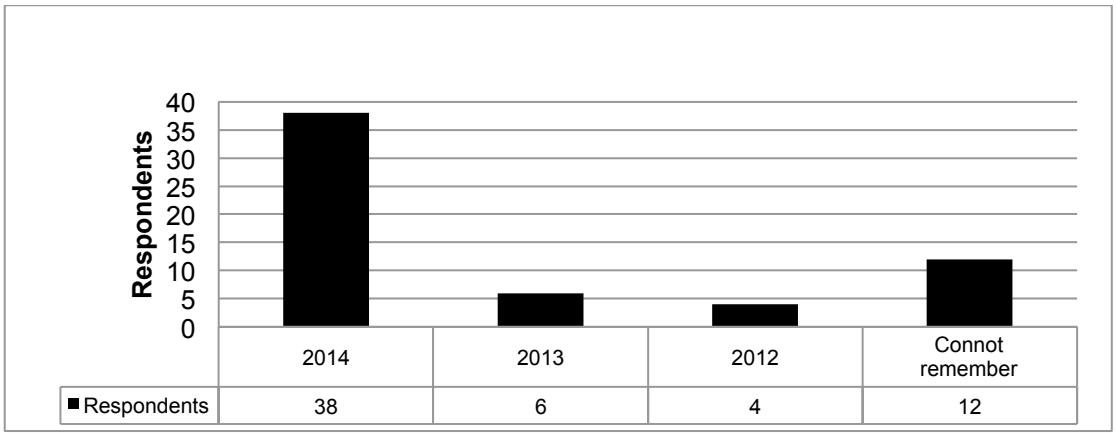
The mean of this question was 3,8 (close to "agree") with a standard deviation of 0,798. Most of the respondents felt capable when working with budgetary concepts. This compares favourably with the data from 3.3.3.1, 3.3.3.2 as well as 3.3.3.3. Since most participants had prior organisational training as well as more than 3 years experience in a financial environment. They were also aware of financial training within their organisation. It therefore stands to reason that they should have relatively sound budgetary skills. 17 respondents did not complete this question.

3.3.3.5 Attendance of budgetary information session

Question 16 was asked to determine how recently the participants had attended a budgetary information session at their institution.

Most of the participants (63,3%) indicated that they had attended the most recent session. There were however 20% of the participants that could not remember when the last time was that they attended a budgetary information session. Graph 3.6 shows more detail. Attendance of the yearly budgetary information session is very important as information regarding the sector and specific budgetary goals are communicated in order to ensure strategic linking of budgets within the institution under investigation. It is, however, worrying that some participants had not attended recent budgetary information sessions. 17 respondents did not complete this question.

Graph 3.6 – Attendance of budgetary information session



3.3.3.6 Management involvement

Question 17 was intended to establish whether the participants felt that management was involved in all steps of the budgetary process at the institution.

60% noted that management where in fact involved with the budgetary process. A total of 40% noted that they had no opinion or that they felt that management was not involved. Table 3.3 shows more detail.

The mean of this question was 3,45, which is closer to the “no opinion” option. The standard deviation was 0,928. This signifies that, although many respondents felt that management was involved with the budgetary process, some felt that more involvement was needed. As mentioned in chapter two, lack of managerial involvement in a budgetary process could have a negative impact on the motivation levels of subordinates. As can be seen in table 3.3, 24 of the respondents did not directly agree with the statement that management was involved throughout the budgetary process. 17 respondents did not complete this question.

3.3.3.7 Communication of budgetary goals

The goal of question 18 was to determine whether the participants felt that budgetary goals where clearly communicated by management.

40% of the participants had no opinion or felt that budgetary goals were not clearly communicated. 60% of participants indicated that goals where in fact clearly communicated by management. This is indicated in table 3.3.

The mean of this question was 3,48; closest to the “no opinion” option. The standard deviation was 0,930. It would seem that respondents felt that budgetary goals were in fact communicated by management but more could be done, since a total of 24 participants did not agree that management communicated budgetary goals clearly. 17 respondents did not complete this question.

3.3.3.8 Budget preparation within communicated goals

Question 19 aimed to determine whether the participants tried to prepare their budgets within the framework of the budgetary goals communicated by management.

68,4% of the participants indicated that they prepared budgets to fit into communicated goals. 20% had no opinion and 11,7% indicated that they did not prepare budgets according to communicated goals. Table 3.3 presents this in more detail.

The mean of this question was 3,70 with a standard deviation of 0,962. This is close to the “agree” option, which signifies that most of the participants prepared their budgets according to communicated budgetary goals. Nonetheless, a closer look at table 3.3 shows that 19 of the respondents did not indicate their preparation of budgets within communicated goals. This is discussed in more detail in the final chapter. 17 respondents did not complete this question.

3.3.3.9 Deviance reporting

The goal of question 20 was to establish whether the participants had to report to someone if deviances arose between budgeted and actual performance.

80% of the participants indicated that they had to report on deviances. That was a total of 32 participants. This is important as reporting on deviances shows that the inherent control function of prepared budgets is utilised. 17 respondents did not complete this question.

If respondents indicated that they had to report deviances to someone, a follow-up question was asked. The purpose of this follow-up question (question 21) was to determine whether the participants always took action if there were differences between budgeted and actual performance.

27,1% of the participants indicated that they either had no opinion on the matter or that they did not always report deviances. A total of 72,9% of the participants did however indicate that they always reported deviances. Table 3.3 indicates this.

With a mean of 3,73 (close to the option “agree”) and a standard deviation of 0,844, most of the respondents to this question always reported deviances when they arose. 29 respondents did not complete this question.

3.3.3.10 Motivation

The purpose of question 22 was to determine whether the participants felt motivated when they were involved with the budgetary process.

25% had no opinion and 26,7% of the respondents noted that they did not feel motivated when involved with the budget process. A total of 48,3% indicated that they were in fact motivated when involved with the budgetary process.

With a mean of 3,28 (close to “no opinion”) and a standard deviation of 1,043 – which is high – the mean of the sample had no opinion on whether they felt motivated when involved with the budgetary process. Ideally, an organisation would want its employees to be motivated when they are involved with core aspects of day-to-day business. The fact that not all participants felt motivated when working with budget-related tasks is clearly indicated in table 3.3. The final chapter contains more on this. It also appears to confirm that employee motivation tends to dwindle in the absence of managerial involvement, also since 3.3.3.6 noted that managerial involvement was not at a desired level. 17 respondents did not complete this question.

The final section describes how participants responded to questions on the perceived effectiveness of budgeting in their institution.

3.3.4 Perception of budgeting in your institution

The data for this section is summarised in table 3.4

Table 3.4 – Perception of budgeting in your institution

Question	Response options					Descriptive statistics		
	Strongly disagree	Disagree	No opinion	Agree	Strongly agree	Mean	Standard deviation	Number of respondents
Question 23 Link between strategy and budgeting	1	9	13	32	4	3,49	0,898	59
Question 24 Perception of budget process efficiency	0	13	11	29	6	3,47	0,953	59

3.3.4.1 Link between strategy and budgeting

The purpose of question 23 was to determine whether participants felt that there was a link between the strategic goals of their institution and the strategic goals of the budget of their own organisational units. This is a very important question as chapter two proposed that one of the critical success factors for budgets in the higher education sector is strategic linking of budgets.

16,9% of the respondents felt that there was no link. 22% of the respondents had no opinion on the matter and a total of 61% of the participants indicated that they felt their organisational unit's budget linked with the strategic goals of the organisation.

Question 23 had a mean of 3,49 – right between "no opinion" and "agree". The standard deviation was 0,898. The view that prepared budgets are linked to organisational strategies seems to be divided. A total of 23 participants (see table 3.4) indicated that they did not agree or had no opinion on whether strategic linking took place. This should have been an easy question with only one correct answer. Budgets should be strategically linked. There are two possible reasons for the negative responses. Respondents were either unaware of the strategic priorities of their organisational units, or they knew what the priorities were but chose not to link it to their budgets. Both of these reasons are unfavourable for generating efficient budgets. 18 respondents did not complete this question.

3.3.4.2 Perception of efficiency of budget process

The purpose of question 24 was to determine whether the participants felt that their organisation had an efficient budget process in place.

22% of the participants indicated a sense that their budgetary process was lacking. 18,6% indicated that they had no opinion on the matter and 59,4% of respondents indicated that they felt that the existing budget process was efficient.

Question 24 had a mean of 3,47, which falls between the options of “no opinion” and “agree”. The standard deviation was 0,953. Respondents felt divided on whether the organisation had an efficient budgeting process or not. As with any system, table 3.4 some participants felt that the budget process could be more efficient (see table 3.4). The possible reasons for this is discussed in more detail in the final chapter. 18 respondents did not complete this question.

3.3.4.3 Personal comments

Question 25 was an open-ended question. The question attempted to provide participants with an opportunity to indicate where the current budget process could improve.

