Predictors of resource provisioning in public schools

AZWINDINI MOSES MOLAUDZI

2019

Predictors of resource provisioning in public schools

by

AZWINDINI MOSES MOLAUDZI

Submitted in partial fulfilment of the requirements for the degree

Philosophiae Doctor

Department of Education Management and Policy Studies
Faculty of Education
University of Pretoria

Supervisor
Dr KS Adeyemo

Co-supervisor
Prof E Weber

Pretoria
December 2019

DEDICATION

I dedicate this PhD thesis to my late father, sister and son, Ravhuhali Rambuda Samuel Mulaudzi, Naledzani Doris and Mashudu Marius

Vha edele zwavhudi Kwinda Tshinavhe,

Tshinavhela vhavhuya

and

My mother (still alive), Tshinakaho Bellinah Mulaudzi, who brought me up to show respect, love, care and perseverance

ACKNOWLEDGEMENTS

The completion of this research study would not have been possible without the commitment, dedication and unconditional support of my family, friends, colleagues and supervisor. Firstly, I am indebted to my supervisors, Dr Samuel Adeyemo and Prof Everard Weber, for the guidance, advice and encouragement they provided throughout this difficult journey. Your support and contribution are greatly appreciated.

I would also like to thank Mr Netshidzivhani from the University of Limpopo who assisted me in analysing the quantitative data. I am also indebted to the Faculty of Education at the University of Pretoria for granting me a partial scholarship to undertake the doctoral programme.

Furthermore, I acknowledge the role played by my employer, the Limpopo Department of Education, in allowing me to undertake this study on a part-time basis. I also acknowledge the support of the Superintendent General for approving my application to collect data from the public secondary schools in Limpopo province sampled for this research study. A special word of gratitude goes to Messrs J Magugumela, FT Baloyi, L Kgosana, R Thage, M Lekgau, E Mathevula, M Makhado and MT Baloyi for assisting me in the collection of data at 68 public secondary schools in all five districts of Limpopo province. This would not have been possible without your support. In addition, I greatly appreciate the general support, encouragement and motivation I received from my colleagues. Thank you also to the district directors, circuit managers, principals, HoDs, educators and governing body members of the 68 sampled schools for taking the time to participate in this essential study. To the deputy managers for governance, thank you, I am really humbled by your understanding and cooperation.

I want to thank Alexa Barnby for carrying out the editorial work of my thesis in a short space of time. Your professional skills in editing my thesis are commendable. To my student fellows, friends in other sectors of employment and in life, I thank you for your continued support. In particular, I am grateful to

my close friend, Seeletse Noah, and also the following three academic friends of mine: Dr Makola, Prof. Mashau and Dr N Mafumo (attached to Limpopo Department of Education, University of Venda and University of Limpopo respectively) for encouraging me not to give up. I also thank my siblings, Dr Mulaudzi Muhangwi Ben, Sundani Ronald, Marubini Jerry and my sister, Phophi Rosina, for the support they gave me in this journey in the pursuit and fulfilment of my life goal of enriched knowledge.

Finally, and most importantly, I wish to recognise the support and sacrifices of my wife, Musasi, and my children, Vusani, Rofhiwa, Rudzani, Mashudu, and Muano. During this journey, I was not able to give you the attention you deserved, and I am looking forward to spending quality time with you and to devoting time to helping Muano (my last born) with his homework. Remember, I have taken this journey as an encouragement to you to continue your studies until you accomplish your dream.

Above all, I thank God for guiding and protecting us in whatever endeavour we take. This study is, indeed, mission accomplished through hard work and commitment.

---oOo---

ETHICS STATEMENT

"The author, whose name appears on the title page of this thesis, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that he/she has observed the ethical standards required in terms of the University of Pretoria's *Code of ethics for research and the policy guidelines for responsible research*".

_____

Azwindini Moses Molaudzi

December 2019

---oOo---

ETHICAL CLEARANCE CERTIFICATE

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER:	**EM 16/04/03**
DEGREE AND PROJECT	PhD Predictors of resource provisioning in public Schools	
INVESTIGATOR	Mr AM Molaudzi	
DEPARTMENT	Education Management and Policy Studies	
APPROVAL TO COMMENCE STUDY	07 December 2016	
DATE OF CLEARANCE CERTIFICATE	31 August 2017	

CHAIRPERSON OF ETHICS COMMITTEE: Prof L Ebersöhn

CC Ms B Swarts
Dr KS Adeyemo
Prof E Weber

This Ethics Clearance Certificate should be read in conjunction with the Integrated Declaration Form (D08) which specifies details regarding:

- Compliance with approved research protocol,
- No significant changes,
- Informed consent/assent,
- Adverse experience or undue risk,
- Registered title, and
- Data storage requirements.

DECLARATION OF AUTHENTICITY

I, **Azwindini Moses Molaudzi**, declare that this thesis, titled *Predictors of resource provisioning in public schools*, which I hereby submit for the degree Philosophiae Doctor in Education Management and Policy Studies at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

_____

Azwindini Moses Molaudzi
December 2019

---oOo---

DECLARATION OF LANGUAGE EDITOR

Alexa Barnby

Language Specialist

Editing, copywriting, indexing, formatting, translation

BA Hons Translation Studies; APEd (SATI) Accredited Professional Text Editor, SATI
Mobile: 071 872 1334
Tel: 012 361 6347 alexabarnby@gmail.com

17 April 2019

To whom it may concern

This is to certify that I, Alexa Kirsten Barnby, ID no. 5106090097080, a language practitioner accredited by the South African Translators' Institute, have edited the doctoral thesis, titled "Predictors of resource provisioning in public schools", by Azwindini Moses Molaudzi.

The onus is, however, on the author to make the changes and address the comments made.

---oOo---

ABSTRACT

This study investigates resource provisioning as a predictor of learner achievement in public schools in Limpopo province. Research evidence indicates that the resourcing of schools in developing countries, such as South Africa, is characterised by huge disparities and that attempts should be made to equalise resource provision. Most research studies on this topic have focused on the relationship between school resources and student achievement in the developed countries with little or no attention being paid to what determines resource provision, distribution and utilisation in the developing countries. Nationally, a number of research studies have investigated policy implementation in terms of concepts such as access, equity, inequality and redress in studying the impact of such policy on the public schooling system. Research evidence has subsequently shown some contrasts in the way in which school resources are allocated, distributed and utilised in public schools. There is, therefore, a need to focus on the predictors or determinants of learner achievement in South Africa. This research study is a quantitative study. Statistically, it applied correlational coefficients and multiple regression to determine the level of school resourcing (i.e. allocations, distribution and utilisation of school resources). The sample comprised 272 representatives from the school management teams, educators and school governing bodies (SGBs) of sixty-eight public schools from different quintiles (1-to-5). This sample were selected from five identified districts (i.e. Capricorn, Mopani, Vhembe, Sekhukhune and Waterberg) using a probability stratified and random sampling technique. In each of the 68 public schools, six representatives, namely, the principal, Educator, HODs and SGB members, were selected randomly to make up the sample. It is clear from the study that resource provision was shown to be a predictor of learner achievement in public schools. The study highlighted that the way in which school resources are allocated, distributed and utilised has an influence on learner achievement.

Keywords: Resources; schools; learner achievement; allocation; distribution; utilisation; South Africa

---oOo---

LIST OF ABBREVIATIONS

DBE	DEPARTMENT OF BASIC EDUCATION
CAPS	CURRICULUM ASSESSMENT POLICY STATEMENT
CCL	CENTRE FOR CHILD LAW
CNE	CHRISTIAN NATIONAL EDUCATION
EE	EQUAL EDUCATION
EEA	EMPLOYMENT OF EDUCATORS ACT
ICESCR	INTERNATIONAL CONVENANT ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS
IMS	INFORMATIONAL MANAGEMENT SYSTEM
HOD	HEAD OF DEPARTMENT IN A SCHOOL
MEC	MEMBER OF EXECUTIVE COUNCIL IN A PROVINCE
LRC	LEGAL RESOURCE CENTRE
LTSM	LEARNER AND TEACHER SUPPORT MATERIALS
NEPA	NATIONAL EDUCATION POLICY ACT
NGO	NON-GOVERNMENTAL ORGANISATION
OBE	OUTCOMES BASED EDUCATION
PPN	POST-PROVISIONING NORM
SGB	SCHOOL GOVERNING BODIES
SMT	SCHOOL MANAGEMENT TEAM

---oOo---

SACMEQ THE SOUTHERN AND EASTERN AFRICA CONSORTIUM FOR MONITORING

SES SYSTEMATIC EVALUATION STUDY

---oOo---

TABLE OF CONTENTS

CHAPTER 3 THEORETICAL FRAMEWORK OF THE STUDY

CHAPTER 4 RESEARCH PARADIGM, DESIGN AND METHODOLOGY

CHAPTER 5 DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

---oOo---

LIST OF TABLES

---ooOoo---

LIST OF FIGURES

---ooOoo---

CHAPTER 1

THE BACKGROUND AND CONTEXT OF THE STUDY

1.1 INTRODUCTION

The study investigates resource provisioning (i.e. allocation, distribution and utilisation) as a predictor of learner achievement in public secondary schools in the Limpopo Province. The Limpopo Province is one of the most rural poor provinces in South Africa, and the majority of public secondary schools are located in these poor rural areas. In this study, Chapter 1 will introduce the background and the context of the study which is briefly discussed below. The key elements of this chapter are the following: the need to address the legacy of apartheid in education through transformation by enacting new legislation and policies; the importance of addressing inequality in school resource provisioning and learner achievements in public schools; the acknowledgement of the role and interests of civil movements in education in protecting the right to education; recognition of the new government efforts in addressing the backlogs through the provision of financial, human and physical resources in public schools; the challenges faced in implementing the new post provisioning model in the allocation of educators in public schools and lastly; the essence of providing and utilising education resources such as information and communications technology (ICT) and school libraries in public schools to improve effective teaching and learning in public schools.

1.2. THE BACKGROUND AND THE CONTEXT OF THE STUDY

At the dawn of democracy in South Africa in 1994, there was an urgent need to transform apartheid education in the country. As a result, Chapter 2 of the Bill of Rights in the new Country's Constitution (Act 104 of 1996) has provided an education

clause. The education sector effected a paradigm shift from Bantu Education to Outcome-Based Education (OBE), which has evolved into the current National Curriculum Statement (NCS). The new dispensation saw a new legal framework for schooling in which its main education law and policy comprised the National Education Policy Act of 1996 (Act 27 of 1996) and the South African Schools Act of 1996 (known as Schools Act) (Bol, Witschge, Van de Werfhorst & Dronkers, 2014). The critical aspects provided in the education law and policy form the basis for the desegregation and integration of schools, compulsory school-going age, decentralisation of both management and governance through the establishment of school management teams and School Governing Bodies including parents and learners and a new funding model for public schools (Simonson, Smaldino & Zvacek, 2014). Despite the number of critical changes made, inequality remains intact. Historically, former Model C schools were privileged to receive capital investment including quality teachers. On the other hand, former African schools were historically characterised by overcrowded classes, poorly qualified educators, as well as a lack of school facilities such as libraries, laboratories and sports grounds (Tarus, Gichoya, & Mumbo, 2015).

This inequality in provisioning is further exacerbated by the post-apartheid funding model which, while including some redress mechanisms, nevertheless perpetuates inequality. According to this model, the wealthier schools charge school fees to make up for deficits in state funding while the schools serving poor communities either charge low fees or (since 2006) are fee-free, following reform in the legal framework. In addition, it is worth noting that though former Model C schools including former Indian schools have become more racially mixed, the integration has occurred along class lines leaving the poor predominantly Africans remaining in historically poor performing schools in both informal settlement, townships and rural areas (Andersen,

Heinesen & Pedersen, 2014). Researchers have deemed this phenomenon “income-based education”, as access to a better education is dependent on the learner’s family socio-economic background. Notwithstanding, the South African schooling system was referred to as a “dual education” system, thereby indicating the fact that there are two different schooling systems in the public sector (Murtin, 2013; Van der Berg, Taylor, Gustafsson, Spaull & Armstrong, 2011). The first system comprises of well-resourced former Model C schools and to a lesser extent, former Indian schools, while the second system consists of predominantly poor African learners attending poorly resourced and dysfunctional schools. The study shows that the latter system serves between 70 and 80 % of learners (Nazarko & Saparauskas, 2014).

Resource provisioning refers to the supply of various school inputs, which are essential to the provision of quality education in public schools. A number of social movements, including civil society, advocated the provision of quality education. Their main focus was on provision of school inputs or resources, which are sometimes viewed as a “basket of entitlements” that are critical to learners’ right to basic education as enshrined in the new Constitution (Fowles, 2014). Reback, Rockoff, and Schwartz (2014) confirm that in South Africa today, there are still several schools that are forced to function without sufficient/adequate “basket of entitlements”, which have been shown to be critical for provision of basic quality education especially in the majority of historically under resourced African schools. The study argued that in cases where there are limited resources (entitlements), teaching and learning are adversely affected and learners are unable to enjoy their basic rights to education (Reback, Rockoff & Schwartz, 2014). In 2008, civil society pursued a number of campaigns, viz. Centre for Child Law (CCL), the Legal Resource Centre (LRC), Section 27 and Equal Education. The above-mentioned campaigns were conducted in response to the demand for a better quality education in historically disadvantaged

public schools. In many cases, these campaigns were accompanied by litigation for improved resource provisioning. For example, some of the cases raised issues related to poor/lack of infrastructure, poor quality of educators, provision of school furniture, the delivery of learner and teacher support materials (LTSM) to schools and provision of scholar transport for learners who walk a distance of more than 10 km to and from their nearest school (Walker, Lee & Bryant, 2014).

Civil society organisations and individuals make use of a number of international and national instruments to protect their rights to education. The most important of these, for the purpose of an overview of resource provisioning, is probably the International Covenant on Economic, Social and Cultural Rights (ICESCR) of 1996. The right to education is enshrined in Articles 13 and 14 of this Covenant. The ICESCR has issued a number of General Comments focussing on the interpretation of the rights in the Covenant. The study by Tomasevski (2001) shows that the Covenant for Economic, Social and Cultural Rights (CESCR) has used the 4-A Right to Education Framework (viz. availability, accessibility, acceptability & adaptability) to broadly define and interpret the right to education provision of ICESCR . It is argued from the above study that the 4-A framework efficiently captures the many facets of the right to education. Therefore, this framework is potentially of assistance to stakeholders including parents, learners and civil society in assessing education departments' performance in terms of enforcing the right to education provisions. As such, education rights groups would be able to identify cases, where an infringement or a violation of the right to education has occurred (Darling-Hammond, Wilhoit & Pittenger, 2014).

In 2010 and 2013, the DBE published both the "The Draft National Policy for an Equitable Provision of an Enabling School Physical and Teaching and Learning Environment" and "The Draft National Minimum Norms and Standards for School

Infrastructure" respectively. The Department in drafting the two documents intended to provide the blueprint to guide the provision of infrastructure resources for public schools in South Africa. With that objective, the Policy on National Norms and Standards for School Infrastructure was finalised by DBE in 2010. The National Policy acknowledges a clear link between poor infrastructure and poor learner outcomes and therefore, aims to develop new criteria for infrastructural planning (Jackson, Johnson & Persico, 2015). The study by (Jackson et al. 2015) noted the gaps created by the delay in finalising the Infrastructure Regulations, which were not completed until the end of November 2013. Finalising the Regulations was a critical step, as they establish the appropriate benchmarks needed for the adequate provision of school facilities such as classrooms, electricity, water and sanitation, libraries, laboratories, electronic connectivity and perimeter security. The Regulations also assist in determining and setting target dates for specific goals. For example, Provincial Education Departments (PEDs) were also required to develop school infrastructure plans within a year of the publication of the Regulations, and to report annually to the Minister of Basic Education on their progress in implementing the Regulations (Bohmstedt, Kitmitto, Ogut, Sherman & Chan, 2015).

