STRATEGIC TOOLS FOR THE MANAGEMENT AND IMPROVEMENT OF PUBLIC SCHOOLS IN THE CAPE METROPOLE

By

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DECLARATION

I, **NELLY ROSE MSIZA**, declare that the contents of this research represents my unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it presents my own opinions but not necessarily those of the CPUT.

…… ……..

NELLY ROSE MSIZA DATE

ABSTRACT

Education plays an essential role in economic growth. The realisation of the ideal of a high-quality education system depends on sound financial management. Certain strategic tools are required to minimise the impacts of financial incompetence, mismanagement, and insufficient resources at public schools and thereby promote their effectiveness. The aim of the study is to examine the utilisation of beyond budgeting and the rolling forecast as strategic tools for monitoring management for improving public schools in the Cape Metropole. To address the research objectives, the study employed a quantitative-type questionnaire administered to 100 public schools in the Cape Town Metropolitan area of the Western Cape province in South Africa. In this study, the researcher conducted reliability, validity, discriminant validity, and structural modelling analysis by using version 27 of the Statistical Package for the Social Sciences (SPSS) and the partial least squares-structural equation modelling approach (PLS-SEM, version 3.3.3) for data analysis.

The examined relationships generated satisfactory results consistent with how they were hypothesised, according to the results of the structural equation modeling analysis. The results revealed a positive and significant relationship between the variables beyond budgeting and rolling forecast and the improvement of management in public schools. Furthermore, the participants in this study always uses the rolling forecast and beyond budgeting. In the latter, the results of the study could serve to educate representatives of public schools operating in the Cape Metropole on effective financial management. The researcher recommends that department of education should provide training to the management of public school. Particularly in the flexible tools such as beyond budgeting and rolling forecast to improve their financial performance.

KEYWORDS: public schools, quality education, financial management, financial mismanagement, strategic tools, beyond budgeting, rolling forecast

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I dedicate this thesis to my grandmother, Anastacia Mantwa Majola, with the deepest love, respect, and admiration. Throughout my studies, my grandmother motivated and supported me. Her consolation and wonderful assistance in each of the trials I faced have inspired me. My grandmother's unwavering faith in me and our faith in God has led me to complete this thesis.

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DEFINITIONS OF TERMS

Beyond budgeting: A set of essential values that, while followed, enable an organisation to effectively manage its performance and distribute its choice-making procedure without the want for traditional budgets. Its undertaking is to assist the business enterprise to meet the fulfilment elements of the information economic system (CIMA, 2007).

Financial management: A set of processes to ensure that funds are utilised efficiently and effectively in achieving an organisation's objectives (Aliyu, 2018).

Financial Mismanagement: Financial mismanagement is defined as improper administration, inappropriate or incorrect use of funds, and insufficient collateral security (Ololube, 2016).

Monitoring: A continuous function that strives to provide early signals of development, or loss of, in reaching results to control and key stakeholders of ongoing intervention. An ongoing venture, software, or other forms of intervention will be used to supply a result (CIMA.2005).

Public Schools: "Any school that was established or was deemed to have been established in terms of any law governing school education in the Republic of South Africa and that existed immediately prior to the commencement of this Act (South African Schools Act, 1996), other than a private school referred to in Section 53, is deemed to be a public school" (South Africa, 1996a).

Quality Education: "A quality education provides all learners with the capabilities they require to become economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual well-being. The learning outcomes that are required vary according to context, but at the end of the basic education, cycle must include threshold levels of literacy and numeracy, basic scientific knowledge, and life skills, including awareness and prevention of disease. Capacity development to improve the quality of teachers and other education stakeholders is crucial throughout this process" (Oyunge, 2015).

Rolling Forecast: A process that predicts common forecasts at comparable durations, for example, quarterly, half of-yearly, or even monthly (CIMA, 2013).

Strategic Tools: Mechanisms for realising clear and quantifiable objectives. You can identify strengths and gaps in your product or service, learn from particular illustrations of individual encounters and accumulate data through conclusions for change and insight into your planning (CIMA, 2013).

LIST OF ACRONYMS

AVE	Average Value Extracted
BB	Beyond budgeting
BSC	Balance Scorecard
CR	Composite Reliability
FM	Financial Management
FMTs	Financial Management Tools
GAAP	Generally accepted accounting procedures
HOD	Head of Department
HTMT	Heterotrait-Monotrait Ratio
IMOPS	Improvement in the management of public schools
NNSSF	National norms and standards for school funding
PLS	Partial Least Squares
RF	Rolling forecast
SASA	South African Schools Act
SEM	Structural equation modelling
SGB	School governing body

CHAPTER ONE

INTRODUCTION AND RESEARCH BACKGROUND

1.1 Introduction

The South African education system consists of public schools and private schools. Provincial governments provide grants and supplies to public schools, which are, to some extent, dependent on the province's wealth and resources (OECD, 2017). South Africa maintains to make investments closely in education, as it has accomplished since the end of apartheid in 1994 (Nkohla, 2014). Education receives more than six percent of gross domestic product (GDP) (Stats SA, 2019a). Public schools play an essential role in social development and economic growth in supporting family stability and gainful employment (Good & Nelson, 2020). Investing in a public education system is much more cost-effective for the state than the devastating consequences of a poorly educated nation (Kidder, 2019).

Despite the importance of public schools in economic growth, Mosala and Mofolo (2016) argued that the resources they received were inadequate. This perspective bears on how the funding is used to meet educational needs because, as Mestry (2013) pointed out, inequalities in the allocation of resources by the government have been removed. However, some imbalances persist for various reasons, including the inability of guardians to meet school-related expenses, the exclusion of poor students from private schools, and the shortage of quality teachers (Chetty & Pather, 2016).

These imbalances could be viewed as variables that prevent public schools from meeting educational objectives. Several studies have revealed other factors that plague public schools (Ackom-Wilson, 2015; Mosala & Mofolo, 2016; Rangongo et al., 2016; Mestry, 2018; Aina & Bipath, 2020). These include (i) the lack of financial management capabilities (Radzi et al., 2018; Amos, 2021), (ii) ineffective use of strategic tools, such as balance scorecards, budgeting, beyond budgeting, strategic planning and rolling forecast (Rompho, 2020), and (iii) financial mismanagement.

Poor financial management, maladministration, corruption, misappropriation of funds, and using funds for personal gain are all examples of financial mismanagement (Rangongo et al., 2016). Financial mismanagement can also be unintentional. For

instance, it could result from errors, ineptitude, neglect, or carelessness, such as financial incompetence in handling and reporting public school budgets (Rangongo et al., 2016). Financial mismanagement increases exchange costs decreases efficiency, distorts decision-making, and compromises quality education in public schools (Mobegi, 2017). Quality education is vital as it facilitates the development of student attributes and skills to realise their potential as constructive, contributing members of society (OECD, 2017).

Quality education is evaluated on the premise of the student's performance. It is related to quality parameters such as assessment results and the quality of students entering higher education after completing secondary school (Haseena et al., 2015). The achievement of quality education in public schools involves precisely describing all the components (input and output processes) that need to be present. The input processes comprise the curriculum implementation, the proper usage of resources, and the quality of teachers and teaching (Garira et al., 2019).

According to Garira (2015), output processes include the quality of the labour force, positive feedback in terms of pass rates or external assessment, and students' preparedness for tertiary education. Quality in education is essential since it provides the younger generation with adequate knowledge and employment skills and contributes positively to economic growth (European Commission, 2015).

To ensure the attainment of quality education, it is imperative that learning conditions and outcomes are monitored by controlling service delivery, budgeting with adequate and transparent information, offering extra resources to learners who need them, and efficiently managing all available resources (World Bank, 2016).

Setting up monitoring strategies to ensure quality education is achieved and maintained entails beyond budgeting and rolling forecast (Odh & Renfors, 2018). Beyond budgeting is the possibility that any expense is potentially allowed if the following three conditions are met: (i) the expense is aligned with the organisation's overall strategy and action plan; (ii) the expense is sensible and creates value; and (iii) the resources that managers commit should be relevant to the development of the organisation (Heupel & Schmitz, 2015).

Beyond budgeting is a process that allows public school management to distribute resources to the financially most needy and remove programmes and subdivisions that are ineffective in utilising resources (Johnson, 2020). Beyond budgeting is based on twelve principles that outline the premise of a flexible performance management approach (Úlfarsson, 2018). The principles are divided as follows six leadership process and six management process principles(Úlfarsson, 2018).The six leadership principles (purpose, values, transparency, organisation, trust, and customers) relate to the management structure that is vital for improving organisational flexibility (O'Grady et al., 2017). The other six principles relate to the management procedure (tempo, desires, plans and forecasts, resource allocation, performance evaluation, and rewards) (O'Grady et al., 2017).

Beyond budgeting and rolling forecast are flexible tools that can play a significant role in organisational planning (Sponem & Lambert, 2016). With beyond budgeting, the use of rolling forecast falls under the management processes of rhythm, plans and forecasting (Gustavsen & Hornnes, 2019). Rolling forecast as a practice allows an organisation to adjust its future expectations based on recent actual performance (Castellina, 2013).

Beyond budgeting and rolling forecast are flexible mechanisms for supporting organisation planning and control processes (Golyagina & Valuckas, 2012). Rolling forecast is described as continuous, monthly or quarterly forecast updates of the budget that enable a school to adapt to changes in financial planning (Bergmann et al., 2020). The purpose of rolling forecast is to establish a financial plan and projections that may be used to analyse business performance, manage resource allocation, inform development strategies, and lead to decisive action. The rolling forecast technique involves ongoing planning focusing on both long and short-term planning. It is not fixed each month and is not bound to a twelve-month budget term (Popesko et al., 2017).

Adopting rolling forecast in public schools, increases enrolment prediction and the reliability of projections allows for development planning, and assists in improving quality education (Henttu-Aho, 2018). According to Jones et al. (2019), rolling forecast are utilised in school districts for enrolment prediction to inform budgetary forecasting and strategic planning. In practice, enrolment predictions should consider

demographic and socio-economic factors which can be utilised to generate forecasts for teachers' salaries, benefits, and other expenditures relating to educational facilities (OECD, 2017). If resources are allocated sufficiently to every department in public schools, the all-round quality of education will improve (OECD, 2015).

Notwithstanding the potential benefits of beyond budgeting and rolling forecast, little research has been conducted on their use in public schools. Most international scholars have done research in organisations other than public schools (Ilchikabir, 2015; Henttu-Aho, 2018; Samudrage & Beddag, 2018; Úlfarsson, 2018; Guruge, 2021).

In South Africa, research has been conducted in private organisations (King, 2010; Sabela, 2012; Mokgope, 2015). The findings of the study showed a positive and significant relationship between beyond budgeting and rolling forecast and the development of management in public schools. Additionally, the study's participants consistently use beyond budgeting and rolling forecast. Lastly the findings of the study revealed that most of the public school management considers futher training in above-mentioned strategic tools. Hence, by aiming to assess the value and potential of beyond budgeting and rolling forecast techniques in the management and improvement of public schools, this study breaks new ground, helping to fill a knowledge gap (Meintjies, 2012).

1.2 Research Problem

In mostly indirect ways, public schools can contribute positively to economic growth. However, many schools are faced with mismanagement, incompetence, inadequate resources, and a lack of financial management know-how (Corruption Watch, 2015; Adow et al., 2017; Alio et al., 2019). According to Talane and Pillay (2013), some school principals are considered delinquent when managing school funds.

In public schools, there tends to be limited financial accountability, a lack of transparency in financial reporting to school governing bodies and other stakeholders, and an absence of proper forecasting regarding financial resources (Myende et al., 2018). In some instances, principals of public schools disregard the law and treat schools as 'cash cows' to satisfy their own needs, thereby depriving the school of the resources it needs to operate.

According to Magak (2013), principals of public schools spend beyond the allocated budget or fail to use the funds provided. They seem to have difficulty in simply managing school funds, which has an impact on the quality of public school education. (Radzi et al., 2018) in terms of inadequate school infrastructure, below-average school supervision, and poor academic performance (Rangongo et al., 2016; Amos, 2021).

By offering a possible part-solution to the problem, this research examines the utilisation of beyond budgeting and rolling forecast in the Cape Metropole as strategic tools to improve the management of public schools.

1.3 Rationale and significance of the study

This study could assist in educating the representatives of public schools operating in the Cape Metropole on effective financial management. Beyond budgeting and rolling forecast can enable school management teams to better monitor the financials of schools, while providing flexibility that cannot be achieved by restricted forecasting. In addition, beyond budgeting and rolling forecast permit school management to react rapidly to current events and unexpected developments.

Although beyond budgeting and rolling forecast, as previously mentioned, have piqued the interest of academics and are regarded as innovative financial management tools, they have not been widely embraced in practice, and insufficient relevant research has been conducted (Alsharari et al., 2015; Alsharari, 2016; Alsharari, 2017; Alsharari & Abougamos, 2017; Alsharari & Youssef, 2017; Lasyoud & Alsharari, 2017; Alsharari, 2018; Alsharari, 2019a; Alsharari, 2019b).

It is entirely appropriate, then, that this research examines the utilisation of Beyond budgeting and rolling forecast in the Cape Metropole as strategic tools to improve the financial management of public schools. According to Garira (2020), education is a system of inputs and outputs. The schools receive input in the form of material and human resources that result in processes and activities. These lead to specific outputs, which should equate to the desired educational objective of school management, which is quality education (Nowak & Dahal, 2016). Quality education contributes to economic growth as it results in improved employee skills and efficiency (Giannini, 2015; Jenjekwa, 2013).

1.4 Aim and objectives of the study

1.4.1 Aim

The study aims to examine the utilisation of beyond budgeting and rolling forecast as strategic tools for monitoring the management and improvement of public schools in the Cape Metropole.

1.4.2 Objectives

The objectives assist the researcher in remaining focused and attentive to the research study's specified bounds, avoiding divergence from the intended goals (Snyder, 2019). The following are the study's research objectives:

1. To determine whether the public schools in the Cape Metropole use beyond budgeting and rolling forecast techniques.
2. To determine if the rolling forecast has a positive and significant relationship with beyond budgeting.
3. To determine if the rolling forecast has a positive and significant relationship with improvement in the management of public schools.
4. To determine if beyond budgeting has a positive and significant relationship with improvement in the management of public schools.

1.5 Research question

1.5.1 Main research question

The main research question addressed *beyond budgeting and rolling forecast as strategic tools to improve management?* The research sub-questions are as follows:

1. Do public schools in the Cape Metropole use beyond budgeting and rolling forecast techniques?
2. Does rolling forecast have a positive and significant relationship with beyond budgeting?
3. Does rolling forecast have a positive and significant relationship with improvement in the management of public schools?
4. Does beyond budgeting have a positive and significant relationship with improvement in the management of public schools?

1.6 Hypotheses of the study

According to Binoy (2019), a hypothesis is the researcher's prediction or postulate and should be crucial, testable and verifiable. Researcher's prediction or postulate and must be critical, verifiable and verifiable. The purpose of organising a hypothesis is to provide direction to the investigation and to set up a relationship among the constructs. Deductive reasoning is used to formulate a hypothesis (Binoy, 2019). The following hypotheses are linked to research objectives two to four.

H1: *There is a positive and significant relationship between rolling forecast and beyond budgeting.*

H2: *There is a positive and significant relationship between rolling forecast and improvement in the management of public schools.*

H3: *There is a positive and significant relationship between beyond budgeting and improvement in the management of public schools.*

1.7 Conceptual model

Figure 1.1, below, depicts a conceptual model of the study's research trajectory. According to the model, rolling forecast and beyond budgeting are identified as predictor variables, while improvement in the management of public schools is the outcome variable.

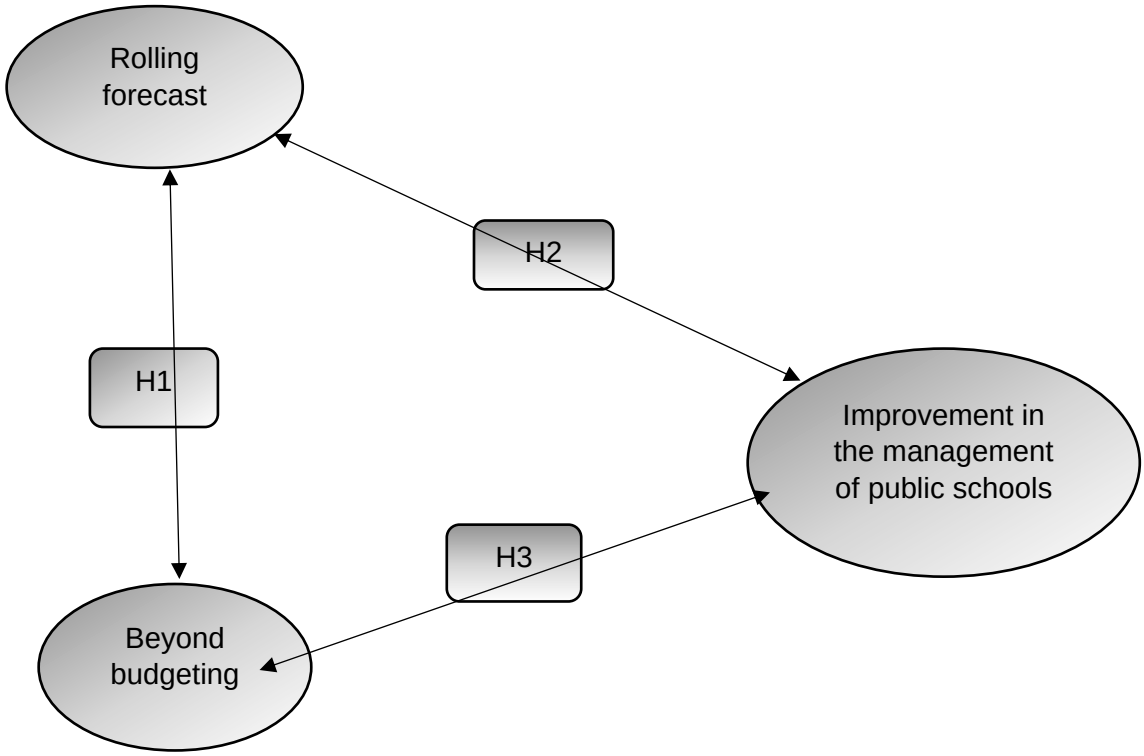


Figure 1.1: Conceptual Model

Source: Developed by the researcher (2022)

1.8 Research paradigms and methodologies

1.8.1 Paradigm/philosophy

A positivist approach was used to pursue the main aim of the study (Kothari & Garg, 2014). Positivism is based on the idea that reality can be measured objectively and independently of the researcher using unbiased and objective procedures. This approach is characteristic of quantitative research.

1.8.2 Research approach

To test objective hypotheses, quantitative research is used. It uses statistical tools to explain the correlations between variables and to produce outcomes (Creswell, 2014). The quantitative method used in this study was a closed-ended questionnaire. This kind of questionnaire simplifies and quantifies responses while enabling data collection from a large number of participants (Du Plooy-Cillers et al., 2018). Quantitative data is more impartial and accurate than qualitative data, being gathered in a quantified form and minimising the researcher's personal bias (Yilmaz, 2013). It facilitates the statistical analysis of the data, which improves the validity and reliability of the results obtained (Kabir, 2016). Moreover, quantitative research techniques permit researchers to summarise tremendous information and encourage correlations across categories over time (Queirós et al., 2017).

1.8.3 Research design

The overall plan through which a study seeks answers to research questions is known as the research design (Kibangou, 2019). This research is based on empirical research and follows the positivistic research paradigm (Matsoso, 2014). It takes the form of a cross-sectional descriptive study, like a snapshot of a phenomenon at a particular moment, as distinct from a long-term or historical study. Cross-sectional

studies create a broad picture of the phenomenon studied and afforded control over the measurement processes employed to collect data (Du Plooy-Cillers et al., 2018).

The data can be measured and applied to the selected population group because controls are easier to implement (Setia, 2016). Quantitative descriptive data was collected from representatives of public schools, namely, principals, the school governing body, and heads of departments, as they are typically involved in financial decision-making.

1.9 Research methods/processes

1.9.1 Target population

In research terms, a population is a total number of people from whom data must be gathered (Wiid & Diggines, 2013). The target population for a research study is a specific group of people, animals, or objects whose members have the qualities or sets of characteristics that a researcher is interested in for his or her research (Nkem, 2017). The target population for this research comprised public school management, that is, principals, heads of departments and school governing bodies from secondary and primary schools in the Cape Metropole.

1.9.2 Sample size

A sample is a representative portion of a research population. Sekaran and Bougie (2016) said that large samples provide more solid parameter estimates. A sample size between 30 and 500 is appropriate for most quantitative research studies (Speziale & Carpenter, 2007; Choto et al., 2014; Sekaran & Bougie, 2016). Considering practical, time and financial factors, this study proposed sample size of 100. The sample comprised 50 primary and 50 secondary schools operating in the Cape Metropole.

1.9.3 Sampling technique

The sampling method employed was convenience sampling. Convenience sampling, also known as haphazard or availability sampling, is a non-probability or non-random sampling technique in which members of the target population are selected for the study based on practical criteria such as geographic proximity, availability at a specific time, easy accessibility, and/or willingness to volunteer (Dörnyei, 2007). This strategy was chosen since it allowed for the collection of data to be finished in a short amount

of time. It is also a cost-effective method of collecting data if the units of analysis are placed in places that are accessible to the researcher, as was the case in this study.

This method's simplicity also justified its use in this study, as only a few guidelines regulate how a sample should be chosen (Blanche et al., 2006). Within the ambit of convenience, sampling proceeded randomly, that is, every member of the population, having thus been narrowed down had an equal chance of being chosen as a subject (Taherdoost, 2016). This made for a reasonably representative sample. The generalisability of a study's findings to the full population is validated by the representativeness of the sample (Leung, 2015).

1.9.4 Data collection instruments

A questionnaire is a set of questions designed to extract the most accurate and relevant information possible from each member of the sample (Pietersen & Maree, 2007:158-159). To gather the information required for this study, a self-administered, closed-ended questionnaire survey was utilised.

The questionnaire was emailed and hand-delivered, enabling the researcher to collect data from a substantial sample and thereby improve the generalisability of the research findings (Hofstee, 2013:133). Distributing the questionnaire in this way gave the participants a chance to finish the questionnaire at their own pace, without the distraction of the researcher's presence.

A questionnaire with closed-ended questions was ideal as such questionnaires are effortless to complete, while the answers are readily quantifiable and straightforward to analyse. The use of email increased the response rate and enabled the collection of a large amount of data from a large sample in a short period and at a low cost (Young, 2015).

1.9.5 Questionnaire design

Since the questionnaires can be completed in the absence of the researcher (Rule & John, 2011:66; Thomas, 2011:165), they are best suited for gathering data from a large population, although they depend upon the careful and thoughtful construction of clear and unambiguous questions. Section A of the self-administered questionnaire consisted of questions about the demographic profile of the respondent.

Section B consisted of questions about the utilisation of the variables under investigation, such as rolling forecast and beyond budgeting. The questions in Section C focused on beyond budgeting and in Section D, the questions involved rolling forecast. The questions in Section E sought to measure management improvement in public schools. A five-point Likert scale was used to gather data pertaining to the variables.

1.9.6 Data collection and fieldwork

Data was collected from representatives of public schools, notably principals, members of school governing bodies and heads of department, as they are commonly involved in decision-making and in the financial performance of schools and could be expected to be best informed about the topics under study. To gather the information, a self-administered, closed-ended questionnaire survey was utilised, which enabled the researcher to collect data from a substantial sample and thereby enhanced the generalisability of the research findings (Hofstee, 2013:133).

1.10 Data coding and analysis

The researcher analysed the data after it was obtained, after first organising and coding it. It was presented with the aid of descriptive statistics. The Statistical Software for Social Sciences (SPSS) and the structural equation modelling Partial least squares (SmartPLS) were used to test and confirm relationships among hypothesised variables, thereby enabling certain inferences to be made.

1.10.1 Descriptive statistics

Descriptive statistics, according to Gjermen (2016), are used to convey quantitative descriptions in a digestible format. If the sample is big, the responses are analysed as percentages; if the sample is small, the responses are analysed as actual numbers (Ali & Bhaskar, 2016). This study uses percentages and graphs to summarise and describe the data. The replies to the five-point Likert scale questions were summed and ranked using an arithmetic mean. A standard deviation was calculated for these questions to determine the level of agreement among respondents' responses to a specific statement, with less than one suggesting agreement and more than one indicating disagreement.

1.10.2 Inferential statistics

Inferential statistics allow a researcher to infer information about a population based on observations and data analysis of a sample (Kuhar, 2010). They enable researchers to infer how variables relate to one another or to generalise findings from samples (Al-Mubarak, 1997), that is, to extrapolate the findings of an experimental study to a larger population (Collis & Hussey, 2009). The hypotheses test is validated by the sample size chosen, which must ensure that the research hypotheses apply to a larger number of people than those included in a single study (Byrne, 2013). To put it another way, if the same study was conducted with people with the same entry requirements in a similar demographic, the results should be identical.

1.10.3 Reliability and validity analysis

Reliability and validity tests were performed in this study to guarantee that the correct research instrument was used (Taherdoost, 2016). Internal consistency was measured using composite reliability and Cronbach's alpha tests (Churchill & Brown, 2007; Taherdoost, 2016). According to Malhotra (2010), the minimum acceptable composite reliability value should be 0.70, while Cronbach's alpha coefficient must also be larger than 0.70 (Maziriri, 2018).

1.10.4 Structural Equation Modelling (SEM)

A two-step technique was used to analyse the data obtained on the research constructs, as described by Anderson and Gerbing (1988). The accuracy of multi-item construct measures was tested first, then the study model and hypotheses were tested.