A total of 21 participants gave their opinions. Responses ranged from a call for better communication in some cases to the need for more involvement in terms of a bottom-up approach. A number of strategy-related comments were also made. These opinions are discussed in more detail in the final chapter and are available in full as part of appendix B. The next section briefly notes the findings of a T-Test as well as a Mann-Whitney Test that was conducted on the data.

3.3.5 T-Tests and Mann-Whitney Tests

The statistical consultancy service noted that the p-values could only be reported for the sake of completion but could not be interpreted, as a convenience sampling method instead of a random sampling method was used. Because of this, it would be irresponsible to make generalisations of the general population.

Effect sizes can be used to interpret how the particular sample of 76 respondents felt regarding different questions in the questionnaire. Table 3.5 shows the consolidated data for the T-Test and Mann-Whitney that was done on Question 6 in relation to questions in the study. A high effect size indicates that there is a significant difference between the means of two questions. This would entail that clear conclusions cannot be drawn from the responses of those particular questions.

Consider an example: Table 3.5 shows that the T-Test results between participants involved in budgeting (Question 6) and the preparation of budgets within communicated goals (Question 19) had an effect size of 1,39. This signifies that

participants involved in budgeting do not necessarily prepare budgets within communicated goals.

Since the amount of data points available as well as the fact that convenience sampling was used, data from the T-test and the Mann-Whitney test must be interpreted in a cautionary manner.

Table 3.5 – T-test and Mann-Whitney test

Group Statistics					**T-Test**		**Mann-Whitney**	
Question 6 Budgetary involvement		N	Mean	Std. Deviation	p-value	Effect size	p-value	Effect size
Question 8 – Familiarity with higher education goals	1	43	2,88	1,051		0,03	0,654	0,06
	2	20	2,85	0,489	0,863			
Question 9 – Familiarity with institutional goals	1	43	3,93	0,910		0,64	0,008	0,33
	2	20	3,35	0,813	0,015			
Question 10 – Clear future strategy of respective organisational units	1	44	3,93	0,950		0,24	0,196	0,16
	2	20	3,70	0,865	0,341			
Question 11 – Communication of strategic goals	1	44	3,70	1,047		0,34	0,119	0,19
	2	20	3,35	0,933	0,183			
Question 14 – Availability of financial training	1	43	3,74	1,026		0,27	0,311	0,13
	2	17	3,47	1,007	0,353			
Question 15 – Budgetary skills of participants	1	43	3,91	0,750		0,43	0,075	0,23
	2	17	3,53	0,874	0,129			
Question 17 – Managerial involvement	1	43	3,58	0,932		0,50	0,043	0,26
	2	17	3,12	0,857	0,075			
Question 18 – Communication of budgetary goals	1	43	3,63	0,874		0,51	0,042	0,26
	2	17	3,12	0,993	0,075			
Question 19 - Budget preparation within communicated goals	1	43	4,05	0,754	0,000	1,39	0,000	0,61
	2	17	2,82	0,883	0,000			
Question 21 – Deviance reporting	1	38	3,82	0,865	0,168	0,48	0,076	0,26
	2	10	3,40	0,699	0,131			
Question 22 – Motivation	1	43	3,44	1,053	0,061	0,53	0,063	0,24
	2	17	2,88	0,928	0,051			
Question 23 – Link between strategy and budgeting	1	43	3,60	0,903	0,113	0,46	0,061	0,24
	2	16	3,19	0,834	0,106			
Question 24 – Perception of budget process efficiency	1	43	3,56	1,053	0,273	0,29	0,106	0,21
	2	16	3,25	0,577	0,160			

For interpretation of T-Test values in table 3.5 the following guidelines can be used:

- An effect size of about 0,1, referred to as a small effect size, indicates no practically significant difference between means.
- An effect size of about 0,5, referred to as a medium effect size, indicates a practically visible difference between means. This is shown in orange.
- An effect size of about 0,8, referred to as a large effect size, indicates a practically significant difference. This is shown in maroon.

The following guidelines can be applied when interpreting the Mann-Whitney test values in table 3.5:

- An effect size of about 0,2, referred to as a small effect size, indicates no practically significant difference between means.
- An effect size of about 0,3, referred to as a medium effect size, indicates a practically visible difference between means. This is shown in orange.
- An effect size of about 0,5, referred to as a large effect size, indicates a practically significant difference. This is shown in maroon.

3.3.6 Correlation report

3.3.6.1 Correlations between questions in the study

Table 3.6 shows correlation data generated through statistical analysis. Only values that show practical significance according to the statistical analysis are noted. To interpret table 3.6, the following correlation coefficient (CC) values indicate practical significance of relationship or effect sizes. The guideline values are:

- A correlation coefficient of about 0,1, referred to as a small correlation, indicates no practically significant relationship between the two questions.
- A correlation coefficient of about 0,3, referred to as a medium correlation, indicates a practically visible relationship between the two questions.
- A correlation coefficient of about 0,5, referred to as a large correlation, indicates a practical significant relationship between the two questions.

The Sig. 2-tailed (Sig) values in the table indicate whether or not there is a statistically significant relationship. Guideline values for a statistically significant relationship is a value of $p < 0,05$, indicated in blue.

* denotes that the correlation is significant at the 0,05 level (2-tailed)

** denotes that the correlation is significant at the 0,01 level (2-tailed)

Table 3.6 – Correlation data

		Q5	Q7	Q8	Q9	Q10	Q11	Q14	Q15	Q17	Q18	Q19	Q21	Q22	Q23	Q24
Question 5 – Strategic involvement	CC	1	,050	,427 *	,637 **	,305	,446 *	,107	,073	-,109	-,026	,044	,179	-,076	-,121	-,092
	Sig		,800	,017	,000	,090	,010	,567	,696	,561	,891	,813	,352	,686	,517	,624
	N	32	28	31	31	32	32	31	31	31	31	31	29	31	31	31
Question 7 – Budgetary involvement	CC		1	-,031	,162	,219	,319 *	-,079	,045	-,127	-,099	,117	-,131	,216	-,049	,143
	Sig			,846	,299	,153	,035	,616	,777	,416	,526	,455	,432	,164	,753	,360
	N		47	43	43	44	44	43	43	43	43	43	38	43	43	43
Question 8 – Familiarity with higher education goals	CC			1	,402 **	,358 **	,297 *	,127	,126	,061	,217	,237	,273	,093	,152	,106
	Sig				,001	,004	,018	,333	,336	,644	,095	,068	,060	,481	,251	,423
	N			63	63	63	63	60	60	60	60	60	48	60	59	59
Question 9 – Familiarity with institutional goals	CC				1	,426 **	,436 **	,397 **	,235	,051	,189	,494 **	,328 *	,097	,158	,202
	Sig					,001	,000	,002	,071	,697	,149	,000	,023	,459	,232	,126
	N				63	63	63	60	60	60	60	60	48	60	59	59
Question 10 – Clear future strategy of respective organisational units	CC					1	,734 **	,293 *	,073	,343 **	,362 **	,217	,164	,379 **	,425 **	,447 **
	Sig						,000	,023	,579	,007	,005	,096	,265	,003	,001	,000
	N					64	64	60	60	60	60	60	48	60	59	59
Question 11 – Communication of strategic goals	CC						1	,395 **	,197	,499 **	,517 **	,276 *	,158	,406 **	,272 *	,500 **
	Sig							,002	,132	,000	,000	,033	,282	,001	,037	,000
	N						64	60	60	60	60	60	48	60	59	59
Question 14 – Availability of financial training	CC							1	,548 **	,453 **	,583 **	,488 **	,531 **	,439 **	,190	,444 **
	Sig								,000	,000	,000	,000	,000	,000	,150	,000
	N							60	60	60	60	60	48	60	59	59
Question 15 – Budgetary skills of participants	CC								1	,171	,247	,359 **	,266	,286 *	,131	,194
	Sig									,192	,057	,005	,068	,027	,322	,141
	N								60	60	60	60	48	60	59	59
Question 17 – Managerial involvement	CC									1	,783 **	,404 **	,391 **	,400 **	,282 *	,651 **
	Sig										,000	,001	,006	,002	,030	,000
	N									60	60	60	48	60	59	59
Question 18 – Communication of budgetary goals	CC										1	,410 **	,425 **	,490 **	,242	,572 **
	Sig											,001	,003	,000	,065	,000
	N										60	60	48	60	59	59
Question 19 – Budget preparation within communicated goals	CC											1	,571 **	,461 **	,319 *	,477 **
	Sig												,000	,000	,014	,000
	N											60	48	60	59	59
Question 21 – Deviance reporting	CC												1	,476 **	,322 *	,367 *
	Sig													,001	,026	,010
	N												48	48	48	48
Question 22 – Motivation	CC													1	,388 **	,529 **
	Sig														,002	,000
	N													60	59	59
Question 23 – Link between strategy and budgeting	CC														1	,461 **
	Sig															,000
	N														59	59
Question 24 – Perception op budget process efficiency	CC															1
	Sig															
	N															59

3.3.6.2 Discussion of significant correlations

As mentioned the correlations with medium and high practical significance were shown in table 3.6. Only the correlations with high practical significance are discussed in this section. The medium to higher correlations will not be discussed in detail. A correlation can be positive or negative. A positive correlation entails that the higher the response in one variable the higher the response in the variable with it correlates with. For example, a “strongly agree” response in one question that is positively correlated with another will also yield a “strongly agree” response in the correlated question. A negative correlation works in opposite directions. Low correlation coefficients that are close to 0 indicate that the variables seem to be independent from one another.