The Regulation on Norms and Standards for School Funding was published in an effort to make provisions for non-personnel expenditure in public schools. The PEDs are directed to develop Provincial Prescripts to guide schools on the utilisation of school allocations that they receive annually. The School Funding Policy assists PEDs by prescribing the personnel-to-non-personnel spending ratio, which should follow the formula of 80:20. In practice, however, much more is spent on personnel than on a non-personnel expenditure item (DoE, 206; Liu & Mikesell, 2014). The Department school allocation is based on the ranking of the schools into quintiles informed by the poverty index of the local community. Schools are ranked from the

poorest to the least poor, with quintile one (Q1) referring to the poorest schools and quintile five (Q5) referring to the wealthiest schools (DoE, 2006). It is indicated that of the funds available for non-personnel expenditure, 80% is allocated to 60% of the poorest schools. In essence, the lion's share of the school allocation is attributed to the poorest schools, which are declared *No Fee schools* (Reardon & Owens, 2014).

The argument put forward was that Quintile 4 and 5, which are well-resourced schools, are able to complement their school allocation by charging school fees and fundraising activities. However, while this approach is viewed as a progressive poverty-targeting measure, it constitutes a relatively small part of state funding on education. In respect of LTSM provisioning, the Department of Basic Education has published a "Draft National Policy for the Provision and Management of Learning and Teaching Support Materials (LTSM)." This policy defines learning and teaching resources as comprising stationery and textbooks supplies, learning and teaching aids, science, technology, mathematics and biology apparatus. It further refers to national LTSM norms and standards to honour government obligations to give effect to the right to basic education (DBE, 2014; Busse, Aboneh & Tefera, 2014).

Stiefel, Berne, Iatarola, and Fruchter (2010) maintain that a "resource targeting list" has been developed, informed by physical conditions, available facilities, the degree of overcrowding at the school, educator–learner ratios, the availability of basic services, and the relative poverty of the community in which the school is situated. The main impact of the revised formula is that the poorest 40% of schools should receive 60% of the provincial schooling non-personnel budget allocation while the less poor 20% should receive 5% of the resources educational outcomes. Education is regarded as a "personnel-intensive sector" as the bulk of provincial spending is allocated to this line item. Section 5 of the Employment of Educators Act 76 of 1998

(EEA) provides that the Head of Department in a province determines the educator establishment in the province in question. This, then, is the process whereby a province determines the number and allocation of educator posts for the province concerned (Zeichner & Pena-Sandoval, 2015).

The post-provisioning norms or model adopted by the Department in 2002 is dependent on a formula that weighs factors such as class size, range of subjects offered, and the poverty of a particular community. The higher the weighting of a school, the higher the likelihood of more educator posts being allocated (DoE, 2002; Dflo, Dupas & Kremer, 2015). The model guides provinces to set aside between 2 and 5% of posts for allocation in favour of “needy schools”, as defined by the formula. However, researchers have indicated that the post-provisioning norms are insufficiently geared towards historical redress as other weighted factors continue to favour the more well-resourced schools (DoE, 2002; Duflo et al., 2015). Over 80% of the 12 high-performing schools visited contained a broad range of effective practice. A key outcome is the high standards of achievement reached by many learners in these schools. The clarity with which a school’s expectation of learners is spelt out contributes significantly to learners developing a positive attitude towards their work with learners relating well to their educators and participating readily in all school activities, especially co-curricular activities (Mar-Molinero, Prior, Segovia & Portillo, 2014). The quality of learning and teaching in these schools is also a contributory factor to their success. Educators plan well and use an appropriate range of teaching strategies and resources. They use homework effectively to assist learners to consolidate class work. Their teaching approaches are set within a broad and balanced curriculum, which provides equal opportunities for all learners (Munoz & Dossett, 2014).

However, this increases the need for schools to access information to support their decision-making on expenditure and this, in turn, has implications for the funding provided for and distributed between services at the local authority level. The provision and utilisation of facilities is the responsibility of the stakeholders in education (Department of Basic Education, 2012). In recent years, access to computers and the internet has generated interest in the provision of e-materials. Where the internet is unavailable, unreliable or unaffordable, the development of local school networks and the provision of e-materials to schools on compact discs (CDs/flash drives) may support e-learning via school servers and networks. However, in many developing countries and transitional economies, e-based learning has proved to be very expensive. Teaching and learning materials are often seriously underfunded together with physical facilities and human resources (Monk & Rice, 2009). The inadequacy of schooling facilities, particularly for many blacks, was entrenched by the formal institution of apartheid after 1948 when segregation, even in education and schools in South Africa, was codified. Today, the lasting effects of apartheid educational segregation are discernible in the systemic problems of inadequate facilities and the discrepancy in the level of basic education for the majority of learners (Lavy, 2015).

As Olutola (2015) shows, policy makers have to constantly balance expenditure on education with expenditure on several other public services. Nevertheless, despite the competing demands for resources, expenditure on education has increased over the past few years. Between 2001 and 2010, data shows that the expenditure per primary, secondary and post-secondary, non-tertiary student in the Organisation for Economic Cooperation and Development (OECD) countries increased by 40% on average. Limpopo province has been identified as one of the three poorest provinces in South Africa and, as such, requires that urgent attention be paid to the scarcity of

resources against the background of its predominantly rural nature. The other two poorest provinces are KwaZulu-Natal and the Eastern Cape. The new democratic government was, therefore, faced with the challenge of paying more attention to these three rural provinces in terms of providing more resources, including school resources, to address the historical resource backlogs were created by the apartheid policy of separate development (Mistry, 2010).

The majority of research studies in this area have focused on the relationship between school resources and student achievement in the developed countries and have paid less or no attention to the predictors of resource allocation, distribution and utilisation and learner achievements in the developing countries (Broadbent & Poon, 2015). Internationally, Levacic (2010) has investigated the management of resources to support teaching and learning in the United Kingdom, which is a developed country while, nationally, a number of research studies have looked at policy implementation for transformation in terms of concepts such as access, equity, equalities and redress to assess their impact on public schooling systems. However, this study focused on the relationship between school resource allocation, distribution and utilisation as predictors of learner achievements in public schools in Limpopo province, South Africa.

1.3. RATIONALE OF THE STUDY

The interest in the research topic was caused by the desire to understand the extent to which the predictors of resource provisioning have an impact on learner achievement in public secondary schools. The researcher's experience of working in the Provincial Education Department; particularly working with public secondary schools on leadership, management and governance issues also further adds the impetus to engage in a research study to contribute positively to the improvement of

both school and learner performance. Interestingly, the researcher joined the Education Department during the time of transition when there was an amalgamation process of former racially separate education departments (viz. the former homelands: Venda, Gazankulu, Lebowa; and the former RSA Education Departments of the House of Assembly, the House of Delegates, and Department of Education and Training-[TED]) into a Uniform National Education Department (SASA, 1996). The resource inequity became apparent during the amalgamation process which caused the migration of learners from the former disadvantaged poor rural black schools to former wealthy “white” schools. The wide differences in resource provisioning and learner achievement between the former black and white schools triggered the interest of the researcher to conduct a study on predictors of resource provisioning and learner achievement.

The researcher was also influenced by the findings of some research studies on the inequalities of resource provisioning in public schools, though there were only a limited amount of studies. According to STATS SA (2005) there was persistent inequalities remaining within the education system which this study agrees with even at the current moment. The study further argued that if the government wants to make an impact on the quality of education, there was a need for a Sector-Wide Approach to address the inequity in resource provisioning and learner achievement across the country (Christie, Butler & Potterton, 2007). The research evidence shows that the movement of the majority of learners through the education system in the country is at different rates, which vary by racial population group (van der Berg, 2007). However, the slow movement applies particularly to the majority of Black African learners who are residing in the rural provinces such as Limpopo, Kwazulu Natal and the Eastern Cape. Therefore, this research evidence convinced the researcher of the importance of conducting a study on the predictors of resource provisioning and

learner achievement in public secondary schools to contribute to the development of education in the country through the provision of quality education.

Secondly, issues of the provision of a poor quality of education are well demonstrated by the country's performance on national and comparative international tests such as TIMSS, PIRLS and SACMEQ (2005). The Grade 3 Systematic Evaluation found low achievements across all provinces in literacy and numeracy especially in the above-mentioned population group (Kanjee, 2007). A review of literature has shown that 20% of South African schools which were functioning adequately were part of those which were mostly well-resourced schools. However, the 80% which were dysfunctional were those which were, in particular, serving the poor African community. The research evidence has revealed that the challenges on learner performance were serious and needed to be acted upon and this study was one way of contributing to the resolution of the educational crisis (Bram Fleish, 2007; Howie, 2001; Reddy, 2006; van der Berg, 2005).

1.4 PROBLEM STATEMENT

Education is a social phenomenon and a very important institution in every society, community or country (Botha, 2014). It is through education that knowledge, skills and values are transmitted from one generation to another in order to ensure the economic, political and social stability, continuity and advancement of a country. As Heitzer (2015) states, the new democratic system in South Africa inherited a highly divided and unequal education system, especially with regard to the provision of school resources and learner achievements. Despite the fact that racial differences in spending had been reduced significantly in the years leading up to 1994, the amount spent per student in a white school was two and a half times larger than the amount spent on black children in urban areas and five times larger than that spent

on black students in the most impoverished homeland (p.7). According to Beeby (2016), from a school finance perspective, helping public schools to accomplish ambitious performance goals entails four actions, namely, providing sufficient resources to get the job done; distributing those resources equitably to schools or students; using resources productively; and accounting for resource use in ways that capture such productivity. However, Lockheed, Vail, and Fuller (2016) maintain that public schools now have to produce better student results, regardless of whether their resources are rising, declining, or holding steady. Accordingly, the productivity component of this equation, that is, using resources to improve student performance, becomes more salient. Seidel and Shavelson (2017) agree that school resource provisioning and learner achievements pose an enormous challenge to South African schools, as experienced by the majority of school managers, governing bodies, school communities, administrators and policymakers.

Research evidence has shown that there is still a markedly inequitable or tilted allocation, distribution and utilisation of educational resources and learner achievements in public schools, especially those located in the marginalised rural communities. Kimani, Kara, and Njagi (2013) elaborate that the availability of teaching and learning resources enhances the effectiveness of schools as these are basic elements that may bring about sound academic performance on the part of the students. They indicate that all institutions or organisations comprise human beings (workers) and other non-human resources. Kgosikebatho (2013) asserts in this regard that, when the right quantity and quality of human resources are brought together, this enables the effective manipulation of other resources towards realising institutional goals and objectives. Consequently, every institution should strive to attract and retain the best human resources available. However, the economic austerity of recent times, coupled with the need to expand access to education, have

presented educational planners worldwide with increasingly difficult choices in the allocation of available resources.

Nonetheless, until recently the South African government has denied that there is a crisis in basic education. However, in January 2016 this changed, when Angie Motshekga, the Minister of Basic Education, stated that “former African schools” exist as “a Cinderella system deprived of resources and characterised by pockets of disasters ... this is akin to a national crisis”. That there is a national crisis has long been evident in the poor educational outputs from the historically disadvantaged schools when compared to those of the historically advantaged schools, and when compared to the academic performance of learners in other countries (Hills, Dengel, & Lubans, 2015). The physical, material, human and financial resources invested in schools influence not only the education provided to students but also aspects of both teacher and student motivation. Consequently the government came up with a key mechanism to redress inequality in schools through the implementation of an education budget policy that provided a framework for allocating “non-personnel recurrent costs on the basis of need” (Reschovsky & Imazeki, 2008).

Returning to a discussion of the specific line items in provisioning for basic education, this requires piecing together aspects of the Schools Act and its subsidiary legislation. Provisioning may be divided into the following three main categories:

- *Infrastructural provisioning*, which includes the building of schools, classrooms and the provision of water, sanitation and services
- *Personnel expenditure*, which includes educator salaries

- *Non-personnel recurrent expenditure*, which includes capital equipment and consumables used within schools to enable schools to function properly, such as textbooks, stationery and computers.

This following overview provides a broad outline of some of the laws and policies that support each of these specific line items. Once state funds have been allocated to schools for either personnel or non-personnel expenditure, shortages in school budgets are made up through the charging of school fees or fundraising. School fees and other privately raised funds enable schools to supplement resources, for example, by the employment of additional teachers, building new classrooms, and the general resourcing of the school (Hu, Lu, & Huang, 2014). No-fee schools, on the other hand, receive some funding from the government, once the Minister of Basic Education has set a minimum level of funding per learner. This is known as the no-fee threshold and is supposed to comprise the minimum amount of funding necessary to provide learners with an adequate education. In 2015, the no-fee threshold was R1116, in 2016, it was R1177 and, in 2017, it was R1242. However, for the last few years, in some provinces such as Limpopo, schools have received amounts below this no-fee threshold. This means that at many schools, there is no money for items such as chalk, photocopying, school security, and other basic items required to ensure the effective functioning of a school (Fullan, Rincón-Gallardo & Hargreaves, 2015).

The allocation of resources is an indisputable the need for the allocation of resources – public schools are not able to operate without such allocation. Limpopo province in South Africa is one of the poorest provinces in the country and, hence, the allocation of resources not to public schools is a common problem. Hence, a lack of provisioning of essential resources adversely affects the process of teaching and learning in every

school. Teaching and learning resources are the most visible components of government educational provision and their absence is often noted by other stakeholders. The Minister of Basic Education has implemented a number of measures in previous years to improve and promote the allocation of resources to public schools. This is evident in the increased expenditure channelled to the improvement test programme. According to one of the policy statements, a significant proportion of education expenditure should be channelled to the allocation of learning resources. For quite some time now, the poor academic performance of secondary school learners in the Limpopo province has been a matter of concern. The problem is that most learners do not perform at a level that would allow them university entrance (SACMEQ II & III).

In view of the above discussion, it was observed that studies conducted by certain researchers (Lemon, 2004; Sedibe, 2011) which focused on local resourcing and inequalities, especially at the school level, displayed certain limitations. For example, the studies did not address the important aspect of school resource allocation, distribution and utilisation as predictors of learner achievement in public schools. Research evidence has shown some disparities in the way in which school resources are allocated, distributed and utilised in public schools (Loeb, Soland & Fox, 2014). Accordingly, there is a need to focus on school resource allocation, distribution and utilisation as predictors of learner achievements in public schools in Limpopo province, South Africa.

1.5 AIM OF THE STUDY

This study aimed to investigate resource provisioning as a predictor of learner achievement in public schools in Limpopo province, South Africa.

1.6` RESEARCH OBJECTIVES

The following research objectives were formulated for the study:

- To determine the relationship between the allocation of school resources and learner achievement in public schools.
- To investigate the relationship between the distribution of school resources and learner achievement in public schools.
- To investigate the relationship between the utilisation of school resources and learner achievement in public schools.

1.7 MAIN RESEARCH QUESTION

The main research question formulated for the study was: To what extent is resource provisioning a predictor of learner achievement in public schools in Limpopo province?

1.8 RESEARCH QUESTION

This study sought to unearth answers to the following questions:

- Is there any significant relationship between the allocation of school resources and learner achievement in public schools?
- Is there any significant relationship between the distribution of school resources and learner achievement in public schools?
- Is there any significant relationship between the utilisation of school resources and learner achievement in public schools?

1.9 HYPOTHESES

According to Grix (2010), a hypothesis refers to a researcher's prediction of the research findings – a statement of the researcher's expectations about the relations between variables present in the research topic. The researcher conducted this research study guided by the following three hypotheses:

- There are significant relationships between the allocation of resources and learner achievement in public schools.
- There are significant relationships between the distribution of resources and learner achievement in public schools.
- There are significant relationships between the utilisation of resources and learner achievement in public schools.

1.10 SIGNIFICANCE OF THE STUDY

It was hoped that the findings of this study would shed light on ways in which to achieve quality education in comparable schools under the Department of Basic Education and that the study would provide insight into a number of problems, a solution to which may assist in informing specific actions to address the efficient and effective allocation of resources in schools and the poor performance of these schools. In addition, it was anticipated that the study would not only assist the Department of Basic Education and school management teams (SMTs) to improve their level of performance and the allocation of resources but that it would also provide strategies to guide educators in public schools to improve the academic performance of learners to a level that would allow them to attain the same standards as learners in private schools. It was also hoped that the study would contribute to the existing literature on the availability and allocation of resources to public schools to assist education evaluators to establish ongoing educational quality monitoring networks

and improvement processes, as well as to guide teachers to improve academic performance using instructional strategies for appropriate curriculum delivery and, hence, to inform policies on teacher education.