The current study employed a structural equation modelling (SEM) technique in both stages of data analysis. SmartPLS was used to do a confirmatory factor analysis (CFA). SmartPLS is a soft modelling approach to SEM that makes no assumptions about data distribution (Vinzi et al., 2010).

1.11 Ethical considerations

The researcher explained the study's purpose to participants and let them know that participation was entirely voluntary and that they could leave at any time without

repercussions. To establish transparency, a letter of consent was handed to the participants for them to read and sign before the questionnaire was disseminated.
The university's ethics committee had permitted the conduct of the study, which stipulated that participants in such a study would be protected from any negative effects that might result from their involvement.

1.12 Delineation

This study was restricted to public schools in the Cape Metropole. It is neither viable nor necessary to conduct a survey that covers every member of a target population in the entire country (Maduekwe, 2015; Mwanza, 2017; Mjongwana, 2018; Ntshonga, 2019). Moreover, data was only collected from principals, members of school governing bodies, heads of department and teachers in the sampled public schools.

1.13 Limitations and constraints

There are various limitations to this study. To begin with, the literature review is limited mainly to English-language publications. Due to the non-academic nature and origin of beyond budgeting and rolling forecast, various kinds of management literature were used to create a thematic frame for the research. The study was restricted to public schools in the Cape Metropole, and the findings do not accurately reflect how these schools go about financial planning in general. The targeted respondents' busy schedules made it difficult for them to complete the questionnaire, and some of them were reluctant to complete it, as they perceived it to be an unnecessary exposure to the risk of disclosing sensitive information. In addition, because of the COVID-19 Lockdown restrictions, access to schools was difficult.

1.14 Contribution of the research

The model proposed in this study will contribute to the growing body of knowledge in management accounting. Rolling forecast, beyond budgeting and management improvement methods, have been studied only in sectors other than public schools. The findings of this study will therefore help to fill a knowledge gap in respect of public school management.

The South African government, particularly the Department of Education, could draw on the findings of this research to develop effective strategies for training principals,

heads of departments, and members of school governing bodies in the management of school finances.

1.15 Outline of the study

This study is organised into six chapters.

Chapter One: Introduction and research background. This chapter explains the study's background, identifies the research problem, presents the problem statement and establishes the research questions and objectives.

Chapter Two: The literature review. This chapter examines past scholarly publications in the topic in depth, placing the current study in perspective and identifying key issues.

Chapter Three: Conceptual model and hypothesis development. This chapter builds on the foundation laid in Chapter two by presenting the study's hypotheses and a conceptual model derived from theory and previous research.

Chapter Four: Research methodology. This chapter describes the research design and methodology, including sampling strategies, data collection techniques, and analysis.

Chapter Five: Analysis of data and discussion of the results. This chapter offers an analysis of the data collected and discusses the outcomes.

Chapter Six: Summary, conclusions and recommendations. The final chapter provides a summary of the study and the conclusions reached and makes recommendations for both proposed action and future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The first chapter introduced the nature and purpose of the research. This chapter presents a review of previous work in the field, including substantive findings and theoretical and methodological contributions. A literature review is not an annotated bibliography as much as a discursive survey of a range of research relevant to the study at hand). The chapter is divided into three sections: (i) the research context, (ii) the theoretical framework and (iii) the empirical literature review.

2.2 The context of the study

This section delineates the research context of the study by providing an overview of public schools in South Africa and the connection between education and economic growth.

2.2.1 An overview of public schools in South Africa

2.2.1.1 Non-section 21 schools

According to section (16)(1) of the South African Schools Act (SASA), the governance of a public school is vested in its governing body, and the principal is responsible for the professional management of the school; in collaboration with the academic staff. In the case of non-Section 21 schools, however, the State's contribution is not deposited into the school's bank account. The department sets a resource allocation number, and the Department of Education oversees the school's spending.

The school, through the Department, is only supposed to spend the funds as follows (Mestry, 2004):

- On learners' needs: curriculum and teaching support materials, educational materials and supplies: 60 percent.
- Building maintenance and repairs: 12 percent.
- Payment for public services (municipal): 28 percent.

Only approved suppliers chosen by the provincial Department of Education can provide goods and services to schools. The principal must complete requisition forms and send them to the Department so they can pay the vendors (Mestry, 2004).

2.2.1.2 Non-fee-paying schools

Section 21 schools, on the other hand, have greater financial freedom. The Department provides them with funds, and they are responsible for ordering stationery and textbooks, paying water and electricity bills, and performing their own maintenance. They can also decide what subjects the school offers and what sports and other extracurricular activities students can participate in.

Schools in the lower quintiles (quintiles 1-3) are designated non-fee-paying schools and cannot collect school fees (Veriava et al., 2017). These schools receive the most government support (South Africa, 1998a), and have the authority to procure products and services, as long as they follow the Department of Education's rules. The Provincial Education Department (PED) ensures that the cost per learner is maintained at a consistent level, following the "norms, budget allocation, and resource targeting" for each relevant object (South Africa, 1998a).

2.2.1.3 Fee-paying schools

Fee-paying schools fall into the fourth and fifth quintiles. Because these schools receive only a small amount of government funding, they are permitted to charge tuition (Veriava et al., 2017). Non-fee-paying schools receive a significant sum per learner for fees that they are responsible for administering, according to the resource targeting table (Du Preez, 2018). These allocations are lower for the more affluent schools (South Africa, 1998a).

2.2.1.4 National Norms and Standards for School Funding (NNSSF)

In 1998, the National Norms and Standards for School Funding were published, thus establishing a framework for allocating resources to public schools. Section 39 of the National Standards for School Funding (South Africa, 1998a), the basic rationale for giving funds to schools; is to "effect redress and fairness in school funding, to gradually improve the standard of school education within the context of increased productivity

in planning, coordinating, and delivering educational services" (RSA, 1998). The state is required to provide the necessary funds to public schools from public funds, according to Section 34(1) of the Schools Act.

These funds are distributed fairly in order to ensure that all students have access to a high-quality education and that historical gaps in educational provision are filled (South Africa, 1996a). The funding norms are divided into six categories, according to Chisholm et al., (2003:473): comprising; new building, immovable resources, upgrades, recurring costs, and non-teaching staff costs. According to the Revised National Norms and Standards for School Funding (Mestry & Ndhlovu, 2014), schools serving South Africa's most impoverished communities are designated as "non-fee-paying schools". There are no school fees payable at these schools. The Minister determines and amends the conditions for declaring no-fee schools regularly; and they are based on community poverty levels and other factors.

2.2.1.5 Financial management responsibilities of the principal and school governing bodies in public schools

According to Urba and Brewis (2002:4), principals usually perform several functions in their daily job. A function is a set of expected behavior patterns associated with a specific job or school position. Principals take on a leadership role in a school's daily operations while being overseen by their district (Hellriegel et al., 2007:4). Principals are in charge of the organisation and the administration of their respective schools. The local management of school funds by the school governing body's finance committee and the school principal is one of the most significant improvements in educational management since 1994. It has allowed schools a great deal more autonomy in handling their own affairs and managing the school budget (Dean, 2004:114). The Education Department expects principals to perform the following administrative duties as school financial managers (Nieman & Bennett, 2002:101; Van Deventer & Kruger, 2003:66):

- Manage the school's financial organisation, organising, directing, and overseeing all instructional programmes in the schools to meet their objectives.
- From the beginning, develop educational objectives, policies, and procedures for the entire school.

- Develop educational priorities, policies, and strategies for the entire school; based on the Education Department's general procedures and policies and translate these into concrete objectives and action plans.
- Establish completion deadlines for school programmes, establish performance evaluation standards for the staff, allocate resources to projects, and translate the Education Department's general objectives into viable operating plans, schedules, and procedures.

The financial management responsibilities of the school principal are set out in the Table below.

Table 2.1: Scope of the school principal's financial management responsibilities

1. Organisation	2. Planning	3. Leading	4. Control
The school governing body	**Types of financial planning**	**Leadership styles**	**Financial accounting**
The school finance committee	Long-term/ strategic Functional Departmental	Situational Laissez-Faire	Financial statements & records Assets
Specialisation	Short-term	Autocratic Democratic	The school fund account, Fund raising
Departmentalisation Co-ordination Delegation Decentralization	**Budgeting** Budgeting types Drawing up a budget Budgeting approaches		**School auditing** independent/external auditing internal auditing Government, compliance, operational & performance audits

Source: Adapted by the author from Ntseto (2009)

According to Section 16(2) of SASA, a school governing body (SGB) is accountable for all of the school's properties and responsibilities, including finance. The SGB must ensure that funds are used to serve the school's and the students' best interests:

- *Section 20 (1) (a) of SASA: Subject to this Act, the governing body of a public school must promote the best interests of the school and strive to ensure its development through the provision of quality education for all learners at the school.*

The role of an SGB regarding the annual report of a public school's budget is stipulated in the Schools Act as follows;

- *38(1) A school governing body of a public school must prepare a budget each year according to prescriptions determined by the MEC in a Provincial Gazette, which shows the estimated income and expenditure of the school for the following financial year (South Africa, 1996a).*
- *(2) Before a budget referred to in subsection (1) is approved by the School Governing Body; it must be presented to a general meeting of parents convened with at least 30 days' notice, for consideration and approval by a majority of the parents present and voting (South Africa, 1996a).*
- *The notice contemplated in subsection (2) must also inform the parents that the budget will be available for inspection at the school at least 14 days prior to the meeting (South Africa, 1996a).*

2.2.1.5.1 Prior studies on financial management and financial mismanagement

A study in Ghana revealed that schools' budgets represent the key financial planning framework around which income and expenditure are overseen. The research identified significant difficulties confronting the effectiveness of schools utilising financial management systems; either central government pays the funds late or the principals have inadequate skills to deal with school finances (Ackom-Wilson, 2015). Another study in Zimbabwe revealed that principals are not effectively managing public school funds, due to a lack of skills in various aspects of financial management such

as preparing the budgets for strategic decision making, record keeping of the schools' assets and raising funds (Nyandoro et al., 2013).

A similar study was conducted in South Africa. According to the findings, principals and chairpersons of school governing bodies wanted to play a significant role in school financial management but lacked the necessary financial management skills. The absence of financial management abilities was particularly clear in respect of SGB chairpersons. The result was that a variety of budgetary problems emerged at schools (Mpolokeng, 2011).

In another South African study, a questionnaire was administered to seventy-two principals in the Eastern Cape (Makrwede, 2012). The survey, which sought to determine their understanding of financial management principles, found significant disparities at most schools between the mandates of relevant financial policies and financial management practices. Basic deviations were identified, including poor financial recording and an absence of clarity on various financial structures' roles and responsibilities. Some school principals were not conversant with financial management techniques, while others failed to comply with the regulations and guidelines that were applicable to their financial management responsibilities (Makrwede, 2012).

A study in Tanzania surveyed a sample of forty-five participants consisting of five school headmasters, thirty high school teachers, nine SGB members and one district officer. The research revealed that training on financial management was not provided to school management, which caused serious limitations in its utilisation of financial resources. Common problems were a shortage of funds, the absence of financial training and the mishandling of funds. The study concluded that public secondary school principals and SGBs should be given better training (Kayola, 2015).

In Kenya, the government contributes 30 to 40 percent of the total budget for education. It is therefore crucial that the government funding is used effectively for its allocated purposes. A study was conducted employing a questionnaire and interviews (Mobegi, 2017). The sample comprised 126 school headmasters, 126 heads of department, 110 SGB members, 126 bursars, 1011 schoolteachers, and 10 quality assurance officers. The findings were that the widespread mismanagement of funds

was harming the quality of education. There was a need for financial training for all stakeholders directly or indirectly involved with financial management in public schools. School governing body members should set up financial advisory committees in public schools to assist in financial management, and the government should train school principals in financial accountability (Mobegi, 2017).

A related study was conducted in Tanzania, where a random sampling technique selected ten public primary schools for investigation (Mabolio, 2016). Once again, the findings revealed that school principals and SGB members lacked financial management skills, leading to poor accountability and mismanagement of public primary school funds. The study recommended that the government train public school headmasters and the SGB members in financial management, enhance their financial skills, and reduce poor accountability in financial reporting and financial mismanagement (Mabolio, 2016).

A comparable study in South Africa investigated the causes of financial mismanagement in public schools. The South African government distributes funds to schools each year and gives directives as to how principals and SGB members should manage the funds. However, the researchers discovered a lack of knowledge of the policies, a lack of financial management skills, poor monitoring and control of funds, a lack of integrity, and a lack of transparency (Rangongo et al., 2016). The study recommended that there should be remedial mechanisms in public schools to align financial management with the principle of good governance (Rangongo et al., 2016).

Even though these studies were conducted in South or East Africa and their findings are consistent and informative, they may not be generalisable to Cape Metropole public schools, as they do not examine the potential role that Beyond Budgeting and rolling forecast might play in the improvement of financial management at these schools.

2.3 The connection between education and economic growth

Education in South Africa during the time of Apartheid demanded the separation of racial groups. The post-Apartheid era ushered in equal education for all (Rusznyak, 2014). While education is seen as critical for economic growth, there are genuine concerns around issues of quality and performance in education in South Africa.

Although the education system has been prioritised and overhauled, and even though it is imperative for development, the quality of education continues to decline. Throughout the Apartheid era, the education system in South Africa favoured the white minority and disadvantaged black people (Nkohla, 2014). Unfortunately, the pattern of disadvantage has persisted, even though the lines of division are now, strictly speaking, those of social class rather than race. The equality of education in public schools is generally poor. Most public schools are attended by black communities and are deprived of resources, facilities, qualified teachers, and adequate school governing bodies. In 2005, a new curriculum was introduced to bring about greater equality between private and public schools. However, it made the situation worse as the curriculum required high-quality teachers and considerable resources, which are absent in most public schools (Ramdass, 2009). South Africa is confronted with the reality of two education systems, a public schooling system (75 percent) and a private schooling system (25 percent), which perform completely differently (see Table 2.2 below). Included for present purposes as 'private schools' are fee-paying public schools that were once reserved for and were known in the early post-Apartheid years as 'model C schools'.

2.3.1 South Africa's two diverse schooling systems

Table 2.2: South Africa's two diverse schooling systems

Public Schools (75%)	Private Schools (25%)
Weak accountability	Strong accountability
Incompetent school governing body and principals	Competent school governing body and principals
Absence of culture of learning, discipline and order	Culture of learning, discipline and order
Inadequate learner teacher support material	Adequate learner teacher support material
Weak teacher content knowledge	Sufficient teacher content knowledge
High teacher absenteeism	Low teacher absenteeism
Slow curriculum coverage, once a week homework and few writing assessments	Covers the curriculum, everyday homework, learners frequently write assessments.
High repetition or dropout (Grade 10-12)	Low repetition or dropout (Grade 10-12)

Extremely weak learning: most students fail standardised tests	Adequate learner performance

Source: adapted by the author from UNISA (2012)

Because of poor governance and corruption, the economy in South Africa has been stagnant for the past decade; but questions of economic performance are also inseparably connected to the disappointing failure of the country's education system. South Africa spends roughly 6 per cent of its gross domestic product (GDP) on education (Smuts, 2014). Public spending on education totalled 6.1614 per cent of South Africa's GDP in 2018, more than meeting the World Bank's recommendations for developing economies (see Figure 2.1 below).

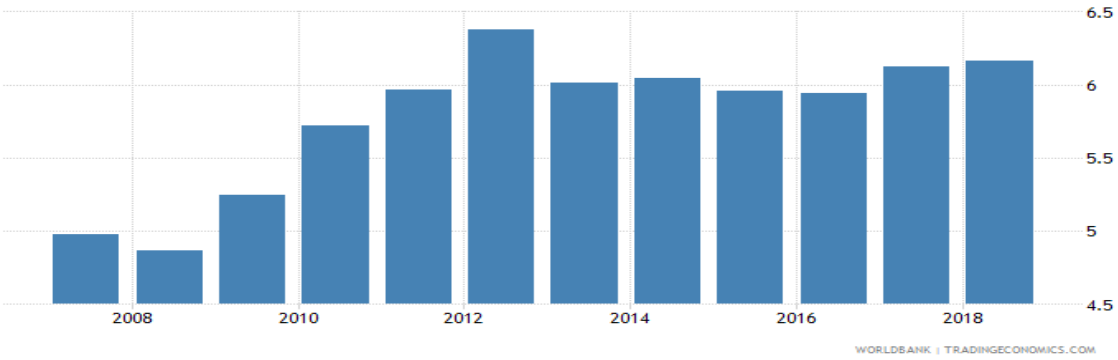


Figure 2.1: Historical data

Source: adapted by the author from World Bank (2020)

The connection between education and economic growth is the human capital that education helps to create, which makes for a more democratic and peaceful society (Harber, 2010). It improves the quality of work; but unless education is of high quality, it does not necessarily translate into effective citizenship. People can be taught but remain unemployable, and therefore "structurally unemployed". They are the victims of a mismatch between a failing education system and the needs of a modern socio-economic system (Nkohla, 2014).

2.4 The management and improvement of public schools

Effective school management is widely identified as a crucial component of a school's success. Many schools in South Africa fail to meet the Department's and their own community's achievement requirements (Bush & Glover, 2016), which is generally

linked to the ability, expertise, and personality of the school management team, particularly the principal (South African Department of Basic Education [DBE], 2018).

According to Bush (2011:39), the adaptability and activity required to lead and oversee schools in times of rapid change means that planning should go beyond preparing principals to execute specific requirements by developing well-rounded and confident managers who can engage with public school stakeholders for the benefit of students and communities. According to a study conducted in Mpumalanga, only 88 percent of the 180 school management teams surveyed held monthly or less frequent meetings (12 percent met weekly). More than half of those polled ranked program management and tracking teaching and learning as their top two priorities, indicating that instructional leadership is becoming increasingly important (Bush & Glover, 2013).

Financial management is the most pressing growth need for Gauteng principals, according to Bush and Heystek's (2006) survey. Principals believed that involving SGB body members, as required by law, made financial management more difficult (Mestry & Hlongwane, 2009:341). Based on focus group interviews with SGB representatives and educators in four schools south of Johannesburg, Mestry (2004:127) found that there were four major problematic areas: budget planning, money management, and the monitoring and evaluation of funds. In the Ramotse region of Tshwane, Gauteng, Lekalakala (2009) identified similar issues, which seemed connected with either a shortage of educational facilities or a lack of quality provision. According to Thenga (2012), there is a shortage of SGB instruction, inconsistent training, limited accounting expertise, and differing practices among local and district education officials in Gauteng township schools.

Van Rooyen (2012) summarized the recent literature and suggested guidelines for financial management at all levels, to aid policy development and to explain the scope of financial administration. More recently, as a state-mandated initiative, each school's School Advisory Council had to draw up a school improvement plan to serve as a roadmap for the school improvement process. Leaders and strategy committees are forced to identify targets, set goals and establish plans, including the SGB and stakeholders, as part of the planning process (Escobar, 2019).

2.4.1 In improving school management and leadership practices, the Department of Basic Education (South Africa. DBE, 2018) will:

- Mediate the South African Standard for Principalship Policy; and
- Mediate the Framework for School Principal Induction. Before starting at the school, newly appointed principals will go through a year-long induction program. The newly appointed principals will be exposed to the Department's basic expectations in carrying out their responsibilities. The program will include a collection of essential legislation, best practices, non-negotiables, and information about how circuit and district offices work.

The principals will have to:

- Provide curriculum management training.
- Create Professional Learning Communities (PLC) in geographical areas for principals to share best practices, while being guided by circuit managers. PLCs must be institutionalized at district level, so that they do not function as social contracts for underperforming schools. The circuit manager will schedule PLC meetings.

2.5 Theoretical grounding

In an attempt to identify strategic tools for the management and improvement of public schools, this study explores the principles of agency theory, financial control theory, allocation of resource theory and general systems theory to create a theoretical framework. These theories are discussed in the following sections:

2.5.1 Agency theory

For the past 25 years, agency theory has provided one of the foremost models in managerial accounting, offering a theoretical framework for understanding the processes within organisations, from the viewpoint of a principal-agent. According to Eisenhardt (1989), agency theory is applicable when two parties, the principal and the agent, collaborate to achieve the principal's goals; in which case the agent has responsibilities as the principal's representative,(Zsidisin & Ellram, 2003; Halldorsson et al., 2007; Ketchen et al., 2007).

In public schools, the government and stakeholders are the principals, while the head teacher and members of the school governing body are the agents. Through the Department of Basic Education, the government enlists the services of school principals and the SGB (Munge et al., 2016). This study focuses on improving educational outcomes by improving the management (principals and the SGB) of public schools. To achieve this, schools will have to shoulder their responsibilities as agents and regularly monitor and evaluate the management processes. The principal places trust in the agent to identify such disputes or disagreements as might arise. In business, the shareholder is the principal, and the corporate executive, is the agent (Panda & Leepsa, 2017). Even if it might not seem so on the surface, shareholders and business executives are inseparably linked with each other. Such connections are fraught with conflict (Vitolla et al., 2020b). The following are some of the most intricate and interconnected commercial partnerships that include a principal-agent link and qualify for an agency theory perspective.

2.5.1.1 Shareholders and executives of the company

In terms of agency theory, the shareholder is the principal. This is due to the fact that a shareholder invests in an executive's firm, and the executive is accountable for decisions that affect the shareholder's investment. A negative relationship will result if a business executive performs poorly and lowers the value of the shareholder's shares. On the other hand, a positive relationship will exist if the corporate leader performs ethically and efficiently, resulting in growth in the value of the shareholder's shares (Evans & Tourish, 2017).

2.5.1.2 Fund manager and investor

The investor is the principal in this case because he or she entrusts a portion of their income to the fund management that acts as the agent; who is responsible for distributing income on the investor’s behalf. If the fund manager invests in volatile equities and generates a lower-than-expected return for the investor, the relationship is negative (Haq et al., 2018). If, on the other hand, the fund manager exceeds expectations in terms of profit, the investor complements the fund manager and a positive relationship is formed.

2.5.1.3 The board of directors and the CEO

The board of directors is the principal further up the hierarchy, and the CEO is the agent. If the CEO makes a bad financial decision that causes the company to go into debt, the board of directors is much more likely to vote against him in the next election. On the other hand, if the CEO establishes a new company sector that provided unrivalled market innovation, he or she will be praised by the board of directors and will probably remain in power for years. These examples of connections reflect concepts in agency theory. Agency theory investigates the unique connection between a principal and his/her agent. Throughout the partnership, the agent conducts various activities and makes choices on behalf of the principal. Such choices and actions can cause disputes and confrontation between the two sides. To elaborate further; the following are the primary reasons for agency problems:

- When the principal and the agent have a conflict of interest.
- When the agent makes decisions on behalf of the principal that are not in the best interests of all parties involved.
- The agent may act independently of the principal in order to receive a previously agreed-upon incentive or bonus.
- Breach of confidentiality involving personal and financial information about the principal.
- Insider trading based on the principal's knowledge.
- When the principal disregards the agent's recommendations.

Given the power and trust dynamics at work, it is not surprising that an entire theory has been developed to investigate the connection and interaction between a principal and an agent (Vitolla et al., 2020b). Certain procedures and principles may be adopted by both the agent and the principal, to minimise the probability of conflict.

2.5.1.4 Financial control theory

The financial control theory was proposed by Ostman (2009). The theory’s essential reference point is personal human functions, both current and potential. These functions include payments, financial instruments, accounting, control models and economic calculations. Issues arising from these should be addressed in terms of internal characteristics and potential consequences. It should be noted that defining

the relationships between various activities and financial processes is a broad and fundamental issue in financial management (Ostman, 2009).

The theory of financial controls for businesses is divided into several cross-sectional perspectives. The first is concerned with the human functions of organisations, their operations and productivity. The second has to do with the organisation's structure and operations and the transactions that different parties conduct with one another (Munge et al., 2016). The third field concerns control systems, namely the recurring processes and methods used to connect current and future operations to external and internal resources (Ostman, 2009). These financial management mechanisms are critical from the viewpoint of both individual entities and broader economic structures (Ostman, 2009).

The current study is relevant to financial control theory because it contributes to a better understanding of the interface between individuals and financial management. Beyond budgeting and rolling forecast are two financial control measures.

2.5.2 Allocation of resource theory

The allocation of resources theory which is thought to offer a suitable theoretical foundation for this study. Allocation of resources theory investigates how an organisation's assets and capabilities can be utilised to lay the groundwork for competitive advantage (Barney, 1991). Public schools are faced with a shortage of financial management skills, inadequate resources and a lack of relevant training (Rangongo, 2016). They can, however, use strategic tools to help achieve their educational objectives and improve management processes (OECD, 2017).

Improved management processes will aid in the development of strong relationships among; principals, the school governing body, and other stakeholders such as parents. Such relationships will encourage transparency and collaboration toward achieving educational objectives, which is the equivalent in the education sector of gaining a competitive edge.

2.5.3 System theory

Koul’s organisation framework theory for school financial management views the school as a system of interconnected elements that all contribute to the system’s

effective functioning (Koul,1984). System theory facilitates our understanding of the need for schools to be adaptable and to engage in continuous improvement of learners' experiences and achievements (Mathews, 2010).

In this study, the researcher used systems theory as a theoretical framework to examine interactions within communal frameworks. The budget process at the school involves a number of entities, including the school governing body, the school management team, the finance committee, and parents; and systems theory aids in recognising the roles that these entities play in maintaining control over school funds. Financial resources are an essential input into any public system because they provide the means to operate all of the institution's affairs and attain educational goals (Boston et al., 1996).