3.3.6.2.1 Correlation between participants involved in strategy and knowledge of the National Development Plan (Questions 5 and 9)

The correlation stands at 0,637. It is a positive correlation, which entails that if a participant is involved with strategic tasks they are more likely to have knowledge of strategic priorities in their institution.

3.3.6.2.2 Correlation between communication of strategic goals and clear future strategy for an organisational unit (Questions 11 and 10)

These two questions carry a positive correlation of 0,734. It can be argued that if strategic goals are clearly communicated, a participant will know what the future strategic goals for his or her business unit will be.

3.3.6.2.3 Correlation between communication of strategic goals and communication of budgetary goals (Questions 11 and 18)

There is a positive correlation of 0,517 between these two questions. It could be reasoned that if management communicates relevant information in one area, they would communicate in the other area as well.

3.3.6.2.4 Correlation between communication of strategic goals and perception of budgetary process efficiency (Questions 11 and 24)

The correlation of these two question stands at 0,500, which shows a positive correlation. This signifies that if strategic goals are communicated well, the perception of budgetary efficiency should increase. This is discussed further in chapter four.

3.3.6.2.5 Correlation between availability of financial training and budgetary skills of participants (Questions 14 and 15)

There is a positive correlation of 0,548 between these two questions. It could be reasoned that if financial training is available and participants make use of it, their budgetary skills should also improve. The opposite is also the case. Without training, budgetary skills may deteriorate.

3.3.6.2.6 Correlation between availability of financial training and communication of budgetary goals (Questions 14 and 18)

There is a positive correlation of 0,583 between whether there is an availability of financial training and whether budgetary communication takes place.

3.3.6.2.7 Correlation between the availability of financial training and deviance reporting (Questions 14 and 21)

There exists a positive correlation of 0,531 between question 14 and question 21. One could contend that, if a financial training session stresses the importance of deviance reporting, employees who receive financial training would report on deviances.

3.3.6.2.8 Correlation between managerial involvement and communication of budgetary goals (Questions 17 and 18)

There exist a highly significant correlation of 0,783 between the managerial involvement and the communication of budgetary goals. It could be argued that it is management's role to communicate budgetary goals to subordinates. Thus if management is not involved, budgetary goal communication will not be at a desired level.

3.3.6.2.9 Correlation between the managerial involvement and perception of budget process efficiency (Question 17 and Question 24)

The correlation between these two questions is 0,651. It is of high practical significance. This is discussed in more detail as part of chapter four.

3.3.6.2.10 Correlation between the communication of budgetary goals and the perception of budget process efficiency (Questions 18 and 24)

There is a positive correlation of 0,572 between the communication of budgetary goals and the efficiency of the budget process. If participants are familiar with budgetary goals, higher efficiency can be expected. The opposite is also true; without clear communication efficiency might decrease.

3.3.6.2.11 Correlation between the budget preparations within communicated goals and deviance reporting (Questions 19 and 21)

There is a positive correlation of 0,571 between the two questions. If employees are familiar with budgetary goals and deviances arise, it stands to reason that some action will be taken to address deviances.

3.3.6.2.12 Correlation between motivation and the perception of budget process efficiency (Questions 22 and 24)

The correlation between motivation and perception of budget process efficiency is 0,529. This would imply that the higher the motivation levels of participants, the higher the perceived efficiency. Lower motivation would entail lower perceived efficiency.

3.4 CHAPTER SUMMARY

This chapter gave an overview of the research method followed as well as some aspects of research in general. The method used in this study was discussed and the results of the questionnaire were described. Overall, the results showed some correlation between questions asked in the questionnaire as well as indications of the sample group's perception of certain issues. The next chapter contains the final discussion with due consideration of whether the empirical and literature objectives were reached. Recommendations are based on the literature considered in chapter two and the empirical results of chapter three. Conclusions are drawn where applicable. Limitations pertaining to the study are also discussed, as well the need for further research on the topic.

CHAPTER 4 - CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

In the light of what was discussed in chapter two, it should be clear that the future of the higher education sector holds many uncertainties. Locally and internationally, funding to the sector has been decreasing and institutions have had to come up with innovative ways to make up for lost funding. Chapter one gave a short overview of the context and challenges facing the sector. As part of the first chapter, certain literary objectives as well as empirical objectives were set.

Chapter two explained the context of the sector and proposed two possible critical factors that should be considered for budgets in the higher education sector. With chapter two as basis, an empirical study was conducted and reported on in chapter three.

In chapter four, the focus is on generating a final synthesis between the identified problems and research conducted during the study. Research objectives that were set in chapter one are also discussed. These research objectives were set in such a way that the literature objectives corresponded with the empirical objectives. For these reasons each corresponding literature objective and empirical objective are discussed together. Each discussion includes conclusions drawn from the empirical data and findings from the literature study. Recommendations are made at the end of each of the three discussions. Whether a specific objective was met will also be noted in each discussion.

The chapter closes with a discussion of the limitations of the study and, finally, recommendations for future study.

4.2 RESEARCH OBJECTIVES

This section considers whether the research objectives set for this study were in fact met. The research objectives of this study are contained in table 4.1

Table 4.1 – Joint research objectives

	Literature objectives of the study	Empirical objectives of the study
Joint research objective 1 – Effective management of budgets	To define the concepts of budgets and effective management of budgets.	Does the institutional budgeting context create an environment where effective budgets can be created?
Joint research objective 2 – The context of higher education budgeting	To describe the context of industry, focussing on the higher education sector.	Are employees involved in the budget process aware of the strategic goals of the South African higher education sector and their institution?
Joint research objective 3 – Critical factors in higher education budgeting	To define critical factors for budgeting in the higher education sector.	Does the existence or nonexistence of the identified critical factors for higher education budgeting influence the perceived effectiveness of budgeting in an institution?

As can be seen form table 4.1, the empirical objectives correspond with the literature objectives. As part of the empirical study, data was collected in order to answer the particular empirical research objectives of the study. The same process was followed for the literature study. For this reason the objectives are jointly discussed. Certain quotes from participants generated as part of the open-ended question in the survey are presented, translated into English. The original Afrikaans data is available in appendix C.

4.2.1 Effective management of budgets

The following assumptions can be made from the data that was gathered as part of the empirical investigation pertaining to joint research objective 1. Only main points are noted.

- Managerial involvement in budgetary tasks is not at an optimum level; 40% of the respondents felt that management was not involved in the budget process.
- Training is available at the institution in question but not all participants who work on budget-related tasks are aware of training opportunities. Most participants felt that they were able to work with budgetary concepts but there were some participants who indicated that they needed more skills.
- Less than half of the respondents felt motivated when working on budget-related tasks.
- Only 59,4% of respondents indicated that they felt that an efficient budget process was in place at their institution.

The empirical study indicated that the environment in which participants function is moderately conducive to preparing effective budgets. The main issues seemed to be the less than optimum level of managerial involvement coupled with lack of motivation for budgetary tasks in participants.

The literature gathered in chapter two sought to define management of effective budgets and budgeting in general, and it led to the following key point: without managerial involvement in budgetary activities, employee motivation for the same activities could decline. This notion is supported by the correlations that were generated as part of the empirical study.

The correlation coefficient between managerial involvement and perception of budget process efficiency showed a positive correlation of 0,651. This meant that, for the particular sample group, if the level of managerial involvement increased, so did the perceived level of budget process efficiency. It is important to note, as mentioned in chapter three, that a convenience sampling method was used – which means that any conclusion about the general population would not necessarily be true. Managerial involvement can be either top-down or bottom-up. Top-down involvement is less desirable than bottom-up involvement, as it could create an environment with no room for subordinates to voice their concerns or contribute to the budget process. This could lead to a decline in employee motivation.

The following were responses from some of the participants who supported the notion of greater involvement of management as well as greater involvement of employees.

Participant A: “More detailed information sessions are needed for management (deans and directors specifically).”

Participant B: “Involve people from the floor so that they can also contribute to the process.”

Participant C: “More involvement of different people in the organisation, not only management.”

Participant D: “All that is communicated from the top is that there is a deficit and that is it.”

Chapter three noted that financial training plays an important role in producing effective budgets. The correlation between the availability of financial training and the budgetary skills of participants was 0,548. This means that, if more participants agree that financial training is available and they actually make use of it, their capabilities in terms of working with budgetary concepts could increase.