The study analysed the skewed policies of both the apartheid and the current regimes on education provision. In the past, the apartheid regime based its policy on race while the policy of the current regime is failing to address the inequalities of the past aggressively. As indicated in the study, the introduction of OBE should have been accompanied by the tools required for its implementation. In addition, an understanding of the demands of the curriculum should have informed educators to reconsider their teaching styles. Hence, the first beneficiary of this study will be the education providers. The significance of this study lies in its intention to alert the Department of Basic Education to the loopholes that affect the possibility of providing quality education to all South Africans, regardless of their race, colour or background. It is hoped that this will in turn result in appropriate resource provision such that all schools will have access to basic learning and teaching resources.

The second group of beneficiaries of this study will be the learners. The availability and adequacy of educational resources enable educators to accommodate learner differences in their classrooms by addressing the learners' different learning styles which, in turn, will improve their skills, knowledge acquisition and achievements. In addition, school libraries will help to address the performance challenges experienced in the science subjects. As noted, scientific knowledge is best acquired through conducting experiments in a science laboratory. Hence, when laboratory facilities are available and used learners become more motivated while the effect of the science teaching is improved.

The main beneficiaries, however, will be the previously disadvantaged schools. Understanding the importance of LTSM will encourage such schools to secure resources and integrate such resources into their instructional programmes to improve their performance.

1.11 LIMITATIONS OF THE STUDY

Limitations are factors which may affect the study. In view of the fact that the study aimed at ascertaining the influence that the resource provisioning has on learners' performance in public schools, the respondents appeared to have reservations about sharing information about the adequacy of resources in their schools in relation to performance because they mistakenly believed that the researcher was on a fault-finding mission.

In an effort to counter this perception, the researcher physically visited the schools and explained that the study was being conducted for academic purposes only. Nevertheless, this limitation cannot be overlooked as participation in the study was not compulsory and those who did not want to participate may have possessed crucial information. Accordingly, quantitative correlational research methods and procedures were applied in the collection of data. Some of the quantitative research methods used included questionnaires, observation and document analysis. In addition, no qualitative research methods were used in the collection and analysis of the data. In addition, the study focused on the predictors of school resource provisioning and learner achievement in ordinary public secondary schools and, thus, excluded primary and special public schools and independent schools.

1.12 DEFINITIONS OF CONCEPTS

For the purpose of the study, the following definitions applied to the terms selected as being applicable to the study:

1.12.1 School resourcing

Fowles (2014) defines school resourcing as the process for provisioning or allocating school resources. In this study, school resourcing is used to refer to the way in which or the extent to which resources are allocated, distributed and utilised in public schools. School resourcing provides a strong basis for achieving adequacy and equity and improving learning outcomes and quality.

1.12.2 School resources

“School resources” refers to the basic resources required by schools in order to function effectively, for example, the essential classroom resources (learning materials), and the financial, physical and human resources provided to support the process of teaching and learning in public schools. This term is used in this study as an inclusive concept to refer to learner support materials (textbooks and stationery), budget, infrastructure, educators and non-teaching staff (Verger & Curran, 2014).

The success of a school resource centre depends primarily on the range of its engagement in the implementation of modern learning methods. These should concentrate primarily on the learner’s role in the learning process. In addition, the work mechanism in learning resources centres should be evaluated on the basis that a learning resource centre is not an environment which is supported with learning resources but rather on educational action of the different elements of classroom lessons (Simonson et al., 2014).

1.12.3 School resource disparities

School resource disparities refer to the differences in the way in which the resources are allocated to public schools. In this study, resource disparities were applied in

reference to the period between pre-democracy and post-democracy in South Africa (Tarus et al., 2015).

1.12.4 Resource targeting list

A resource targeting list refers to a list of the schools in a province with the schools ranked according to the poverty of the surrounding school community. If an Information Management System (IMS) resource list does not exist, all the resource names and resource types being exported are added to the newly created IMS resource list. However, if the IMS resource list does exist, newly created resource names and resource types are updated in the existing IMS resource list (Hills et al., 2015)

1.12.5 Resource allocation

Resource allocation refers to the ways in which fiscal and non-fiscal resources are divided between competing needs and expended for educational purposes. It is, therefore, a process of allocating school resources to public schools using certain unbiased and fair criteria based on the school community context. In this study, the term was used to refer to the process of distributing school resources, including school allocations, to public schools (Darling-Hammond et al., 2014).

Resource allocation is both a process and a strategy and involves an organisation deciding where scarce resources should be used in the production of goods or services. A resource may be considered to be any factor of production that is used to produce goods or services. Resources include labour, real estate, machinery, tools and equipment, technology, and natural resources, as well as financial resources, such as money (Fullan et al., 2015).

In an economist's perfect world, which, of course, does not exist, resources are deemed to be optimally allocated when they are used to produce goods and services that match consumer needs and wants at the lowest possible cost of production. Efficiency of production means fewer resources are expended in producing goods and services, thus allowing for resources to be used for other economic activities, such as further production, savings and investment (Jackson et al., 2015).

1.12.6 Spending patterns

In the school context spending patterns refer to the way in which school resources are distributed and utilised at the local level (school). This study examined what, where, why and how such resources are distributed and utilised at school level (Jackson et al., 2015). Liu and Mikesell (2014) define consumer spending as a term which is used for voluntary private consumption, or an exchange of money for goods and services. Contemporary measures of consumer spending include all private purchases of durable goods, nondurables and services. In a purely free market, the aggregate level of private consumer spending in an economy is necessarily equal to the total market.

Reardon and Owens (2014) define consumer spending as the demand side of “supply and demand” with production as the supply. When economists or policymakers refer to aggregate demand, they simply mean the combined market value of all consumer spending within a given area, over a given period of time and at a specific price level.

1.12.7 Predictors

Predictors are variables that may be used to anticipate outcomes. In this study the level of school resourcing was used as a predictor for learner performance in public schools (Zeichner & Pena-Sandoval, 2015). Busse et al. (2014) confirm that social and emotional competence is a stronger predictor of children's future success than

narrow measures such as examination grades. In view of the fact that a predictor of future behaviour is past behaviour, surely detailed reports on that past behaviour would provide the best information.

1.12.8 Sample

In research a sample is a subgroup of the target population that the researcher plans to study with the aim of generalising about the target population (Creswell, 2014). Thus, a sample is a smaller, manageable version of a larger group – in other words, it is a subset which contains the characteristics of a larger population. Samples are used in statistical testing when population sizes are too large for the test to include all possible members or observations. A sample should represent the whole population and also not reflect bias toward specific attributes (McEwan, 2015). Munoz and Dossett (2014) regard simple random sampling as ideal if every entity in the population is identical. If it does not matter to the researchers whether their sample subjects are all male or all female or a combination of both genders, simple random sampling may be an effective selection technique. However, in a case in which it would be insightful to know, for example, the ratio of men to women who have passed a test after studying for less than 40 hours, the use of a stratified random sample would be preferable.

1.12.9 Adequacy

In the context of this study adequacy refers to providing sufficient resources for all learners to achieve the expected performance levels. The English word first appeared in the early 1800s as a derivative of the adjective *adequate*. As theatre critic Walter Kerr once wrote of an actor in a scathing review: "*Adequacy* means being equal to the requirements of the situation – no more, no less" (Wright, 2015). Thus, *adequacy* is the state of being sufficient for the purpose concerned and does not suggest

abundance or excellence, or even more than what is absolutely necessary. *Adequacy* refers simply to the state of sufficiency (Pienaar et al., 2014).

1.12.10 Equity

In the context of this study equity refers to the fair distribution of educational resources (including uniformity of facilities and environment, equal resource inputs, and equal access to educational opportunities) for all learners (Merchant, Goetz, Cifuentes, Keeney-Kennicutt & Davis, 2014).

1.12.11 Efficiency

In the school context, Voyer and Voyer (2014) confirm that efficiency refers to the extent to which school resources are being utilised with efficiency signifying a level of performance that describes a process that uses the lowest amount of inputs to create the greatest amount of outputs. Thus, efficiency relates to the use of all inputs in producing any given output, including personal time and energy. Efficiency is a measurable concept that may be ascertained by determining the ratio of useful output to total input.

1.13 CHAPTER OUTLINE

The chapters contained in this dissertation are outlined as follows:

Chapter 1: Orientation of the study

This chapter discussed the introduction and background to the study, the problem statement, the motivation to conduct the study, the aim of the study, the research objectives, the research question and the significance of the study. In addition, the concepts used in the study and the limitations of the study were elaborated upon.

Chapter 2: Literature review

The literature review for this research sought to ascertain the predictors for resource provisioning and learner achievement in public schools internationally, in South Africa and in Limpopo province.

Chapter 3: Data collection procedure

This chapter presents and discusses the research methodology used in the study as well as the research design, area of study, population, sampling method, purposive sampling, research sample, data collection procedures, data collection instruments, pilot study, interviews, observation, ethical considerations and limitations of the study.

Chapter 4: Data analysis and results

The data that were collected and analysed, as well as the results of the analysis, are presented in this chapter. This analysis included data reduction, data display, drawing conclusions and then verifying these conclusions.

Chapter 5: Findings, recommendations and conclusion

This chapter summarises the major findings of the research study, which are categorised into home and school environments. Recommendations are then made, implications for further research are discussed and conclusions are drawn.

1.14 SUMMARY OF THE CHAPTER

Chapter 1 provided the background to the study, indicating that education provisioning refers to the provision of the various educational inputs that are necessary if learners are to receive a quality education. As civil society advocates a quality education, we sometimes imagine these inputs as a “basket of entitlements” that are necessary or essential to enable a learner to enjoy their right to a basic

education. In addition, the research problem was stated and the study gap identified. Many research studies have focused on the relationship between school resources and student achievement in the developed countries, but they have paid little or no attention to the predictors of resource allocation, distribution and utilisation and learner achievements in the developing countries (Broadbent & Poon, 2015). Internationally, Levacic (2010) focused on the management of resources to support teaching and learning in the United Kingdom, which is a developed country. The following research objectives for this study were then formulated:

Firstly, to determine the relationship between the allocation of school resources and learner achievement in public schools.

Secondly, to investigate the relationship between the distribution of school resources and learner achievement in public schools.

Thirdly, to investigate the relationship between the utilisation of school resources and learner achievement in public schools.

The following chapter, Chapter 2, reviews existing literature relevant to the study.

---oOo---

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews some of the relevant literature on the research topic. The literature reviewed in the chapter was sourced from sources that included books, journals, article and websites. During the literature review, research has shown some disparities in the way in which school resources are allocated, distributed and utilised in public schools in urban schools. However, there is need to focus on school resource allocation, distribution and utilisation as predictors of learners achievement in rural areas.

2.2 THE LINK BETWEEN EDUCATIONAL RESOURCES AND LEARNER ACHIEVEMENT AT SCHOOL

The issue of whether educational resources have an impact on learner attainment has long been a contested issue among scholars. Contrary to the conventional understanding, Rice (2007) concludes that the total level of school resources is not closely related to student performance although he challenged this interpretation of the research evidence in the case of smaller class sizes.

The link between educational expenditure and outcomes has not been proven although it has been pointed out that research has suffered from poor quality data and has failed to fully examine the interactions between school inputs and resources (Picus & Fazal, 2015). The apparent absence of resource effects is at odds with conventional economic reasoning (Monk & Rice, 2016). However, the range of

empirical research that has failed to find a link between educational resources and school performance may be countered on the grounds that school inspections are primarily output focused. In the context of South Africa the same challenge was being experienced at the time of the study because the majority of school inspectors (circuit managers) appeared to lack the capacity required to understand and assist schools in identifying their main challenges which in turn leads to poor performance, especially in the historically disadvantaged schools (HSRC & NMF, 2005, Gardiner, 2007).

A study conducted by Levin (2015) found that almost all visits by departmental officials to the school where the research was conducted were concerned with whether the required scope of work had been covered (quantity). The input involving the resources and the processes used in teaching and learning were not even examined. Hedges, Laine, and Greenwald (2014) argue that to use data on the outcomes of education as the sole basis for accountability is to lose sight of the fact that aspects of provisioning (e.g. school buildings, curricula, educational materials, teachers‘ instructional techniques and preparation activities) are also important. At the time of the study in South Africa, the main focus of the circuit managers was on monitoring and supporting schools in respect of covering both the pacesetters and assessment tasks (DBE).

The availability, relevance and adequacy of education resource items contribute to academic achievement while unattractive school buildings, crowded classrooms, non-availability of playing grounds, and surroundings that have no aesthetic beauty may contribute to poor academic performance (Hanushek, 2016). This argument is supported by Grissmer, Flanagan, and Williamson (2008), who state that the absence of basic resources and the extreme overcrowding in the schools in many developing countries mean that other factors that are crucial for quality education (e.g. teacher

subject knowledge) may initially play a smaller role in the provision of quality education than may otherwise have been the case. However, even as the budget situation improves, more resources do not always generate a similar educational improvement. This may perhaps be because school and classroom organisation does not always adjust well to the efficient use of the additional resources or because there may be threshold levels beyond which adding further resources does not yield significant additional benefits for learning. However, research in the South African context has shown that the provision of basic resources does have positive effect on learner achievement (Sedibe, 2011).

Yadar's (2007) findings in a study on teaching and learning resources and academic performance in mathematics in secondary schools in Ondo, Nigeria were in line with the findings of a report by UNESCO (2008) that teaching/learning materials, such as textbooks, classrooms, teaching aids (chalkboard, ruler and protractor), stationery and laboratories impact on the academic performance of learners. In addition, these results agreed with those of Mutai (2006) who asserts that learning is strengthened when there are sufficient reference materials such as textbooks as well as exercise books, teaching aids and classrooms. He further asserts that academic achievement illustrates, par excellence, the correct use of such materials. This was also affirmed by Greenwald, Hedges, and Laine (2016), who state that educational resources have an impact on school achievement by either promoting or hindering the ability to develop a school culture and high quality instruction. They indicate that a lack of resources prohibits the development of a quality instructional programme. In the South African context, the performance of the learners at the wealthy schools has been found to be better than that of the learners at schools where they experience a shortage of teaching and learning materials (Spaull, 2011).

A study conducted by Adams (2017) in Nigeria, on teacher effectiveness and student academic performance in public secondary schools, found that conditions that would promote effective teaching, such as resources being available to teachers, infrastructure in good condition, as well as instructional materials, were generally lacking. Conditions where resources are generally lacking would definitely have a negative impact on the instructional quality in public schools which may translate to poor academic performance, attitudes and values on the part of secondary school students. At the time of the study the South African government was attempting to address the same situation of poor schools reproducing inequality through poor performance. The majority of these schools lack teaching and learning resources (Bloch, 2012).

According to Ballou (2008), compared to wealthy schools, poor schools also often have fewer resources, either as a result of budget limitations or inequitable resource allocations between schools. However, although additional resources are important, it is also important to ensure that they are available in the right combinations and also that school and classroom organisation adjusts to using these resources effectively. This was also noted in the report on Equality of Educational Opportunity by Chambers (2015), who found that black students generally attended schools with fewer of the resources that seem most related to student achievement. Their schools had fewer laboratories while there were fewer books in their libraries and insufficient quantities of textbooks compared to the schools attended by their white counterparts. In addition, the schools attended by black students had fewer instructional resources and lower achievement levels than those of their white counterparts, thus suggesting a link between resources and achievement. Despite the dawn of democracy in 1994

the same situation is found in the majority of South African schools, which have poor resources and which are characterised by poor learner achievement (Bloch, 2012).

In a study on the National Assessment of Educational Achievement, Coleman et al. (2016) found that, in Kuwait, students in classrooms with libraries or reading corners scored higher on a literacy test (Progress in International Reading Literacy Study test) as compared to students in other classrooms. This was used as evidence to support the policy of the Ministry of Education to install classroom libraries in Kuwait. In South Africa, the Grade 3 systemic evaluation revealed an average score of 30% only on the mathematics task. While the literacy average was 54% on reading it was only 39% on writing. It is interesting to note that the majority of these learners were from poorly resourced schools (Bloch, 2012). Ballou (2008) maintains that, given the fluctuating nature of performance in the selected schools, several aspects of provision accounted for school performance. His study isolated one aspect, namely, resource material and learner teachers, and attempted to determine the role of resource material in influencing a school‘s performance. The findings of this study should, therefore, serve as a targeted intervention to highlight a gap in the provision of education in poorly resourced schools.