2.6 Empirical literature

The following section discusses empirical literature on the various strategic concepts and tools for financial management canvassed in this study.

2.6.1 Balanced scorecard (BSC)

The BSC is a performance measurement and strategic management instrument that can be used by all forms and sizes of companies (Giannopoulos et al., 2013). The BSC helps managers to focus on problems that hinder growth and create strategic initiatives (Kaplan & Norton, 1996; Quesado et al., 2018). The BSC, according to Iranzadeh, et al., (2017), is a tool that helps organisations communicate their plans to different stakeholders in the form of a collection of organisational goals that renders the whole organisation's behaviour more successful.

The BSC is a strategic management framework that tests the execution of business objectives from four viewpoints, to ensure that vision and strategy are converted into a consistent set of performance measures (Kaplan & Norton, 1996:53, 75). The following are the four viewpoints of a balanced scorecard:

Financial perspective: Increased revenue can be attributed to new customers, newly innovated products, employee programs, and the implementation of new marketing strategies and distribution networks, during the growth stage. Sustainability has an impact on traditional financial metrics such as gross margin, operating profits, and

return on capital employed. To maximise return on investment, harvesting is based on cash flow (Chitu, & Opris 2014).

Customer perspective: Captures the organisation's ability to secure high-quality products and services, as well as the efficiency with which they are delivered and the extent of customer loyalty (Sahiti et al., 2016). It also explains how a company needs to set itself apart from its rivals, to attract, maintain, and deepen relationships with customers (Al-Zwyalif, 2017).

Internal business perspective: This perspective aims to identify processes in which a company must succeed internally, in order to meet consumer expectations and achieve financial goals. It includes quality-oriented, flexible, time-based, and cost-based measures (Matsoso, 2014).

Learning and growth perspective: Comprises identifying the infrastructure that the company needs to build to achieve long-term, sustainable growth, and development is part of the learning and growth perspective (Sahiti et al., 2016). It has the goal of assessing the importance of jobs for the company at three levels of contribution: as an employee, as a team member, or as someone who is incorporated into the company culture (Scaramussa et al., 2010).

Figure 2.2: The Balanced Scorecard model, showing its four perspectives
Source: Adapted from Kaplan and Norton (1996:9)

2.6.2 Budgeting

Budgeting is considered a key driver that can be used to evaluate management performance and the critical elements of strategic planning. Budgeting plays a crucial role in an organisation and is arguably the most influential tool for management control (Rickards, 2006). Accuracy, the identification of future expenditure, and the optimal allocation of resources are crucial to keep the business afloat (Joachim, 2007:70). According to Orlando (2009:48), budgeting has the following benefits. It can be:

- Applied as a cash flow management strategy.
- Used as a tool to respond to market volatility.
- Used as a tool to track and report on the success of an organisation.
- Used to assess whether management incentives are in line with their departments' budgeted targets.

There are numerous budgeting techniques available for use in institutions such as schools. The choice of technique or combination of techniques depends on the circumstances of the school (De Bruin, 2014). Some of these are described below.

Zero-based budget: The zero-based budget, according to Van Deventer and Kruger (2003:237), is the most detailed method of budgeting. Each item of expenditure is re-considered each year. Zero-based budgeting assumes that one can begin the new fiscal year with a blank sheet of paper (rather than using the previous year's budget), which becomes a new financial plan after all income and expenditure are re-evaluated (Kennedy, 2011:6).

Flexible budget: A rolling budget that is divided into quarterly cycles is more adaptable. This budget strategy may be used by management to shift resources from one department to another, without demotivating stakeholders (Conradie, 2002:143).

Cash budget: A cash budget is an essential tool for controlling a company's finances (Bohannon & Edwards, 1993:1). Cash budgets should show the starting cash/bank balance as well as all possible cash inflows, such as cash from customers, debtor payments, dividends earned, interest received, and any proceeds from the selling of plant, land, equipment or securities (Needles & Crosson, 2013:213).

Line-item budget: According to Du Plessis (2012:89), a line-item budget is one in which the name of each line item (for example, training materials) is fixed, as is the amount of money that can be spent on each item. A line budget thus defines the name of each item category as well as the funds allocated to that line item.

2.6.3 Strategic planning

A budget is similar to a gearbox, which transmits power from the engine to the wheels. It defines resource allocation and describes how an organization can outperform its competitors, which is the goal of every strategic plan. According to Keogh (2008:36), integrating policy with the budgeting process can make corporate performance management more effective. He goes on to say that to achieve good budgeting tied to policy, the following steps must be taken:

- Senior management must set, track, and measure long-term goals.
- Each goal must be evaluated in terms of its significance, to achieve growth and improved results.
- Following a review of the external and internal market environments, strategies must be implemented, and various tactics and budgets must be compared.
- Risks can be identified and effective action plans developed to improve overall planning success.
- The final stage is to distribute resources based on budgeted estimates that are consistent with long-term strategic planning.

The purpose of strategic planning, according to McNamara (2003), is to determine where an organisation wants to go, examine the organisation's context as well as the challenges it faces, set priorities and objectives, and decide how these can be achieved. It is also essential to have a mechanism for monitoring and evaluating the plan's execution (Robinson, 2007).

The strategic planning phase consists of a flow of corporate-level priorities, paired with a flow of programme and expenditure options from the company, with practical stages for their implementation.

The strategic planning process, when done correctly, involves widespread engagement that results in many proposals, eventuating consensus, and clarification going forward (Maleka, 2014). Most businesses do not place enough emphasis on strategic planning (Cokins, 2008:48).

Strategic planning is critical for identifying the right goods, facilities, and consumers for increased market value. Senior management should include targets in the strategic budget. Combining a driver-based budget with a rolling forecast can improve performance or, at the very least, the performance of the budgeting process. Budgeting is regarded as a critical driver of strategic planning. Moreover, budgeting is the most influential tool for management control, playing a pivotal role in an organisation.

2.7 Beyond budgeting and rolling forecast

2.7.1 Definition and importance of Beyond budgeting

Beyond budgeting is a set of fundamental values that, when followed, enables a company to efficiently manage its performance and spread its decision-making process without the need for traditional budgets. Its mission is to assist the organisation to meet the information economy's requirements for success (Mejzini & Seidel, 2013). Beyond budgeting was conceptualised to improve an organisation's ability to deal with environmental uncertainty (Sandalgaard & Bukh, 2017).

The Chartered Institute of Management Accountancy (CIMA) describes it as encompassing the "idea that companies need to move beyond budgeting because of the inherent flaws in budgeting; especially when it is used to set contracts. It is argued that a range of techniques, such as rolling forecast and market-related targets, can take the place of traditional budgeting" (Chartered Institute of Management Accountancy, 2005).

According to Morlidge and Player (2010), beyond budgeting is the process of transitioning from traditional budgeting command and control to an engaged and adaptive management model. It releases individuals from the burdens of stifling bureaucracy and unbending control, by giving them greater scope to think, reflect, learn and improve. Beyond budgeting provides benefits to the organisation by increasing the focus on innovation, as more resources are made available so as to be

allocated according to the real needs of each unit. The organisation's management is likely to be more enthusiastic as organisational goals start to become better aligned with individual goals.

Hope and Fraser argued that for businesses to succeed in unpredictable environments, they must resort to practices that enable them to adapt rapidly to changing circumstances (Hope, 2008; Hope & Fraser, 1997, 2003a, 2003b).

Hope et al., (2015) summarised the nature of the beyond budgeting method in the twelve beyond budgeting concepts set out in Table 2.3 below.

Table 2.3: 2016 version of the beyond budgeting principles

Leadership Principles	Management Processes
1. Values – Govern through a few clear values, goals and boundaries, not detailed rules and budgets	7. Goals – Set relative goals for continuous improvement. Don't negotiate fixed performance contracts
2. Performance – Create a high-performance climate based on relative success, not on meeting fixed targets	8. Rewards – Reward shared success based on relative performance, not on meeting fixed targets
3. Transparency – Promote open information for self-management, don't restrict it hierarchically	9. Planning – Make planning a continuous and inclusive process, not a top-down annual event
4. Organisation – Organise as a network of lean, accountable teams, not around centralised functions	10. Coordination – Coordinate interactions dynamically, not through annual planning cycles
5. Autonomy – Give teams the freedom and capability to act; don't micro-manage them	11. Resources – Make resources available as needed, not through annual budget allocations
6. Customers – Focus everyone on improving customer outcomes, not on hierarchical relationships	12. Controls – Base controls on relative indicators and trends, not on variances against plans

2.7.2 The leadership principles and management processes of beyond budgeting

In beyond budgeting systems, management structure and control processes are inextricably related, and both can be used to improve adaptability (Dugdale & Lyne, 2010). The twelve beyond budgeting principles are discussed in greater depth and merged with the corresponding processes.

Create a culture of excellence focused on long-term competitive success. Instead of focusing on the previous year's budget, a company should strive to outperform its rivals. Goals are set in collaboration with the managers as a group and are constantly adjusted in response to the success of the organisation's rivals and market changes (De Waal, 2005). To avoid comparing results to goals, targets are based on both external metrics and internal measures, and they should be kept separate from incentives and performance assessment. Furthermore, the goals are set over a longer period, to allow the team to reach them (Hope & Fraser, 2003).

Support an open and accessible information system. Information should be made available to employees in a timely and accessible manner. Information with variables such as "orders, sales, expenses, earnings, and cash flows" (Hope & Fraser 2003:87) should be communicated to provide a more realistic view of potential results. Upcoming circumstances are taken into account by using rolling forecast. KPIs are also very useful since they can be used as a substitute for budgetary regulation (Hope & Fraser, 2003a).

Provide front-line teams with tactics and the freedom and capability to act. The beyond budgeting model does include tactics, but the difference is that the process is ongoing and bottom-up, as opposed to traditional budgeting, which follows a set top-down process. Furthermore, front-line staff have a say in the planning, thus making the strategy process more adaptable to changing conditions and circumstances (De Waal, 2005). Furthermore, it is argued that devolving strategy and accountability to front-line teams increases the likelihood of companies creating value for their customers on a continuous basis (Hope & Fraser, 2003).

Develop team commitment to a mutual goal, consistent values, and shared incentives. Individual reward schemes, according to Hope and Fraser (2003b), are ineffective and inefficient for businesses because success is achieved through employee teamwork rather than individual effort. As a result, incentives should be based on the team's performance. By comparing the different teams' KPIs at the end of the year, awards will be made to teams that achieved an appropriate result. Furthermore, rewarding teams rather than people can inspire and empower teams (De Waal, 2005). To maintain this sense of empowerment, managers must dedicate the team to a mutual goal with strong ideals and shared rewards (Hope & Fraser, 2003c).

To support external customers, a company should organise around a network of teams that dynamically links their capabilities. Beyond budgeting systems tend to collaborate by sharing their expertise and matching their resources to fulfil the demands of their customers. Customers are prioritised so that the company can achieve the competitive advantage of having extremely happy customers (Hope & Fraser, 2003c).

Encourage frugality and hold all resources accountable for their value-added commitment. This principle calls for allocating resources to the units that require them the most. According to that philosophy, business units should determine what resources are required to successfully meet market demand. Every year, the company's various divisions make their own investment plans for different investment pools, implying that there are no fixed investment budgets (De Waal, 2005). Rolling forecast and evaluations of previous investments are used in investment portfolios when capital for ventures is required. Services will be provided when they are required (Hope & Fraser 2003c). There must be no waste and the principle of accountability for resources must be strenuously respected.

2.7.3 Rolling forecast

Definition and importance of rolling forecast

Rolling forecast is a process that entails frequent forecasts to be performed, at similar intervals such as quarterly, half-yearly or even monthly (Joachim, 2007:68; CIMA, 2013). The method results in organisations using fewer cost centres or general ledgers when drafting budget figures. The process is further explained as always extending a set number of financial periods into the future. Hope and Fraser (2003b) claimed that rolling forecast differ from traditional budgets in that they are updated more frequently and are therefore more accurate. Meintjies (2012) specified the difference between rolling forecast and traditional budgeting as the fact that rolling forecast do not have a specific fixed timeline, and that the items for which management has to budget comprise only the main components, namely sales, costs, and margin.

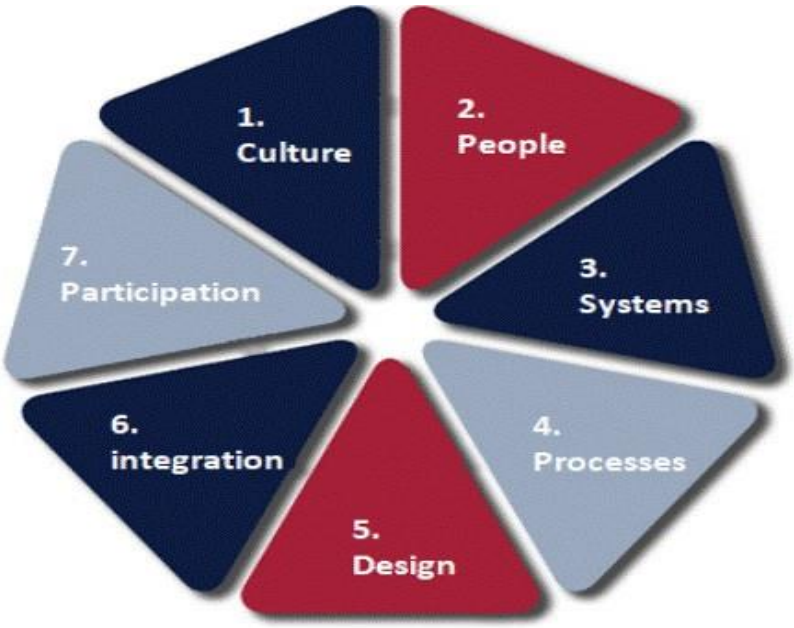
Paniccia (2008:26) clarifies the advantages of utilising the rolling forecast approach rather than conventional budgeting. Without the long arrangements, employees will save on considerable time they would have spent when following the traditional

budgeting process. This time saved can be transferred to the critical ventures and plans of the company. The rolling forecast technique means constantly planning ahead; long term as well as short term. Rather than being focused on the twelve-month money-related period, it is overhauled each month. The most recently advertised data shapes the next portion of the rolling forecast, which makes it more dependable and accurate (O'Connor et al., 2000; Paniccia, 2008:26). This is particularly true for forecasts that show patterns, whether they be upward or downward. According to Waddell and Sohal (1994), forecasts are less useful in conditions with low uncertainty that can be predicted easily. High turbulence conditions, on the other hand, necessitate a greater need for forecasting. Tanlu (2008) discovered that forecast accuracy increased in low-uncertainty environments but did not improve overall business performance.

Organisations that use rolling forecast have a planning culture that is distinct from those that do not. While conventional budgeting systems require planning over a set period, rolling forecast are revised throughout the year, allowing managers to schedule their workload associated with forecasting. The primary purpose of rolling forecast is to provide reliable details for projected capital spending, display patterns in key performance metrics, assist in decision-making and cash management, and help in execution of plans (Hope & Fraser, 2003a). According to the creators of beyond budgeting, rolling forecast should be used mainly to enhance strategic management and to learn within organisations, as well as to inspire employees. They should not be used for control purposes (Hope & Player, 2012). Rolling forecast results should be unbiased and display realistic predictions for key performance metrics because they are unrelated to performance assessment and incentives. Rolling forecast are linked to a company's plan and aid in its execution (De Leon et al., 2012). Furthermore, the approach encourages the organisation's resource distribution and capability of being versatile.

Melnychuk et al. (2019) summarised the seven factors for the successful implementation of rolling forecast in Figure 2.3 below.

Figure 2.3: Seven factors in the successful implementation of rolling forecast



Source: Best Practice in Financial Analysis (2019)

Culture: The business culture of an organisation is the starting point for a successful rolling forecast. Top management support and key participant acceptance are required for successful implementation. A rolling forecast is a management tool, and not a measurement one, as all stakeholders must realise. It should not adhere to accounting principles (Melnychuk et al., 2019).

People: People are the second most important aspect in a successful rolling forecast. For those working with a rolling forecast, financial planning and analysis is vital. They should be skilled communicators with analytical skills, able to see the 'big picture' and be capable of building models (Melnychuk et al., 2019).

Models and systems: Excel is still used for financial planning and analysis in four out of five businesses. It is nearly impossible to create a rolling forecast for a multimillion or multibillion-dollar corporation in Excel. To make it easier to plan diverse scenarios and anticipate events, quick models and systems are necessary and should be driver-based. Flexible systems that are adaptable to financial planning and analysis should be used. Many firms still try to accomplish this with Excel, but Excel is prone to errors,

which could be one of the reasons why a rolling forecast might fail (Melnychuk et al., 2019).

Processes: Processes should be rapid, flexible, and collaborative, with non-value-adding activities minimised. This requires time, effort, and education. A previous organisation the author worked for was unable to enhance its process because the operational calendar had been set three years earlier. Standardisation and modern systems can aid in the improvement of processes. However, it is up to financial planning and analysis to ensure that they are applied (Melnychuk et al., 2019).

Design: Understanding the level of detail required in a rolling forecast is critical. It should be timely and should enable action to be taken. To comprehend what will drive the future, the forecast should provide the bare minimum of data. Actionable projections are those that are based on drivers and assumptions. We should not utilise traditional accounting data structures because they do not explain why things happen and are hence useless (Melnychuk et al., 2019).

Alignment: In most businesses, there are three planning processes: strategic planning, where everything starts, business planning, where the majority of financial planning and analysis is done, and operational planning, which feeds into the business plan. An effective rolling forecast requires alignment and communication between these planning processes (Melnychuk et al., 2019).

Participation: Many people are involved in the forecasting process, both financial and non-financial. Financial planners and analysts must act as company partners and teach non-financial people how to use the right drivers and systems. Many organisations have a gap between strategy and execution. Integrating other departments into the planning process can help to bridge this gap. While participation is crucial, financial planners and analysts must also ensure that the process does not become overburdened (Melnychuk et al., 2019).

2.8 The use of beyond budgeting and rolling forecast techniques by schools and organisations

Several studies have examined the utilisation of beyond budgeting and rolling forecast globally and in the South African context. The findings are that these practices are part of a major rethinking project on the part of organisations worldwide (Sabela, 2012;

Meintjies, 2012; Silva, 2015; Úlfarsson, 2018; Guruge, 2021). Management accountants are exceptionally positioned to create business values to build top-quality beyond budgeting and rolling forecast practices. Financial leaders need to adopt new strategies like these to stay pertinent and avoid broken budgets and financial mismanagement (Wolf, 2015).

The principals and members of the SGBs at public schools have to adopt new strategies to handle their finances better. A study conducted in South Africa identified two methodologies whereby new financial management techniques are replacing outdated budgeting systems (Nyamita et al., 2015). In the first approach, firms differentiate beyond budgeting and rolling forecast. This differentiation appears to be the driver of budget relinquishment. The second approach was that planning and forecasting remain interlinked and that numerous characteristics of the traditional yearly budgeting process remain, but in more streamlined structures (Henttu-Aho & Järvinen, 2013).

2.8.1 Utilisation of beyond budgeting and rolling forecast by organisations

A study conducted by Ouda (2016) considered flexible financial management systems such as beyond budgeting and rolling forecast. Evidence was gathered using an online survey questionnaire. The findings showed that ninety per cent of the South African business community prefers a conventional budgeting system, as they fear that their organisations will lack oversight without budgeting.

An earlier study reported an obvious move from traditional budgeting towards better budgeting (Sabela, 2012). This move is bolstered by the inability of traditional budgeting to stay abreast of the fast changes occurring in large-scale and small-scale financial elements. However, none of the respondents demonstrated that they had adopted and employed beyond budgeting. This opposition on the part of the South African business network towards beyond budgeting and the subsequent slow pace of the execution of this new practice is similar to how organisations worldwide have reacted to this radical budgeting innovation (Sabela, 2012).

A survey was conducted to test hypothesised outcomes in the structure of an actual organisation (Wienhold, 2015). The results demonstrated a solid relationship between the usage of certain beyond budgeting strategies and a decrease in certain traditional

budgeting problems. Additional factors such as an organisation's size, the industry the organisation is in and the nature of technique execution should be assessed, to build accuracy into the structure (Wienhold, 2015).

The findings of a study conducted in Portugal showed that while traditional budgeting processes remained relevant to companies, the advantages of the beyond budgeting model were evident in the case study analysed (Silva, 2015). The traditional budgeting process's constraints were compensated for and indicated to the company the direction in which it should be moving.

Sandalgaard & Bukh (2017) argued that organisations that use beyond budgeting to change their financial management techniques maintain fixed budgeted targets. They argued that when budgets are used at the corporate level for a few items, the diagnostic utility of budgeting at organisational level may focus on a larger number of line items. The study does point out that the absence of internal benchmarks and the need to convey the normal outcomes to the organisation's owners may obstruct the use of the beyond budgeting model, as has been cautioned in the expert-based beyond budgeting literature (Sandalgaard & Bukh, 2017).

After a broad database search and reference selection, Nguyen et al., (2018) analysed 32 papers for bibliographical data, research plans and discoveries in the area of beyond budgeting. Although advocates of beyond budgeting have invested a generous amount of energy in creating and advancing this concept, the majority of empirical studies indicate that companies would generally prefer to improve traditional budgeting rather than desert it totally. The study proposed that further research is required on beyond budgeting and the challenges that arise when it is implemented (Nguyen et al., 2018). Several studies have examined rolling forecast as the principal alternative to traditional budgets (e.g., Lorain, 2010; Sivabalan, 2011). De Leon et al., (2012) found that proponents of beyond budgeting view budgets as static, burdensome and time-wasting plans that added little value to their businesses. They preferred the notion of rolling forecast because it improved the performance management processes in their organisation.

Lorain (2010) interviewed representatives of Spanish companies operating in an uncertain environment. The statistical results revealed that over 60 percent of the

respondents claimed that environment-responsive adjustments made it exceptionally difficult to build up accurate budgets. During the economic down cycle, producing reliable financial forecasts required incredible exertion. Lorain (2010) also conducted qualitative interviews with organisations already using rolling forecast and found that it was considered a powerful and vital strategic planning tool. It was beneficial for cash management and day-to-day decision making, yet they would not substitute it for budget evaluation.

Lorain et al., (2015) conducted another study of company results and discovered that they had become more adaptable when allowed to make budget changes. The proportion of businesses that could change their budget after it had been approved had increased significantly, from 44 percent in 2008 to 65 percent in 2013. The majority of respondents stated that the implementation of rolling forecast enabled their company to constantly adjust its financial data, while remaining focused on the strategic objectives defined during the planning stage. (Lorain et al., 2015).

An international marketing company, the Aberdeen Group, found that 83 percent of financial reports were accurate for companies who had employed rolling forecast compared to the 74 percent of other companies. Businesses that effectively utilised rolling forecast had increased revenues and operating margins of 10 and 8 percent, respectively, compared to the 7 and 6 percent, respectively, of others (Castellina, 2013). The research showed that organisations are moving towards using rolling forecast as a financial management tool. Management accountants should use rolling forecast to navigate continuous change (Zeller & Metzger, 2013).

A study by Henttu-Aho (2016) illustrated that the execution of rolling forecast was a possible way of curing the deficiencies of accounting information, which enabled specialist controllers to create and convey more practical forward-looking information within an organisation. Henttu-Aho (2016) used a multiple case-study approach to investigate differences in planning and the use of control mechanisms in organisations that had recently sought to improve their planning. The findings revealed two forecasting approaches. First, in proactive planning, rolling forecast was used to advance information aimed at more practical outcomes. Concepts emerging from interactive discussion were frequently actioned before monetary abnormalities arising between strategies and targets were evaluated (Henttu-Aho, 2018). Secondly, in

reactive planning, rolling forecast supported the yearly budgeting, and a firm cooperative process was established for both modes of planning, involving the scrutiny and analysis of changes. Synergies between financial practices were also produced; for example, in the procedures for setting objectives, wherein forecasts informed managers of the level of results that was deemed achievable, and thus served as a practical premise for setting targets (Henttu-Aho, 2018).

2.8.2 Utilisation of beyond budgeting and rolling forecast by schools

Transparency: The information presented should be open and transparent. Aina and Bipath (2020) maintained that stakeholders should be well-versed in handling and reporting financial matters, especially the person who oversees the planning and controlling of the school's accounts. The principle of transparency should inform all financial management tools in fee-paying public schools (Aina & Bipath, 2020).

Trust: The literature shows that financial mismanagement in schools is to a great extent due to principals and SGBs. This is in part because there is no working relationship between the stakeholders, especially in schools in townships and rural areas (Rangongo, 2016).

Teams: A study by Mestry and Govindasamy (2013) showed that principals generally do not allow for genuine teamwork to permit the SGB to take part in school governance. Arguably, the main challenge emanates from the confusion between the SGB's members and school principals, as to who is really responsible for managing a public school's finances.

Planning: Making financial planning a continuous and inclusive process is imperative for public schools. According to SASA, a public school budget should be prepared in accordance with provincial guidelines. If not, it will be difficult for the school's needs and objectives to be met (Mosala & Mofolo, 2016). Financial planning is a crucial tool that forms part of the school's financial management responsibilities. It should therefore involve the determination of the public school's goals, targets, financial policy, and financial procedures (Mosala & Mofolo, 2016). Lack of financial planning can lead to the mismanagement of funds and inefficiency in the use of resources (Naidoo & Mestry, 2017).

Resource allocation: There is wide agreement that resources should be allocated just-in-time and not in-case. Principals and SGBs should have sound financial

management skills and knowledge to enable public schools' financial and physical resources to be used viably, efficiently and economically. This will guarantee the avoidance of any unauthorised, sporadic, ineffective and inefficient expenditure (Mestry, 2018; Tamir & Arar, 2019).