The research objective was met, as the empirical study was able to point out whether a fostering environment was available for preparing effective budgets. The literature study also provided the needed literature on how such an environment should be created.

Two recommendations can be made in terms of research objective one. Firstly, managerial involvement should be cultivated as part of the budgetary process, as the literature and the empirical results would suggest that improved managerial involvement could increase the motivation of employees who work with budgetary tasks. Nevertheless, it is important to consider how management becomes involved. As noted by the personal responses of participants, top-down involvement is not desirable; a clear call was made for greater involvement by employees. Participative budgeting in the institution could provide an opportunity for increased involvement and improved motivation in employees involved in the budgeting process of the institution.

The second recommendation suggests that more effective communication be sought to inform participants involved in budget-related tasks of financial training taking place in the organisation. This could increase budgetary skills which would help to foster an environment where effective budgets can be prepared.

4.2.2 The context of higher education budgeting

The main focus of joint research objective 2 was to understand the context of the higher education sector. This objective was reached as part of the detailed discussion on international and local trends and challenges that face the sector (chapter two).

One of the main conclusions drawn was that the decline of government funding to the sector is a big challenge. This is a local as well as an international trend. National strategic plans also place further stress on the system with calls for greater accessibility and more graduates in an already full system. The empirical part of the research objective asked the question of whether employees working with budgets were in fact familiar with the challenges facing the sector.

This was tested as part of the empirical study where participants were asked whether they were familiar with the goals set forth for the higher education in the National Development Plan of South Africa. The results were clear – 81% of participants were not in agreement with the statement. They were not familiar with the national goals for the higher education sector. In terms of their own institution, only 37,1% of participants indicated that they were not in agreement with the statement. Most of the respondents seemed to be familiar with the goals of their own institution.

There was a very low correlation between participants involved in budgetary tasks and the level of familiarity with national and institutional goals. The correlation coefficients were -0,031 and 0,162 respectively. This signifies that budgetary involvement does not correlate with familiarity with the context in which participants function. More discussion on this follows under research objective 3.

The open responses of participants contained no real mention of the context of the higher education environment. One participant noted above pointed out that the only communication that took place was that there was a deficit. A deficit is nothing strange given the context of the sector, but the question was whether participants knew why there was a deficit.

It could therefore be concluded that the respondents' level of familiarity with the higher education sector's strategies is questionable. The empirical objective was reached as it indicated that even though participants were familiar with the institutional goals, they seemed less familiar with the greater context of the higher education sector.

As mentioned in chapter two – if institutional goals are aligned with national goals, reaching national goals could become a possibility even if participants did not necessarily have direct knowledge of the national goals. It is therefore recommended that greater care should be taken to explain national challenges facing the sector as part of budgetary information. The empirical investigation showed that most participants attended information sessions. This could be a good place to communicate the context of the sector to staff involved in budgeting activities.

4.2.3 Critical factors in higher education budgets

The final literary research objective was to define critical factors for budgeting in the higher education sector. This objective was reached in chapter two where two critical factors were identified. Budgets must have a strategic focus through linking with strategic goals. The second factor was the human element that must be managed in order to create efficient budgets. Each of these factors had sub elements included in the discussion of the final empirical objective.

The final empirical objective was to test whether the existence or not of the critical factors identified for higher education budgeting influenced the perceived effectiveness of budgeting in an institution.

When considering the perceived effectiveness of the budget process in the institution that was part of the investigation. The empirical results pointed out that 59,4% of respondents indicated that they agreed that the budget process in their institution was effective.

In order to answer the question posed by the empirical objective, correlations of the perceived effectiveness with some of the subitems of the strategic factors are considered next.

The literature stated that strategic linking of budgets is very important to promote effective budgets. This study displayed a low correlation between the perceived level of effectiveness and direct familiarity with the strategic goals of the institution and the country. However, if strategic linking is considered on a unit level, higher correlation

coefficients start to present themselves. There seems to be a disjuncture between the strategic priorities of the wider context and unit level strategies. Correlation between the perceived effectiveness of a future strategy for organisational units and the communication of strategic goals yielded correlation coefficients of 0,447 and 0,500 respectively. Communication of budgetary goals and managerial involvement also yielded high correlation values of 0,651 and 0,572 respectively. The latter formed part of the critical factor of the human element in budgeting.

A correlation of 0,461 was reported in terms of participants' sense budget process efficiency and whether budgets were strategically linked. Which again points to the possible influence that strategic linking can have on perceived budgetary effectiveness.

Participants comment on more than one occasion that a greater strategic approach is needed. One participant noted that, "we need to do an actual cost analysis based on accurate statistics and according to a priority list linked to strategic priorities", One cannot speak for the group but it does support the notion in literature that linkage to strategic priorities are important.

Thus it seems that some sub elements of the critical factors identified do in fact contribute to the perceived effectiveness of the budgeting process as proposed by the literature. There are sub elements that seem contribute less to the perceived effectiveness of budgets in the institution that was part of the investigation. These sub elements include:

- Correlations between perceived budget process efficiency and strategic awareness of institutional goals.
- Correlations between perceived budget process efficiency and national goals.
- Correlations between perceived budget process efficiency and budgetary skills of participants.

The behavioural aspects of budgeting should be managed better, as it may have the greatest influence on perceived budgetary effectiveness.

Better communication seems to be a recurring theme throughout all three research objectives. As a recommendation the institution in question could consider better communication of strategic goals as well as budgetary goals through greater management involvement in a participative manner. When looking at the available

correlations it would seem that such changes would increase not only motivation, as mentioned earlier, but also perceived effectiveness of the budget process within the institution.

4.3 LIMITATIONS

In terms of the literature, more sources that discuss the financial condition of the sector is needed. However, since it is seen as sensitive information it can be difficult to get a detailed view of the sector (chapter two).

The empirical study was limited as it was only conducted at one of the universities in South Africa. The use of convenience sampling prevented the conclusions arrived at to be statistically invalid for the entire South African higher education sector. Broad conclusions on budgeting within the sector was not possible. However, certain correlations will guide future research on this subject. The sample group was also quite small.

4.4 RECOMMENDATION FOR FUTURE STUDY

The results from the empirical investigation and the literature study point to certain correlations that exist between sub elements of the critical factors identified in chapter two. These correlations can be investigated in more detail as part of future research. The correlations of interest include correlations between communication of strategic goals and the perception of budget process efficiency; the correlation between managerial involvement and communication of strategic goals; the correlation between budgetary goal communication and the perception of budget process efficiency; and, finally, the correlation between managerial involvement and perception of budget process efficiency.

Future research could look closer at whether increasing managerial involvement in a participative manner would increase perceived budget process effectiveness. The influence of better communication in terms of budgetary goals as well as strategic goals could also be considered in further research endeavours.

4.5 CLOSING REMARKS

This study attempted to understand the unique challenges that face the higher education sector. Better understanding of what critical factors may influence the effectiveness of higher education budgets was also sought. The empirical investigation made it clear that certain relationships do exist that may warrant further investigation.

It is said that knowledge is power. A better future could be imagined with knowledge of the higher education sector and knowledge of how to effectively function in the higher education sector.

The main challenge for the future is meeting the goals the NDP has set for 2030.

The strategic goal effective budgets can play in helping to reach these goals must not be underestimated and must be investigated further. As the plan states, “It is our future we must make it work, it is a collective responsibility of the all in the country to work to together to solve our country’s complex problems” (NDP, 2012:1).

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APPENDIX A

Questionnaire							
		Biographic Information					
Question	1	Gender	Female				
			Male				
Question	2	Highest Qualification	Matric				
			Diploma				
			Degree or higher				
			Not applicable				
Question	3	On which organisational level(s) are you involved?	Dean or director school or research department				
			Head of department				
			Subject group or program leader				
			Administrative manager				
			Administrative with financial responsibilities				
			Full financial capacity				
Question	4	Are you involved with drafting strategy for your business unit?	Yes				
			No				
Question	5	How frequently do you perform these tasks?	Almost never	Rarely	Sometimes	Often	Almost always
Question	6	Are you involved with budgetary planning in your business unit?	Yes				
			No				
Question	7	How frequently do you perform these tasks?	Almost never	Rarely	Sometimes	Often	Almost always
		Strategic elements of budgeting					
Question	8	Are you familiar with the current Higher Education goals, as set forth in the National Development Plan of South Africa?	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question	9	Are you familiar with your institutions' strategic priorities?	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question	10	Your organisational unit has a clear strategy for the future.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question	11	Strategic goals are clearly communicated by management.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
		Behavioral elements of budgeting					
Question	12	Do you have any prior **financial training**? Choose all of the relevant options.	Formal Degree				
			Diploma				
			Certificate				
			Workshops and organisational training				
Question	13	Indicate your prior **work experience** in the financial environment.	0-1 year				
			1-2 years				
			2-3 years				
			More than 3 years				

Question 14	Budgetary training is available in your organisation.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 15	You feel capable when you are working with budgetary concepts.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 16	When last did you attended a budgetary information sessions at your institution?	2014	2013	2012	Cannot remember	
Question 17	You feel that management is involved in all steps of the budgetary process at your institution.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 18	Budgetary goals are clearly communicated by management	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 19	You compile your unit's budget in order to fit into the communicated goals.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 20	You have to report to someone when deviances arise between your budgeted and actual performance?	Yes	No			
Question 21	You always take some form of action when deviances between budgeted and actual performance arise.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 22	You feel motivated when involved with the budgetary process.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
	Perception of budgeting in your institution					
Question 23	There is a link between your business units' budget and the strategic goals of the institution.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 24	You feel that your institution has an efficient budget process.	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Question 25	In your opinion, in what areas can the current budget process improve?					