Research has supported the notion that students’ academic achievement is related to individual differences between students, the socioeconomic features of the environment in which they grow up, and the educational resources of their current school. The relationship between socioeconomic features and academic achievement has been extensively studied in both a national and an international context in recent years (Deakin Crick & Goldspink, 2014). However, there is a dearth of the studies on the relationship between the educational resources of a school and its academic

achievements. Educational resources are of vital importance in terms of their role in attaining educational aims and objectives. In this sense, educational resources play a significant role in providing equal opportunities for students by diminishing the effect of socioeconomic factors on academic achievement (Bohrnstedt et al., 2015). The research evidence shows that school-related factors in South Africa play a critical role in predicting the learner achievements in public schools (Lingam & Lingam, 2013).

The level of educational aims and objectives attained may be directly related to educational resources and their use. The role of schools in academic achievement has been investigated in several countries since the Equality of Educational Opportunity report which was published in the USA in 1966 (Merchant et al., 2014). However, different results were obtained from studies that investigated the relationship between the educational resources of schools and academic achievement, as some studies have indicated that such educational resources do not have an effect on students' academic achievement (Lewallen, Hunt, Potts-Datema, Zaza & Giles, 2015).

However, it is not clear what level of resources determine academic achievement of students. Nevertheless, Broadbent and Poon (2015) recognise the impact of physical and economic resources on achievement. Physical resources may be categorised under the headings of people, equipment, physical and economic resources (Voyer & Voyer, 2014). In the South African context there is serious debate on the relationship between school resources and learner achievement. Therefore, there is need to obtain evidence on extent school resources determine academic achievements of learners in South Africa. Alexander (2013) argues that immediate attention should be paid to the concerns raised regarding the unequally resourced classrooms, unsafe schools and traumatised teachers in the country. He suggests

that teacher orientation aimed at addressing the prevailing gaps should enable teachers to appreciate the importance of their profession and in turn inspire them to serve as role models to their learners, which could translate to functional schools (Alexander, 2013).

According to an analysis conducted by Zhang, Katsiyannis, Ju, and Roberts (2014), and based on data obtained from the Programme for International Student Assessment (PISA) 2006, family and school conditions accounted for at least 26% of the mathematics scores and 27% of the science scores attained by Turkish students. However, Demir's (2009) study found that variables in relation to the school accounted for 4.3% only of the variance. A number of studies have shown that the effect of educational resources on student achievement also depends on a country's development level. In accounting for students' academic achievement, it has been found that factors related to school have more influence than other factors in developing countries, while students' social background has more influence in developed countries (Loeb et al., 2014). In South Africa, as a developing country, the school factors are viewed as playing a critical role, especially for learners in poor rural areas and, hence, the importance of providing teaching and learning resources to enable effective teaching and learning to take place (Alexander, 2013).

Rimm-Kaufman et al. (2014) found positive relationships between the academic achievement of students and physical, financial and material resources. However, human resources have been found not to be significantly related to students' academic performance. The Programme for International Student Assessment (PISA) report (Ministry of National Education, 2003) showed that the lack of physical resources has a negative effect on students and hinders student learning. On the

other hand, PISA findings did not show degree of change in the allocation, distribution and utilisation of school resources and extent it affects student learning in South Africa. The study (PISA, 2019) shows that the student attainment in tertiary education in South Africa is the lowest across all OECD and other partner countries. In developing countries, the relationship between student achievement and the student–teacher ratio, the education level of teachers and school facilities is more apparent than in the developed countries. Nevertheless, it is not correct to indicate the existence of a strong relationship in this context (Vu, Cao, Vu & Cepero, 2014).

Furthermore, developing countries are behind developed countries in terms of educational resources such as student-teacher ratio, teachers' level of education and school facilities. As a consequence, developing countries are behind the developed countries in terms of academic achievement on an international scale (Graven, 2014). According to a study conducted by Carrese et al. (2015) on the relationship between the student–teacher ratio, the education level of teachers and school facilities, and student achievement, there is a weak relationship between educational resources and student achievement. In the case of South Africa, international studies have initially shown low levels and quality of competencies by the majority of learners in 2010 (SACMEQ, 2010). But the recent study has confirmed significant improvements in the mathematics and science scores of South African learners (SACMEQ, IV 2019; TIMSS, 2015).

Glatthorn, Jailall, and Jailall (2016) reported positive effects of the student–teacher ratio, educational materials, library size and teacher education on learning outputs. For effective learning, some studies in low-income countries emphasise the significance of human and financial resources that include the infrastructure of

schools, classroom size, teacher experiences, teacher abilities, and educational materials (Graven, 2014). However, the physical and financial potential of schools has been found not to have a significant effect on achievement. In South Africa the research study revealed that the performance of learners is significantly poorer in higher grades as compared to lower grades. The main reason for this is the fact that the disparities in resource provisioning is more predominant in the public secondary schools than in the primary schools (Bansilal, 2012). The implication for the new study on predictors of resources provisioning in public school is based on the argument that most literature ignored or failed to articulate determinant of resource provisioning and extent it affects academic performance of learners in rural schools of South Africa.

The number of the school managers who are of the opinion that the lack of physical infrastructure has several negative effects on learning is about to reach the half of the total sampled population. In the PISA report (Ministry of National Education, 2003), 80% of school managers maintained that learning in the students below the age of 15 is prevented to some extent by the lack of quality in educational resources with approximately half of the school managers maintaining that such lack of quality in the educational resources of schools prevent student learning to a marked degree. In the PISA report (Ministry of National Education, 2003), approximately three-quarters of the school managers highlighted “insufficiency in the number of teachers in schools” as another factor impacting on student learning. In Turkey, there are various types of schools with this differentiation being paralleled to a great extent by the socioeconomic and cultural conditions in the country (Kanno & Kangas, 2014). According to Bloch (2012), the PIRLS study revealed that South African learners performed poorly in this international test and were, in fact, at the bottom of the

ranking, thus confirming that South African learners are poor performers in reading and mathematics.

In addition, some studies point to the effect of teacher qualifications on academic achievement. According to Cueto, Guerrero, Leon, Zapata, and Freire (2014), the professional experience of teachers has a significant impact on the mathematics achievements of students. In other words, teachers with more experience have a significant effect on mathematics achievements when compared to beginner teachers with one to three years' experience. Other factors that affect student achievement include the attitudes and behaviours of teachers. The teachers' values, attitudes and experiences affect their students, colleagues, careers and society while, naturally, teachers' personal and professional existence is affected by the same factors (Sleeter, 2014).

Mestry and Ndhlovu (2014) maintain that significant teacher qualities include verbal ability, knowledge of the field in which they are teaching, knowledge on how to teach and learn, and the ability to use teaching strategies based on the needs of the students. In this regard, Demir (2009) found that the educational level of teachers, length of service and whether or not they had participated in in-service training have a significant effect on the academic achievement of students. On the other hand, some studies indicate that length of service is not a good predictor of learning outcomes (Foster, 2014, p.12). To sum up, the educational resources in schools play an important role in diminishing the effect of socioeconomic factors on academic achievement and in creating equal opportunities for students. Accordingly, it is crucial to investigate the relationship between a school's educational resources and the academic achievement of students (Hansen & Gonzalez, 2014).

2.3 TEACHING AND LEARNING RESOURCES AND PERFORMANCE

Teaching and learning resources consist of three basic components, namely, material resources, physical facilities and human resources. Past studies on the availability of teaching and learning resources in education have revealed that these resources are not always available in schools. This lack of teaching and learning resources has been of serious concern to educators. According to Tsang (2007), learning is a complex activity that involves the interplay of students' motivation, physical facilities, teaching resources, teaching skills and curriculum demands. Thus, the availability of teaching learning resources enhances the effectiveness of schools as such resources are the basic resources that help to improve the academic performance of students. The necessary resources that should be available for teaching and learning include material resources, human resources, such as teachers and support staff, and physical facilities such as laboratories, libraries and classrooms.

Teaching and learning resources help to improve access and educational outcomes as students are less likely to be absent from schools that provide them with interesting, meaningful and relevant experiences as compared to their less fortunate counterparts. The resources that are provided to schools should be of sufficient quality and quantity to promote an effective teaching-learning process. Several studies have been conducted on the impact of instructional materials on education (Stiefel et al., 2010). At the time of this study South Africa was experiencing an economic recession and thus limited resources were available for the provision of services including educational resources.

It is assumed that increasing school resources will increase the quality of education, as measured by student achievement data as one indicator. Consequently, the

relationship between school resources such as textbooks, computers, calculators and number of pupils per teacher as input and student achievement as output is of particular interest to the policy-makers who are responsible for the allocation of school resources. However, this relationship is one of the most debated issues in education (Jones, Greenberg & Crowley, 2015).

On the other hand, Cummins, Hu, Markus, and Kristiina Montero (2015) concluded that school resources are not related to student achievement. Furthermore, in a meta-analysis, Baroody, Rimm-Kaufman, Larsen, and Curby (2014) showed that significant relationships between school resources and student achievement result from the misapplication of sampling and methodological procedures. Filsecker and Hickey (2014), using exogenous population variation in the size of class cohorts, concluded that class size does not significantly increase student achievement. Nevertheless, it must be noted that research on resource allocation and student achievement has been conducted primarily in western, English-speaking contexts although a growing international body of research is also exploring this relationship. The debate in South Africa in relation to the whether there is relation between school resources and learner performance has not reached any consensus and there is still robust debate taking place in view of the two strong views in support of and against the existence of such a relationship.

Donohue and Bornman (2014) argue that, in the Assessment Frameworks for the 2007 Trends in International Mathematics and Science Study (TIMSS), internationally students from well-resourced schools generally demonstrated higher achievements as compared to students from schools that reported resource shortages. However, the Programme for International Student Assessment (PISA) (Fulantelli, Taibi & Arrigo, 2015) concludes that, school resources are not significantly related to student

achievement. Results from the PISA show that, typically, “socio-economically advantaged students attend schools with better resources” and that there may not be enough variation in the level of school resources in the participating OECD countries to support a relationship between school resources and achievement. The PISA results in relation to South Africa reveal that the country is not performing well as the majority of the learners performed poorly on international standard rate (Bloch, 2012). In addition, Limpopo Province was shown to be one of the lowest performing provinces in South Africa in respect of the TIMSS mathematics and science achievements (Reddy, 2006).

Yang (2015) found that the impact of school resources on student academic achievement is larger for economically developing countries than it is for developed countries. However, school resources are not more likely to have an effect on student achievement in economically more developed countries than in economically less developed countries (Garrett & Steinberg, 2015). While empirical results may not support a systematic, direct relationship between school resources and student achievement, it is, however, possible that school resources may mitigate the strong relationship between the background characteristics and performance of students, particularly in economically developing countries (Conroy, Sutherland, Vo, Carr & Ogston, 2014). TIMSS SA results reveal that 82% of learners in Grade 9 have their own mathematics textbook while 69% of learners have their own science textbooks. This is relevant in view of the fact that the findings of TIMSS 2015 confirmed that learners scored 24 points higher for mathematics and 31 points higher for science if they had a textbook (Reddy et al., 2006).

Results from a mixed-methods case study conducted in Baja California, Mexico, suggest that students’ use of mobile technology in the classroom had a greater impact

on increased literacy achievement for students in a rural school than for students in an urban school (Busch et al., 2014). Wlodkowski and Ginsberg (2017), using national assessment data for mathematics achievement in Pakistan, found a correlation between the availability of classroom resources and other school level variables, for example low availability of classroom resources is associated with lower levels of mathematics achievement for small classes in rural schools. Likewise, using secondary school achievement data, Kornhaber, Griffith, and Tyler (2014) found that the importance of classroom resources for academic achievement decreases with increasing class size. The same scenario is prevalent is South Africa in respect of the effect of the availability of classroom resources. There is general concern in relation to the unequally resourced classroom, which confirms the argument for a dual education system based on the level of resourcing between well-resourced and poorly resourced schools (Alexander, 2012).

Fyfe, McNeil, Son, and Goldstone (2014) urge that future research should involve in-depth and local analyses to examine student-level variables as functions of school effects, for example the availability of school resources. Thus, the international policy focus on physical school resources may be more pronounced in economically developing countries (Coe, Aloisi, Higgins & Major, 2014) as this may be easily implemented by policy-makers to redress educational inequity in relation to disadvantaged groups. Likewise, the era of global accountability advocates transparency in educational policy, especially for the developing countries (Schultz, Duffield, Rasmussen & Wageman, 2014). The reallocation of physical resources may be a relatively easy policy solution in order to comply with global norms. The Middle East provides an illuminating context in which to further explore this relationship in respect of some economically developing countries and, simultaneously, in respect of economically developed countries such as Israel (Merchant et al., 2014). South

Africa provides an interesting case as its policy on norms and standards for school infrastructure provision in public schools does not commit to the timeframes with the main argument being advanced that there is limited budget or resources to cover all the infrastructure backlogs (DBE, 2009)

Bell and Aldridge (2014) note that little research on educational resource allocation has been conducted in Israel and that the empirical literature provides mixed results. Using an exogenous source of variation in primary education class sizes in Israel, Nawrot and Doucet (2014) report a negative effect of class size on student achievement, whereby students in smaller classes demonstrate a higher level of achievement compared to their counterparts in larger classes. Orphanos and Orr (2014) found that an increased use of computers in the classroom does not positively affect student achievement. The research evidence has indicated that the majority of South African schools are experiencing overcrowded classes in classrooms which are physically too small and which have with broken windows and ceilings. In addition, four learners are often squeezed in a desk and teachers are not able to circulate and control the learners' books.

2.3.1 Influence of the availability of teaching and learning materials on learner performance in public schools

Eguchi (2015) explains that material resources include textbooks, charts, maps, and audio-visual and electronic instructional materials such as radios, tape recorders, televisions and video tape recorders. Another category of material resources consists of paper supplies and writing materials such as pens, erasers, exercise books, crayons, chalk, drawing books, notebooks, pencils, rulers, slates, workbooks, etc (Atkinson, 2000). In the South African context the learner and teaching support

materials (LTSM) usually comprise stationery, textbooks, teachers guides, references and learning aids. Most of the LTSM are provided by the education department, especially for schools in quintiles 1 to 3. Halupa (2015) also supports the notion that students' performance is affected by the quality and quantity of teaching and learning materials, noting that institutions with adequate resources such as textbooks are more likely to perform well in examinations compared to their more poorly equipped counterparts. It is, therefore, possible that poor performance may be attributed to inadequate teaching and learning materials and equipment.

2.3.2 Influence of the adequacy of physical facilities on learner performance in public schools

The development and maintenance of physical facilities in educational institutions by communities, parents, and sponsors should continue to be encouraged as it has been found that a lack of such facilities interferes with the learning process (Tsingos, Bosnic-Anticevich & Smith, 2015). Okongo, Ngao, Rop, and Nyongesa (2015) highlight the importance of school facilities in relation to quality education with differences in school facilities being seen to account for differences in learner achievement. Physical facilities include classrooms, lecture theatres, auditoriums, administrative blocks, libraries, laboratories, workshops and playgrounds. Okongo et al. (2015) assert that learning experiences are fruitful when the quantity and quality of physical resources are adequate and also that unattractive school buildings, crowded classrooms, non-availability of playing grounds and surroundings with no aesthetic beauty may contribute to poor academic performance. The same view is expressed by South African researchers in the ongoing debate on the relationship between school resources and learner achievement in well-resourced and poorly resourced schools (Alexander, 2013; Bloch, 2012; Spaull, 2011). The findings from a

study on ANA in KwaZulu-Natal show that the performance of a small subgroup of learners from well-resourced families whose home language is Afrikaans was recorded as the highest across the grades (Bansilal, 2012). However, this study did not show factors that contributes to allocation, distribution and utilisation of school resources in rural schools.