Vision/Targets/Values: Stakeholders should set ambitious goals and bind teams into a common cause. The principals and SGBs should work in collaboration, to ensure that the plans are visibly intertwined with educational goals and affordability. Schlebusch and Mokhatle (2016) argued that decentralising the functions of financial management and extending financial decision-making powers to an effective SGB can point public schools in the direction of improvement.

Accountability: The existing literature on school governance (Basson & Mestry, 2019) demonstrated how school governing bodies are responsible for the provision and management of quality education, as defined in the South African Schools Act of 1996. In the administration of school budgets, Dibet (2015) discussed the principal's professional management roles, such as overseeing finance and human resources, and the school's administrative functions, including budgeting, resourcing and financial evaluation. The principal is usually more knowledgeable about these responsibilities than the school governing body, which is an issue where the SGB should be sharing the responsibilities (Dibet, 2015). The risk is that the principal will use this knowledge to further his/her own goals at the school's expense. This means that the principal can freely exercise authority over an inexperienced (and sometimes illiterate) SGB (Aina, 2017). Clearly, what suffers is the notion of accountability.

2.9 Gaps identified in the literature and research questions that have remained unanswered

From the above discussion, it is clear that there are gaps in the existing empirical literature relating to how strategic tools such as beyond budgeting and rolling forecast might assist school heads to manage and improve their schools. Internationally, studies have been conducted in, inter alia, the Netherlands, Sri Lanka, Portugal, Norway, Finland and New Zealand. For instance, Guruge (2021) examined beyond budgeting in small and medium-sized enterprises in New Zealand, Henttu-Aho's (2018) work discussed above was set in Finland, while Ilchikabir (2015) investigated

the complementary roles of budget and rolling forecast in the Philips Company in the Netherlands. Other studies included Silva (2015) on transforming the traditional budgeting process transformation into the beyond budgeting model in Portugal, (Samudrage & Beddage, 2018), the challenges of implementing beyond budgeting in Sri Lanka, and a review of the literature on rolling forecast, benchmarking and customer profitability in Norway (Golyagina & Valuckas, 2012).

In contrast, little is known about beyond budgeting or rolling forecast in the developing parts of the world. In the South African context, Sabela (2012) evaluated the most prevalent budgeting practices in the South African community, while a study by Meintjies (2012) examined the incorporation of alternative budgeting methods relative to the use of the traditional budgeting method (Meintjies 2012). Another study investigated strategic planning and budgeting alignment in the South African Social Security Agency (Mokgope, 2015). King (2010) explored the value-driving potential of budgeting. There are no studies devoted to the utilisation of beyond budgeting and rolling forecast in the Cape metropole of South Africa. It would be naive and unwise to think that findings from the developed world can simply be applied to developing nations such as South Africa. The research questions formulated in Chapter One therefore remain unanswered:

1) Do public schools in the Cape Metropole use beyond budgeting and rolling forecast techniques?
2) Does rolling forecast have a positive and significant relationship with beyond budgeting?
3) Does rolling forecast have a positive and significant relationship with improvement in the management of public schools?
4) Does beyond budgeting have a positive and significant relationship with improvement in the management of public schools?

2.10 Conclusion

This chapter aimed to review existing literature relevant to exploring beyond budgeting and rolling forecast as strategic tools to improve management in public schools in the Cape Metropole. This review has been presented, certain gaps have been identified, and the unanswered research questions have been restated. It is clear that too little

work has been done in the subject area, to draw any firm conclusions on the utility of beyond budgeting and rolling forecast in the improvement of financial management in public schools.

CHAPTER THREE

CONCEPTUAL MODEL AND HYPOTHESIS DEVELOPMENT

3.1 Introduction

The preceding chapter presented a literature review on the topics of beyond budgeting and rolling forecast. This Chapter moves on to a discussion of the conceptual framework, particularly the relationships between the constructs inside the conceptual research model. The chapter thus synthesises all of the previously discussed elements into a broad conceptual model. It develops hypotheses that are tested by the data gathered (and analysed in Chapter Four). The following sections present each hypothesis inside the conceptual model, in the same order as the hypotheses.

The purpose of the chapter is to investigate in depth the proposed linkages in the conceptual model, for which Partial Least Squares Structural Equation Modelling (PLS-SEM) was utilised.

PLS-SEM is useful when a researcher has to isolate dependent variables from independent variables. The following are the questions it raises: What part does the relationship play in this study? What other studies have reported on the relationship, and in what context (i.e., what previous work on the link between the constructs)? Finally, what are the implications of the proposed relationship for this study?

3.2 Conceptual model

A conceptual model expresses assumptions, explains phenomena of interest, and reflects a philosophical perspective. It should also account for the relations among the study's various concepts or constructs (Maziriri, 2018). In brief, a conceptual model defines the cause-effect link between variables to explain an issue (Sumaedi et al., 2014). A schematic representation of a conceptual model allows the reader to visualise the theoretical relationships between the model variables (Maziriri, 2018); and, in this case, gain a rapid understanding of how the financial mismanagement problem should be solved. Sithole, (2019) stated that the variable under examination is the dependent or outcome variable, represented by the letter γ. Whenever a factor is projected or estimated, it is always the dependent variable (Maziriri et al., 2018). In this context,

improvement in public school management is the outcome variable, as shown in Figure 3.1 below.

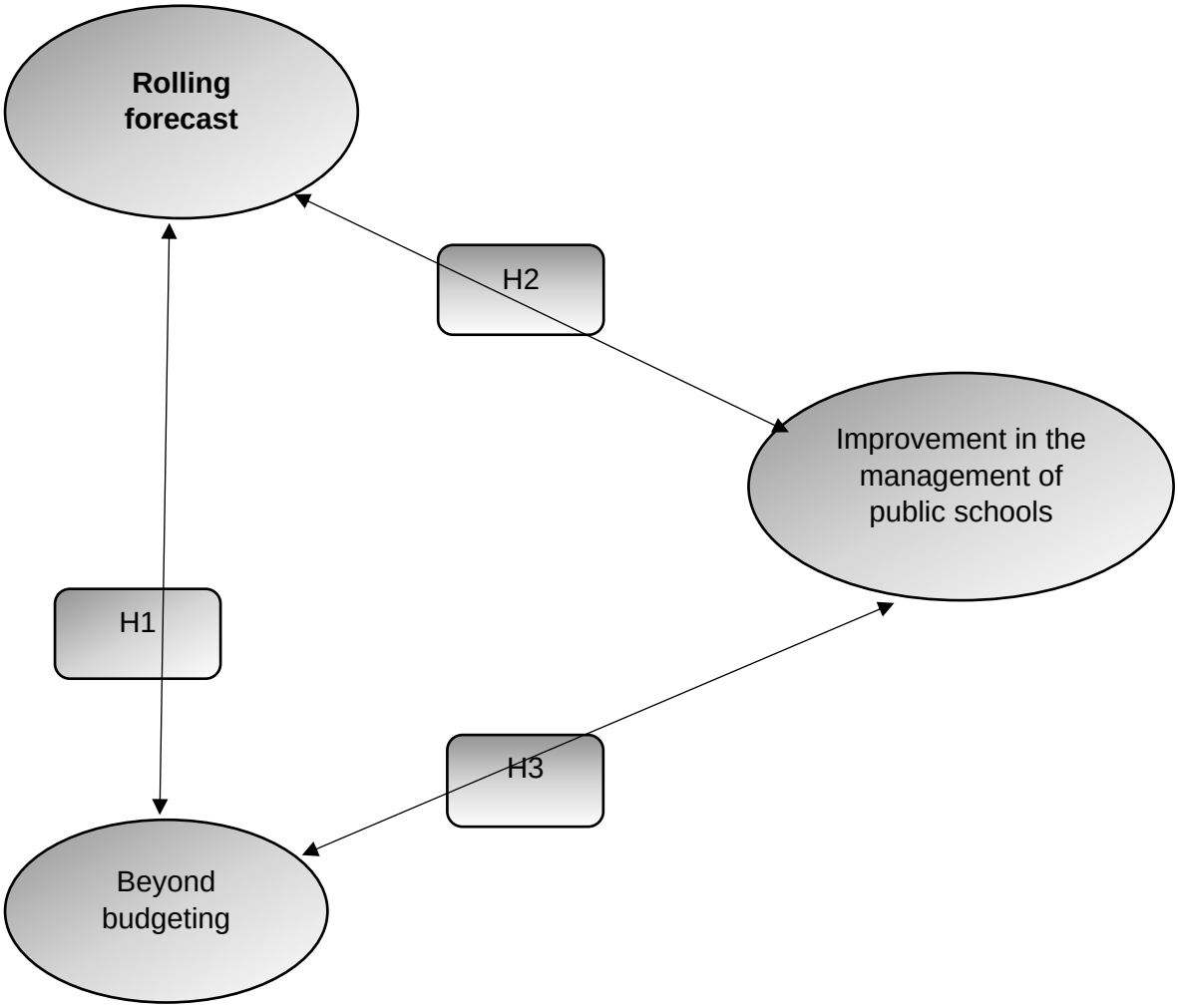


Figure 3.1: Conceptual model

Source: Developed by researcher (2022)

3.3 Hypothesis development

Quantitative research entails putting a hypothesis to the test and deciding whether or not to reject it (Rubin & Babbie, 2005). According to Creswell (2009), hypotheses are predictions made by a researcher about the relationship between variables. Hypothesis development, typically builds on a previous study or studies (Matthews & Kostelis, 2011), thus demands a clarification of how dependent variables "depend" on independent variables (Pomerantz, 2016). The current study's hypotheses concern the relationships among rolling forecast, beyond budgeting and public school management improvement. Figure 3.2 below, illustrates the relationship between rolling forecast and beyond budgeting.

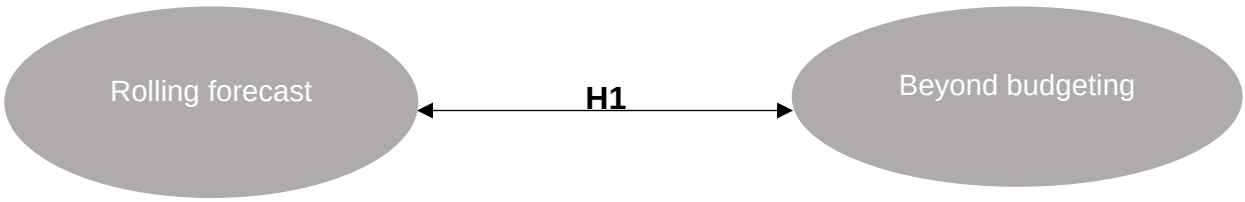


***Figure 3.2:* Rolling forecast and beyond budgeting**

Source: Developed by researcher (2022)

3.3.1 Rolling forecast and beyond budgeting

3.3.2.1 Importance of the hypothesised relationship

The first hypothesis tested the link between rolling forecast and beyond budgeting. In beyond budgeting, the target-setting process is isolated from the rolling forecast process, and targets are made more flexible (Becker 2014). The fundamental goal of the rolling forecast method is to enable more dynamic and proactive decision-making, and it varies from scenario planning in that it only provides estimates for single future points (Goretzki & Messner 2016; Palermo, 2018). Beyond budgeting and rolling forecast are deemed to be the most effective strategic tools and best practices for assisting organisations with planning and coordinating in uncertain circumstances (Bogsnes, 2013). Both strategic tools address numerous budgeting flaws and help an organisation to adjust to environmental changes more quickly (Holmen & Skurtveit, 2014). In this way, new risks and opportunities can be rapidly detected (De Leon et al., 2012).

3.3.2.2 Empirical evidence supporting the hypothesised statement

It is imperative to elucidate on the relationship between rolling forecast and beyond budgeting. Beyond budgeting and rolling forecast are both innovative strategic tools that seek to improve performance by developing efficiency and effectiveness, to manage organisations through flexible sense-and-respond mechanisms rather than the more rigid, traditional command-and-control models (Lohan, 2013; Alrawazqee & Tsatkhlanova, 2021). Studies have shown that beyond budgeting and rolling forecast rely on each other (Bogsnes, 2016; O'Grady & Akroyd, 2016; Guruge, 2021). According to Guruge (2021), rolling forecast do not focus on a specific end date for a budget period. Instead, they are constantly sharpening the organisation’s outlook on the future. Similarly, the ideas of beyond budgeting can help an organisation manage

its performance and decentralise its decision-making process without using annual budgets (O'Grady et al., 2017). The beyond budgeting concept suggests that ongoing performance evaluations should replace rigid annual budget-based performance evaluations. The approach focuses on how performance management and strategy are linked (Alrawazqee & Tsatkhlanova, 2021). Therefore, a hypothesis for objective two has been developed to the effect that there is a positive and significant relationship between beyond budgeting and rolling forecast.

H1: *There is a positive and a significant relationship between rolling forecast and beyond budgeting*

3.3.2 Rolling forecast and improvement in the management of public schools

Figure 3.3 below, illustrates the relationship between rolling forecast and improvement in the management of public schools.

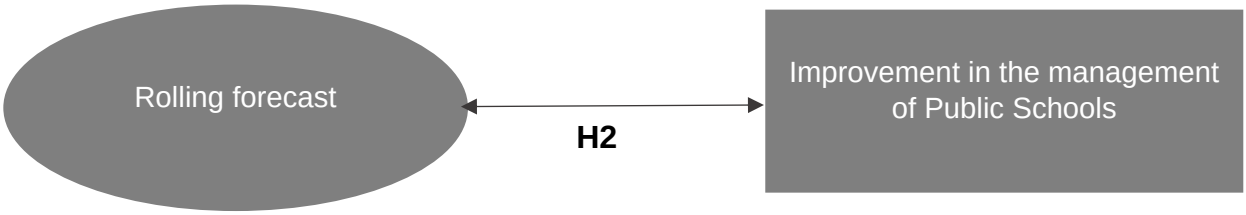


Figure 3.3: Rolling forecast and improvement in the management of public schools.

Source: Developed by researcher (2022)

3.3.2.1 Importance of the hypothesised relationship

The second hypothesis tested the relationship between rolling forecast and improvement in the management of public schools. Rolling forecast create the foundation for a new and far more valuable information system (Henttu-Aho, 2018). It can provide school management with a constant picture of both the current situation and short-term future perspective (Day & Sammons, 2014). A rolling forecast becomes a crucial aid for management in decision-making (Dikov, 2020). In addition, rolling forecast allow management to incorporate a strategy of continuous improvement (Kiristova, 2018). Management can then analyse financial records frequently and learn to predict from them with accuracy (Calzon, 2021). By removing the necessity for a fixed fiscal year-end, rolling forecast emphasise the importance of dynamic management. Rolling predictions are updated monthly or quarterly and always look

twelve or eighteen months ahead. Forecasts become more dynamic and adaptable to change (Holmen & Skurtveit, 2014). Hence the relationship between the variables is justified by the empirical evidence adduced in the section below.

3.3.2.2 Empirical evidence supporting the hypothesised statement

While it is critical to provide empirical evidence of the relationship between rolling forecast and school management improvement in public schools, there are in fact no empirical studies of the use of rolling forecast by school management. Nonetheless, as explained below, there are studies that are closely related.

A rolling forecast is a strategic tool that allows public school management to plan (i.e., forecast) constantly over a specified time horizon. Because it is their obligation to keep a pulse on all parts of the public school, including financial and operational performance, rolling forecast helps to finance leaders and business partners (Stern, 2019). According to Kaguri et al., (2014), the first element in rolling forecast that can improve school management is resource allocation.

The study proposes that better policies for tracking school's financial resources are needed to ensure proper, adequate, and accountable use of the limited state resources allocated for education. During monitoring, assessment, and auditing, school management personnel should act as internal financial adjudicators to ensure accountability and transparency in the use of school finances and the preparation of financial reports for corrective action (OECD, 2017).

The second element is that auditing public school finances remains a critical process for measuring the efficiency and effectiveness of school funds acquisition and utilisation, as indicators of quality education in a specific institution.

It also functions to reveal whether the resources allocated have been used as intended (Amos, 2021). School management should create financial reports meticulously and conduct analyses based on a reliable system of documenting financial transactions (Laurie et al., 2016).

Third, a study by Amos and Koda (2018) suggested that school management should possess the financial capabilities to discover other sources of funding for academic

and extracurricular activities at their schools. Creating appropriate financial resources is the main prerequisite for effective curriculum implementation and excellent education delivery (Nevenglosky et al., 2019).

The fourth element of rolling forecast is to periodically monitor and assess financial resources to make it possible for public schools to provide seamless and adequate financial reports (Amos, 2021). In addition, the *School Finance Handbook* (2016) suggested that preparing financial state statements on a monthly basis would enable management to tackle and resolve financial problems in time. Public school management should, above all, have the capacity to budget on the basis of rolling forecast. It is imperative for schools to manage limited resources at all levels by focusing on the school's priorities and needs (Amos, 2021). There are therefore sufficient empirical grounds to propose the following hypothesis for objective three.

H2: *There is a positive and a significant relationship between rolling forecast and improvement of the management of public schools*

3.3.3 Beyond budgeting and improvement in the management of public schools

Figure 3.4 below, illustrates the relationship between beyond budgeting and improvement in the management of public schools.

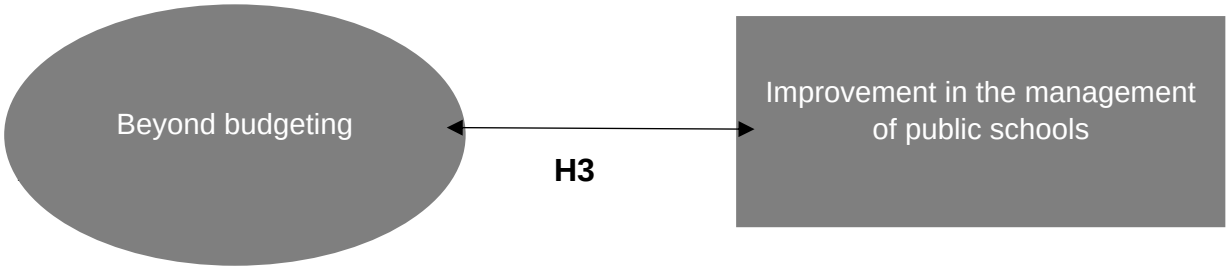


Figure 3.4: Beyond budgeting and improvement in the management of public schools

Source: Developed by researcher (2022)

3.3.3.1 Importance of the hypothesised relationship

The third hypothesis tested the relationship between beyond budgeting and improvement in the management of public schools. Beyond budgeting is a management concept that aims to help businesses to adapt to rapidly changing business conditions (Nguyen et al., 2017). It is founded on a philosophy that

emphasises the alignment of empowered leadership principles with adaptive management practices (Úlfarsson, 2018). Beyond budgeting reflects a shift in management style and culture, as well as the application of existing and new management tools, in the direction of a more dynamic, flexible, and self-regulating management model (Morlidge & Player, 2010). Úlfarsson (2018) emphasised the importance of building trust across the various hierarchical levels in a school organisation. Hope and Fraser (2003a) also emphasised the importance of mutual confidence between employees and employers. Last, the importance of beyond budgeting is that school management focuses on taking action to optimise the value of the public school and its performance from the perspective of stakeholders and learners rather than shareholders (Amos, 2021). The school organisation is better able to react to changes in the environment when the focus shifts away from strong internal control and command (Holmen & Skurtveit, 2014).

3.3.3.2 Empirical evidence supporting the hypothesised statement

Beyond budgeting does not just guide budgeting: budgeting is a typical instrument of traditional command and control management, and the "beyond" refers to management models that are not traditional (Jutta & John, 2018). Its concept stems from a shift away from command and control and toward more adaptive management (Winnie et al., 2017). Beyond budgeting signals confidence in employees' ability and willingness to make budget adjustments, as well as accounting supervisors' ability to make proper decisions (Alrawazqee & Tsatkhlanova, 2021).

The participation of local stakeholders, such as school management, financial committees and parent groups, improves the system of school-based leadership for appropriate school finance decision-making in the interests of quality education (Aina & Bipath, 2020). Beyond budgeting encourages decentralised decision-making in the development and implementation of school projects. It allows school leaders to recognise learners and teachers as essential assets in the development of schools (Amos, 2021). School leaders should organise a financial management committee to further improve effective decision-making involvement and create autonomy in financial decision-making (Godda, 2018). To ensure collective decision-making in financial management, school management should also develop a dedicated procurement team that can deliver good quality education (Kinyanzii et al., 2019).

According to Mosha (2018), clear vision and a mission statement with school objectives remain key components in the quest for excellence in education and the execution of high-quality educational curricula. Radzi et al. (2015) claim that a school's vision and mission should be the overarching guide to its financial management. An adequate school vision and mission act as a driver for members to improve the school funding plan and assign school resources to achieve the vision and goals identified (Mosha, 2018).As a result of the preceding discussion, there is a reason to propose the hypotheses for objective four:

H3: *There is a positive and a significant relationship between beyond budgeting and improvement in the management of public schools*

3.4 Chapter summary

The conceptual model for the study was presented in this chapter, and its research hypotheses was developed with reference to previous literature. The significance of the proposed relationships was first highlighted, followed by the hypothesised relationships being established and provisionally validated by relevant literature.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter provided an overview of the study's conceptual model and established theoretical linkages between the constructs of interest, allowing for the formation of hypotheses to guide the research.

The purpose of this chapter is to present the study’s research design and methods. There are seven major components contained in this chapter.

The "research onion" concept is introduced in the first section as a guideline for the research endeavour. This concept entails the research philosophy, methods and strategies as well as defining time horizons.

The study's demographic and sampling methodology are presented in the second section.

Section three delves into the data collection processes, with sub-sections on construct creation, scale development, and survey instrument pilot testing.

A section on statistical analysis and the steps taken to verify the construct validity and reliability will follow.

The final section describes the measures introduced to ensure that the research was ethical. A summary concludes the chapter.

4.2 The research onion principle

Following identifying the research problem or area of interest, the researcher must determine the suitable method(s) to tackle the topic.

The research process “onion” conceived by Saunders et al. (2016) was used to guide this study.

The onion image depicts the variety of paradigms, options, techniques and steps that researchers are obliged to consider before and during the research process.

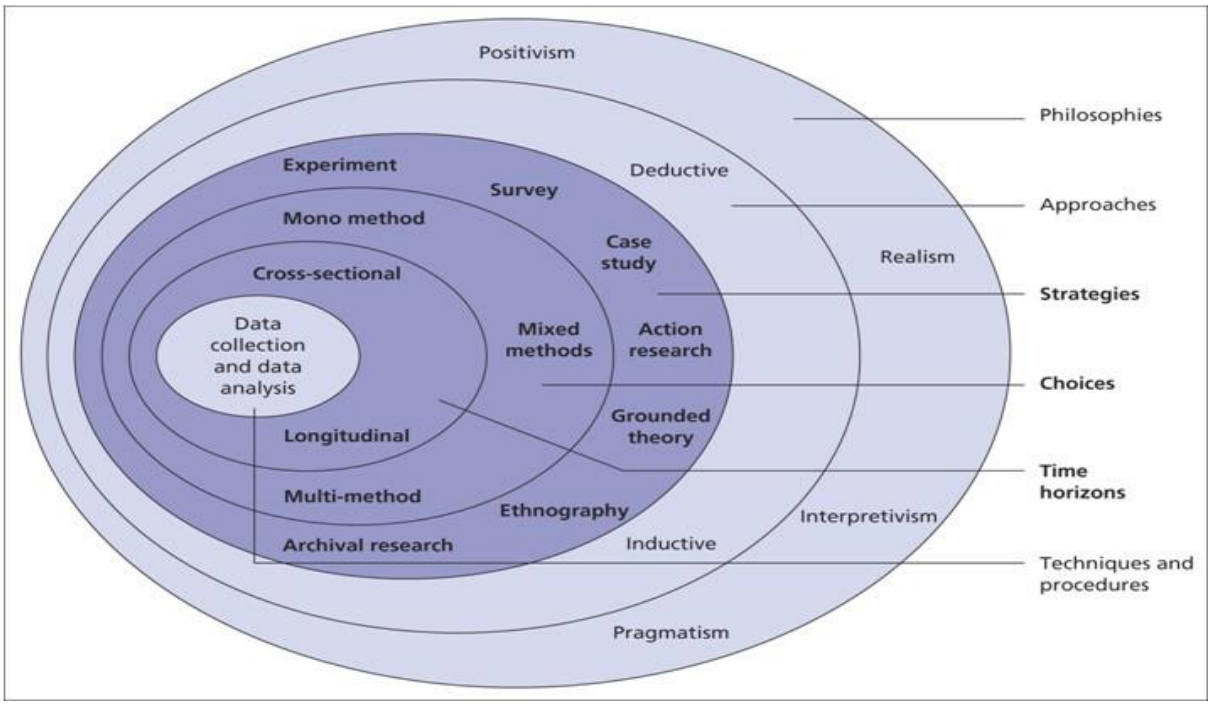


Figure 4.1: Research Process Onion

Source: Saunders et al., (2016)

The research process onion illustrates the essential issues that must be considered and resolved for any rigorous research to proceed. The different layers of the onion represent the following: the researcher's philosophical orientation, the research method chosen, the appropriate research strategy, the study timelines under consideration, and the data collection procedures.

4.2.1 Research philosophy

According to Baškarada and Koronios, (2018) a paradigm is a "world vision," which is a core set of ideas or assumptions that guides a researcher's investigation. Each researcher approaches their research with a complex web of interacting and frequently contradictory philosophical assumptions and viewpoints (Creswell, 2014). These are not necessarily contradictory. However, the knowledge studied in the research effort determines which will prevail as the research paradigm (Scotland, 2012). Two main schools of thinking have dominated research in the social sciences: positivism and interpretivism (Sage Research Methods, 2018).