APPENDIX B

Question 25

Geen direkte toegang tot UDI (waarskynlik weens duur lisensiekostes), wat kontroles en ketting van beheer beperk. UDI is nie prakties of gebruikersvriendelik
Eiesoortigheid van ons besigheid word generies hanteer, wat skewe voorsiening meebring vir die doelwitte waaraan ons ondersteuning moet voldoen.
Meer gedetaileerde inligtingsessies vir bestuur (Dekane en Direkteure spesifiek)
Die begrotingsproses moet vroee"r afgehandel word sodat tydelike personeel teen November al aangestel kan word vir die volgende jaar. Beplanning kan nie effektief gedoen word as die begroting eers aan die einde van November goedgekeur word nie. Desember is nie bruikbaar vir beplanning nie.
Waar dit by die begroting rakende klasgelde gaan kan die middelbestuur meer betrokke wees om insette te gee.
By ons organisasie intern loop alles reg, sodra dit na buite die organisasie gaan dan is daar nie kommunikasie nie, die mense wat met dit moet werk het nie altyd die nodige kennis of opleiding nie en verstaan nie hoe ons organisasie werk nie. Die mense buite ons organisasie moet of opleiding kry in ons doen en late of dit na iemand verwys wat weet hoe dit werk. DIt sal baie meer effektief wees en baie tyd spaar.
Die begrotingsreëls moet konsekwent vir alle afdelings toegepas word.
GS3 doelwitte en riglyne kan dalk beter gekommunikeer word.
As 'n geheel in ons departement die begroting is totaal en al butie verband met ander kompeterende Universiteite in die land
Hulle kan die kontrubisie wat die skole moet bydra verminder chemikalie is baie duur en baie studente om voor prakties te gee
Die begroting is tans gebasseer op 'n beginsel van vorige begroting plus persentasie inflasionere groei. Ons behoort werklike kosteberekeninge te doen, gebasseer op akkurate statestiek, volgens 'n prioriteitslys wat gekoppel is aan strategiese prioriteite
Dit is slegs 'n geval van sit die % by en klaar. Daar is nie ruimte om regtig vreeslik te groei nie. Dit is nogal baie frustrerend. Veral met vergoeding vir die personeel is dit 'n kwessie
Fakulteite moet groter inspraak kry oor beskikbare fondse en besteding daarvan. Dit impliseer beter riglyne van kontribusie per fakulteit.
Indien 'n besigheidseenheid se begroting goed verloop, moet die eenheid nie dieselfde opdrag t.o.v. besnoeiing kry as die eenhede waar begroting en realiteite nie ooreenkomgekom het niie.
Alles waaraan ek kan dink word reeds toegepas in geimplementeer.
Betrek die mense op grondvloer om insette te lewer. Dit neem uitgawes om groter inkomste te groei dus moet oorskryding van uitgawebegrotings nie noodwendig as 'n sweep gebruik word indien die inkomstebegrotings oorskry is.
Al die belangrike inligting en versoeke moet betyds deur amptenare ingedien word!!
Begrotings bevordeel net die struktuur wat dit kan 'manupuleer', geen ekstra vir die voetsoldate wat die werklike werk doen om die geld in te bring nie.
Strategiese prioriteite word te ver gedelegeer, daar is eintlik nie veel beheer daaroor nie.
Meer insae van verskileende mense in die organisasie, nie net die bestuur nie.

1. Al wat van bo af gekommunikeer word, is dat daar 'n tekort is en basta. 2. Daar word besonder baie geld besteë aan ondersteuningsdienste, terwyl die akademie tot 'n mate daaronder ly. As sake beter bestuur word, en daar veral nie duplisering is nie (dus meer effektiwiteit), sal dit 'n positiewe invloed op die begroting hê. 3. Daar moet voorsiening gemaak word vir groei. By sommige besigheidseenhede/-entiteite is daar besondere potensiaal tot groei, by ander minder so. Investeer eerder daar waar daar groeipotensiaal is. Dit sluit in aspekte soos personeelvoorsiening (sommige eenhede is totaal en al oorvoorsien en ander ondervoorsien en poste moet gewoon geskuif word na daar waar dit geregverdig is - suiwer besigheid), én bedryfsake.

APPENDIX C

```
GET DATA /TYPE=XLSX
  /FILE='Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Recoded Data.xlsx'
  /SHEET=name 'responses (1)'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.
EXECUTE.
DATASET NAME DataSet1 WINDOW=FRONT.

SAVE OUTFILE='Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav'
  /COMPRESSED.
FREQUENCIES VARIABLES=V1 V2 V3.1 V3.2 V3.3 V3.4 V3.5 V3.6 V4 V5 V6 V7 V8 V9 V10 V11
V12.1 V12.2 V12.3 V12.4 V13 V14 V15 V16 V17 V18 V19 V20 V21 V22 V23 V24
  /ORDER=ANALYSIS.
```

Frequencies

Notes

Output Created		02-OCT-2014 10:41:23
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.

Syntax		FREQUENCIES VARIABLES=V1 V2 V3.1 V3.2 V3.3 V3.4 V3.5 V3.6 V4 V5 V6 V7 V8 V9 V10 V11 V12.1 V12.2 V12.3 V12.4 V13 V14 V15 V16 V17 V18 V19 V20 V21 V22 V23 V24 /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

[DataSet1] Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav

Statistics

		V1	V2	V3.1	V3.2
N	Valid	76	76	12	11
	Missing	1	1	65	66

V3.3	V3.4	V3.5	V3.6	V4	V5
2	12	49	3	77	32
75	65	28	74	0	45

V6	V7	V8	V9	V10	V11
73	47	63	63	64	64
4	30	14	14	13	13

V12.1	V12.2	V12.3	V12.4	V13	V14
15	5	10	40	60	60
62	72	67	37	17	17

V15	V16	V17	V18	V19	V20
60	60	60	60	60	60
17	17	17	17	17	17

V21	V22	V23	V24
48	60	59	59
29	17	18	18

Frequency Table

V1

		Frequency	Percent	Valid Percent	Percent
Valid	1	58	75,3	76,3	76,3
	2	18	23,4	23,7	100,0
	Total	76	98,7	100,0	
Missing	System	1	1,3		
Total		77	100,0		

V2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	22,1	22,4	22,4
	2	19	24,7	25,0	47,4
	3	39	50,6	51,3	98,7
	4	1	1,3	1,3	100,0
	Total	76	98,7	100,0	
Missing	System	1	1,3		
Total		77	100,0		

V3.1

		Frequency	Percent	Valid Percent	Percent
Valid	1	12	15,6	100,0	100,0
Missing	System	65	84,4		
Total		77	100,0		

V3.2

		Frequency	Percent	Valid Percent	Percent
Valid	1	11	14,3	100,0	100,0
Missing	System	66	85,7		
Total		77	100,0		

V3.3

		Frequency	Percent	Valid Percent	Percent
Valid	1	2	2,6	100,0	100,0
Missing	System	75	97,4		
Total		77	100,0		

V3.4

		Frequency	Percent	Valid Percent	Percent
Valid	1	12	15,6	100,0	100,0
Missing	System	65	84,4		
Total		77	100,0		

V3.5

		Frequency	Percent	Valid Percent	Percent
Valid	1	49	63,6	100,0	100,0
Missing	System	28	36,4		
Total		77	100,0		

V3.6

		Frequency	Percent	Valid Percent	Percent

Valid	1	3	3,9	100,0	100,0
Missing	System	74	96,1		
Total		77	100,0		

V4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	33	42,9	42,9	42,9
	2	44	57,1	57,1	100,0
	Total	77	100,0	100,0	

V5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1,3	3,1	3,1
	3	11	14,3	34,4	37,5
	4	15	19,5	46,9	84,4
	5	5	6,5	15,6	100,0
	Total	32	41,6	100,0	
Missing	System	45	58,4		
Total		77	100,0		

V6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	47	61,0	64,4	64,4
	2	26	33,8	35,6	100,0
	Total	73	94,8	100,0	
Missing	System	4	5,2		
Total		77	100,0		

V7

		Frequency	Percent	Valid Percent	Percent
Valid	2	1	1,3	2,1	2,1
	3	10	13,0	21,3	23,4
	4	27	35,1	57,4	80,9
	5	9	11,7	19,1	100,0
	Total	47	61,0	100,0	
Missing	System	30	39,0		
Total		77	100,0		