DeBoer, Ho, Stump, and Breslow (2014) are concerned about the development of the cognitive aspect as the subject is also intended to inculcate in the learner those values and skills that will enable them to function effectively in society. Social Studies integrates ideas, knowledge, information and concepts from both the social sciences and other school disciplines in an attempt to develop the skills and values required for effective citizenship. Todd and Kuhlthau (2016) support this notion when they state that educational studies in Nigeria are intended to ensure good citizenship and to help organise the citizens towards positive and progressive participation in the socioeconomic and political life of the nation. In South Africa the government promotes access to quality education in the belief that education may assist in addressing the triple challenge of poverty. Inequality and unemployment. According to Branson, Garlick, Lam and Leibbrandt (2012), it is the labour market development that dominates changes in the broader inequality. Earning inequality was shown to have increased in the 1990s while unemployment was shown to be a key driver of inequality (Branson et al., 2012).

Library resources are vital tools in education, in general, and in the teaching and learning of Social Studies, in particular. These resources encompass all persons and phenomena things that are capable, in one way or the other, of conveying information, values, processes, experiences and techniques that may be used to actively engage learners in the learning process (Castillo-Merino & Serradell-López, 2014). The

teaching and learning, particularly at the secondary school level, requires diverse human and material resources. Nguyen (2015) refers to sections *e* and *f* of the National Policy on Education, reporting on the provision of school library services in schools.

Fischer, Hilton, Robinson, and Wiley (2015), while trying to create awareness of the important role school libraries play in secondary education in Nigeria, deplore the neglect of the library and its resources development in some government-owned secondary schools in Lagos State. According to them, libraries are grossly underfunded, understaffed, understocked and unorganised. These findings also confirm the observation of the Nigerian School Library Association at its annual conference held in Nsukka in October 2002. The conference observed that the absence of any policy on school library development has stalled the growth and development of the school library in Nigeria. The availability of policy in this regard would, according to the association, have set the minimum standard for the funding, staffing, stocking and management of school libraries. Research evidence has shown that there is a policy framework on school libraries and also a plan to implement such a policy. It is interesting to note that the policy framework acknowledged that the majority of public schools in South Africa do not have functional school libraries and that provincial departments do not have budget set aside for personnel to equip/man these facilities. As a result, the majority of public schools which accommodate African learners do not have libraries (NPC, 2011). In addition, the policy framework in South Africa provides for different models of school libraries, based on contextual realities, from which each school may choose according to its own circumstances (Le Roux, 2002).

Bradshaw, Waasdorp, Debnam, and Johnson (2014) are of the opinion that the modern school library stands at the very centre of the educational programme of the school and in fact it is often referred to as the heart of the school or as the laboratory of laboratories. The reason for this is that modern education is resource based and the resources for teaching and learning are to be found in the school resource centre, which is the term used for the school library, whose central mission is to support the curriculum and further the teaching and learning programme of the school. The same view is articulated in the policy framework on school library standards as it argues that school libraries should be regarded as an integral element of curriculum implementation in South Africa (Le Roux, 2002). It was further indicated that teachers and learners would be able to access South African curriculum if they could have access to the learning resources which are often kept in the school libraries.

Cheema and Kitsantas (2014) maintain that every government should take the initiative to inculcate values in its citizens from an early age. They assert that for African governments to develop strong democracies that will support sustainable development, food production and employment, these governments must implement democratic curricula that are resource based so that civil society may be exposed to participation in democracy at an early stage. Suleman and Hussain (2014), when writing on the need for the provisioning of library resources, stress that the issue of resources may not be easy to resolve but that teachers should not use a lack of resources as an excuse for not teaching well. This, therefore, implies that alternatives should be devised and that teachers should not depend too much on the government for ready-made instructional materials but should try to improvise themselves whenever the need arises. Currently, in South Africa, schools were encouraged to improvise in the provision of learning resources to learners to enhance their learning. This is addressed through the transitional approach in the provision of school libraries

whereby communities are allowed to choose from what is referred to a “menu” of seven school library models (DBE, 1999).

2.4 THE ROLE OF RESOURCES IN PROMOTING TEACHING AND LEARNING

Tam (2015) posits that resources are a prerequisite for the effective implementation of a new curriculum. It is, therefore, incumbent on the Department of Basic Education to make provision for such resources in schools in order to motivate learners to attend school regularly, as this would improve their performance at school. A school library, computers and a laboratory play a critical role in the relevant and effective implementation of the new curriculum by promoting the active participation of learners which, in turn, will maximise their achievements. Research evidence in South Africa shows that by 2003 there were 9416 school libraries, although secondary schools constituted less than 10% of these school libraries (SA Yearbook 2004/5). This study endorses the significant role which resources (viz. school libraries, computer centres and laboratories) may play in enhancing education and promoting democracy and citizenship (Le Roux, 2002, Hell, 2006) and, hence, the understanding that the timeous and adequate provision of resources to schools is critical for the implementation of the new curriculum such as CAPS (Le Roux, 2002)

Lai (2015) states that, in general, where resources and facilities such as teachers, textbooks, laboratories, chemicals, tools and equipment, as well as stores of teaching aids, are inadequate, the teaching approach tends to be teacher-centred. Thus, it would appear that a lack of resources not only hampers effective teaching and learning but also derails a critical mode of implementing self-discovery learning, which is an integral element of the new curriculum. Shannon (2016) defines self-discovery learning as the ability of an individual to learn through personal experience and natural exploration, often motivated by curiosity. Self-discovery may also be prompted by an

external teacher such as a parent. Learning takes place through the active use of our senses and the ability to make mental connections. If the child is encouraged to experiment and exercise their mental processes by asking questions and connecting facts, their learning will go far beyond what just a teacher may teach them. In fact, the child is actually teaching him/herself. Unlike the learning derived from lectures and reading, the rate of retention of experiential learning is extremely high (Savery, 2015).

Teaching and learning processes are crucial at all levels of educational development and, if well planned and directed, they are the keys to the success and progress of an individual. Therefore, it is imperative that the best methods are used in order to enhance effective teaching and learning and, hence, the need to employ teaching aids, such as audio-visual resources, to enhance effective teaching and learning (Blair & Raver, 2014).

The term “teaching” has several connotations if it is used without clarification. Teaching is defined by Mormeka (1981) as an attempt to help someone to acquire knowledge, or attitudes. He views teaching as meaning a human’s action based on interaction. According to this notion, interaction is akin to what happens in a communication system where, at one end, there is the sender of information and, at the other end, the receiver of the message. In the teaching process, the receiver of information refers to the one who is being taught or the learner (Horvat, Dobrota, Krsmanovic, & Cudanov, 2015).

This analogy further conceptualises teaching as a conscious and deliberate effort by a mature or experienced person with the intention that the immature or inexperienced person will learn or believe what is taught on a rational basis (Darling-Hammond et al., 2014). According to Ngware et al. (2014), learning is an interdependent concept as it goes in hand in hand with teaching and cannot stand on its own. Evans and

Popova (2016) highlight that, when teaching takes place, the end result is learning. They further conceptualise learning as a modification in the behaviour of an organism through stimulation. However, this conceptualisation is inadequate for describing human learning because learning in human beings may take place without the change being physically observed although changes may have occurred internally or mentally.

2.4.1 The role of the school library

Vassilakaki and Moniarou-Papaconstantinou (2015) suggest that the research in education context that exists in Australia has no parallel as it centres on students' achievements in reading, study skills, and several aspects of the school library programme. In their review student achievement was broken down into the following:

- Firstly on academic achievement (as represented in standardised tests)
- Secondly, on reading literacy (including reading for pleasure)
- Thirdly, on broader learning (such as information skills, improved self-concept), and other (such as impact on particular sub-groups).

Delaney and Bates (2015) state that, in this digital age of e-books, many public schools and universities are struggling to provide libraries to support their students. They present a useful overview of the evidence that links school libraries and student achievement. Although the focus of this review was completed before 1990, their findings would still seem to be relevant today:

In schools with good libraries and the services of a school librarian, students perform significantly better in tests on basic research skills. Students perform significantly better in reading comprehension and in their ability to effectively express ideas in relation to their reading.

More reading occurs when there is a school library.

The guidance of a librarian appears to exert significant influence on student achievement in information-gathering. In schools with good libraries and full-time librarians, students perform better at higher levels in reading comprehension and in knowledge and use of reference materials than students in schools with minimal or no library service. Student achievement in reading, study skills and the use of newspapers was significantly higher at seventh grade level in schools with professional librarians than in schools without such people.

The absence of libraries has had a significant impact on learner achievement and, in some cases has made it almost impossible to pursue educational goals. The National Education Infrastructure Management Systems (NEIMS) Report (2009) revealed that South Africa's learner outcomes ranked poorly on the international stage, not only compared with learners from developed countries but even compared with those from less developed parts of sub-Saharan Africa. At the root of this problem lies the issue of illiteracy which Equal Education (EE), a non-governmental organisation (NGO) argues, may be combated to a significant albeit not complete extent by ensuring that every public, ordinary school has a stocked library serviced by a qualified full-time librarian (Hew, 2016).

When releasing the Annual National Assessment results, the Minister of Basic Education, Angie Motshekga (2011, p. 9), confirmed that it is widely recognised that the South Africa's schooling system performs well below its potential and that improving basic education outcomes is a prerequisite for the country's long-range development goals.

According to Equal Education (2010), major international studies have determined that, all other things being equal, the provision of a functional school library (stocked, staffed and fully funded) will add between 10 and 25% to average learner outcomes. In assessments and studies conducted in 2000 and 2001 in Massachusetts and Texas it was found that the highest achieving students were those who attended schools with good libraries.

Higgins et al. (2016) maintain that the presence of school libraries is associated with higher performance with the mean pass rate for schools without a library being 47% as compared with 66% for those with a library. This applies consistently to schools across the spectrum. It is, thus, generally accepted that the presence of stocked school libraries and qualified school librarians improves the average performance of learners at all levels of schooling.

This shows that the provision of a school library cannot be considered a luxury but should be regarded as a necessity. Nevertheless, the state of school libraries in South Africa at the time of this study was dismal.

In 2006, the former Minister of Education, Naledi Pandor, stressed the need for such resources to be supplied to schools, arguing that anecdotal evidence suggests that the high schools with the worst results are fed by primary schools that do not have the resources required to teach effectively. It is important to stress that resources in this context does not refer to money as it may refer to teacher competence, as well as to an inadequate library, or the absence of a library (Biesta, Priestley & Robinson, 2015).

The ongoing critical backlog in school infrastructure in South Africa, and an admission by the Department of Education that progress in addressing this backlog is both inadequate and uneven, led to the development of the “National Policy for an

Equitable Provision on an Enabling School Physical Teaching and Learning Environment" and the "National Minimum Norms and Standards for School Infrastructure".

In November 2008, the then Department of Education drafted and tabled the National Policy and the Minimum Norms and Standards for Infrastructure, both of which were tabled in the *Government Gazette*, No. 31616, Notice 1438 and Notice 1439 (respectively) of 2008. The EE Report (2009, p.9) states that, since 1997, six consecutive drafts for a national policy on school libraries have fallen short of adoption and implementation. Without a national policy to deal with this backlog, it is no wonder that there has been little progress in the last 15 years.

The draft Minimum Norms and Standards stated that these norms and standards would be fully adopted by the end of 2009 and implemented in a phased manner starting from 2010. However, as was the case with the National Policy, this document remains a draft with the deadlines for adoption and implementation already having lapsed. There has also been no public official communication from the Department of Basic Education regarding the status of this draft. It is, therefore, submitted that the Minister of Basic Education must publicly pronounce on the status of the Minimum Norms and Standards and provide reasons for the delay in adopting them.

As schools focus on student academic achievement, policy makers and educators are increasingly examining the value of school services traditionally considered to be supplemental. The impact of school libraries on student achievement has been extensively studied for over 75 years. Although early research generally showed a correlation between the presence of a library or librarian and higher student achievement, most notably in reading, recent research has helped identify the specific

functions of school libraries and librarians that have the most marked effect on achievement (Butler, 2014).

Recent studies of library systems by Pai, Sears, and Maeda (2015) found the following:

Professionally trained school library media specialists with credentials have a positive effect on student achievement.

Library media specialists require support from both the teachers and principal in order to be most effective.

Support staff is essential if library media specialists are to markedly affect student achievement.

Library media specialists serve as both teachers of students and in-service providers for teachers.

Effective library media specialists play a key role in expanding access to information technology beyond the library and into the classrooms.

A study of the Texas school library system, Bacca, Baldiris, Fabregat, and Graf (2014) addressed the following three questions: How do current library resources relate to state standards? What are the effects of school libraries on student achievement as measured by the reading portion of the state's standardised test, the Texas Assessment of Academic Skills (TAAS)? and What library practices are found in the highest performing schools. In order to address these questions, Bacca et al. (2014) surveyed 600 randomly selected Texas libraries (503 returned the surveys). By combining the survey results with data from the state's information management systems and economic data from the Federal Reserve Board, more than 200 variables were gathered for analysis.

Although most of the variance in the TAAS scores were attributed to socioeconomic factors, Bacca et al. (2014) found school libraries to have a measurable effect on student achievement. At the elementary and middle school levels, approximately 4% of the variance in the TAAS scores was attributed to school libraries while this figure more than doubled at the high school level, reaching 8.2%. Library variables outweighed the effects of other school variables, including computers per student, teacher experience, and even teacher turnover ratio. Across all the sampled schools, 10% more students in schools with librarians achieved minimum TAAS expectations in reading than their peers in schools without librarians (almost 25% of schools in Texas do not have librarians). In addition, it was found that high-performing schools devoted many more resources to libraries than low-performing schools.

At the elementary school level, the following four library variables were found to be most closely related to higher student achievement: viz. firstly, the number of library volumes purchased in the preceding year. Secondly, library operational expenditures. Thirdly, number of library computers connected to a modem, and lastly, library software holdings.

At the middle school level, two variables stood out while, at the high school level, Smith noted seven variables which can be classified into four categories such as: the bottom line, who is affected?, and lastly, the caveats.

- **The bottom line**

Although socioeconomic factors continue to be the strongest predictor of academic success, school library characteristics may account for up to 8% of the variance in reading-related test scores. Effective librarians perform a variety of tasks, including student instruction and teacher professional development. However, inequity in the quality and availability of library resources continues to exist between both high and

low-poverty schools as well as high and low-performing schools (Albert & Beatty, 2014).

- **Who is affected?**

Students and teachers across schools and academic levels are affected by the quality and availability of library services (Johnstone & Soares, 2014).

- **Caveats**

Although libraries appear to account for up to 8% of test score variance on TAAS, this study does not include a cost-benefit analysis. In addition, the study is correlational, and although, as the researchers point out, causality is a plausible explanation for the relationship, there may be other reasons for this correlation. While the findings are consistent with previous research, this study was conducted under the auspices of the Texas State Library and Archives Commission, which is not a traditional research institution. Also, the narrow focus on school libraries in Texas means that the results may not be generalisable to other states (Shadiev et al., 2014).

In a study conducted in Illinois, Katz (2015) noted that collection currency is as important as collection size. This researcher found that schools with newer collections performed significantly better than those with older collections. The literature also indicates that the instructional role of the librarian is an excellent predictor of student academic achievement. Navimipour and Zareie (2015) found that library staff in top-performing high schools spent more time on leadership and collaboration activities than did the library staff in bottom-performing schools. Similar conclusions have been reached by other studies.

Although identifying the library factors that are statistically the most beneficial is clearly important, Navimipour and Zareie (2015) admit that it is not possible to

establish causal relationships solely on the basis of statistical analysis. In addition, the advocacy of school libraries is made more difficult if the sole source of evidence is dry statistics. Nevertheless, macro studies that take thousands of students as their subjects must necessarily adopt a statistical approach.

According to Bipath (2008), there is a need to move on from examining the positive impact of school libraries to studying exactly what a quality school library programme entails. Small-scale studies could be one way in which to go about this as they could potentially provide a deeper understanding of the mechanisms of important school library factors isolated by large-scale studies. Although the instructional role of library staff has been identified as important by most large studies, a small but detailed research project conducted by Biddle and Berliner (2014) found that a teacher librarian's time is best spent on collaborative curriculum planning with colleagues rather than teaching information literacy skills. However, such nuances are often lost in larger statistical studies.

The school library remains the powerhouse of the educational institution and any educational institution without a library is as lifeless as a motor car without an engine and a body without a soul. The school library is a learning centre. It is a place where students have access to all kinds of reading materials as well as cultural and knowledge-building activities. It is also a place where students engage in deep thinking and lively learning discussions. In a school library, students are given an opportunity to engage in innovative, interesting and problem-solving activities and the school library also serves as a place for social interaction (Carpenter & Krutka, 2014).