The positivist paradigm is a scientific and mathematics-based philosophy that holds that anything that exists can be proved by experimentation, observation, and

mathematical or logical proof (Sekaran & Bougie, 2016). As a result, it presupposes that reality can be objectively quantified using measures unaffected by the researcher or the research equipment. Positivism, therefore, promotes the use of quantitative research and statistical analysis.

The interpretivist paradigm, on the other hand, is primarily concerned with attempting to explain specific events, happenings, or phenomena through the subjective views, opinions, and perceptions of those who experience them. Because of the great range of social and cultural differences between groups of people, the beliefs, views, and perceptions of particular groups will undoubtedly differ significantly from those of others, and differences will also exist between group members. The adoption of an interpretivist paradigm, according to Kuyini and Kivunja (2017), means attempting to primarily comprehend how people construct their social reality.

Table 4.1 The positivist and interpretivist paradigms differ in several ways

Positivist Paradigm	Interpretivist Paradigm
Tends to produce quantitative data	Tends to produce qualitative data
Uses large samples	Uses small samples
Concerned with hypothesis testing	Concerned with generalising theories
Data is highly specific and precise	Data is rich and subjective
Location is artificial	Location is natural
Reliability is high	Reliability is low
Validity is low	Validity is high
Generalises from sample to population	Generalises from one setting to another

Source: adapted from Glesne & Peshkin (1992)

This study's research was founded on the positivist paradigm, which holds that reality is objective and measurable and employs methods independent of the researcher and the instruments used (Kuyini & Kivunja, 2017). It thus separates the researcher's prejudices from objective reality, an issue that increases the reliability of a study. It sanctions using quantitative data, which is more reliable than qualitative records (Eyisi, 2016). The paradigm is consonant with a closed-ended questionnaire that simplifies

the data collection and analysis and saves time and resources, especially if the sample is large (Kabir, 2016).

4.2.2 Research approaches

Quantitative research focuses on objective measurement and numerical, statistical, and mathematical analysis of data acquired through questionnaires and surveys and data manipulation through computing tools (Queirós et al., 2017). Quantitative research quantifies data and employs statistical tools to examine the relationships between the researched constructs and the population. It makes possible population-wide generalisations based on a study's findings (Bloomfield & Fischer, 2019).

4.2.2.1 Quantitative research

Quantitative research does not distinguish between social observations and physical occurrences (Johnson & Onwuegbuzie, 2004). Quantitative research procedures require the use of deductive procedures since they are used to evaluate objective theories, illustrate correlations between variables, and anticipate results using statistical approaches (Creswell, 2014). On the one hand, it stands for a representative sample and generalisation, while on the other hand, it emphasises causal explanation. Finally, it involves a theoretical topic that the literature shows is worth tackling but has yet to be covered. Quantitative research is well known for producing diagrams showing constructs' distribution and interrelations (Barbour, 2008:11).

4.2.2.2 Qualitative research

Qualitative research is distinguished from quantitative research by the questions it seeks to answer. Qualitative data answers questions such as why? And how? while quantitative data answers questions such as how many? And what causes? (Barbour, 2008:11). Qualitative researchers may use interviews, observation or verbal dialogue to collect data (Hesse-Biber & Leavy, 2006:100).

As a result, a research inquiry can evoke a wide range of responses from different participants, each of whom has their underlying motives. Although qualitative data can be collected using various approaches, qualitative researchers prefer in-depth interviews using inductive techniques to analyse their data (Creswell, 2014).

Table 4.2: Predispositions of quantitative and qualitative modes of inquiry

Quantitative Approach	Qualitative Approach
Assumptions • **Social facts have an objective reality** • **Primacy of method** • **Variables can be identified and relationships measured** • **Etic (outsider‘s point of view)**	**Assumptions** • Reality is socially constructed • Primacy of subject matter • Variables are complex, interwoven, and difficult to measure • Emic (insider's point of view)
Purpose • **Generalisability** • **Prediction** • **Causal explanations**	**Purpose** • Contextualisation • Interpretation • Understanding actors' perspectives
Approach • **Begins with hypotheses and theories** • **Manipulation and control** • **Uses formal instruments** • **Experimentation** • **Deductive** • **Component analysis** • **Seeks consensus, the norm** • **Reduces data to numerical indices** • **Abstract language in write-up**	**Approach** • Ends with hypotheses and grounded theory • Emergence and portrayal • Researcher as instrument • Naturalistic • Inductive • Searches for patterns • Seeks pluralism, complexity • Makes minor use of numerical indices • Descriptive write-up
Researcher Role • **Detachment and impartiality** • **Objective portrayal**	**Researcher Role** • Personal involvement and partiality • Empathic understanding

Source: Adapted from Glesne & Peshkin (1992)

As previously stated, the study employed a quantitative approach, allowing the researcher to collect data from a large number of respondents. Quantitative data is more impartial and accurate than qualitative data: the data gathered is in a quantified form and minimises the researcher’s personal bias. Administering closed-ended questionnaires facilitated statistical analysis of the data, which improved the validity and reliability of the results obtained.

4.2.3 Research strategies

There are five main research strategies, from among which the researcher must choose the one that best suits the study's objectives (Maziriri, 2018). The research strategy must allow the researcher to meet the research objectives as well as answer the research question. The research strategy is also determined by factors such as

existing knowledge, time and other resources available, and the researcher's philosophical underpinnings (Saunders et al., 2012).

Table 4.3: Features of various research strategies

Strategy	Characteristics
Survey	A popular and common strategy; mainly combined with a deductive approach; suitable for research questions of whom, what, where, how much, how many; exploratory research purpose; descriptive tools; questionnaire, structured observation or structured interview producing quantitative data, time-consuming work and narrow scope of data.
Case study	An empirical investigation of a particular contemporary phenomenon with multiple sources of evidence; boundaries between phenomenon and its context are not clearly evident; for research questions of why, what, how; research purpose: exploratory and explanatory; triangulation of data: qualitative and quantitative.
Grounded theory	A typical inductive approach, theory developing and process building. To predict and explain behaviour; research purpose: exploratory; data collection proceeds without a theoretical framework, since theory is developed from data and data analysis; constant reference to data to develop and test theory.
Experiment	Propose a theoretical hypothesis; select a sample of individuals from the population; random allocation of samples to different experimental conditions: the experimental vs. control group; introduction of intervention to one more of the variables; measurement on a small number of dependent variables and control of all other variables.
Action research	Concerned with the resolution of organisational issues, involving practitioners in the research; the researcher is part of the organisational and interactive nature of the process.
Ethnography	A typical inductive approach: to describe and explain the social world; researcher needs to immerse himself/herself in the social world as completely as possible and the research

	process needs to be flexible and responsive to changes.

Source: Adapted from Saunders et al., (2016)

For this study, the survey strategy was utilised, providing a foundation for collecting data from a wide population with minimal staff and limited financial resources (Kabir, 2016). Survey research is described as the collecting of information from a sample of persons through their responses to questions (Check & Schutt, 2012). Analysis of data acquired through a survey can identify plausible reasons for specific relationships between variables and create models of these relationships. The survey method was the most appropriate for this study, which relies on hypothesis testing (Palinkas et al., 2015).

4.2.4 Time horizons

According to Saunders et al., (2012), the period of a study is determined by the research topic. The option might be a single snapshot taken once (cross-sectional) or a series of snapshots taken over a more extended period (longitudinal) (Saunders et al., 2012). This study employed a cross-sectional time horizon since the data was collected and calculated at a single point using the survey approach. The cross-sectional survey is the most commonly used kind of survey research (Olsen & St George, 2004).

According to Du Plooy-Cilliers et al., (2018), a cross-sectional study provides greater control over the measurement processes employed to collect data. Researchers also have better control over the verification process, as there are no long-term considerations with this type of study (Brown et al., 2018). The data collected in cross-sectional research can be measured easily and applied to the chosen population group because controls are implemented (Setia, 2016).

4.3 Population and sampling procedures

4.3.1 Target population

A population is a summative gathering of people from whom information is required (Wiid & Diggines, 2013); alternatively, a specific group of people, animals, or objects

whose members have the qualities or sets of characteristics that a researcher is interested in for his/her research (Nkem, 2017).

The target population for this research comprised principals, SGB members and heads of departments at both primary and secondary public schools in the Cape Metropole.

4.3.2 The sample frame

According to Malhotra (2010), a sample frame is a database for acquiring elements of the target population. Bryman (2014) argues that the “sampling frame” is made up of “all units in the population from which a sample is selected”. A good sample frame accurately represents the target population. According to Malhotra (2010) and Bryman (2014), to select adequate samples for research purposes; researchers must construct their sampling frames from all members of their target populations who possess the exact traits they are interested in for their research. The sample frame for this study consisted of appropriate people associated with 100 public schools operating in the Cape Metropole.

4.3.3 The sampling technique(s)

The convenience sampling technique was used in this study. Convenience sampling, also known as haphazard sampling or availability sampling, is a non-probability or non-random sampling technique in which members of the target population are chosen for the study if they meet specific practical requirements, such as geographic proximity, availability at a specific time, easy accessibility, or a willingness to volunteer (Taherdoost, 2016).

A non-probability sampling technique was chosen in this study to enable data gathering to be accomplished in a short period. If the units of analysis are located in locations accessible to the researcher, as was the case in this study, the result is a cost-effective approach to collecting data (Busetto et al., 2020).

This method's simplicity also justified its use in the study, as only a few guidelines regulate how the sample should be chosen (Blanche et al., 2006). Non-probability sampling also increased the sample's representativeness, thereby enhancing its generalisability (Kanguru, 2016).

4.3.4 Sample size

It makes sense that larger samples offer considerably more reliable parameter approximations (Sekaran & Bougie, 2016). According to Speziale and Carpenter (2007), a sample for a quantitative study must include at least 30 participants, whereas a sample size greater than 30 but less than 500 is appropriate for most research studies (Sekaran & Bougie, 2016; Choto et al., 2014). Considering practical considerations of time and finance, this study proposed sample size of 100, comprising 50 public primary and 50 secondary schools operating in the Cape Metropole.

According to the historical evidence of other studies, a sample size of 100 is more than adequate. Studies by Bruwer (2010), Maduekwe (2015), and Ntshonga (2019) used a sample size of between 100 and 150 respondents. Similarly, studies set in public schools by Sithole (2017) and Nyaga (2016) used sample sizes of 50 and 114 respondents, respectively. The size of the sample selected for this study is therefore eminently reasonable.

4.4 Data collection

Data collection is the precise and methodical gathering of opinions and points of view capable of addressing the research problem (Murthy & Bhojanna, 2010). The researcher gathered information about the use of beyond budgeting and rolling forecast in Cape Metropole public schools as a strategic tool to improve management. Data was collected from representatives of public schools – principals, members of SGBs, heads of departments, and teachers – as they are usually involved in decision-making and the financial performance of schools.

For this study, a self-administered, closed-ended questionnaire was chosen as it afforded the researcher a chance to employ various channels for distribution, such as hand delivery and email. This allowed the participants to finish the questionnaire at their own pace, without the pressure of the researcher's presence.

4.4.1 Design of the questionnaire

A questionnaire is a set of questions designed to elicit the most accurate and pertinent information possible from all participants (Pietersen & Maree, 2007). Since they can be mailed, emailed, or conducted in person (Kabir, 2016), and can be done in the

researcher's absence (Rule & John, 2011; Thomas, 2011), questionnaires are best suited for gathering data from a large population. They rely on the cautious and thoughtful composition of unambiguous questions.

A self-administered questionnaire has been designed specifically for a responder to complete without the intervention of the researchers collecting the data (Rada, 2019). As with any empirical study, it is critical to determine how the proposed constructs should be quantified. A five-point Likert-type scale, was utilised in this study (1= Strongly Disagree, 2 = Disagree, 3= Neither agree nor disagree, 4= Agree, 5= Strongly Agree) (see Appendix B). Section A consisted of questions pertaining to the respondent's demographic profile, and section B addressed the use of the constructs under investigation. Section C focused on the relationship between beyond budgeting and the improvement of management in public schools, while section D dealt with rolling forecast and the improvement of management in public schools. Finally, the questions in Section E aimed at measuring the improvement of management in public schools.

4.4.2 Construct and scale development

4.4.2.1 Construct

Saying exactly what it is that the scale is intended to assess appears deceptively obvious (DeVellis, 2003), but it is in this phase that many scale development initiatives go astray. DeVellis (2003) claims that theory can help with clarity, and that social science theories should always be examined before establishing a scale. If no theory exists to guide the investigation, a conceptual framework must be created before the scale instrument can be constructed. Du Plessis and Hoole (2006), on the other hand, recommended that a tentative theoretical model be built using a specific set of defined metrics. This is not a trial-and-error procedure, but rather one in which the researcher has actively considered the number of dimensions, content domains, population under study, and relevant contextual elements. Scale developers should consider if the construct they want to measure is distinct from other constructs and ensure that it is well-defined and focused on the primary goal (DeVellis, 2003). With this current study, the researcher created a conceptual model with the aim of clarifying the relationship between beyond budgeting, rolling forecast and improvement in the management of

public schools. The study also aimed to examine the empirical relationship between the three constructs.

4.4.2.2 Scale development

According to Saunders et al., (2012), when designing a questionnaire, a researcher can either create an entirely new set of questionnaire scale items for the research instrument or adopt (and adapt, as needed) existing scale items. This study adopted scales from earlier empirical research because of their excellent psychometric qualities (Saunders et al., 2012). According to Saunders et al., (2012), by adapting scale items, researchers can save time and perform reliability comparisons by operationalizing variables that have been scientifically evaluated in prior research.

The beyond budgeting section had 13 items adapted from a study by Úlfarsson (2018). The study formulated 12 principles of beyond budgeting that are mentioned in Chapter two, Section 2.7.1, above. Section C in Appendix B contains a five-point Likert scale that was used as follows: 1= Strongly Disagree, 2= Disagree, 3= Neither agree nor disagree, 4= Agree, 5= Strongly Agree.

The rolling forecast section contained four items adapted from Henttu-Aho (2018), modified to achieve objective two, which is the relationship between rolling forecast and improvement in the management of public schools (see Chapter one, Section 1.4.1). The four can be found as Section D in Appendix B. Questions were again posed using the same Likert scale.

Finally, improvement in the management of public schools was assessed using 8 items adapted from Buenaventura-Vera and Gudziol-Vidal (2020). This study explored how some of the elements of beyond budgeting and rolling forecast helped improve an organisation's management performance. For example, the researchers explored the decentralisation of decision making, and the relationship between trust and commitment (see Chapter two, Sections 2.7.1 and 2.7.2, and Section E of Appendix B.

4.5 Reliability

Reliability measures the consistency with which specific research equipment provides data (Asoba, 2014; Dudovskiy, 2018). Put differently, it measures the likelihood that

other researchers would produce identical results under the same conditions and using the same research methodologies (Mohajan, 2017). For Rubin and Babbie (2011), dependability refers to whether a technique will produce the same outcome each time it is applied to the same item. The primary goal of dependability is to give consistent findings while minimising errors and bias (Hammond & Wellington, 2013). The study's reliability was measured using three different methods: Cronbach's alpha reliability test, the composite reliability (CR) test, and the average value extracted (AVE) test.

4.5.1 Cronbach's alpha reliability test

Cronbach's alpha is used to assess measurements' internal consistency and reliability (Dunn et al., 2014; Memon et al., 2017). In this study, as revealed in Table 5.5 in Chapter five, there was strong correlation as indicated by high internal consistency, resulting in an alpha coefficient close to one (weak correlation results in an alpha coefficient close to zero). Researchers suggest the following as being commonly accepted (Pietersen & Maree, 2007; Ursachi et al., 2015; Taber, 2018):

- $\alpha > 0.9$ = Excellent (High-Stakes testing)
- $0.7 > \alpha \leq 0.9$ = Good (Low-Stakes testing)
- $0.5 > \alpha \leq 0.7$ = Acceptable
- $\alpha < 0.5$ = Unacceptable

4.5.2 Composite reliability (CR) test

The internal consistency of items is measured using composite reliability. The appropriate composite reliability requirements are 0.6 to 0.9; the minimum threshold value. The composite dependability rating should be between 0.7 and 0.9 (Sarstedt et al., 2017). According to Starkweather (2012), composite reliability gives a robust degree of dependability by accounting for the contribution of each latent factor to each item, as well as the inaccuracies of each item. Malhotra (2010) suggested that the lowest permitted composite reliability values should be 0.70 when construed similarly to Cronbach's alpha. In this study, as shown in Table 5.5 in Chapter five, composite reliability scores ranged from 0.8881 to 0.927, demonstrating inter-item correlation consistency. The formula for composite reliability is as follows:

$$\mathbf{CR\eta = (\Sigma\lambda yi)^2 / [(\Sigma\lambda yi)^2 + (\Sigma\varepsilon i)]}$$

Where:

CRη = Composite reliability, (Σλyi) ² = Square of the sum of the factor loadings and (Σεi) = Sum of error variances.

4.5.3 Average value extracted (AVE) test

Malhotra (2010) defines the variance in the indicators or observed variables that is explained by the latent construct as the average value extracted. The average variance retrieved was utilised to determine the convergent value in this study (Malhotra, 2010). The AVE threshold should be greater than 0.5, indicating sufficient convergence (Bagozzi & Yi, 1988) (according to Anderson and Gerbing (1988), 0.40 or higher). It is calculated by dividing the total of squared factor loadings by the sum of squared factor loadings and error variances (Bewick et al., 2004). The formula reproduced below was used to calculate AVE. In this study, the AVE value of each construct was higher than 0.5, in fact ranging from 0.538 to 0.650. This is displayed in Table 5.5 in Chapter five.

$$\mathbf{V\eta = \Sigma\lambda yi^2 / (\Sigma\lambda yi^2 + \Sigma\varepsilon i)}$$

AVE = summation of the square of factor loadings / {(summation of the square of factor loadings) + (summation of error variances)}

4.6 Assessment of the measurement model (outer model)

The first step in PLS analysis is to evaluate the measurement model, also known as the outer model. The measurement model specifies the rules for relating measurable and latent variables (Hair et al., 2010). It also allows the researcher to use a variety of variables to identify a single independent or dependent construct.The two main criteria utilised in PLS analysis to evaluate the measurement model are validity and reliability (Ramayah et al., 2011). In this study, convergent validity and discriminant validity were utilised to measure reliability.

4.6.1 Convergent validity

The extent to which items that are indicators of a certain construct converge or share a large proportion of variation in common is known as convergent validity (Hair et al., 2010). Convergent validity indicates that the instruments used to measure a particular

construct are at least substantially associated among themselves, with weak convergent validity implying that the model needs to include more constructs (Dean et al., 2007). Convergent validity considers the level of interrelationships between variables and tests where they should be connected (Campbell & Fiske, 1959). This can be ascertained using SPSS to calculate item-to-total correlations and determine how each item is related to the construct variable.

4.6.2 Discriminant validity

According to Hair et al., (2017), discriminant validity refers to items that measure various concepts. Discriminant validity determines whether a scale adequately distinguishes between groups that should or should not vary, based on theoretical grounds or past research (Golafshani, 2003). Discriminative validity is vital for establishing how discriminant or distinguishable the constructs are from one another, and whether or not they are measuring the same variable (Lucas et al., 1996; Zait & Bertea, 2011). This is accomplished by using SPSS to create an inter-construct correlation matrix. The Fornel-Larcker criterion and the Heterotrait-Monotrait Ratio of Correlation (HTMT) can be used to measure discriminant validity by determining cross-loadings among constructs. To attain discriminant validity, the construct's loadings must be high on itself and low on other constructs (Vinzi et al., 2010). HTMT was used to assess discriminant validity (see Table 5.6 in Chapter five) (Henseler et al., 2016). HTMT is a measure of the relationship between similar constructs with a threshold value of less than 0.85. Discriminant validity is established if the HTMT value is less than 0.85. This study meets the HTMT threshold value requirements, with the highest value of 0.788.

4.7 Assessment of the structural model (inner model)

Once the outer model has been assessed for construct validity, it can be utilised to verify the hypotheses being researched. The PLS-SEM, also known as variance-based SEM, is used in this research. This method permits using variance-based structural equation modelling instead of a covariance-based SEM method (Henseler et al., 2016). PLS-SEM is considered suitable since academics propose it in research incorporating predictive circumstances and complex cause-effect relationship models (Hair et al., 2010).

Given that the hypotheses in this study refer to directional relationships – that is, whether an independent variable's impact on a dependent variable is positive or negative – the critical ratios of the structural weights in the inner structural model were interpreted at =0.05. (two-tailed test). Shmueli et al., (2019) emphasised that researchers make use of the one-tailed test when the direction of the hypothesised relationship (negative or positive) can be predicted. In contrast, the two-tailed test is used if the direction of the hypothesised relationship cannot be predicted (Hair et al., 2017). In a p-value test of the hypothesis (where $\beta > 0$, at 0.05 significance level), the one-tailed p-value linked with the path coefficient was calculated. In instances where $p \leq 0.05$ the alternative hypothesis as accepted, but if $p > 0.05$, then the hypothesis is rejected. When utilising PLS, the p-value is calculated through bootstrapping (Shmueli et al., 2019).

It should be noted that the bootstrapping procedure is nonparametric, allowing for the statistical significance of multiple PLS-SEM outcomes to be tested, namely Cronbach's alpha, HTMT, R^2 values and path coefficients. Hair et al., (2017) observed that bootstrapping can be used for simple and multiple mediator models. Bootstrapping was used to estimate indirect effects at a 95 percent confidence interval and standard error. In lieu of this, Ringle et al., (2005) provided guidelines for accepting an alternative hypothesis, based on the following criteria:

- p-value ≤ 0.05, two-tailed,
- path coefficient must be in the right direction towards the given hypothesis, and
- 95 percent Biased Corrected Interval (BCI) must not include '0'.

4.8 Assessment of the measurement model and testing of the main effects

PLS-SEM was used as the study's software to measure the conceptual model's main effects. PLS-SEM is a two-stage process that evaluates the outer model first and then the inner model. The outer model measures reliability and validity, whereas the inner model focuses on the main effects of the model.

SEM enables a confirmatory approach to analysing a structural theory bearing on a phenomenon that links regression analysis to factor analysis (Byrne, 2013). PLS-SEM also enables the assessment of the predictive performance of the structural model holistically. Ringle et al., (2005) were of the view that AMOS and subsequently

SmartPLS have enhanced the adoption of SEM, as these packages are more user-friendly, more intuitive and easier to grasp than LISREL.

4.9 Ethical considerations

4.9.1 Voluntary participation and informed consent

Because human participants were involved in this research, authorisation to conduct it was sought from the Cape Peninsula University of Technology's ethics committee. The ethics committee requires that the participants in such a study be protected from any potential negative repercussions. The researcher explained to the participant the aims of the study and the terms and conditions under which their participation was governed, for example, that their evolvement in the study was entirely voluntary. This excise was key to comply with the committee's requirements. Each participant was furnished with a consent letter, then afforded an opportunity to read and ask clarification questions. Once the participant’s consent was obtained, the distribution of the questionnaire commenced.

4.9.2 Confidentiality and anonymity

The participants remained anonymous throughout the research process. They were assured that their privacy would not be compromised, nor would their personal details be disclosed to any third party. Participants’ personal details and information provided in the study were kept confidential and securely stored in a password-protected file.

4.10 Chapter summary

This chapter has comprehensively discussed the study's research design and methods. The descriptions of data collection methods and data analysis strategies was done. Along with gathering of data via a structured self-administered questionnaire that focuses on the study's setting at a certain moment in time and is statistical in nature. The target population, of which the respondents were a sample, was identified as comprising principals, SGB members, heads of departments and teachers at public schools in the Cape Metropole.

CHAPTER FIVE

ANALYSIS OF DATA AND DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter covered the research design and methodology of the study. The current chapter presents analyses of the data gathered and the resultant empirical findings.

It includes descriptive statistics, an outline of confirmatory factor analysis, an overview of the survey instruments' consistency and validity, and a structural model assessment.

After checking for missing values and outliers, a total of 100 questionnaires were retained out of the initial sample of 140. This reflects a useful response rate of 71.4 percent. If respondents believe the study is worthwhile and justifies their participation, they are more likely to return a questionnaire.

5.2 Demographic information about the sample

Demographic data about the participants from Section A of the questionnaire was presented in pie charts and bar graphs.

The information included the participants' gender, age, current designation, years at the current designation, accounting-related qualification or short course, knowledge of management and leadership processes, and continuous performance management.

Participants were also asked if they were considering training in management and leadership processes and continuous performance management to enhance their skills. Each of these characteristics is discussed in the following subsections.

5.2.1 Demographic profile summary

The complete demographic statistics is summarized in Table 5.1 below. The attained frequencies and percentages corroborate the findings that will be discussed in the following sections.