V8

		Frequency	Percent	Valid Percent	Percent
Valid	1	6	7,8	9,5	9,5
	2	10	13,0	15,9	25,4
	3	35	45,5	55,6	81,0
	4	10	13,0	15,9	96,8
	5	2	2,6	3,2	100,0
	Total	63	81,8	100,0	
Missing	System	14	18,2		
Total		77	100,0		

V9

		Frequency	Percent	Valid Percent	Percent
Valid	1	2	2,6	3,2	3,2
	2	3	3,9	4,8	7,9
	3	15	19,5	23,8	31,7
	4	32	41,6	50,8	82,5
	5	11	14,3	17,5	100,0
	Total	63	81,8	100,0	

Missing	System	14	18,2		
Total		77	100,0		

V10

		Frequency	Percent	Valid Percent	Percent
Valid	1	1	1,3	1,6	1,6
	2	6	7,8	9,4	10,9
	3	8	10,4	12,5	23,4
	4	35	45,5	54,7	78,1
	5	14	18,2	21,9	100,0
	Total	64	83,1	100,0	
Missing	System	13	16,9		
Total		77	100,0		

V11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1,3	1,6	1,6
	2	11	14,3	17,2	18,8
	3	12	15,6	18,8	37,5
	4	29	37,7	45,3	82,8
	5	11	14,3	17,2	100,0
	Total	64	83,1	100,0	
Missing	System	13	16,9		
Total		77	100,0		

V12.1

	Frequency	Percent	Valid Percent	Percent

Valid	1	15	19,5	100,0	100,0
Missing	System	62	80,5		
Total		77	100,0		

V12.2

		Frequency	Percent	Valid Percent	Percent
Valid	1	5	6,5	100,0	100,0
Missing	System	72	93,5		
Total		77	100,0		

V12.3

		Frequency	Percent	Valid Percent	Percent
Valid	1	10	13,0	100,0	100,0
Missing	System	67	87,0		
Total		77	100,0		

V12.4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	40	51,9	100,0	100,0
Missing	System	37	48,1		
Total		77	100,0		

V13

		Frequency	Percent	Valid Percent	Percent
Valid	1	4	5,2	6,7	6,7
	2	2	2,6	3,3	10,0
	3	5	6,5	8,3	18,3
	4	49	63,6	81,7	100,0

	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V14

		Frequency	Percent	Valid Percent	Percent
Valid	2	12	15,6	20,0	20,0
	3	8	10,4	13,3	33,3
	4	28	36,4	46,7	80,0
	5	12	15,6	20,0	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V15

		Frequency	Percent	Valid Percent	Percent
Valid	2	5	6,5	8,3	8,3
	3	11	14,3	18,3	26,7
	4	35	45,5	58,3	85,0
	5	9	11,7	15,0	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V16

		Frequency	Percent	Valid Percent	Percent
Valid	1	38	49,4	63,3	63,3
	2	6	7,8	10,0	73,3

	3	4	5,2	6,7	80,0
	4	12	15,6	20,0	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V17

		Frequency	Percent	Valid Percent	Percent
Valid	1	1	1,3	1,7	1,7
	2	11	14,3	18,3	20,0
	3	12	15,6	20,0	40,0
	4	32	41,6	53,3	93,3
	5	4	5,2	6,7	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V18

		Frequency	Percent	Valid Percent	Percent
Valid	1	1	1,3	1,7	1,7
	2	10	13,0	16,7	18,3
	3	13	16,9	21,7	40,0
	4	31	40,3	51,7	91,7
	5	5	6,5	8,3	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V19

		Frequency	Percent	Valid Percent	Percent
Valid	1	2	2,6	3,3	3,3
	2	5	6,5	8,3	11,7
	3	12	15,6	20,0	31,7
	4	31	40,3	51,7	83,3
	5	10	13,0	16,7	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V20

		Frequency	Percent	Valid Percent	Percent
Valid	1	48	62,3	80,0	80,0
	2	12	15,6	20,0	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V21

		Frequency	Percent	Valid Percent	Percent
Valid	2	6	7,8	12,5	12,5
	3	7	9,1	14,6	27,1
	4	29	37,7	60,4	87,5
	5	6	7,8	12,5	100,0
	Total	48	62,3	100,0	
Missing	System	29	37,7		
Total		77	100,0		

V22

		Frequency	Percent	Valid Percent	Percent
Valid	1	2	2,6	3,3	3,3
	2	14	18,2	23,3	26,7
	3	15	19,5	25,0	51,7
	4	23	29,9	38,3	90,0
	5	6	7,8	10,0	100,0
	Total	60	77,9	100,0	
Missing	System	17	22,1		
Total		77	100,0		

V23

		Frequency	Percent	Valid Percent	Percent
Valid	1	1	1,3	1,7	1,7
	2	9	11,7	15,3	16,9
	3	13	16,9	22,0	39,0
	4	32	41,6	54,2	93,2
	5	4	5,2	6,8	100,0
	Total	59	76,6	100,0	
Missing	System	18	23,4		
Total		77	100,0		

V24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	13	16,9	22,0	22,0
	3	11	14,3	18,6	40,7
	4	29	37,7	49,2	89,8
	5	6	7,8	10,2	100,0
	Total	59	76,6	100,0	
Missing	System	18	23,4		
Total		77	100,0		

```
DESCRIPTIVES VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Notes

Output Created		02-OCT-2014 10:44:38
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.06

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
V5	32	1	5	3,72	,851
V7	47	2	5	3,94	,704
V8	63	1	5	2,87	,907
V9	63	1	5	3,75	,915
V10	64	1	5	3,86	,924
V11	64	1	5	3,59	1,019
V14	60	2	5	3,67	1,020
V15	60	2	5	3,80	,798
V17	60	1	5	3,45	,928
V18	60	1	5	3,48	,930
V19	60	1	5	3,70	,962
V21	48	2	5	3,73	,844
V22	60	1	5	3,28	1,043
V23	59	1	5	3,49	,898
V24	59	2	5	3,47	,953
Valid N (listwise)	26				

```
NONPAR CORR
  /VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24
  /PRINT=SPEARMAN TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Nonparametric Correlations

Notes

Output Created		02-OCT-2014 10:46:41
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		NONPAR CORR /VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 /PRINT=SPEARMAN TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.06
	Number of Cases Allowed	43690 cases[a]

a. Based on availability of workspace memory

Correlations

			V5	V7	V8	V9	V10	V11	V14	V15	V17	V18	V19	V21	V22	V23	V24
Spearman's rho	V5	Correlation Coefficient	1,000	,050	.427*	.637**	,305	.446*	,107	,073	-,109	-,026	,044	,179	-,076	-,121	-,092
		Sig. (2-tailed)		,800	,017	,000	,090	,010	,567	,696	,561	,891	,813	,352	,686	,517	,624
		N	32	28	31	31	32	32	31	31	31	31	31	29	31	31	31
	V7	Correlation Coefficient	,050	1,000	-,031	,162	,219	,319*	-,079	,045	-,127	-,099	,117	-,131	,216	-,049	,143
		Sig. (2-tailed)	,800		,846	,299	,153	,035	,616	,777	,416	,526	,455	,432	,164	,753	,360
		N	28	47	43	43	44	44	43	43	43	43	43	38	43	43	43
	V8	Correlation Coefficient	.427*	-,031	1,000	.402**	.358**	.297*	,127	,126	,061	,217	,237	,273	,093	,152	,106
		Sig. (2-tailed)	,017	,846		,001	,004	,018	,333	,336	,644	,095	,068	,060	,481	,251	,423
		N	31	43	63	63	63	63	60	60	60	60	60	48	60	59	59
	V9	Correlation Coefficient	.637**	,162	.402**	1,000	.426**	.436**	.397**	,235	,051	,189	.494**	.328*	,097	,158	,202
		Sig. (2-tailed)	,000	,299	,001		,001	,000	,002	,071	,697	,149	,000	,023	,459	,232	,126
		N	31	43	63	63	63	63	60	60	60	60	60	48	60	59	59
	V10	Correlation Coefficient	,305	,219	.358**	.426**	1,000	.734**	.293*	,073	.343**	.362**	,217	,164	.379**	.425**	.447**
		Sig. (2-tailed)	,090	,153	,004	,001		,000	,023	,579	,007	,005	,096	,265	,003	,001	,000
		N	32	44	63	63	64	64	60	60	60	60	60	48	60	59	59
	V11	Correlation Coefficient	.446*	.319*	.297*	.436**	.734**	1,000	.395**	,197	.499**	.517**	.276*	,158	.406**	.272*	.500**
		Sig. (2-tailed)	,010	,035	,018	,000	,000		,002	,132	,000	,000	,033	,282	,001	,037	,000
		N	32	44	63	63	64	64	60	60	60	60	60	48	60	59	59
	V14	Correlation Coefficient	,107	-,079	,127	.397**	.293*	.395**	1,000	.548**	.453**	.583**	.488**	.531**	.439**	,190	.444**
		Sig. (2-tailed)	,567	,616	,333	,002	,023	,002		,000	,000	,000	,000	,000	,000	,150	,000
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59
	V15	Correlation Coefficient	,073	,045	,126	,235	,073	,197	.548**	1,000	,171	,247	.359**	,266	.286*	,131	,194
		Sig. (2-tailed)	,696	,777	,336	,071	,579	,132	,000		,192	,057	,005	,068	,027	,322	,141
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59
	V17	Correlation Coefficient	-,109	-,127	,061	,051	.343**	.499**	.453**	,171	1,000	.783**	.404**	.391**	.400**	.282*	.651**
		Sig. (2-tailed)	,561	,416	,644	,697	,007	,000	,000	,192		,000	,001	,006	,002	,030	,000
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59
	V18	Correlation Coefficient	-,026	-,099	,217	,189	.362**	.517**	.583**	,247	.783**	1,000	.410**	.425**	.490**	,242	.572**
		Sig. (2-tailed)	,891	,526	,095	,149	,005	,000	,000	,057	,000		,001	,003	,000	,065	,000
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59