Cross-age peer tutoring, cooperative learning groups and informal study groups constitute motivating and supportive social situations within the school library to improve the academic skills of students. Teachers and school librarians work out such

social situations through collaborative efforts to facilitate learning. In such situations, teacher-librarian collaboration is very important, with the school library providing the opportunity for teachers and school librarians to collaborate (Castro et al., 2015).

The school librarian collaborates with the subject teacher to encourage students to visit the school library to access materials for further study and to acquire a deeper understanding of the topic taught in the classroom. An important aspect of the school library is that it offers students an opportunity to make their own choice of material, thus enhancing the students' motivation. Students who are allowed to make their own choice of materials and participate in relevant activities are highly motivated to take part in academic activities. School librarians have always used materials, methods and instruction to make learning fun in a way that engages students' interest (Darolia, 2014).

The school library provides students with the necessary learning support and teaches them the essential skills they require in order to succeed academically. Through research, technology and information problem solving, the school library triggers excitement in students about the learning process and stimulates their curiosity. In their study, DeMatthews and Mawhinney (2014) showed that most students in Ghana use library resources and services to supplement their class notes, to assist with assignments, and to help them in their examination preparation. Dias and Diniz (2014) stress that the availability of a print-rich environment and digital resources increases the free voluntary reading that promotes students' potential for comprehensive knowledge, their language ability and their grammatical and spelling competence.

DiPaola and Tschannen-Moran (2014) note that the quality of the library collection has a tremendous impact on students' academic performance and test scores, which tend to increase with greater use of the school library resources. School libraries

provide more than just books, with libraries today providing magazines, newspapers, computers and other technology, databases of accurate information, e-books as well as fun and educational activities. Filsecker and Hickey (2014) identified the types of books which school libraries should acquire as including reference books, non-fiction books such as textbooks, and fiction books such as storybooks, novels and cartoons.

According to Froiland and Davison (2014), in line with the minimum standards in a policy outline a school library should consist of books, pamphlets, newspaper cuttings, gazettes and government publications, atlases, maps and charts, photographic records, films, record players, cassette tapes/players, film projectors, slides, pictures, photographs, realia and periodicals. In addition, school library collections would not be complete without reference, non-fiction and fiction works.

Therefore, in order to establish a clear path towards the realisation of the curriculum goals of school subjects, there is a need to provide such school library resources. It is important to make today's student the best in the world with access to library software and materials that improve literacy and build reading comprehension. With today's easy-to-navigate ebook platforms, students and teachers have access to ebooks for easy browsing, as well as the digital media materials vital for classroom instruction (Goff, Edward Guthrie, Goldring & Bickman, 2014).

The accessibility and utilisation of library information resources and services are determining factors in the provision of quality services in different types of libraries. A school library and its resources will be useful only if it is explored by the staff and students it is meant to serve. Hauserman and Stick (2014) stress that the availability of resources encourages the use of library services. They further state that there is a significant relationship between the accessibility and use of library services. According to Huang, Huang, Lu, Tseng, and Yang (2016), the use of library services

depends primarily on the accessibility of information sources. With the appropriate resources, school libraries are able to facilitate cross-communication and enhance collaboration between students, teachers, administrators and families (James et al., 2013). When students are given the opportunity to engage in independent, self-selected reading, the level of their literacy development increases and, hence, the accessibility of library resources and services increases students' library use. Programmes such as school library tours enable students to become familiar with the location of the resources they require to complete their assignments both within the school library or outside of it (John, Molepo & Chirwa, 2015).

A strong school library is staffed by a library team comprising a state certified or licensed librarian supported by clerical assistance; it contains up-to-date books, materials, equipment and technology, it includes collaboration between classroom teachers and school librarians, and it supports the development of digital literacy skills (Karbach, Gottschling, Spengler, Hegewald & Spinath, 2013) in the US context.

A publication by MacNell, Driscoll, and Hunt (2015) suggests that having a qualified school librarian, a well-developed library collection, and collaboration and co-teaching between the teacher librarian and teaching staff all elevate student learning. The school librarian's role goes beyond the everyday, ordinary library routine of stamping books, charging and discharging books as they are also entrusted with responsibility of understanding and nurturing students and their reading, guiding them to navigate the maze of books and inculcating in them the core skills they require to improve the quality of their study (Kuo, Walker, Schroder & Belland, 2014).

According to Malik (2014), if they are qualified in both teaching and librarianship, teacher librarians are familiar with pedagogy and curriculum while also possessing expertise in resource management, information literacy, and literature. In addition to

teaching students the essential 21st century skills they require in order to succeed, school library media specialists also excite students about the process of learning and stimulate their curiosity through research, technology and information problem solving.

McMillan and Schumacher (2010) emphasise that teacher librarians have been specifically trained to help and teach both teachers and students to locate the required information materials from the millions of titles available in the library in various forms. They also stress that teacher librarians' knowledge of literacy development, current releases, and popular culture equip them with the ability to suggest the right book that will entice the reluctant reader, and also to share their joy with the compulsive bookworms when new titles by favourite authors are released. Moloi and Strauss (2015) emphasise that school librarians possess expertise in digital literacy skills and they have well-developed institutional strategies based on critical thinking while they also have the ability to communicate creatively in a variety of media and to solve problems creatively. Moreover, they are often role models for strong leadership, initiative, and other career and life skills.

The imperative for introducing such multimedia technology in schools in order to prepare learners for their working life is discussed in the following section.

2.5 COMPUTER TECHNOLOGY IN TEACHING AND LEARNING

According to Sung, Chang, and Liu (2016), mixed findings have been reported on the impact of classroom computer use on student achievement. It is, however, crucial to understand the actual variable(s) behind the findings of every study. Some of the factors that influence the findings, for example, the frequency of access and use of a computer, learners' background and the task on hand, should be considered so as to verify the validity of the findings. This section begins by explaining the pitfalls

encountered by some researchers in establishing the actual benefits of computer-aided instruction.

Henderson, Selwyn, and Aston (2017) posit that technology, in relation to acquiring knowledge and skills, is an essential component of education and training at all levels: primary, secondary higher and professional education. This is supported by Garganté, Narango, and Tamarit (2015) who further clarify some of the benefits of computer technology, for example, the fact that computers enable the storage of data in electronic format, thereby saving paper. The memory capacities of computer storage devices are in gigabytes, thus enabling them to store huge chunks of data. Moreover, these devices are compact.

Bayne (2015) explains the both teachers and students benefit from the use of computer technology. Presentations, notes and test papers may be stored and transferred easily over computer storage devices. Similarly, students may submit homework and assignments as soft copies. Thus, the process becomes paperless, thereby saving paper. In addition, the electronic format makes data storage more durable. Electronically erasable memory devices may be used repeatedly and offer the robust storage of data and reliable data retrieval.

Tarhini, Hassouna, Abbasi, and Orozco (2015) maintain that computer use by teachers and students is becoming increasingly common every year with students and teachers using computers for different tasks and various reasons. In fact, it may be said that computers are tools in today's academic environment. Finding shows that students are expected to learn more through computer use: test scores may rise, and students learn at a faster rate as a result of using computers (Tarhini et al., 2015).

In addition, Albayrak and Yildirim (2015) posit that a computer-mediated medium is sufficiently rich to allow for meaningful knowledge co-construction and negotiation

between students. Hence, well-designed computer-mediated communication (CMC) environments should not impede learning. In addition, studies show that getting students to work collaboratively on solving problems in asynchronous CMC environments may provide a rich field for gleaning students' conceptions in a naturally occurring context. Scherer, Siddiq, and Teo (2015) argue that the sophistication of automation in pedagogy, rich authoring tools for multimedia and faster Internet connectivity, as well as various opt-in learning spaces, offer increasingly effective learning opportunities for users.

According to Pruet, Ang. and Farzin (2016), the new digital media (versus traditional media of textbooks and lectures) facilitate a more universally designed environment because they are inherently flexible. Pruet et al. (2016) outline four characteristics of digital media that are particularly beneficial for classroom application, namely, digital media are versatile, are transformable, may be marked and may be networked. Indeed, these are potentially valuable characteristics of learning environments or materials mediated by technology.

Computers have changed the way in which society functions. Future generations will be required to compete with the growing trends of a technologically driven society that relies on computers to perform daily tasks. The classroom is a sound starting point for people to learn how to use these complex machines. If students learn word-processing skills and how to navigate computers and the Internet early, they will be prepared to utilise computers later in life for more complex assignments (Paradis & Kirova, 2014). Computers grant access to the Internet, which hosts academic research and offers educational support. Historical records and social organisations are only a click away, providing a wealth of information for studying history and social studies. Students and teachers are now able to communicate with educators and

other students anywhere in the world easily and instantly (Powell, Woodfield, & Nevill, 2015).

In addition, there are numerous resources and communities online that are available to help students to develop and improve their mathematical and scientific understanding. Nevertheless, although computers are extremely beneficial to the educational process there are certain negative aspects that present themselves. Students have access to greater distractions during research or study time in the form of games and social networking websites. There is also the risk of students interacting with potentially dangerous, anonymous individuals. It is, therefore, vitally important that teachers and schools monitor computer use to ensure they are being used safely and for the right purposes (Samwel, Omari & Szumbah, 2016).

Teachers may encounter students who have already acquired computer skills. In fact, some students may have developed computer proficiency beyond that of their teachers. However, this may make it easier for the teacher to incorporate computers into the school curriculum. The majority of public and private schools have already begun the transition to using computers in the classroom. Computers offer teachers the unique ability to collaborate with other educators and professionals, opening up worlds of understanding for them and their students. There are several networking sites available to teachers that offer teaching plans and project ideas. Sites such as Youtube.com may also prove to be useful when demonstrations or examples are required to further explain the concepts being taught (Schiffrin et al., 2014)

There is no doubt that the ultimate power of technology is the content and the communication. However, software developers and publishers in the developed countries have long been trying to develop software and multimedia that have universal application because, due to the differences in education standards and

requirements, these products do not integrate into the curricula across countries. Software that is appropriate and culturally suitable to the Nigerian education system, for example, is in short supply (Stacey, 2014) with there being a serious discrepancy between relevant software supply and demand in developing countries such as Nigeria. According to Stright and Yeo (2014), there are clear indications from many countries that the supply of relevant and appropriate software is a major bottleneck which is obstructing the wider application of the computer. Even if Nigeria were to try to address the paucity of relevant and appropriate software by producing software that would suit its educational philosophies, a major problem would be the cost of producing relevant software for the country's educational system, which would be enormous.

In African countries there are few Internet providers of Internet gateway services. The majority of such Internet providers comprise Africans who are in partnership with foreign information and communication companies. Many of these companies provide poor services to customers who are often exploited and defrauded while the few reputable companies that render reliable services charge high fees, thus limiting access to the Internet (Wang & Sheikh-Khalil, 2014). The greatest technological challenge in Africa is how to establish reliable, cost-effective Internet connectivity. In Nigeria, where approximately 0.6% of the populace only has home personal computers, the few reliable Internet providers that have invested huge sums of money in such businesses have very small clientele bases. Hence, they are forced to charge high fees in order to recoup their investment within a reasonable period of time. Nigeria has about 500 000 Internet subscribers (Wilder, 2014).

In addition, owing to the inadequacy of the electricity supply, especially in rural areas in Nigeria, secondary schools located in such areas have no access to the Internet

and are perpetually isolated and estranged from the world's information superhighway. Nigeria is, however, lagging behind other African countries, such as Uganda, Senegal and South Africa, which are already helping secondary school students in their countries to become better information users. All Internet service providers in Nigeria are based in the urban areas (Smith, Polloway, Patton, Dowdy, & Doughty, 2015).

For several years the Nigerian government has had monopolistic control of the telecom services, which does not allow for a competitive environments that would telephony rates. Smith et al. (2015) assert that the penetration of Internet hosts is five times greater than in monopoly markets and that Internet access in countries with telecommunication competition enjoyed a growth rate five times higher than that in the monopoly environments. All this may. However, change in Nigeria as the government has invited private participation in the telecom industry and many investors are already in the Nigeria markets although it will take many years to ascertain their full impact on the Nigerian education system (Perkins, 2015). As already stated, software that is appropriate and culturally suitable to the Nigerian education system is in short supply (Norwich & Eaton, 2015).

2.6 TECHNOLOGICAL IMPACT ON SPECIFIC LEARNING AREAS

Howard, Chan and Caputi (2015) suggest that computer-based learning is more individualised and student-centred, greatly extending the language skills of English Language Learners (ELL) students and reducing their embarrassment. Pruet et al. (2016) investigated the use of basic synchronous computer mediated technology to uncover the preconceptions and thought processes of physics students. In a CMC study involving collaborative problem solving in physics, Vrasidas (2015) demonstrated how the discussion logs (which were saved and printed out for analysis)

of physics student dyads participating in synchronous computer-mediated, problem-solving learning provided sufficiently rich data about the students' thought processes, thereby enabling rich insights into how the students were thinking, and exposing their misconceptions in relation to various science concepts in the process.

Kearney, Burden, and Rai (2015) highlight that two important observations were drawn from the two studies described above. Firstly, a computer-mediated medium is sufficiently rich to allow for meaningful knowledge co-construction and negotiation between students and, hence, well-designed CMC environments should not impede learning. Secondly, the studies show that getting students to work collaboratively on solving problems in asynchronous CMC environments may provide a rich field for gleaning students' conceptions in a naturally occurring context (Nguyen, Barton & Nguyen, 2015).

More specifically, because cognitive and metacognitive activities are normally hidden and private, the use of computer-mediated collaborative tools may force the students to expend more effort into making explicit their thoughts as body language and other forms of intangible communication means are no longer viable. This would in turn make students' cognitive and metacognitive activities overt, thereby allowing deeper insights into students' current knowledge and understanding to be obtained (McEwan, 2015).

It would seem that the role of computer technology in poor and under-resourced schools is critical. It is relatively clear that computers are a multipurpose resource for teaching and learning. The flexibility and dynamism of computers in accommodating, enriching and mediating instructional programmes arguably singles them out as an essential resource in all schools. Of critical importance is the fact that computer technology has the ability to compensate for the absence of other resources. For

example, in the absence of science laboratories, computers may and are able to substitute some of their requirements. In addition, they also provide almost everything that school libraries provide (Gašević, Dawson & Siemens, 2015).

The role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy (Locke et al., 2015). Most experts in the field of education agree that, when properly used, information and communication technology has immense potential for improving teaching and learning in addition to shaping workforce opportunities. Hubbard, Stockwell, and Colpaert (2015) have indicated that computer illiteracy is now regarded as the new illiteracy. This has actually engendered a new and strong desire to equip schools with the computer facilities and qualified personal necessary to produce technologically proficient and efficient students in the developed countries of the world. There is no doubt that computers may assist the instructional process and facilitate student learning (Locke et al., 2015).

In the more advanced, industrialised nations, there has been a staggering amount of research and publication related to ICT use for educational purposes produced during the past decade. Today, nearly everyone in the industrialised nations has gained access to ICT and the purchase of computers for school use in such nations as the United States has been increasing at such a pace that is difficult to keep track of the number of many computers there are in American schools (Lauring & Klitmøller, 2015.).

Lai (2015) reported on a comprehensive survey of the instructional uses of computers in public and non-public schools in the United States. The report suggests that as early as 1985, there were over one million computers in American elementary and secondary schools and that more than fifteen million students had used them. The

report also states that half a million teachers used computers during the same period and that half of US secondary schools (about 16 500 schools) owned 15 or more computers. In addition, over 7500 elementary schools owned 15 or more computers. It has been almost two decades since the figures quoted above were released. There is no doubt that those figures would have increased tremendously since then. Hunter (2015) reported that the US government had made available $529 million to schools, of which 60 to 70% was spent on computer education. In addition, in the US administration's 2001 fiscal budget, more than $900 million was earmarked for educational technologies.

In Britain the situation is the same as the wider availability of computers in schools was made possible through government funding largely through the Local Education Authorities (LEA). Iftanti (2015) reported that following the Education Reform Act in 1988, the central government made available $325 million, over time, to promote the use of computers in school administration and management. Just as the United States and Britain have been budgeting huge sums of money for cyber education, other developed nations have been doing same, with many having embraced ICT.