Table 5.1: Sample demographic characteristics

Gender	Frequency	Percentage
Male	55	55.0
Female	45	45.0
Total	**100**	**100.0**
Age	**Frequency**	**Percentage**
<30 years	2	2.0
30 - 39 years	20	20.0
40 - 49 years	32	32.0
50 - 59 years	41	41.0
>60 years	5	5.0
Total	**100**	**100%**
Current designation	**Frequency**	**Percentage**
Member of SGB	6	6.0
HOD	22	22.0
Principal	72	72.0
Total	**100**	**100%**
Years in the current designation	**Frequency**	**Percentage**
0 - 1 year	8	8.0
2 - 5 years	15	15.0
6 - 10 years	31	31.0
11 - 15 years	33	33.0
>16 years	13	13.0
Total	**100**	**100%**
Accounting-related qualification or short course	**Frequency**	**Percentage**
Yes	70	70.0

No	30	30.0
Total	**100**	**100%**
Knowledge of management and leadership processes and continuous performance management	**Frequency**	**Percentage**
Very bad	11	11.0
Bad	16	16.0
Average	11	11.0
Good	54	54.0
Very good	8	8.0
Total	**100**	**100%**
Considering training in management and leadership processes and continuous performance management to enhance your skills	**Frequency**	**Percentage**
Yes	88.0	88
No	12.0	12
Total	**100.0**	**100**

Source: Summarised SPSS output

The statistical profile of the respondents surveyed in this study is presented in Table 5.1 above. These findings apply to and are supportive of all the variables considered.

Note that “frequency” refers to the number of respondents who participated in this research. Each section displays the numbers that add up to the specified total sample of 100, as well as the percentages that add up to 100 percent.

In the following section, the seven items in the demographic survey are dealt with and discussed separately.

5.2.1.1 Gender

Figure 5.1 above introduces the categorisation of information associated with the respondents' gender. Most of the sample – 55 percent (n=55) – were male and the remaining 45 percent (n=45) were female.

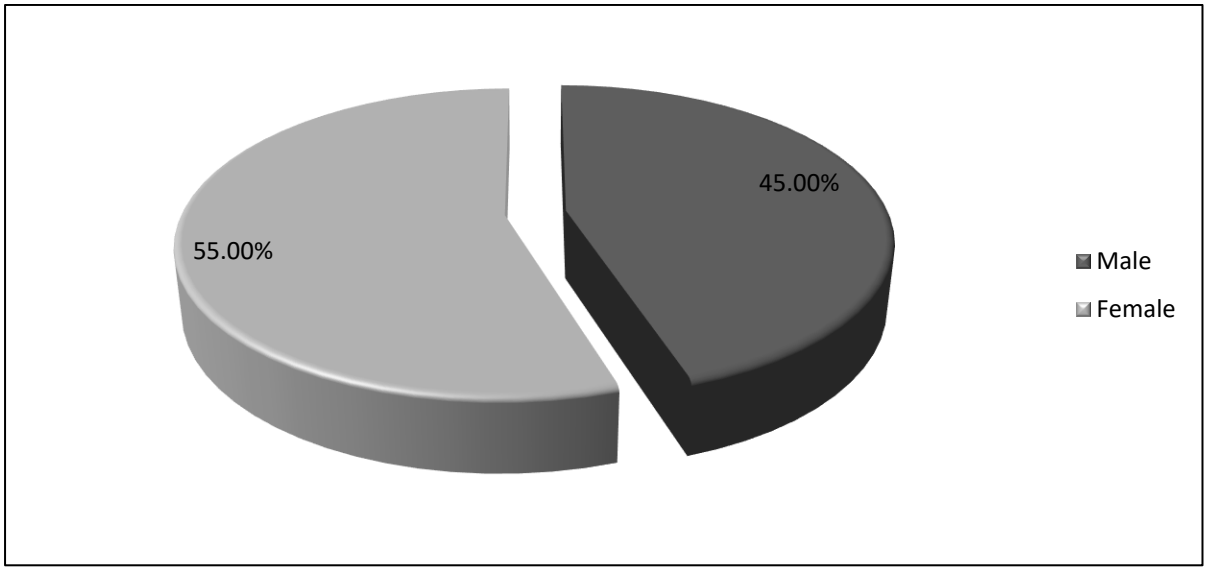


Figure 5.1: Gender

5.2.1.2 Age distribution of the respondents

The age distribution of the sample, as shown in Figure 5.2 below, revealed that 41 percent (n=41) of the participants were between the ages of 50 and 59, followed by 32 percent (n=32) who were between 40 and 49. Twenty percent (n=20) were between the ages of 30 and 39. Among the residual participants, 5 percent (n=5) asserted that they were above 60 years of age, while the remaining respondents – 2 percent (n=2) – indicated that they were under the age of 30.

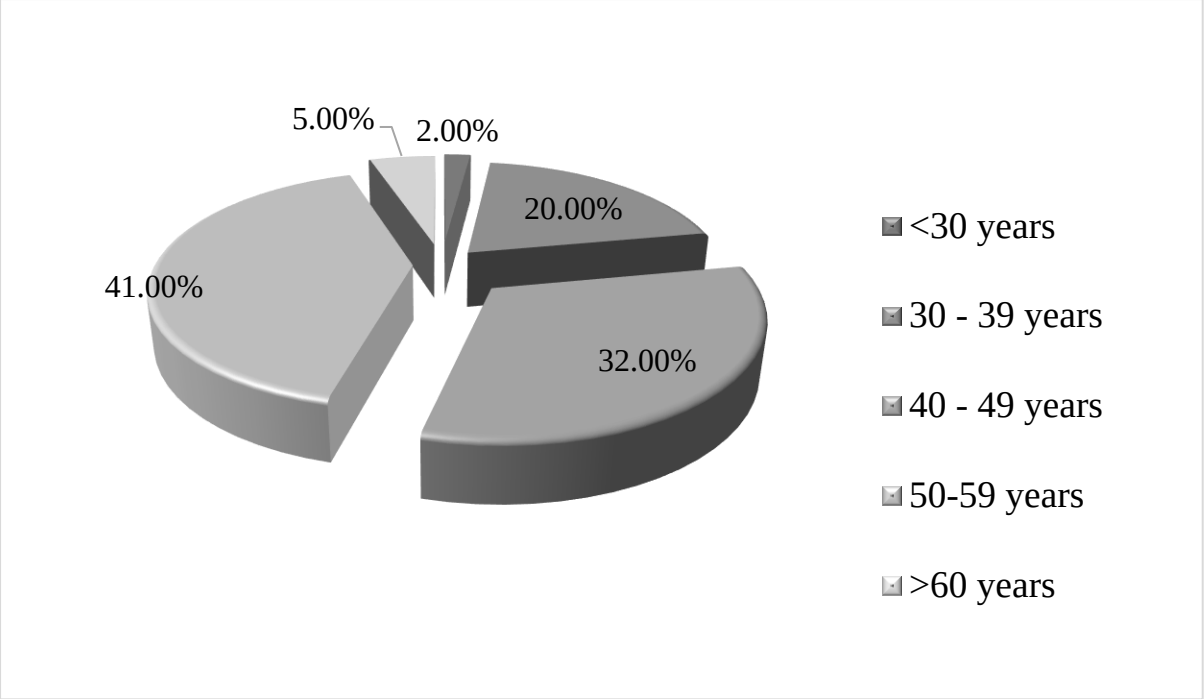


Figure 5.2: Age

5.2.1.3 Current designation

In terms of current designation, 72 percent (n=72), of the respondents indicated that they were principals. This was followed by 22 percent (n=22) who were Heads of Department (HOD). The remaining 6 percent (n=6) were members of a school governing body. The designation of respondents is graphically depicted in Figure 5.3 below.

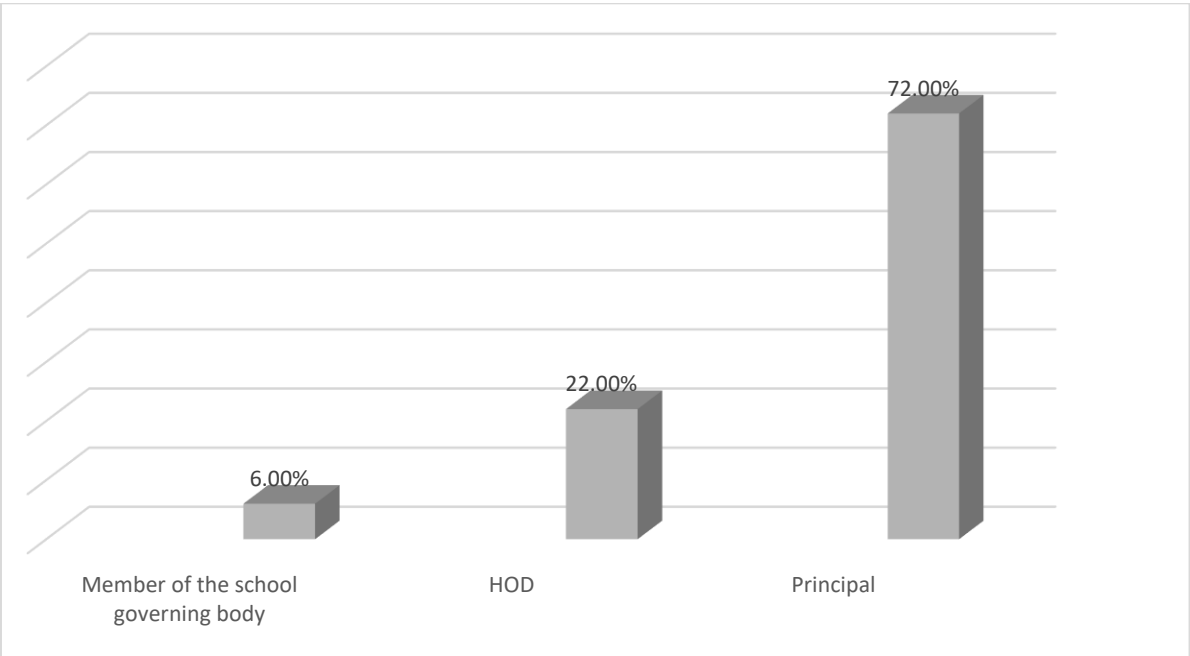


Figure 5.3: Current designation

5.2.1.4 Years in the current designation

In terms of the number of years in their currently designated position, 33 percent (n=33) of the respondents indicated that they had been in their current designation for 11 to 15 years.

This was followed by 31 percent (n=31) who indicated that they had been in their current designation for 6 to 10 years.

Fifteen percent (n=15) had been in their current designation for 2 to 5 years, while 13 percent (n=13) had occupied their positions for more than 16 years.

The remaining 8 percent (n=8) of the respondents revealed that have been in their current designation for less than a year. This situation is graphically depicted in Figure 5.4 below.

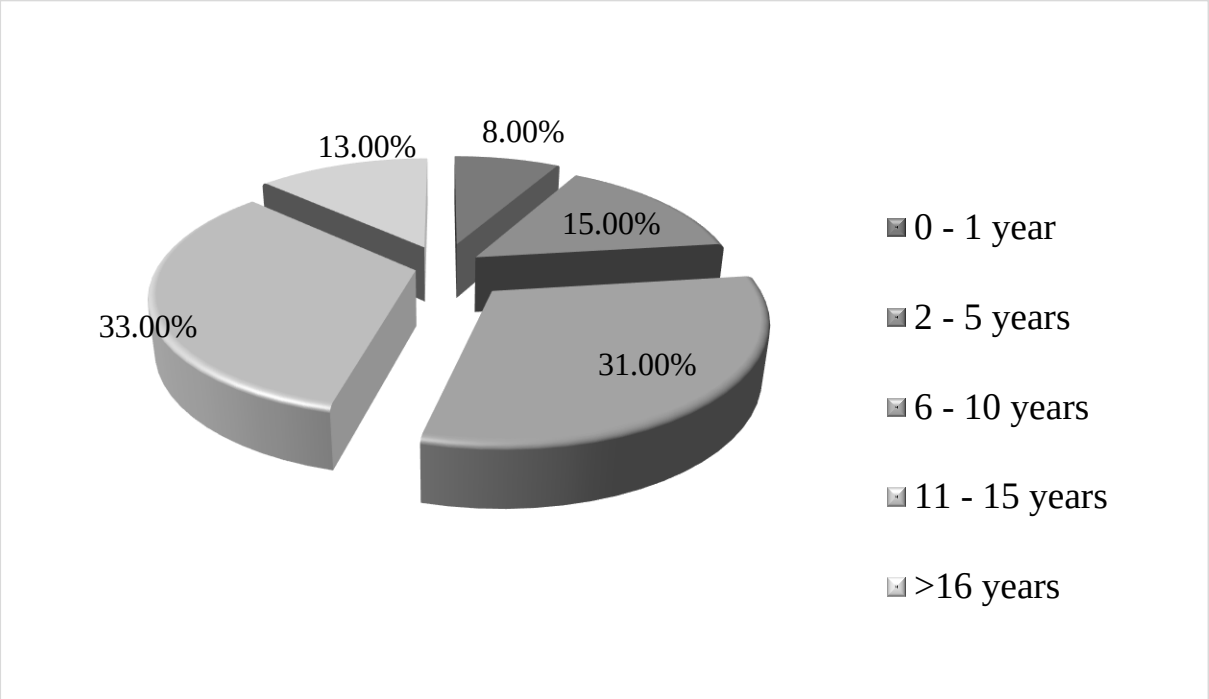


Figure 5.4: Years in the current designation

5.2.1.5 Accounting-related qualification or short course

The respondents were asked whether they had an accounting-related qualification or had completed a relevant short course (see Figure 5.5 below). A significant percentage of respondents, 70 percent (n=70), indicated that they had an accounting-

related qualification or short course training. However, the remainder of the respondents, 30 percent (n=30) revealed that they did not have any such qualifications or short courses.

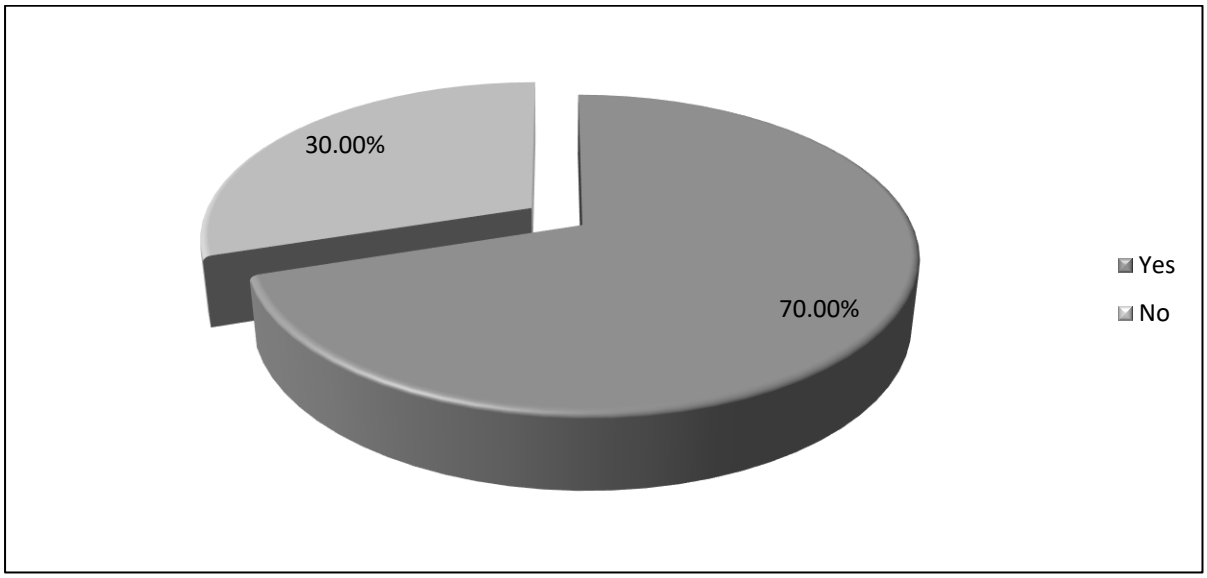


Figure 5.5: Accounting-related qualification or short course

5.2.1.6 Knowledge of management and leadership processes and continuous performance management

The respondents were asked to rate their understanding of management, leadership processes, and continuous performance management (see Figure 5.6 below). Fifty-four percent (n=54) of the respondents claimed to have a good understanding of management and leadership processes and continuous performance management. Another 16 percent (n=16) indicated they had a poor understanding of management and leadership processes and continuous performance management. In addition, 11 percent (n=11) of the sample rated their knowledge as very bad regarding management and leadership processes and continuous performance management. In comparison, 11 percent (n=11) rated their understanding of management and leadership processes and continuous performance management as average. The remaining 8 percent (n=8) were confident enough to claim that they possessed a very good knowledge of management and leadership processes and continuous performance management.

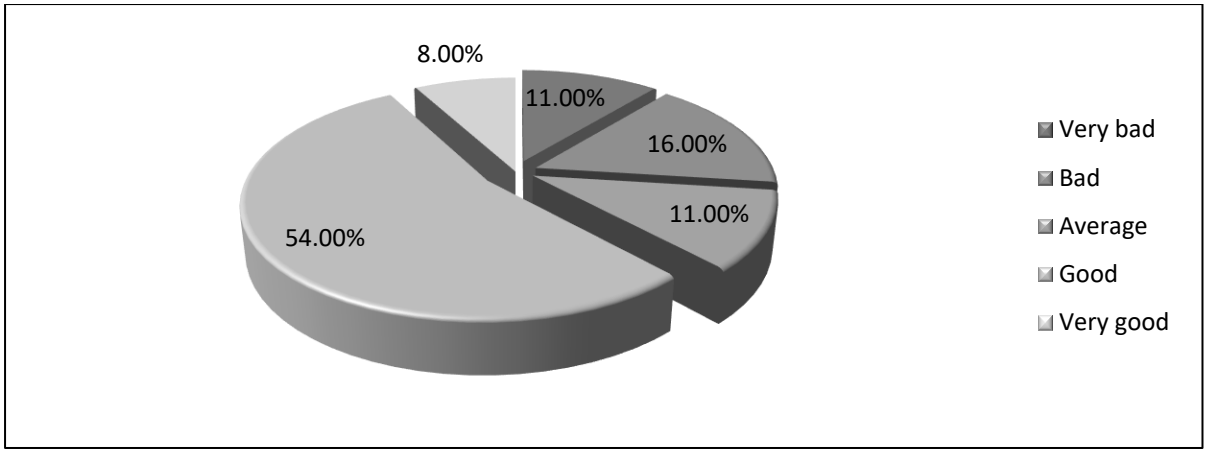


Figure 5.6: Knowledge of management and leadership processes and continuous performance management

5.2.1.7 Considering training in management and leadership processes and continuous performance management to enhance your skills

The respondents were asked whether they would consider training in management and leadership processes and continuous performance management to enhance their skills (see Figure 5.7 below). Most of the respondents – 88 percent (n=88) – indicated that they would consider training in management and leadership processes and continuous performance management to enhance their skills, while the remaining 12 percent (n=12) were not interested.

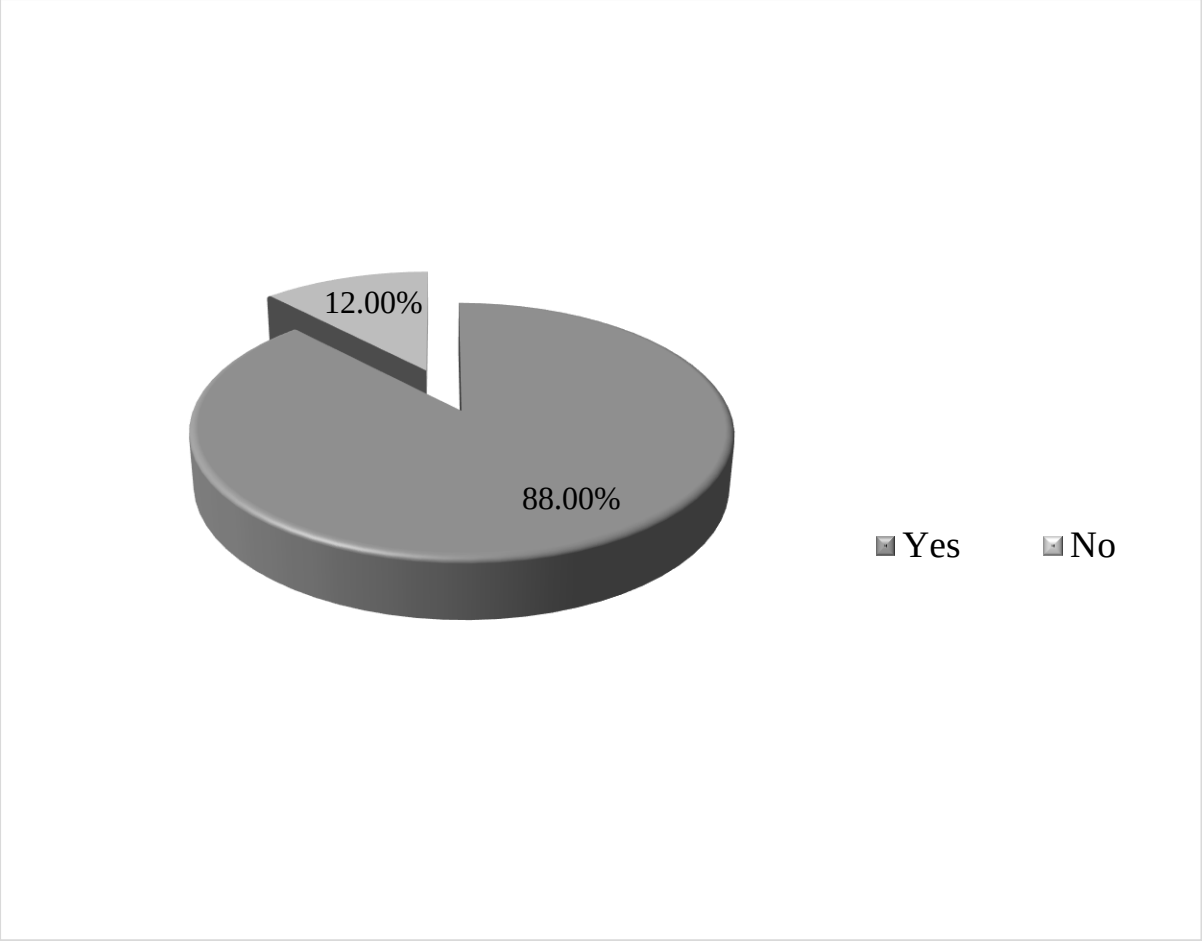


Figure 5.7: Considering training in management and leadership processes and continuous performance management to enhance your skills

5.3 Utilisation of flexible strategic tools

This section is devoted to how the respondents rated themselves in terms of their rate of utilising flexible strategic tools such as the balanced scorecard, annual budgeting, strategic planning, rolling forecast, beyond budgeting, financial accounting, and management accounting. Usage of these instruments is interrogated separately and presented in Sections 5.3.1 to 5.3.7.

5.3.1 Balanced scorecard (performance measurement tool)

The respondents indicated if they used the balanced scorecard (see Figure 5.8 below). Of the respondents 41 percent (n=41) indicated that they sometimes made use of the balanced scorecard, 17 percent (N=17) claimed that they always used it, while 14 percent (n=14), revealed that they often used the balanced scorecard. On the other hand, 28 percent (n=28) indicated that they had never used the balanced scorecard method

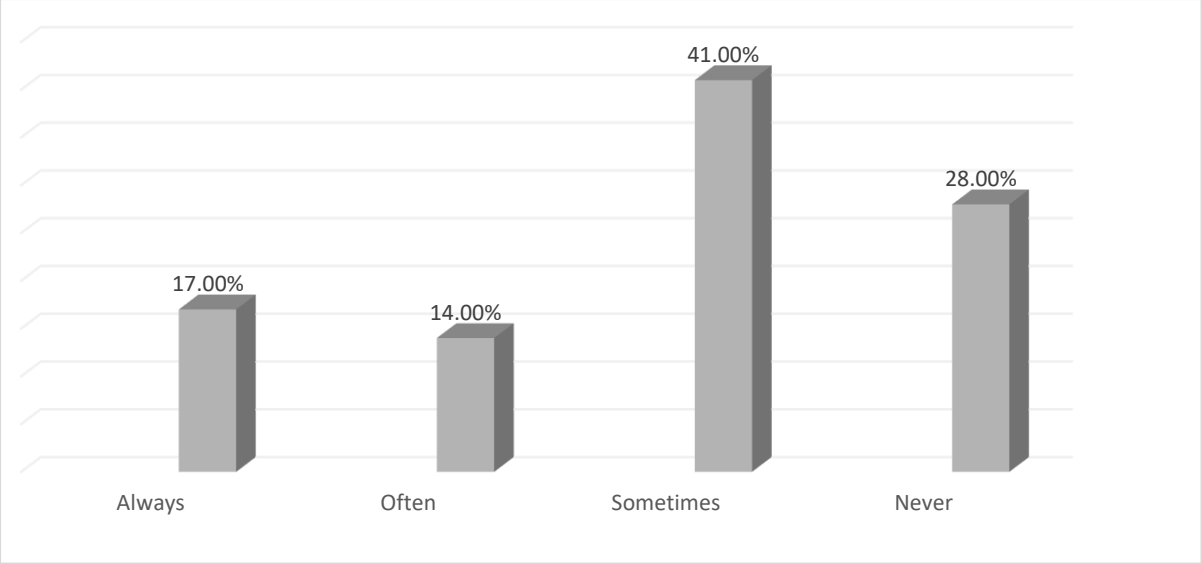


Figure 5.8: Usage of the balanced scorecard

5.3.2 Annual budgeting

The respondents were invited to indicate if they compiled annual budgets (see Figure 5.9 below). Fifty-nine percent (n=59) of them responded that they never used annual budgeting. This was followed by 31 percent (n=31) who indicated that they sometimes used annual budgeting. Seven percent (n=7) of the sample claimed always to compile annual budgets, while 3 percent (n=3) said that they often did so.