	V19	Correlation Coefficient	,044	,117	,237	.494**	,217	.276*	.488**	.359**	.404**	.410**	1,000	.571**	.461**	.319*	.477**			
		Sig. (2-tailed)	,813	,455	,068	,000	,096	,033	,000	,005	,001	,001		,000	,000	,014	,000			
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59			
	V21	Correlation Coefficient	,179	-,131	,273	.328*	,164	,158	.531**	,266	.391**	.425**	.571**	1,000	.476**	.322*	.367*			
		Sig. (2-tailed)	,352	,432	,060	,023	,265	,282	,000	,068	,006	,003	,000		,001	,026	,010			
		N	29	38	48	48	48	48	48	48	48	48	48	48	48	48	48			
	V22	Correlation Coefficient	-,076	,216	,093	,097	.379**	.406**	.439**	.286*	.400**	.490**	.461**	.476**	1,000	.388**	.529**			
		Sig. (2-tailed)	,686	,164	,481	,459	,003	,001	,000	,027	,002	,000	,000	,001		,002	,000			
		N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59			
	V23	Correlation Coefficient	-,121	-,049	,152	,158	.425**	.272*	,190	,131	.282*	,242	.319*	.322*	.388**	1,000	.461**			
		Sig. (2-tailed)	,517	,753	,251	,232	,001	,037	,150	,322	,030	,065	,014	,026	,002		,000			
		N	31	43	59	59	59	59	59	59	59	59	59	48	59	59	59			
	V24	Correlation Coefficient	-,092	,143	,106	,202	.447**	.500**	.444**	,194	.651**	.572**	.477**	.367*	.529**	.461**	1,000			
		Sig. (2-tailed)	,624	,360	,423	,126	,000	,000	,000	,141	,000	,000	,000	,010	,000	,000				
		N	31	43	59	59	59	59	59	59	59	59	59	48	59	59	59			

*. Correlation is significant at the 0.05 level (2-tailed).

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

```
NONPAR CORR
  /VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 V2 V13 V16
  /PRINT=SPEARMAN TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Nonparametric Correlations

Notes

Output Created		02-OCT-2014 10:47:39
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		NONPAR CORR /VARIABLES=V5 V7 V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 V2 V13 V16 /PRINT=SPEARMAN TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.14
	Number of Cases Allowed	37449 cases[a]

a. Based on availability of workspace memory

Correlations

			V5	V7	V8	V9	V10	V11	V14	V15	V17	V18	V19	V21	V22	V23	V24	V2	V13	V16
Spearman's rho	V5	Correlation Coefficient	1,000	,050	.427*	.637**	,305	.446*	,107	,073	-,109	-,026	,044	,179	-,076	-,121	-,092	,204	,167	,156
		Sig. (2-tailed)		,800	,017	,000	,090	,010	,567	,696	,561	,891	,813	,352	,686	,517	,624	,262	,370	,401
		N	32	28	31	31	32	32	31	31	31	31	31	29	31	31	31	32	31	31
	V7	Correlation Coefficient	,050	1,000	-,031	,162	,219	.319*	-,079	,045	-,127	-,099	,117	-,131	,216	-,049	,143	,125	,076	-,273
		Sig. (2-tailed)	,800		,846	,299	,153	,035	,616	,777	,416	,526	,455	,432	,164	,753	,360	,402	,629	,076
		N	28	47	43	43	44	44	43	43	43	43	43	38	43	43	43	47	43	43
	V8	Correlation Coefficient	.427*	-,031	1,000	.402**	.358**	.297*	,127	,126	,061	,217	,237	,273	,093	,152	,106	,155	-,043	-,204
		Sig. (2-tailed)	,017	,846		,001	,004	,018	,333	,336	,644	,095	,068	,060	,481	,251	,423	,224	,744	,119
		N	31	43	63	63	63	63	60	60	60	60	60	48	60	59	59	63	60	60
	V9	Correlation Coefficient	.637**	,162	.402**	1,000	.426**	.436**	.397**	,235	,051	,189	.494**	.328*	,097	,158	,202	,167	.264*	-.405**
		Sig. (2-tailed)	,000	,299	,001		,001	,000	,002	,071	,697	,149	,000	,023	,459	,232	,126	,192	,041	,001
		N	31	43	63	63	63	63	60	60	60	60	60	48	60	59	59	63	60	60

V10	Correlation Coefficient	,305	,219	.358*	.426**	1,000	.734**	.293*	,073	.343**	.362**	,217	,164	.379**	.425**	.447**	,244	-,007	-.307*
	Sig. (2-tailed)	,090	,153	,004	,001		,000	,023	,579	,007	,005	,096	,265	,003	,001	,000	,052	,957	,017
	N	32	44	63	63	64	64	60	60	60	60	60	48	60	59	59	64	60	60
V11	Correlation Coefficient	.446*	.319*	.297*	.436**	.734**	1,000	.395**	,197	.499**	.517**	.276*	,158	.406**	.272*	.500**	,194	,109	-.302*
	Sig. (2-tailed)	,010	,035	,018	,000	,000		,002	,132	,000	,000	,033	,282	,001	,037	,000	,125	,408	,019
	N	32	44	63	63	64	64	60	60	60	60	60	48	60	59	59	64	60	60
V14	Correlation Coefficient	,107	-,079	,127	.397*	.293*	.395**	1,000	.548**	.453**	.583**	.488**	.531**	.439**	,190	.444**	,115	,116	-.332*
	Sig. (2-tailed)	,567	,616	,333	,002	,023	,002		,000	,000	,000	,000	,000	,000	,150	,000	,380	,378	,010
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V15	Correlation Coefficient	,073	,045	,126	,235	,073	,197	.548**	1,000	,171	,247	.359**	,266	.286*	,131	,194	.379**	.357**	-.298*
	Sig. (2-tailed)	,696	,777	,336	,071	,579	,132	,000		,192	,057	,005	,068	,027	,322	,141	,003	,005	,021
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V17	Correlation Coefficient	-,109	-,127	,061	,051	.343**	.499**	.453**	,171	1,000	.783**	.404**	.391**	.400**	.282*	.651**	,173	,077	-.262*
	Sig. (2-tailed)	,561	,416	,644	,697	,007	,000	,000	,192		,000	,001	,006	,002	,030	,000	,187	,557	,043
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V18	Correlation Coefficient	-,026	-,099	,217	,189	.362**	.517**	.583**	,247	.783**	1,000	.410**	.425**	.490**	,242	.572**	,077	-,012	-.453**
	Sig. (2-tailed)	,891	,526	,095	,149	,005	,000	,000	,057	,000		,001	,003	,000	,065	,000	,556	,927	,000
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V19	Correlation Coefficient	,044	,117	,237	.494**	,217	.276*	.488**	.359**	.404**	.410**	1,000	.571**	.461**	.319*	.477**	.319*	.269*	-.436**
	Sig. (2-tailed)	,813	,455	,068	,000	,096	,033	,000	,005	,001	,001		,000	,000	,014	,000	,013	,037	,001
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V21	Correlation Coefficient	,179	-,131	,273	.328*	,164	,158	.531**	,266	.391**	.425**	.571**	1,000	.476**	.322*	.367*	,201	,047	-,057
	Sig. (2-tailed)	,352	,432	,060	,023	,265	,282	,000	,068	,006	,003	,000		,001	,026	,010	,171	,753	,698
	N	29	38	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
V22	Correlation Coefficient	-,076	,216	,093	,097	.379**	.406**	.439**	.286*	.400**	.490**	.461**	.476**	1,000	.388**	.529**	,190	,122	-,176
	Sig. (2-tailed)	,686	,164	,481	,459	,003	,001	,000	,027	,002	,000	,000	,001		,002	,000	,146	,353	,178
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V23	Correlation Coefficient	-,121	-,049	,152	,158	.425**	.272*	,190	,131	.282*	,242	.319*	.322*	.388**	1,000	.461**	.289*	,217	-,013
	Sig. (2-tailed)	,517	,753	,251	,232	,001	,037	,150	,322	,030	,065	,014	,026	,002		,000	,026	,098	,921
	N	31	43	59	59	59	59	59	59	59	59	59	48	59	59	59	59	59	59
V24	Correlation Coefficient	-,092	,143	,106	,202	.447**	.500**	.444**	,194	.651**	.572**	.477**	.367*	.529**	.461**	1,000	,102	,015	-,247
	Sig. (2-tailed)	,624	,360	,423	,126	,000	,000	,000	,141	,000	,000	,000	,010	,000	,000		,440	,911	,059
	N	31	43	59	59	59	59	59	59	59	59	59	48	59	59	59	59	59	59
V2	Correlation Coefficient	,204	,125	,155	,167	,244	,194	,115	.379**	,173	,077	.319*	,201	,190	.289*	,102	1,000	,199	-.266*
	Sig. (2-tailed)	,262	,402	,224	,192	,052	,125	,380	,003	,187	,556	,013	,171	,146	,026	,440		,128	,040
	N	32	47	63	63	64	64	60	60	60	60	60	48	60	59	59	76	60	60
V13	Correlation Coefficient	,167	,076	-,043	.264*	-,007	,109	,116	.357**	,077	-,012	.269*	,047	,122	,217	,015	,199	1,000	-,162
	Sig. (2-tailed)	,370	,629	,744	,041	,957	,408	,378	,005	,557	,927	,037	,753	,353	,098	,911	,128		,217
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60
V16	Correlation Coefficient	,156	-,273	-,204	-.405**	-.307*	-.302*	-.332**	-.298*	-.262*	-.453**	-.436**	-,057	-,176	-,013	-,247	-.266*	-,162	1,000
	Sig. (2-tailed)	,401	,076	,119	,001	,017	,019	,010	,021	,043	,000	,001	,698	,178	,921	,059	,040	,217	
	N	31	43	60	60	60	60	60	60	60	60	60	48	60	59	59	60	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

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