In Africa, concerted efforts have been made by several governments to initiate Internet connectivity and technology training programmes. Such programmes link schools around the world in an effort to improve education, enhance cultural understanding and develop skills that young people require to secure jobs in the 21st century. In Uganda, an interconnectivity programme known as "Uganda School Net" is dedicated to extending educational technology throughout Uganda while, in Senegal, teachers and students are using computers extensively as information tools (Hurst, 2015).

The programmes mentioned above in African countries are supported by their governments through the ministries of education. In a rapidly changing world of global market competition, automation, and increasing democratisation, basic education is necessary for an individual to acquire the capacity and capability to access and apply information. Such ability and capability must find bearing in information and communication technology in the global village. The Economic Commission for Africa has indicated that the ability to access and effectively utilise information is no longer a luxury but a necessity for development. Unfortunately, many developing countries, especially in Africa, are already on the wrong side of the digital divide in the educational use of ICT (Hunter, 2015).

A study conducted by Romi and Zoabi in 2005 examined the impact of computer technology on the self-esteem of dropout youth. The study focused on a control and intervention group, both consisting of 60 secondary level students. The intervention group was exposed to the MS Office Suite of tools to use in their learning, while the control group had no access to technology. Pre- and post-questionnaires were administered to determine attitudes toward learning, self-esteem and self-efficacy. The findings showed a significant increase in all measures (Horn, 2015).

In 2000, researchers commissioned by the Software and Information Industry Association (SIIA) examined 311 research reviews and reports from both published and unpublished sources. They reported that the reviews showed that technology may have a positive effect on student attitudes toward learning, self-confidence and self-esteem (Harvey, 2015). Other reviews (Hahn, 2015) have also reported that technology has been found to improve school attendance and decrease dropout rates with a positive impact on students' independence and feelings of responsibility for their own learning.

2.7 THE SCHOOL LABORATORY AND SCIENCE TEACHING

Lee (2015) refers to the science laboratory as a unique learning environment, and a setting in which students have the opportunity to work cooperatively in small groups to investigate scientific phenomena. Lee (2015) also suggests that laboratory activities have the potential to enhance constructive social relationships as well as positive attitudes and cognitive growth. Reasoning and responding to analytical comments are some of the skills required to do this.

Conklin, Morris, and Nolte (2015) describe the laboratory as the only place in the school where certain kinds of skills and understanding may be developed. This is further corroborated by Freitas et al. (2015) who posit that, when the teachers use the science kit to perform experiments, both their conceptual understanding and experimental skills are developed. In addition, when the science kit is used in their classrooms to demonstrate phenomena and explain concepts to their learners, both their teaching skills and the learners' understanding are improved.

The absence of science laboratories in most disadvantaged schools has not only compromised the implementation of the new curriculum (National Curriculum Statements [NCS]) but has also frustrated educators as the balance of their teaching has had to remain traditional, (teacher centred) with science teaching taking place through the lecture mode, thus resulting in learners having to memorise scientific terms and processes instead of conducting experiments (Alharbi, 2015). Grant et al. (2015) insist that schools that pride themselves on their innovative approach to teaching realise that classroom instruction combined with laboratory experience obtains the best results. Evidence shows that this method increases mastery of the subject, aids in developing scientific reasoning, and cultivates interest in the subject.

It is imperative that schools today have the latest, high-quality science laboratory supplies. Science differs from any other subject as, in order to understand its concepts, it is necessary to look beyond the books and conventional classroom teaching. The effective teaching and learning of science involves seeing, handling and manipulating real objects and materials. The knowledge that learners attain in classrooms is ineffectual unless they actually observe the process and understand the relationship between action and reaction (Haglund, Jeppsson & Ahrenberg, 2015).

The effective teaching and learning of science involves a perpetual state of show and tell. Thus, good schools combine classroom teaching with laboratory experiments to ensure that their students grasp each concept thoroughly. It is also believed that laboratory teaching and experiments conducted in the laboratory help to encourage a deep understanding in children. Children are able to retain the knowledge for longer when they see the experiments being performed in front of their eyes (Grier, 2015).

Science laboratory equipment enables students to interact directly with the data gathered while they obtain first-hand learning experience by performing various experiments on their own. Students are made to use the models and understand the different scientific theories and concepts. It is also found that school science laboratory equipment and supplies make teaching and learning easier both for the teachers and for the students. There are several scientific theories and concepts that are difficult to explain directly from the books. Anatomy models, physical science kits, and chemistry science kits, for example, make it easy to understand the otherwise complex theories of science (Haglund et al., 2015).

By virtue of equipping themselves with the latest advanced materials and supplies, schools will be able to contribute effectively to the scientific advances yet to come.

The advances and developments in the fields of medical science and technology would not take place if schools did not prepare brilliant and dedicated scientists and researchers. Children develop an interest in scientific research in science laboratories. When they observe various phenomena and carry out various experiments, their reasoning skills are honed, and they start thinking deeply on theories and concepts. Schools, thus, play a vital role in bringing up the next generation of engineers and doctors (Engelbrecht, Nel, Nel & Tlale, 2015).

2.8 THE ROLE RESOURCE ALLOCATION IN PUBLIC SCHOOLS PLAYS IN LEARNERS' ACADEMIC PERFORMANCE

There has been extensive research in education conducted by a variety of people, especially in the developed countries and, to a lesser extent, in the developing nations, into the resourcing of schools and learner achievements. In various ways and to varying degrees these studies make the point that school resources impact on teaching and learning and, thus, governments throughout the world should pay particular attention to this area (Lavy, 2015).

A number of studies have shown that some schools are provided with more basic resources than others (Nisar, 2015). There is substantial evidence to suggest that there are significant differences in national governments' provision of school resources to teachers and schools with this problem being exacerbated by factors such as the socioeconomic background of learners which, in some instances, determines the minimum level of funding at schools.

In the main learners from well-to-do families have more access to basic educational resources both at home and at school than those from poor families and this may limit the learning and teaching opportunities of the latter as their opportunities to access school resources are restricted (Cobb-Clark & Jha, 2016). Tobin, Lietz, Nugroho,

Vivekanandan, and Nyamkhuu (2015) confirm that access to school resources for learners from poor families is primarily dependent on the limited allocations by government to schools through National Norms and Standards for School Funding Policy (NNSSF) (DoE 2006). This policy provides for a no-fee school status, which covers quintiles one (1) to three (3) and also for fee-paying schools (quintiles four (4) and five (5) schools), which are required to implement the Policy on Exemption to accommodate those who are not able to afford to pay school fees. Although the intention of the policy was good, the government has been confronted with implementation challenges arising from the gap between theory and practice (Anderson & Boyle, 2015).

However, the implementation of the new government policy, which appears to be poor-biased, may not compensate for the prevailing disparities in the provision of basic educational resources between the well-resourced urban schools and poorly resourced rural schools. The inequitable provision of resources and varied learner achievement may also occur either between countries or within a country (Oberle, Domitrovich, Meyers & Weissberg, 2016).

The provision of resources to schools is in some cases characterised by unevenness and inequality in both developed and developing countries (Tobin et al., 2015). Within the same country, South Africa, like the USA, has been shown to have two contrasting categories of provinces in terms of school resourcing. Accordingly, some provinces are categorised as rich with abundant resources based on their economic growth and others as poor because their basic resources are limited because they are entirely dependent on an equitable share of funding from the National Treasury.

It is, however, interesting to note that the disparities in the developed countries have been found not to be as uneven as those in the developing countries, where family

background and poverty levels play a critical role in accessing quality learning and teaching (Ma, Han, Yang & Cheng, 2015). Jennings (2015) found tentative evidence that school resource inputs were more strongly linked to schooling outputs in developing countries. Furthermore, school resources such as textbooks, students' writing materials, teachers' tertiary education and school facilities have been highlighted as some of the most important determinants of student achievement in the developing nations (Samu, 2016).

There is therefore a need to understand the allocation, distribution and utilisation of school resources within both districts and schools as data reveal that the glaring inequalities which existed at the state (provincial) levels were not found at the local level (Odden & Picus, 2008, Fuller 1985; Hanushek, 1995). It was anticipated that this study would also be able to explore this argument by looking at either disparities or equality of allocation, distribution and utilisation of school resources at school or local levels in the Limpopo province (Vos, 2015).

Kivunja (2015) reviewed a number of studies which focused on the relationship between school resources and student performance. The findings showed no strong or consistent relationship between variations in school resources and student performance. Baleni (2015) argues that there is no reason to believe that adding more resources to schools will automatically translate into better school or learner performance. Unfortunately, he failed to advance his argument by excluding the significant role played by resource distribution and utilisation in learner achievement in public schools, especially in the developing countries. His argument that there was no direct relationship between school resources and student outcomes was based mainly on studies conducted in developed countries with his review concluding that

additional resources per se do not improve educational outcomes (Mohammadi, 2015).

Wanner and Palmer (2015) indicate that the differences in learner performance depend on the utilisation of resources and that access to school resources only creates opportunities for resource use by schools and not for actual improved learner performance. This means that the way in which the school resources are allocated, distributed and utilised will determine whether they are effective in terms of improved learner achievement. However, what is of interest is that the above assertion is based on research evidence conducted in the developed countries and it has not been tested in the different context which exists in the developing countries (Wanner & Palmer, 2015).

It is clear from the above discussion that what was not in dispute in all the studies reviewed above was that school resources do matter and, therefore, that more attention should be directed at studying such resources and the role they play (Wanner & Palmer, 2015). According to Whitworth and Chiu (2015), there is a substantial body of literature, particularly in the developed countries, that suggests that money alone is not the answer to improving student learning. They argue that in developing countries, more funding is spent on the provision of school resources but there is little known about how effective these resources are in contributing to students' schooling, their completion of their studies and the relevant skills acquired.

This may be the case in most developing countries, especially South Africa. There is, therefore, a need to understand how school resources are allocated, distributed and utilised at a school level in secondary public schools in Limpopo province. Hence, this research study focused on the predictors of school resourcing and learner achievement in public schools (Barber, King & Buchanan, 2015).

2.9 ACADEMIC PERFORMANCE OF STUDENTS IN RURAL SCHOOLS

In rural schools there are often a large number of under-qualified and unqualified educators. Goff et al. (2014, p. 682) point out that learners are frequently taught by educators with limited knowledge of the subjects that they are teaching. A further contributory factor to poor teaching and, thus, the resultant high failure rate among learners is the lack of motivation and interest on the part of educators to study further in the subjects for which they are responsible (Dworkin & Tobe, 2014, p.121). The incompetence of such educators in respect of their teaching effectively frustrates them and portrays them as useless in the eyes of the learners whom they teach, often contributing to the high rate of educator absenteeism (Dee & Wyckoff, 2015, p.267). Research conducted by Froiland and Davison (2014, p.1) found that the main factors contributing to poor performance include poor discipline, commitment and morale on the part of the educators. It is important to examine whether these factors are also linked to level of resources in those schools.

In their study, Meany, Bratton, and Kottman (2014, p.16) reported that the sampled educators' morale was very low and was demonstrated seen in their high rates of absenteeism and truancy. The educators' low levels of motivation levels in turn often resulted in the educators being late or absent, teaching time was reduced and learners were left without educators in some subjects for days, especially towards month-end. The educators blamed their low morale on the poor working conditions, inadequate curricular materials and unclear and confusing government policies, in particular, on the right-sizing policy (Wilder, 2014, p.377). The issue of unqualified or under-qualified educators, who are frustrated by their incompetence and are, thus, not motivated to expand their knowledge, may be categorised within the classroom processes category, as well as educator behaviour and educator efficacy. It is

important to investigate how resources are allocated, distributed and utilised to attract and retain qualified teachers in rural schools.

2.10 NATIONAL PERSPECTIVES

The White Paper on Education and Training (WPET) has addressed constitutional principles by indicating that state resources would be deployed in accordance with the principle of equity, access and redress so that they may be used to provide quality education for all learners (RSA, 1995). Furthermore, the South African Schools Act (Act 84 of 1996) (SASA) imposes other responsibilities on the state with respect to the resourcing of public schools (RSA, 1996). For example, section 34(1) of SASA provides for the funding of schools from public revenue on an *equitable* basis in order to ensure the proper exercise of the rights of learners to education and the *redress* of past inequalities in education provision (RSA, 1996a). The basic principles of state resourcing for public schools are derived from the constitutional guarantee of equality and recognition of the right to redress (RSA, 1996b). Furthermore, the NNSSF also declares that school resources will be distributed on an equitable basis in order to ensure the proper exercise of the rights of learners to education and the redress of the past (DoE, 2006). However, the same policy, as well as the Acts indicated above, do not direct school management and governing bodies on how those resources allocated from the provincial education departments should be distributed and utilised per class and per subject at school level. It is assumed by the provincial government that school management and governing bodies will be able to distribute and use school resources effectively and efficiently in their educational institutions.

The responsibility of SGBs, as indicated in SASA, is to take all reasonable measures to supplement the school resources supplied by the state (RSA, 1996b). Unfortunately, the reality is that some of SMTs and SGBs that have received more

resources through both school allocation and fundraising appear unable to demonstrate maximal capacity in the allocation, distribution and utilisation of such school resources. Hence, there is a general perception that the poor academic achievements of learners are related to the inefficient and ineffective allocation, distribution and utilisation of resources at the majority of the public schools in Limpopo province.

The education resource policy directs all public schools, as part of the education sector, to ensure that their allocated resources are efficiently and effectively distributed and utilised to provide access and quality education for all learners (DoE, 2006). The basis for this is that school resources serve as an important instrument supporting government's commitment to fulfilling both international agreements and the state's constitutional obligation to provide access and quality education for all. One of the international agreements signed by the South African government is the right to education which is articulated in Article 24 of the Universal Declaration of Human Rights, 1948 (Baker, Lynch, Cantillon & Walsh, 2009).

In view of the national obligations in South Africa to redress the imbalances of the past and to combat poverty through increased access to quality education, it is important that more efforts should be directed at examining the way in which the school resources allocated from the government are distributed and utilised by both school management and governing bodies at the school level. Hence, in this study the researcher examined the predictors of learner achievements as well as resource allocation, distribution and utilisation in public schools in Limpopo province.

The study's focus area of school resource provision and learner achievements has received considerable attention over the years, especially in the developed countries and, to some extent, in the developing countries (Scott & Davis, 2015). However, the

existing body of knowledge reveals that there is no consensus on whether or not there is a direct relationship between school resources and learner achievements.

Unfortunately, most of these studies, which focus on the developed countries, have shown that there is no direct relationship between school resources and learner performance. In addition, they do not take into account these phenomena in different contexts such as the developing countries (Chrusciel, Wolfe, Hansen, Rojek & Kaminski, 2015). There is, therefore, a need to understand the predictors of school resourcing and learner achievements in public schools in South Africa, as a developing countries, as this is critical for the provision of quality education in the country. This research study also investigated the relationship between the allocation, distribution and utilisation of school resources and learner achievement in public schools in the Limpopo Province.

Cobb-Clark and Jha (2016) show that skewed school resource provisioning and learner achievements in South Africa is a result of historical factors during the apartheid era, which ensured that the provision of school resources in public schools was inequitable and inadequate for most black schools. In addition, the limited availability of school resources in post-apartheid South Africa also meant that not all public schools would be allocated equitable school resources, especially those which catered for African learners. As a result, this educational dilemma created a pattern of resource inequality in which the former white schools benefited more than other racial groups such as the coloureds, Indians and blacks (Cobb-Clark & Jha, 2016).

In view of the above historical realities, it was apparent that, in 1994, the new democratic government was faced with a number of educational challenges. It, therefore, became imperative that the new government focus on addressing the shortages and inequalities in school resource provision and learner achievement in

order to improve access, equity, redress, stability and quality of education as part of overcoming the legacy of apartheid, especially in the rural and township public schools (Johnes, 2015).

As already mentioned, prior to the first democratic elections in South Africa in 1994, education resource allocation, distribution and utilisation and learner achievements were highly unequal due mainly to the apartheid policy of separate development. The apartheid government was biased towards the former white schools and provided them with more school resources, while under-resourcing the majority of black schools (Cross, 2015).