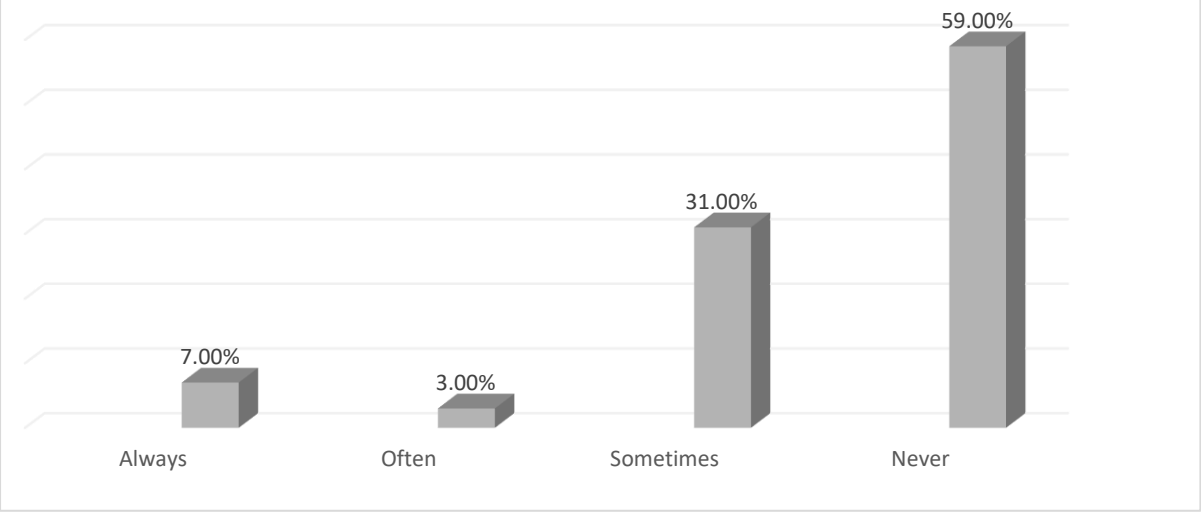


Figure 5.9: Usage of annual budgeting

5.3.3 Strategic planning

The respondents were invited to indicate whether they utilised strategic planning (see Figure 5.10 below). Twenty-one percent (n=21) indicated that they always made use of strategic planning, 54 percent (n=54) said that they often used strategic planning

and 21 percent (n=21) said that they sometimes resorted to strategic planning. The remaining 4 percent (n=4) conceded that they never used strategic planning.

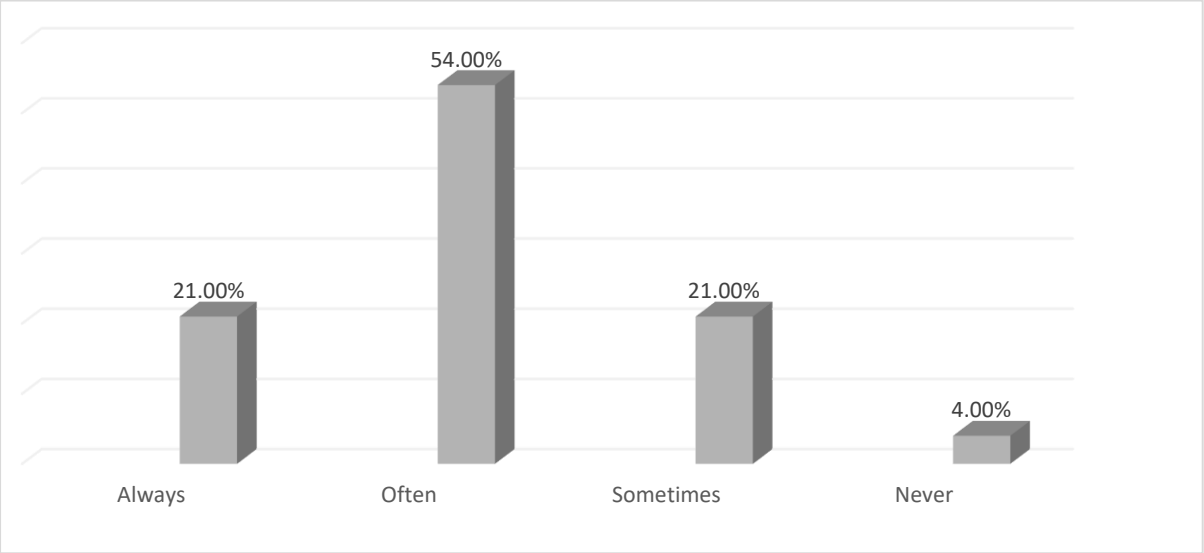


Figure 5.10: Usage of strategic planning

5.3.4 Rolling forecast

The respondents were asked to indicate if they made use of rolling forecast for budgeting purposes (see Figure 5.11 below). A majority 56 percent (n=56) indicated that they always made use of rolling forecast, followed by 41 percent (n=41), who said that they often used rolling forecast. The rest of the respondents, 3 percent (n=3), said that they sometimes used rolling forecast.

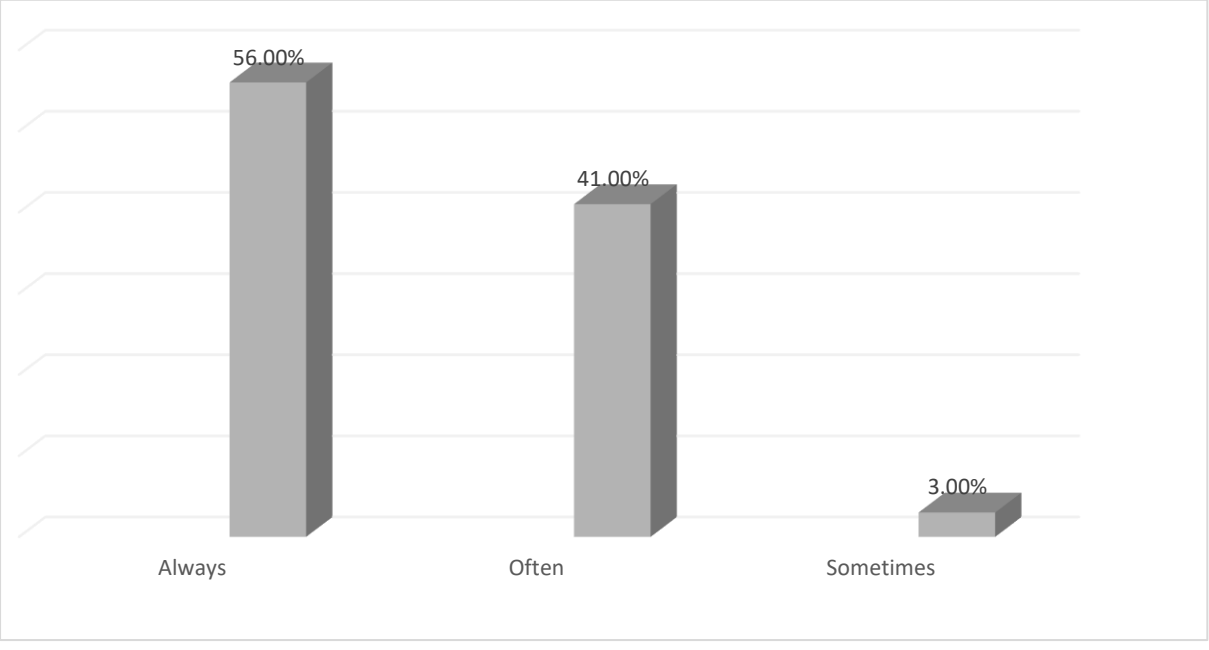


Figure 5.11: Usage of the rolling forecast

5.3.5 Beyond budgeting

The respondents were invited to indicate if they made use of beyond budgeting (see Figure 5.12 below). Of the respondents 28 percent (n=28) claimed that they always used beyond budgeting, 12 percent (n=12) indicated that they often used beyond budgeting, while 31 percent (n=31) said they sometimes made use of it. The rest of the respondents, 29 percent (n=29) said that they never used beyond budgeting.

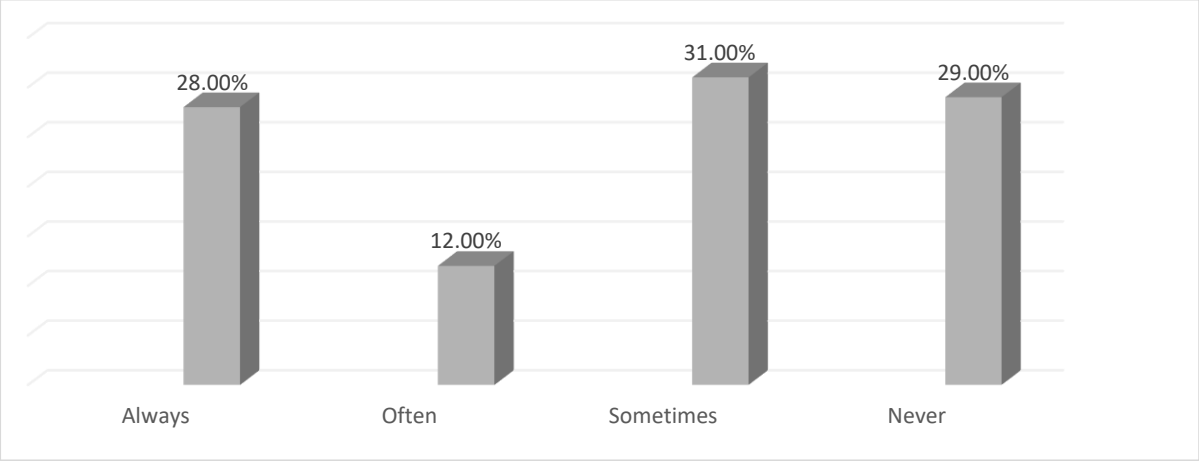


Figure 5.12: Usage of Beyond budgeting

5.3.6 Financial accounting

The respondents had the opportunity to indicate if they used financial accounting methods (see Figure 5.13 below). Of the respondents 40 percent (n=40) replied that they always made use of financial accounting, 15 percent (n=15) said that they often used rolling financial accounting, and 25 percent (n=25) said that they sometimes used this practice. Another 20 percent (n=20) revealed that they never used financial accounting.

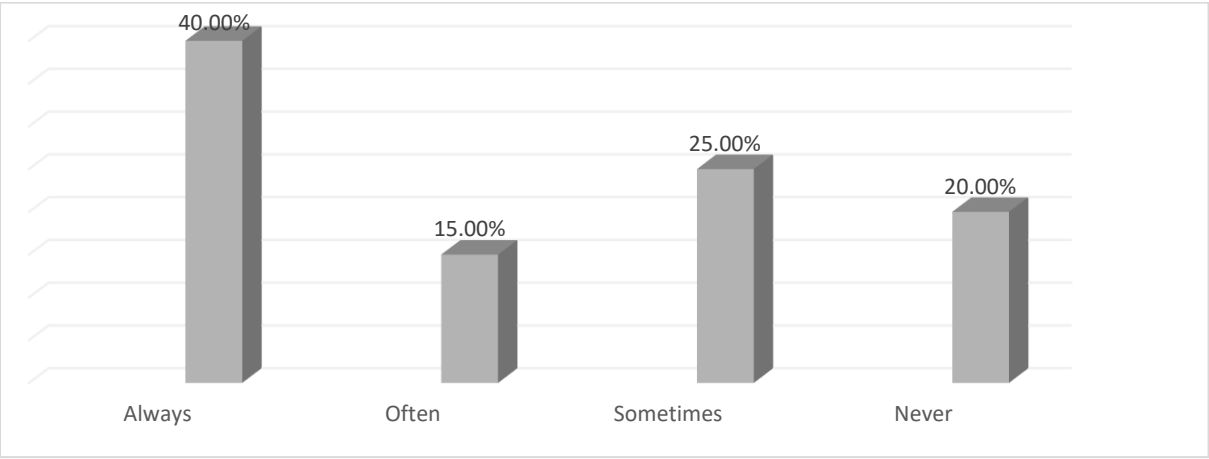


Figure 5.13: Usage of financial accounting

5.3.7 Management Accounting

The respondents were asked to indicate if they utilised management accounting procedures (see Figure 5.14 below).

Of the respondents 32 percent (n=32) indicated that they always made use of management accounting, 15 percent (n=15) said that they often used rolling management accounting, and 28 percent (n=28) said that they sometimes used management accounting. As many as 25 percent (n=25) never used management accounting.

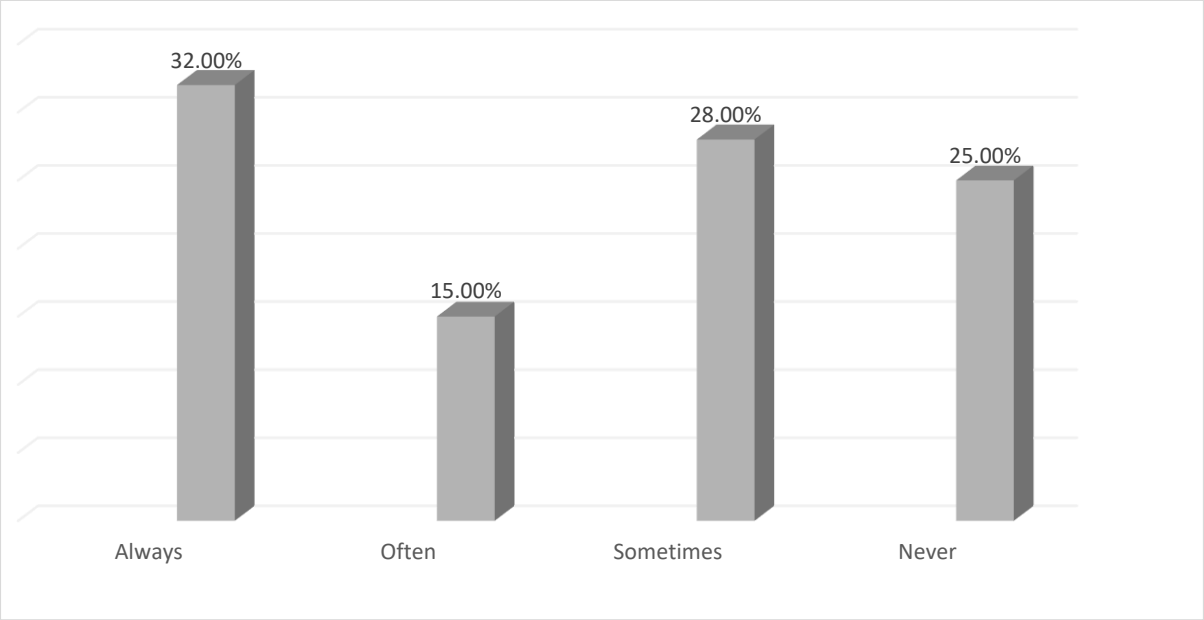


Figure 5.14: Usage of management accounting

5.4 Descriptive statistics

The next stage of the analysis was to ascertain the proportion of respondents' who agreed or disagreed with each construct. Tables 5.1, 5.2, and 5.3 below report on the basic descriptive statistics comprising the means and standard deviations of the predetermined constructs.

For this study, mean values were determined as indicators of central tendency. The tables below illustrate that the mean value for all of the elements was between three and four, implying that the majority of the participants were either indifferent ('3' on the Likert scale) or agreed ('4' on the Likert scale) with the statements presented. To compute the variance of responses on each variable, standard deviation values were calculated, as postulated by Hair et al. (2017). A small estimated standard deviation

(SD) suggests that respondents' responses were consistent and that the response distributions were close to the mean, according to the connection between the mean and the standard deviation.

On the other hand, a large standard deviation shows that the responses varied, causing the response distribution values to deviate from the mean of the distribution (Malhotra & Birks, 2007). Moreover, the standard deviation value “should be less than 1 but it is recommended to at least include a value of less than 2 to ensure that there is no issue of outliers” (Drost, 2011:87).

Table 5.2: Descriptive statistical analysis (Beyond budgeting)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
BB1	100	1	5	3.79	.967
BB2	100	1	5	3.81	.907
BB3	100	1	5	3.77	.886
BB4	100	1	5	4.17	.682
BB5	100	1	5	3.86	.899
BB6	100	1	5	3.85	.809
BB7	100	1	5	3.72	1.120
BB8	100	1	5	4.19	.800
BB9	100	1	5	3.97	.979
BB10	100	1	5	4.05	.892
BB11	100	1	5	4.20	.895
BB12	100	1	5	3.82	.936
BB13	100	1	5	3.82	.947
Valid N (listwise)	100				

BB = Beyond budgeting; RF = Rolling forecast; IMOPS = Improvement in the management of public schools

The beyond budgeting questions, which constituted Section C of the questionnaire, had a highest mean score of 4.20 (Item BB11) and a lowest mean score of 3.72 (Item BB7), giving a range of 0.48. The lowest mean score of 3.72 (Item BB7) reflected responses to a statement that the budget was revised on an unplanned basis at the school, while the highest mean score of 4.20 (Item BB11) indicated agreement that the performance of managers within the school organisation was measured based on attaining budget goals. Table 5.1 above revealed that the beyond budgeting scale had the highest standard deviation value of 1.120 (Item BB7) and the lowest standard deviation value of 0.682 for item BB4. Based on this information the data sets are clustered around the mean. The SD values are less than two (2), indicating the absence of outliers.

Table 5.3: Descriptive statistical analysis (Rolling forecast)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
RF1	100	1	5	3.87	1.002
RF2	100	1	5	3.86	1.005
RF3	100	1	5	3.82	.968
RF4	100	1	5	3.97	.989
Valid N (listwise)	100				

Section D of the questionnaire exhibited a range of 0.15 points between the highest mean score of 3.97 (Item RF4) and the lowest mean score of 3.82 (Item RF3) on questions about rolling forecast. Precisely, the lowest mean score 3.82 (Item RF3) indicated that the respondents were neutral or partly agreed that rolling forecast increased a school's teacher monitoring, simplified their evaluation, and improved training. The highest mean score was 3.97 (Item RF4). Most respondents were neutral or agreed that rolling forecast helped the school organisation manage funds. The rolling forecast scale had the highest standard deviation of 1.005 (Item RF2) and the lowest standard deviation of 0.968 (Item RF3), as shown in Table 5.3 below. Based

on this information the data sets are clustered around the mean. The SD values are less than two (2), indicating the absence of outliers.

Table 5.4: Descriptive statistical analysis (improvement in the management of public schools)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
IMOPS1	100	1	5	4.06	.967
IMOPS2	100	1	5	3.60	.964
IMOPS3	100	1	5	2.58	1.075
IMOPS4	100	1	5	2.48	1.000
IMOPS5	100	1	5	3.01	1.418
IMOPS6	100	1	5	3.15	1.306
IMOPS7	100	1	5	2.84	1.237
IMOPS8	100	1	5	3.06	1.377
Valid N (listwise)	100				

Questions about improvement in the management of public schools, which constituted Section E of the questionnaire, had a highest mean score of 4.06 (Item IMOPS1) and a lowest mean score of 2.48 (Item IMOPS4), giving a range of 1.58. The lowest mean score (Item IMOPS4) showed that the respondents disagreed that the managed school was able to respond quickly to customer requests, while the highest mean score (Item IMOPS1) showed that the respondents agreed that the quality of services had improved at the managed school.

Table 5.3 above revealed that the improvement in the management of public schools scale, had a highest standard deviation value of 1.418 (Item IMOPS5) and a lowest standard deviation value of 0.964 (Item IMOPS2). Based on this information the data sets are clustered around the mean. The SD values are less than two (2), indicating the absence of outliers.

5.5 Using the partial least squares-structural equation modelling approach (PLS-SEM)

The current software version of (SMART-PLS 3.2.7) was utilised to evaluate quantitative data recorded for structural equation modelling, whereas (PLS SEM) was

preferable above (covariance-based SEM) due to its better statistical power in parameter estimates and improvement of observed variance (Tajvidi et al., 2018). PLS-SEM is a method for estimating relationships between one or more independent and dependent variables that are similar to multiple regression analysis. PLS-SEM is particularly suitable for exploratory research because of this property (Henseler, 2017). Path coefficients, a second-generation multimodal research technique, and multi-linear regression, are all integrated in PLS-SEM. Using structural template analysis, this describes the variability in dependent variables (Hair et al., 2010; Hair, 2017). PLS-SEM works for complex models involving moderation, with small samples and ordinary multivariate data (Vlajčić et al., 2018; Hair et al., 2021). The reflective measurement technique was used in this study, wherein measurements represent latent variables and the relationship is made from the construct or latent variable to the measure (Diamantopoulos & Winklhofer, 2001). The statistical analysis executed in this survey incorporates measures such as (1) Measurement model analysis: testing of reliability and authenticity; and (2) Structural model analysis: examining the path coefficients between observed coefficients.

5.6 Reliability analysis

The numerous metrics that were utilised to analyse the reliability and the validity of the constructs for the study are detailed in Table 5.5 statistical measures of accuracy tests.

Table 5.5: Scale accuracy analysis

Research constructs	Variable code items	Cronbach's Alpha	Composite reliability	Average variance extracted	Items loadings
BB	-	**0.913**	**0.927**	**0.538**	-
	BB1				0.638
	BB2				0.683
	BB4				0.645
	BB6				0.735
	BB7				0.756
	BB8				0.717
	BB9				0.746
	BB10				0.838
	BB11				0.811
	BB12				0.731

	BB13				0.742
RF	-	**0.821**	**0.881**	**0.650**	
	RF1				0.877
	RF2				0.809
	RF3				0.774
	RF4				0.761
IMOPS	-	**0.841**	0.884	0.562	-
	IMOPS3				0.616
	IMOPS4				0.861
	IMOPS5				0.784
	IMOPS6				0.668
	IMOPS7				0.725
	IMOPS8				0.815

According to Nunnally (1978), a Cronbach's alpha of 0.7 or greater indicates that a measure is reliable. Table 5.5 above shows a range of Cronbach's alpha values, from the lowest (0.821) to the highest (0.913). The Cronbach's alpha grades showed that each construct had a high level of internal reliability (Tavakol & Dennick, 2011). The constructions' Cronbach's alpha values exceeded the necessary 0.70, suggesting that the constructs utilised to quantify variables were extremely dependable.

Table 5.5 above illustrates the weighting of each item in relation to its construct. For the research constructs, the least value for each item loading is 0.616. Therefore, all the individual item loadings exceeded the recommended value of 0.5 (Anderson & Gerbing,1988). Since all of the individual items converged well and shared at least 50% of their variance with their respective constructs, it is clear that all of the measurement instruments are adequate and reliable (Fraering & Minor, 2006).

The equations presented by Fornell and Lacker (1981:22) were used to calculate composite reliabilities (CR) and average variance extracted (AVE) for each construct, that is,

$CR\eta = (\Sigma\lambda yi)2/[(\Sigma\lambda yi)2+(\Sigma\varepsilon i)]$

where CRη is the composite reliability, $(\Sigma\lambda yi)^2$ is the square of the summation of the factor loadings and (Σεi) is the summation of error variances.

$V\eta=\Sigma\lambda yi2/ (\Sigma\lambda yi2+\Sigma\varepsilon i)$

where Vη is the AVE, $\Sigma\lambda yi^2$ is the summation of the squared of factor loadings and Σεi is the summation of error variances.

The least CR value of 0.881, as given in Table 5.5, is substantially over the required 0.6. (Hulland, 1999), whereas the lowest AVE value obtained, 0.538, is likewise higher than the required 0.4 (Fraering & Minor, 2006). This confirms the measurement instruments' remarkable internal consistency and dependability. According to Field (2013), discriminant validity refers to items measuring different concepts. Table 5.5 below presents the results of the discriminant validity analysis.

Table 5.6: Discriminant validity (Heterotrait-Monotrait Ratio-HTMT)

	Beyond budgeting	**Improvement in the management of public schools**	**Rolling forecast**
Beyond budgeting	**1.000**		
Improvement in the management of public schools	0.778	**1.000**	
Rolling forecast	**0.679**	0.788	**1.000**

The Hetero-Trait-Monotrait Ratio (HTMT) criterion (see Table 5.6) was used to measure discriminant validity, considering prior research (Henseler et al., 2016; Verkijika & De Wet, 2018), suggesting that HTMT is excellent for assessing discriminant validity than Fornell-Larcker's frequently applied criteria. If one employs a conservative approach, discriminant validity is established when the HTMT value is less than 0.9 or 0.85. (Verkijika & De Wet, 2018; Neneh, 2019). The maximum HTMT value obtained was 0.788, which was lower than the conservative estimate of 0.85, as shown in Table 5.6. As a result, all the constructs placate the discriminant validity criterion.

5.7 Structural model assessment

The inner structural model (see Figure 5.15) was evaluated to see if the endogenous and exogenous variables had any relationship. For the non-return model, the path coefficients were computed using a non-parametric, boot-strapping routine (Vinzi et al., 2010), with 100 cases and 5,000 samples. (two-tailed; 0.05 significance level; no sign changes). The standardised root mean square residual (SRMR) was used to measure the model's efficiency, built on the hypothesis that a good model has an

SRMR value of less than 0.08 (Henseler et al., 2016). The SRMR of the structural model in Figure 5.15 was 0.057, indicating sufficient validity of the constructs. In the model, the three variables (Beyond budgeting, rolling forecast and improvement in the management of public schools) had R^2 estimates of 0.727 and 0.656, respectively, indicating adequate predictive precision for the structural model.