```
T-TEST GROUPS=V6(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		02-OCT-2014 10:53:22
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=V6(1 2) /MISSING=ANALYSIS /VARIABLES=V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.12

Group Statistics

V6		N	Mean	Std. Deviation	Std. Error Mean	Effect size
V8	1	43	2,88	1,051	,160	0,03
	2	20	2,85	,489	,109	
V9	1	43	3,93	,910	,139	0,64
	2	20	3,35	,813	,182	
V10	1	44	3,93	,950	,143	0,24
	2	20	3,70	,865	,193	
V11	1	44	3,70	1,047	,158	0,34
	2	20	3,35	,933	,209	
V14	1	43	3,74	1,026	,156	0,27
	2	17	3,47	1,007	,244	
V15	1	43	3,91	,750	,114	0,43
	2	17	3,53	,874	,212	
V17	1	43	3,58	,932	,142	0,50
	2	17	3,12	,857	,208	
V18	1	43	3,63	,874	,133	0,51
	2	17	3,12	,993	,241	
V19	1	43	4,05	,754	,115	1,39
	2	17	2,82	,883	,214	
V21	1	38	3,82	,865	,140	0,48
	2	10	3,40	,699	,221	
V22	1	43	3,44	1,053	,161	0,53
	2	17	2,88	,928	,225	
V23	1	43	3,60	,903	,138	0,46
	2	16	3,19	,834	,209	

V24	1	43	3,56	1,053	,161	0,29
	2	16	3,25	,577	,144	

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
V8	Equal variances assumed	6,764	,012	,136	61	,892	,034	,247	-,461	,528
	Equal variances not assumed			,174	60,989	,863	,034	,194	-,354	,422
V9	Equal variances assumed	,036	,849	2,433	61	,018	,580	,238	,103	1,057
	Equal variances not assumed			2,537	41,276	,015	,580	,229	,119	1,042
V10	Equal variances assumed	,194	,661	,930	62	,356	,232	,249	-,267	,730
	Equal variances not assumed			,964	40,221	,341	,232	,241	-,254	,718
V11	Equal variances assumed	,065	,800	1,297	62	,199	,355	,273	-,192	,901
	Equal variances not assumed			1,355	41,032	,183	,355	,262	-,174	,883
V14	Equal variances assumed	,049	,826	,936	58	,353	,274	,292	-,312	,859
	Equal variances not assumed			,943	29,892	,353	,274	,290	-,319	,866
V15	Equal variances assumed	2,747	,103	1,676	58	,099	,378	,225	-,073	,829
	Equal variances not assumed			1,567	25,828	,129	,378	,241	-,118	,873
V17	Equal variances assumed	,951	,334	1,775	58	,081	,464	,261	-,059	,987
	Equal variances not assumed			1,841	31,786	,075	,464	,252	-,049	,977
V18	Equal variances assumed	,051	,822	1,962	58	,055	,510	,260	-,010	1,031
	Equal variances not assumed			1,855	26,356	,075	,510	,275	-,055	1,075
V19	Equal variances assumed	1,066	,306	5,390	58	,000	1,223	,227	,769	1,677
	Equal variances not assumed			5,031	25,755	,000	1,223	,243	,723	1,723
V21	Equal variances assumed	,001	,974	1,400	46	,168	,416	,297	-,182	1,014
	Equal variances not assumed			1,588	17,045	,131	,416	,262	-,137	,968
V22	Equal variances assumed	3,373	,071	1,914	58	,061	,560	,292	-,026	1,145
	Equal variances not assumed			2,024	33,191	,051	,560	,276	-,003	1,122
V23	Equal variances assumed	,712	,402	1,608	57	,113	,417	,259	-,102	,937
	Equal variances not assumed			1,669	28,979	,106	,417	,250	-,094	,928
V24	Equal variances assumed	8,907	,004	1,106	57	,273	,308	,279	-,250	,866
	Equal variances not assumed			1,427	48,563	,160	,308	,216	-,126	,742

```
/M-W= V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 BY V6(1 2)
```

NPar Tests

Notes

Output Created		02-OCT-2014 10:55:45
Comments		
Input	Data	Q:\KONSULTASIEDIENS\SKD\S\Steyn_Juan_Okt14\Steyn_data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	77
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= V8 V9 V10 V11 V14 V15 V17 V18 V19 V21 V22 V23 V24 BY V6(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04
	Number of Cases Allowed[a]	41391

a. Based on availability of workspace memory.

Mann-Whitney Test

Ranks

V6		N	Mean Rank	Sum of Ranks
V8	1	43	32,64	1403,50
	2	20	30,63	612,50
	Total	63		
V9	1	43	35,85	1541,50
	2	20	23,73	474,50
	Total	63		
V10	1	44	34,34	1511,00
	2	20	28,45	569,00
	Total	64		
V11	1	44	34,81	1531,50
	2	20	27,43	548,50
	Total	64		
V14	1	43	31,85	1369,50
	2	17	27,09	460,50
	Total	60		
V15	1	43	32,74	1408,00
	2	17	24,82	422,00
	Total	60		
V17	1	43	33,12	1424,00
	2	17	23,88	406,00
	Total	60		
V18	1	43	33,15	1425,50
	2	17	23,79	404,50
	Total	60		

V19	1	43	36,67	1577,00
	2	17	14,88	253,00
	Total	60		
V21	1	38	26,12	992,50
	2	10	18,35	183,50
	Total	48		
V22	1	43	33,02	1420,00
	2	17	24,12	410,00
	Total	60		
V23	1	43	32,33	1390,00
	2	16	23,75	380,00
	Total	59		
V24	1	43	32,05	1378,00
	2	16	24,50	392,00
	Total	59		

Test Statistics[a]

	V8	V9	V10	V11	V14	V15	V17	V18	V19	V21	V22	V23	V24
Mann-Whitney U	402,500	264,500	359,000	338,500	307,500	269,000	253,000	251,500	100,000	128,500	257,000	244,000	256,000
Wilcoxon W	612,500	474,500	569,000	548,500	460,500	422,000	406,000	404,500	253,000	183,500	410,000	380,000	392,000
Z	-,448	-2,650	-1,293	-1,558	-1,014	-1,779	-2,021	-2,032	-4,727	-1,776	-1,861	-1,876	-1,615
Asymp. Sig. (2-tailed)	,654	,008	,196	,119	,311	,075	,043	,042	,000	,076	,063	,061	,106
Asymp. Sig. (2-tailed)										.120[b]			

a. Grouping Variable: V6

b. Not corrected for ties.

N	63	63	64	64	60	60	60	60	60	48	60	59	59
Effect size	0,06	0,33	0,16	0,19	0,13	0,23	0,26	0,26	0,61	0,26	0,24	0,24	0,21