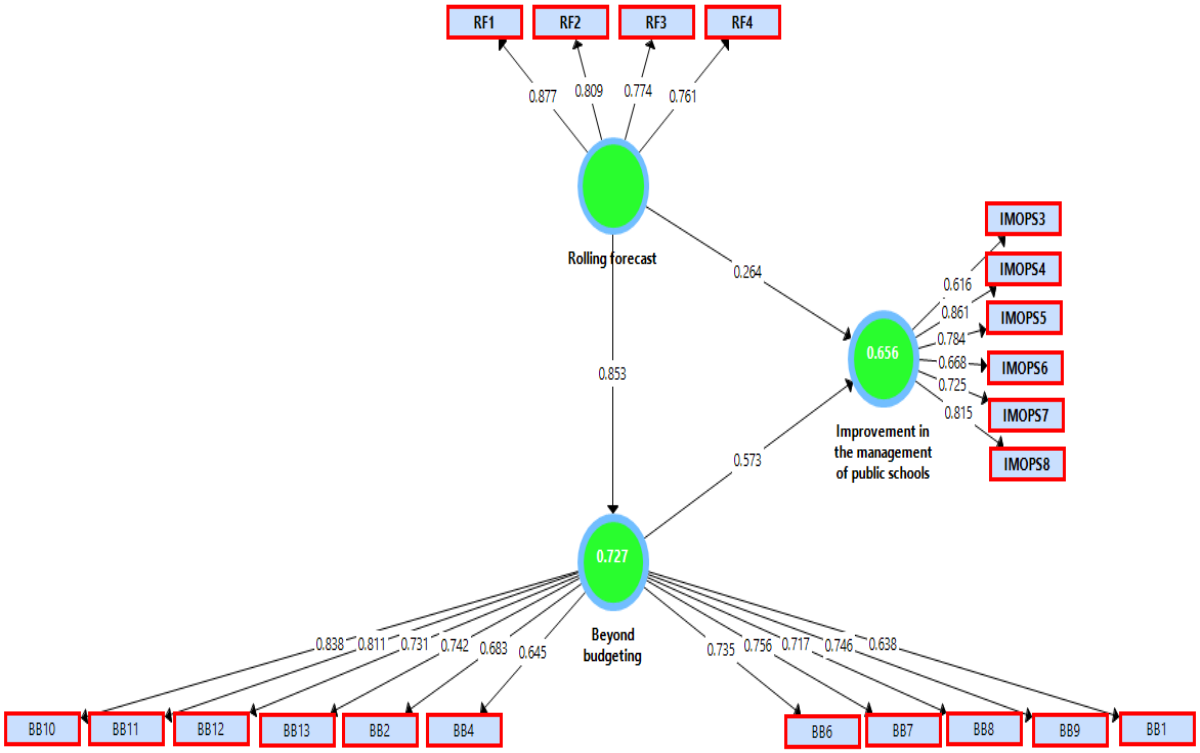


Figure 5.15: Structural model

Table 5.7: Results of structural equation model analysis

Hypothesis	Proposed hypothesis relationship	Beta coefficients (β)	T-statistics	P-values	Decision
H_1	RF→ BB	0.853	27.501	0.000	Positive and significant
H_2	RF→ IMOPS	0.264	2.233	0.026	Positive and significant
H_3	BB→ IMOPS	0.573	4.975	0.000	Positive and significant

Source: Calculated from survey results.

Note: Arrows signify the relationships between each construct to indicate the proposed hypothesis.

5.7.1 Outcome of hypotheses testing

Path coefficient values and t-values for the structural model produced from the bootstrapping procedure were used to evaluate hypotheses in this study. T-values reflect whether there is a substantial association between model variables and path coefficients, according to Beneke and Blampied (2012), indicating the strength of the associations in the model. The standardised path coefficients and their matching t-values are shown in Figure 5.15 and Table 5.6. A t-value greater than 1.96 at a 5 percent level of significance indicates a statistically significant correlation (Chin, 1998).

5.7.2 Outcome of testing hypothesis 1: Rolling forecast and beyond budgeting

The primary hypothesis suggests a positive and significant relationship between rolling forecast and beyond budgeting. It can be seen in Figure 5.15 and Table 5.6 that the rolling forecast had a positive relationship (β=0.853) and a statistically significant relationship (t=27.501) with beyond budgeting. This outcome proposes that there is a nexus between rolling forecast and beyond budgeting. Consequently, the analysis fails to dismiss H_1.

5.7.3 Outcome of testing hypothesis 2: Rolling forecast and improvement in the management of public schools

The second hypothesis states that there is a positive and significant relationship between rolling forecast and improvement in the management of public schools. It can be seen in Figure 5.15 and Table 5.6 that rolling forecast had a positive relationship (β=0.264) and a statistically significant relationship (t=2.233) with improvement in the management of public schools. This outcome proposes that there is an association between rolling forecast and improvement in the management of public schools. Consequently, the analysis supports H_2.

5.7.4 Outcome of testing hypothesis 3: Beyond budgeting and improvement in the management of public schools

The third hypothesis states that there is a positive and significant relationship between Beyond budgeting and improvement in the management of public schools. In this

examination, this hypothesis is upheld. Figure 5.15 and Table 5.6 show that beyond budgeting had a positive relationship (β=0.573) and a statistically significant relationship (t=4.975) with improvement in the management of public schools. This outcome indicates that the higher the level of beyond budgeting, the higher the level of improvement in the management of public schools. This examination thus supports H_3.

5.8 Discussion of the results

The statistical analysis showed that fifty six percent of the participant frequently use rolling forecast. Rolling forecast allows a company to focus on the business activities. In Addition, rolling forecasts improve forecast accuracy by incorporating the most recent available data. These findings are supported by previous empirical research (Janke et al., 2014; Henttu-Aho,2016; Henttu-Aho, 2018). On other hand, stastical analysis for beyond budgeting showed that twenty eight percent of the respondents frequently use this variable (beyond budgeting). According to the empirical research carried out by (Aksom,2015; Nguyen et al., 2018 ; Fraser, 2018), organisation that implement beyond budgeting model are able to involve and motivate their employees in the hierarchy to a greater extent, becoming more innovative and continuously developing their business processes in order to achieve strategic goals. A decentralised organisation with beyond budgeting can make quick decisions, retaining profits and creating loyal customers. Instead of being based on individual performance, rewards are team-based, promoting teamwork.

The statistical analysis revealed a positive and significant relationship between rolling forecast and beyond budgeting. This conclusion has sufficient provision from preceding empirical research, such as that carried out by Golyagina and Valuckas (2012). They discovered that around 40 percent of all practitioner papers are prompted by or at least linked to beyond budgeting, indicating a strong link between beyond budgeting adoption and interest in rolling forecast in practitioner publications. This study's results also support the validity of a valuable relationship between rolling forecast and beyond budgeting. The outcomes attained in the recent study are also not without empirical evidence (Becker et al., 2010; Goode & Malik, 2011; Hope & Fraser, 2003a; Fraser, 2018; Úlfarsson, 2018).

Empirical support was also found to confirm a positive association between rolling forecast and improvement in the management of public schools. This result is in line with the work of Liang and Ordasi (2013), who discovered that rolling forecast positively correlate with improvement in management.

The statistical analysis also suggested a link between beyond budgeting and improvement in the management of public schools. This finding mirrors the work of Tian et al., (2015), who found a positive association between beyond budgeting and improvement in the management of organisations. The findings of this study's analysis support that there are substantial connections between beyond budgeting and improvement in the management of public schools (O'Grady et al., 2016). Similar results were reported by Guruge (2021), who explored associations between beyond budgeting and rolling forecast in small and medium enterprises.

5.9 Chapter summary

This chapter started with an analysis of the demographic outline of the participants. The descriptive statistics for the individual variables were then discussed, along with their corresponding mean score and standard deviation values. Statistical Package for the Social Sciences (SPSS) was used to measure reliability and validity. The examination for dependability included Cronbach's alpha, the composite reliability, and the average variance extracted. Convergent and discriminant validity was assessed. Structural model examination was then conducted to assess the nexus between the research variables, depending on how they were expressed or depicted in the conceptual model of the study. All three hypotheses formulated were supported by the study. More precisely, a positive and significant relationship between rolling forecast and beyond budgeting was confirmed and rolling forecast and beyond budgeting were shown to have a positive and significant relationship with improvement in the management of public schools.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

In the previous chapter, the empirical findings were analysed, discussed, and interpreted. Descriptive analysis, correlation analysis, exploratory factor analysis, reliability and validity analysis, and a structural equation model(SEM) were used to analyse and summarise the data.

This chapter gives a broad overview of the research study by setting the theoretical and empirical goals in context. The study aimed to examine the utilisation of beyond budgeting and rolling forecast as strategic tools for monitoring management and the improvement of public schools in the Cape Metropole.

Recommendations for the management of public schools are developed from a combination of theoretical postulates and empirical analysis. The chapter concluded with an account of the benefits and limitations of the study, and implications for further research.

6.2 Overview of the study

The study's main objective, as first stated in Chapter one, is revisited in Section 6.3.1, followed by the sub-objectives in Section 6.3.2. Chapter one also outlined the background of the study, defined the research problem, identified the research objectives, and briefly described the research methodology, including the statistical analysis performed. In Sections 1.5 and 1.7, the research model and hypotheses were adumbrated. The sub-objectives set out in Section 1.4.1 of Chapter one were used to structure Chapter two (the literature review).

In Chapter two, the study was contextualised and theoretically grounded through reference to the concepts of rolling forecast and beyond budgeting, and to previous empirical studies conducted in cognate fields. The conceptual model and a set of critical hypotheses for the study were detailed in Chapter three for further empirical investigation. The research methodology used in the study was described in Chapter four, and the findings from the empirical investigation were reported in Chapter five.

6.3 The findings in relation to the objectives of the study

The findings that were analysed and presented in the previous chapter, are divided into sections according to the study's objectives as set out in Chapter one. In order to attain the objective and answer the research questions that guided the study, the researcher developed four sub-objectives.

6.3.1 Aim of the study

To examine the usage of beyond budgeting and rolling forecast in the Cape Metropole as strategic tools to monitor and improve the management of public schools.

6.3.2 Research objective one

To determine whether the public schools in Cape Metropole use beyond budgeting and rolling forecast techniques. The findings for this sub-objective are summarised as follows: The respondents were asked if they used beyond budgeting, and their responses are presented in Figure 5.12. Beyond budgeting was *always* used by 28 percent of the respondents (n=28), *frequently* used by 12 percent (n=12), and *sometimes* used by 31 percent (n=31) of the respondents. Twenty-nine percent (n=29) said that they never employed anything other than conventional budgeting. According to Bogsnes (2016), an organisation that uses beyond budgeting as a management strategy tool will inspire and have accountable employees. Moreover, organisations that use beyond budgeting (i) have high levels of decentralisation, (ii) flexible resource allocation without specified timeframes, and (iii) have recourse to relative target setting (Michal et al., 2020).

The respondents were also asked to indicate whether or not they utilised rolling forecast (see Figure 5.11). As many as 56 percent (n=56) of the respondents said they *always* utilised rolling forecast, 41 percent (n=41) of the respondents said that they *frequently* used rolling forecast while the remaining 3 percent (n=3) explained that they utilised rolling forecast from time to time. According to Holmen and Skurtveit (2014), the study’s findings show that top management is committed to ensuring that rolling forecast are implemented throughout the organisation and that consistent business knowledge exists. At the senior management level, rolling forecast and forecasting information are crucial instruments for knowledge exchange, learning, and reflection.

6.3.3 Research objective two

To determine whether rolling forecast has a positive and significant relationship with beyond budgeting. The findings for this sub-objective are summarised as follows: This study proposed the hypothesis H1 that rolling forecast has a positive and significant relationship with beyond budgeting. The results presented in Figure 5.15 and Table 5.7 show the relationship (β=0.853). The relationship between the two constructs is also substantiated by a considerable level of relationship significance (P < 0.000) and a statistically significant relationship (t=27.501). This outcome confirms that hypothesis H_1 is confirmed by the results of this research.

6.3.4 Research objective three

To determine if rolling forecast has a positive and significant relationship with improvement in the management of public schools. The findings for this sub-objective three are summarised as follows: This study proposed the hypothesis (H_2) that rolling forecast has a positive and significant relationship with improvement in the management of public schools. The results are displayed in Figure 5.15 and Table 5.6. The beta coefficient generated a result of (β=0.264), thereby confirming the relationship between constructs. Furthermore, the p-value is p < 0.0026, and the relationship is statically significant (t=2.233). The findings indicate that there is a significant and positive relationship between the two constructs and confirms hypothesis H_2.

6.3.5 Research objective four

To determine if beyond budgeting has a positive and significant relationship with improvement in public school management, the questionnaire revealed that: A SEM-Smart PLS was used, with the results presented in Figure 5.15 and Table 5.6. These indicate that beyond budgeting had a positive relationship (β=0.573) and a statistically significant relationship (t=4.975) with improvement in the management of public schools. Furthermore, the relationship between these two constructs was demonstrated to be significant using SEM, with a p-value of less than 0.001.

6.4 Recommendations

On the basis of these results, the researcher recommends that rolling forecast and beyond budgeting should be incorporated into the financial management of public

schools with other strategic tools such as traditional budgeting. This will assist with financial planning and general management at these schools. In public schools, performance is vital to the achievement of educational objectives. Hence the researcher further recommends that school management can better allocate resources to needy departments or projects by combining wide target setting with improved reporting. This will allow for the delegation of complex decisions to the school operational level, where the requirements are most explicit and resources can be deployed most efficiently. In addition, the researcher recommends that the Western Cape Department of Education focus on training public school management. The training will assist the school heads in honing their skills in the use of flexible strategic tools such as beyond budgeting and rolling forecast.

For academics, the study can serve as a foundation for further investigation into how to improve the management of public schools in the Cape Metropole. For the government, the study can function as evidence supporting the enforcement of strategies and requirements for policy implementation at public schools. This study also cautions (especially during the COVID-19 pandemic) the management of public schools within South Africa that with greater freedom and flexibility comes greater responsibility. Finance controls establish a clear performance monitoring method to oversee and safeguard performance, allowing for swift intervention if necessary.

6.5 Limitations of the study

There are various limitations to this study. To begin with, the literature review is almost entirely limited to English-language literature. Due to the non-academic nature and origin of the notions of beyond budgeting and rolling forecast, various non-academic sources, such as management handbooks, were used to establish the thematic frame for the research. The research was limited to public schools in the Cape Metropole, and the findings do not reflect how these schools assess financial planning. The targeted respondents' busy schedules made it difficult for them to complete the questionnaire. In addition, the COVID-19 lockdown restrictions rendered the accessibility of the schools problematic. The exclusively quantitative nature of the research may have required the exclusion of more illuminating and more extravagant information, which a qualitative methodology might have elicited.

6.6 Suggestions for further study

- The findings of this study paves the way for exciting future research endeavours. As this investigation was conceptual, future qualitative empirical research in public schools could use the propositions as the structural basis for an initial validity assessment. Mixed methods research might be indicated in this context.
- This study's findings were based on a sample of 100 public schools. To improve the generalisability of the findings, future studies might use a larger sample size.
- Extending the research to other parts of South Africa and putting the conceptual model to the test could provide a worthwhile future research direction.
- This study examined the extent to which public schools are using the beyond budgeting and rolling forecast. Further empirical research should be conducted to show the public schools "before" and "after" the implementation of beyond budgeting and rolling forecast.

6.7 Conclusion

The principal aim of this analysis was to construct a theory-based model that would guide future research for improvement in the management of public schools. For instance, principals can derive some insights from this study to improve the management of their schools. Once processes at schools have been streamlined to support effective and efficient financial management and good governance, schools should enjoy adequate resources and thereby improve the quality of the education that they offer. This is why the focus has been on evaluating the relationships among rolling forecast, beyond budgeting and improvement of management. It is imperative that more training is conducted on the use of all strategic tools to avoid financial mismanagement, as the economy relies heavily on the development of public schools. According to human capital theory, citizens are critical for the generation of economic value. Yet to fulfil this function, they need to be decently educated at fully functional schools.

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APPENDICES

Appendix A: PERMISSION LETTER

Directorate: Research
Audrey.wyngaard@westerncape.gov.za
Tel: +27 021 467 9272
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Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20210429-2580
ENQUIRIES: Dr A T Wyngaard

Mrs Nelly Msiza
7 Southwark Street
Parklands
7441

Dear Mrs Nelly Msiza

RESEARCH PROPOSAL: MONITORING AND EVALUATION: STRATEGIC TOOL FOR THE MANAGEMENT AND IMPROVEMENT OF PUBLIC SCHOOLS IN THE CAPE METROPOLE

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The study is to be conducted from **01 June 2021 till 30 September 2021.**
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).

7. Should you wish to extend the period of your survey, please contact Dr A.T. Wyngaard at the contact numbers above quoting the reference number.
8. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 29 April 2021

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Appendix B: QUESTIONNAIRE

STRATEGIC TOOL FOR THE MANAGEMENT AND IMPROVEMENT OF PUBLIC SCHOOLS IN THE CAPE METROPOLE

Dear Participant,

The aim of this research is to examine the utilisation of beyond budgeting and rolling forecast as a strategic tool for monitoring management and the improvement of public schools in the Cape Metropole.

You are invited to participate in the survey on the topic aforementioned above. This is a research project being conducted by Nelly Rose Msiza, a master's in management accounting student at Cape Peninsula University of Technology. It should take approximately 10 minutes or less to complete.

PARTICIPATION

Your participation in this online survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. You are free to decline to answer any particular question you do not wish to answer for any reason.

BENEFITS

You will receive no direct benefits from participating in this research study. However, your responses may be beneficial in advancing knowledge in the Management Accounting field and may also contribute to the creation of a strategic tool for the management and improvement of public schools.

RISKS

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life.

CONFIDENTIALITY

Your survey answers will be kept confidential and no personal data about yourself will be collected. In this regard, the researcher will not collect identifying information such

as your name, email address, or IP address. Therefore, your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact me, Nelly Rose Msiza via phone at 078 477 9300 or via email at 215219775@mycput.ac.za.

If you feel you have not been treated according to the descriptions in this form, or that your rights as a participant in this research have not been honoured during the course of this project, or you have any questions, concerns, or complaints that you wish to address to someone other than the researcher, you may contact the Faculty of Business & Management Sciences Research Department at obokohl@cput.ac.za.

ELECTRONIC CONSENT: Please select your choice below. You may print a copy of this consent form for your records. Clicking on the “Agree” button indicates that

- You have read the above information.
- You voluntarily agree to participate.
- You are 18 years of age or older.

INFORMED CONSENT

Do you consent?	Yes	No

SECTION A: DEMOGRAPHIC INFORMATION

A1	What is your gender?	Male			Female	
A2	What is your age?	<30 years	30 - 39 years	40 - 49 years	50 - 59 years	>60 years
A3	What is your current designation at the school? [Select the most applicable designation to you]	Member of SGB		HOD	Principal	Employee
A4	How long have you been in your current designation?	0 - 1 year	2 - 5 years	6 - 10 years	11 - 15 years	>16 years
A5	Do you have accounting related qualification or a short course?	Yes	No			
A6	How would rate your knowledge of management and leadership processes and continuous performance management?	Very bad	Bad	Average	Good	Very good
A7	Would you consider training in management and leadership processes and continuous performance management to enhance your skills?	Yes	No			

SECTION B: UTILISATION OF FLEXIBLE STRATEGIC TOOLS BEYOND BUDGETING AND ROLLING FORECAST

	1. STRAGETIC TOOLS: Indicate how frequently you use the techniques below in your school management? **(Multiple tools can be selected)**	**Always**	**Often**	**Sometimes**	**Never**
B1	Balanced Scorecard (Performance measurement tool)	⊙	⊙	⊙	⊙
B2	Annual Budgeting	⊙	⊙	⊙	⊙
B3	Strategic Planning	⊙	⊙	⊙	⊙
B4	Rolling Forecast	⊙	⊙	⊙	⊙
B5	Beyond budgeting	⊙	⊙	⊙	⊙
B6	Financial Accounting	⊙	⊙	⊙	⊙
B7	Management Accounting	⊙	⊙	⊙	⊙

SECTION C: BEYOND BUDGETING

Below are statements about beyond budgeting you can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5-point scale below: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree. Please tick only one number for each statement

Code item	Item	SD	D	N	A	SA
BB1	In your school budgets are used for control. By control we mean using budgets as managerial motivation and as a standard for performance evaluation purposes.	1	2	3	4	5
BB2	In your school the future plans are to abandon the use of budgets as a tool for control.	1	2	3	4	5
BB3	In your school the intention is to make changes to the current budgeting system.	1	2	3	4	5
BB4	You assert that the current budgeting system adds value to your school organisation, considering the management time, the budgeting process and its effectiveness in meeting the school objectives.	1	2	3	4	5
BB5	Are your school budgets quickly becoming outdated during the course of the year.	1	2	3	4	5
BB6	At your school obtaining approval for unforeseen or unbudgeted new resources that support the strategic goals is quite a challenge.	1	2	3	4	5
BB6	The budgets made in your school organisation are fixed such that no changes can be made to them.	1	2	3	4	5
BB7	The budget is revised on an unplanned basis in your school organisation.	1	2	3	4	5
BB8	The budget is revised during the formalised budgetary review sessions.	1	2	3	4	5

BB9	Revisions to budget are done when the next continuing budget is prepared.	1	2	3	4	5
BB10	Your budgeting process is aligned to the strategic goals of the school.	1	2	3	4	5
BB11	Performance of managers within your school organisation is measured by the basis of attaining budget goals.	1	2	3	4	5
BB12	From your school organisation's perspective, not meeting the budget is a reflection of poor performance.	1	2	3	4	5
BB13	School management is evaluated on the basis of controllable budget variance but not uncontrollable budget variances.	1	2	3	4	5

SECTION D: ROLLING FORECAST

Below are statements about rolling forecast you can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5-point scale below: 1=strongly disagree, 2=disagree, 3=moderately agree, 4=agree, 5=strongly agree. Please tick only one number for each statement

Code item	Item	SD	D	N	A	SA
RF1	In your school flexible strategic tools such as rolling forecast increase and equalise education resources.	1	2	3	4	5
RF2	Rolling forecast improves financial accountability for your school management.	1	2	3	4	5
RF3	Rolling forecast increases your school's teacher monitoring, simplifies their evaluation, and improves training.	1	2	3	4	5
RF4	Rolling forecast help your school organisation to manage the education funds.	1	2	3	4	5

SECTION E: IMPROVEMENT IN THE MANAGEMENT OF PUBLIC SCHOOLS

Below are statements about rolling forecast. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5-point scale below: 1=strongly disagree, 2=disagree, 3=moderately agree, 4=agree, 5=strongly agree. Please tick only one number for each statement

Code item	Item	SD	D	N	A	SA
IMOPS1	In the school that you manage, the quality of services has improved.	1	2	3	4	5
IMOPS2	In your school, the commercial value of the school management has increased.	1	2	3	4	5
IMOPS3	In the school that you manage, the efficiency of delivery of services has increased.	1	2	3	4	5
IMOPS4	The school that I manage is able to respond quickly to customer requests.	1	2	3	4	5
IMOPS5	In your school there has been growth in learner enrolment (sales revenue).	1	2	3	4	5
IMOPS6	In the last three years, there has been an increase in market share (learner growth) in the school that I manage.	1	2	3	4	5
IMOPS7	In your school, the productivity of employees (teachers and support stuff) has improved.	1	2	3	4	5
IMOPS8	The school where I work has a great capacity to attract new clients (learners).	1	2	3	4	5

YOU HAVE REACHED THE END OF THE QUESTIONNAIRE.

THANK YOU SO MUCH FOR TAKING PART IN THIS SURVEY!

APPENDIX C: LANGUAGE EDITING LETTER

Epsilon Editing

17 Kew Gardens
21 Park Drive
Gqeberha
6001

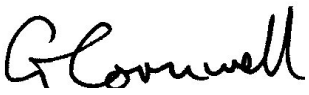
dgncornwell@gmail.com

tel. 084-9897977

30 March 2022

TO WHOM IT MAY CONCERN

This serves to confirm that the Master's thesis by Nelly Rose Msiza (CPUT student number 215219775), "Strategic tools for the management and improvement of public schools in the Cape Metropole," has been proofread and edited to my satisfaction for English idiom and correctness of expression. The referencing has been checked against the CPUT Harvard standard.



Professor D G N Cornwell
(PhD, Rhodes University)

APPENDIX D: ETHICS CLEARANCE CERTIFICATE

Cape Peninsula University of Technology

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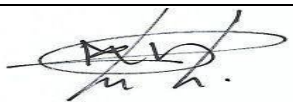
Symphony Road Bellville 7535
South Africa
Tel: +27 21 4603291
Email: fbmsethics@cput.ac.za

Office of the Chairperson Research Ethics Committee	**FACULTY: BUSINESS AND MANAGEMENT SCIENCES**

The Faculty's Research Ethics Committee (FREC) on **4 May 2021**, ethics **APPROVAL** was granted to **Nelly Msiza (215219775)** for a research activity for **Master of Management Accounting** at Cape Peninsula University of Technology.

Title of dissertation / thesis / project:	**Strategic tools for the management and improvement of public schools in the Cape Metropole** Lead Supervisor (s): Prof L Obokoh & Dr H Benedict

Decision: APPROVED

	**25 June 2021**
Signed: Chairperson: Research Ethics Committee	**Date**

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the CPUT Policy on Research Ethics.

2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study requires that the researcher stops the study and immediately informs the chairperson of the relevant Faculty Ethics Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, notably compliance with the Bill of Rights as provided for in the Constitution of the Republic of South Africa, 1996 (the Constitution) and where applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003 and/or other legislations that is relevant.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after two (2) years for Masters and Doctorate research project from the date of issue of the Ethics Certificate. Submission of a completed research ethics progress report (REC 6) will constitute an application for renewal of Ethics Research Committee approval.

Clearance Certificate No | 2021_FBMSREC 040