Since the new democratic order was ushered in in 1994, serious efforts have been made to equalise school resource allocation, distribution and utilisation and learner achievement (Monyooe, 2015). However, a growing body of research has observed that there are still inequalities and inadequacies in the allocation, distribution and utilisation of school resources and learner achievement across the education system. This serves to confirm the difficulty of redressing the legacy of the apartheid era (Jiyane, Fombad & Mugwisi, 2016).

It is apparent from the above discussion that there is a need to investigate learner achievement and the level of school resource allocation, distribution and utilisation in South Africa, especially in a rural province such as Limpopo. It is argued in this study that little has been written about the relationship between learner achievement and the determinants (predictors) for allocating, distributing and utilising school resources in public schools in the predominantly rural provinces such as Limpopo, Eastern Cape and Mpumalanga (Jiyane et al., 2016).

Accordingly, this study aimed to comprehensively investigate the relationship between school resource allocation, distribution and utilisation and learner

achievements in public schools in Limpopo province. Hence, this research topic on the predictors of school resource provisioning (allocation, distribution and utilisation) and learner achievements in public secondary schools in Limpopo province addresses the knowledge gaps identified in the literature review about (Martin, 2016).

In South Africa, the resource allocation, distribution and utilisation to public schools is gaining considerable attention. The difference between the apartheid era and the post-apartheid period is that, during the former, school resources were allocated on the basis of racial lines which resulted in inequalities in resource allocation, distribution and utilisation among the different racial groups (Powell, Reddy & Juan, 2016).

Moreover, learner performance was skewed in favour of the above racial school resource provision and utilisation. Although later on, race did not play such a critical role, the resource inequalities in allocation, distribution and utilisation are now being shown to be continuing unabated but based on class (Kearns, 2015). Prior to democracy, the discriminatory model of school resource allocation and distribution in public schools resulted in stark disparities between the racial groups. However, post-democracy, the democratic government has done much to equalise resource provision, with a large number of schools predominantly in rural communities being declared “No Fee” Schools (Kearns, 2015).

The category of “No Fee” Schools is entirely dependent on the government’s allocation of resources, and parents from a poor socioeconomic background play no role in contributing school financial resources (Reddy, 2016). However, a detailed review of the studies conducted during the post-apartheid era shows that attention to school resource provision has focused more on national and provincial levels than on local level schools (Vaz, 2015).

CHAPTER 3

THEORETICAL FRAMEWORK OF THE STUDY

3.1. INTRODUCTION

This study used a neoclassical economic theory known as the education production function theory (EPF). The theory, which originated in the 1950s, is based on Jacob Mincer's application of human capital theory (HCT) to the measurement of the economic return to education. One of the assumptions derived from this theory is that the number of years of schooling an individual received has an impact on earnings. There is little consensus on the definition and measurement of the inputs and outputs of education. However, it would appear that this arises from a lack of agreed-upon goals for education that may be translated into operational and measurable objectives and, hence, there is no standardised unit of outputs and inputs. Thus, the inputs refer the allocation of resources which include qualified teachers and the school's physical facilities while the end result – the output – is the students' performance and achievement. In this study, measures such as the experience and qualifications of head teachers and teachers, physical facilities, and all material resources used in teaching and learning were used as inputs, while specific measures of outputs were the grades attained by the students in examinations. The problem, however, with the input measures is the qualitative dimensions, which are difficult both to define and to measure.

3.1.1 Critique of the neoclassical economic theory known as education production function theory (EPF)

The education production function theory is a neoclassical theory which is economically oriented as it was derived from the economic literature rather than educational literature during the 1950s and was adapted to the education sector environment, although with some limitations. Initially the theory focused on the estimation of the relationship between the supply of selected schooling inputs and educational outcomes. The proponents of the theory tried to justify the above relationship by controlling the influence of other various background factors which also play critical role in learner achievement (Scheerens, 1997). However, a number of researchers have disputed the notion that there is any relationship between school resources and learner achievement, especially in the developed countries (Hanushek). It is interesting to note that both Fuller (1985) and Hanushek (1995) found tentative evidence that school resource inputs were more strongly linked to schooling outputs in the developing countries. Furthermore, school resources such as the textbooks, student writing materials, teachers' tertiary education and school facilities were also highlighted as some of the most important determinants of student achievements in the developing nations (Hanushek, 1995). This implies that the theory may be predicted in terms of how it may applied as its application differs from one environment to another.

In view of the above discussion, it is important to indicate that the above theory has the following characteristics. Firstly, the major type of initial condition required is the selection of resource inputs. The resource inputs referred in the theory include variables such as teacher/learner ratio, educators' salaries and school allocation from department. Unfortunately, the initial condition is, in most cases, absent in poor

communities and this makes the application of this theory difficult if not impossible. Secondly, this should be followed by the measurement of the direct, rather than causally mediated, effects (black-box formulations) data at one level of aggregation, viz. either micro (pupil) level data or school and even district level data (Monk 1989. However, the second characteristic does not address the critical aspect of what really happens in the classroom where teaching and learning occurs. Unfortunately, the third characteristic is that the theory is viewed to be more static and traditional rather being a dynamic model. Accordingly, the basic assumption of this theory is that an increase in resource inputs will automatically lead to an increase in educational outcomes. However, the above assumption is not supported by research evidence and the argument put forward is that it is not always given that the increase in resource inputs will automatically translate into improved educational outcomes.

The other critique may be made in relation to the analogy on which the theory is based. The proponents of the education production function theory are known to draw an analogy between the knowledge acquisition process of a human being and the production process of a firm (Todd & Wolpin, 2003). Furthermore, they claim that the above analogy provides a conceptual framework that guides the choice of variables and enables a coherent interpretation of the effects of such variables. However, research evidence shows that there is no consensus on the application of the theory as a conceptual framework. This study also noted that the proponents of this theory believed that the primary goal of empirical research, guided by the same economic theory, is to understand the technology for combining school inputs to create cognitive achievement outcomes. Unfortunately, the theory is seen as being difficult to understand because it has a tendency to reduce the productivity of education to a narrowly measured set of inputs and outcomes.

3.1.2 Application of the theory to the study

In the discussion below the researcher indicated the usefulness of the theory to the study and showed how the theory applied to the study or to the problem which was being investigated.

This research study applied the education production function in guiding the discussion on resource provisioning as a predictor of learner achievement in public secondary schools in the Limpopo province. The theory uses the input-process-output model. According to Bowles (1970), an education production function (EPF) refers to the relationship between school and student inputs and a measure of school output. Hanushek (2003, 2007) views education production function as a simple production model which lies behind much of the analysis in the economics of education. Johnson (1978) argued that economic theory may be used to explain education production theory. The researcher in this study indicated that the common inputs included school resources, teacher quality and family attributes while the outcome was student achievement. The latter aspect was relevant to this research study which focused on resource provisioning as the predictor of learner achievements in public schools in Limpopo province. Rice and Schwartz (2008) define education production functions as those functions that link “school inputs to educational outcomes and identify the impact of changes in inputs (e.g. teachers) on student outcomes (e.g. achievement as measured by test scores)”.

3.1.2.1. Distinction between two approaches (input and output) in the education production function theory

The explanation for the differences between the focus of both input and output approaches may assist us in identifying the constraints within the education production function theory. Some researchers argued that money does matter and,

therefore, they advanced the argument that more resources (inputs) should be allocated to schools in order to improve learner achievement (Hedges, Laine & Greenwald, 2014). The output approach, in contrast, argues that money, as an input, does not seem to matter and, therefore, proposes that both the planners and policy makers must be directed to focus primarily on what has been achieved and also what incentives should be provided to intrigue more achievement. Both approaches agree that money "may" matter but question whether money "does" matter and, if so, how it matters. The crucial difference between the input and output approaches is their prediction about the students' outcomes after an increase in expenditure. The input approach predicts that, when there is an increase in school expenditure on certain inputs, including reducing class sizes and employing more qualified teachers in terms of education and years of teaching experiences, there will be an increase in student outcome. On the other hand, the output approach predicts that, when there is an incentive for those who achieve more, the incentive encourages a greater contribution from teachers to help students to achieve more.

3.1.2.2. Critique and policy implication

Research evidence has identified two challenges or constraints relating to the education production function theory (i.e. input and output approach). Firstly, the researchers argue that one of the challenges is that it is very difficult to concretely define what the input approach or model entails (Hanushek, 1989, 2003; Case & Deaton, 1999). The constraint of the input approach is that inputs are difficult to define. Although teacher learner ratio (TLR), textbooks per learner, expenditure per learner, teacher qualifications and number of years of teaching experience have commonly been known as inputs in the education production function, there has not been any significant evidence claiming any strong relationship between specific

inputs and higher learner achievement. Picus (1995) and Behrman (2010) have further extended the limitation of input estimation by questioning: firstly, the selection of sample size for the estimation, secondly, the type of inputs – either before schooling or during schooling – and thirdly, the unobservable inputs outside of the educational systems but impacting on the learners' outcomes. The types of input which are outside of the educational sector include the availability of home educational resources, parental level of education, buying houses in areas near good schools and parental willingness to support their children with homework. For example, if increasing resource input leads to higher learner achievement, when there is an increase in per learner expenditure as an input, there should be significant improvement in student outcomes. However, the research evidence did not address the issue of inefficient spending methods which may have negative repercussions such as not showing any impact of improved outcomes even if there were an increase in expenditure (Picus, 1995).

3.1.3 CONCEPTUAL FRAMEWORK OF THE STUDY

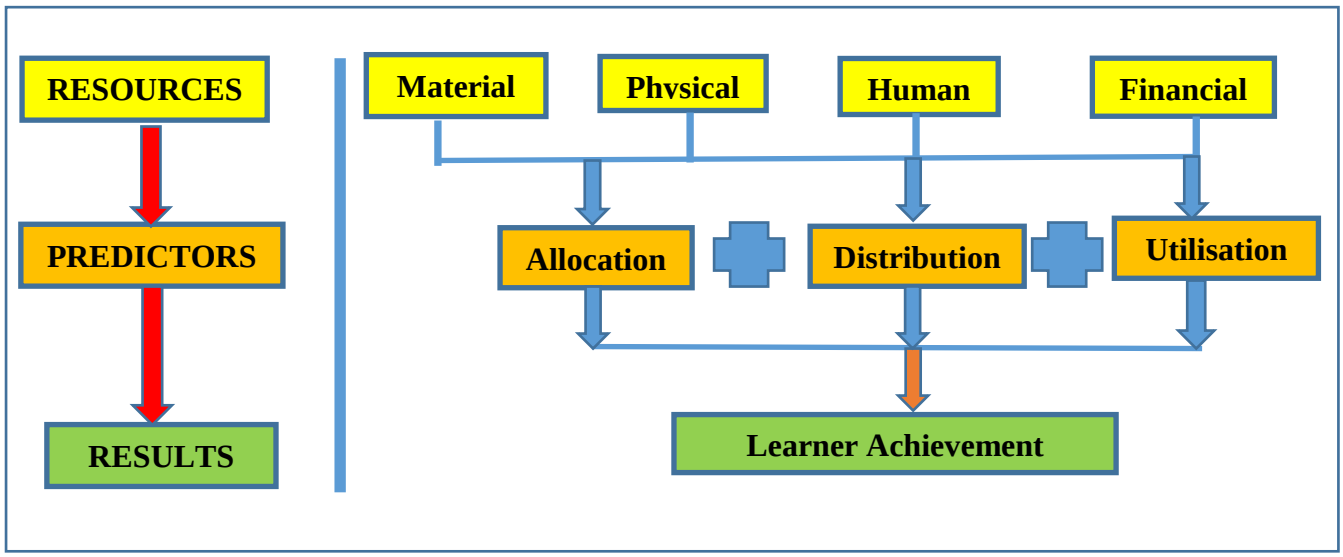


Figure 3.1.3: Conceptual framework

As illustrated in Figure 3.1.3**:** above, the predictors on rsource provision has an influence on learner performance in the public school. The independent variables are adequate

teaching and learning materials and physical facilities while the dependent variable is the ability of qualified teachers to influence learning outcomes (dependent variable). The teaching and learning materials include textbooks, teachers' guides, reference books, models, excursions/field trips, charts, calculators, computers and the Internet. Their availability enables learners to complete assignments and cover the syllabus adequately and, consequently, improve academic results. Physical facilities include desks and chairs, dormitories, dining halls, offices, laboratories, libraries, agriculture rooms, home science rooms, computer rooms, playgrounds, stores, toilets/latrines, and recreational facilities, which help in creating an environment that is conducive to learning. Some of these also directly affect curriculum implementation. A school that is well endowed with adequate physical facilities is likely to attain better educational outcomes than one that is deprived of such facilities. The teachers and other human resources are, therefore, expected to utilise the teaching learning materials and available physical facilities to achieve the goals set and improve learning outcomes.

The Education Production Function Conceptual Framework is a contemporary economic approach to education which originated in late 1950s. The framework is based on Jacob Mincer's application of human capital theory to the measurement of the economic return to education as the impact that the number of years of schooling an individual has received has on earnings. However, this view was challenged in the 1970s by the proponents of the proposed notion of screening and signalling models. Unfortunately, the measurement of the economic return to education by that time had developed both conceptually and methodologically through certain innovations which confirmed that human capital acquired through schooling has a causal impact on earnings which may in turn be measured econometrically (Card, 1999). The important contributions which were made by researchers sought to complement the economic approach by proposing the new theoretical derivations (origin/development) of the

returns to education as human capital (Heckman, Lochner & Todd, 2003). In contrast, there were some studies which focused on other dimensions of school education instead of human capital (Bowles, Gintis & Osborne, 2001).

According to Leclerco (2005), the body of research which has sought to measure the impact of school inputs on educational outcomes has failed to reach a consensus on either the conceptual framework that should be used or the results of existing studies. It was argued in the study that the education production function approach was not agreed upon as a framework because it was based on mere metaphor or an analogy (a comparison) between the functioning of the school and the production process of a firm instead of a proper theoretical model (Leclerco, 2005). The literature has also shown that, over more than forty years, no alternative model emerged to determine the estimates of the returns to education. However, a body of knowledge has noted that a determination of whether there is a significant and positive relationship between various school resource variables and cognitive achievement in both developed and developing countries is based on both the belief and opinion of an individual/researcher (Leclerco, 2005).

According to Killeen (2012), although these models have been helpful in understanding the process of education production, they have also struggled to pinpoint the key inputs which constitute key measures of education resources as well as the outcomes which are appropriate to measure productivity. As a result of the academic pressure for alternatives and non-traditional approaches, researchers have turned to other approaches in response to calls for more improved approaches to the study of educational productivity. Firstly, one of the alternative approaches which were applied to the study of education involved what was known as the experimental designs. These types of approach use randomised field trials and are a specific

method designed to isolate the effect of a programme on human behaviour (i.e. learning) (Killeen, 2012).

Secondly, complexity theory may also be used to appreciate the interaction between micro-level learning processes among students, their classrooms, schools, communities and families (Johnson, 2008; Marouli et al., 2010). In his study, Johnson (2008) argued that

> … the idea of a school as a complex system in which developmental processes and outcomes emerge from a complex interaction among systemic layers of education sector is consistent with what seems to be intuitively known by educators – that the rate of academic achievement is not a simple monotonic function that increases toward absolute proficiency. Instead, any mathematical model for expected rate of change in academic achievement of a particular school must build the ecological systems of the school into the equation as parameters.

Hence, the complexity theories, which employ analytical techniques as illustrated above, are viewed as substantially different from the more traditional, linear approximations of educational productivity.

Researchers have indicated that the relationships between the inputs and outcomes in respect of the educational system may be understood through complexity theory. The student learning is depicted as a dynamic outcome dependent on numerous overlapping and continuous systems rather than a linear outgrowth of key resource inputs that may or may not generate opportunities to learn. This view is supported by other researchers, such as Maroulis et al. (2010), who argue that complexity theory could be used to examine education policy through adaptive approaches to policy studies. Several researchers have asserted that complex systems theory has brought

new insights to understanding basic learning systems (Jacobson, Wilensky et al. 2008).

According to Ferreira (2012, p.34), a conceptual framework provides an overview of perspectives and research results with reference to the study topic. This view is also supported by Athanasou, Gitchel, and Elias (2012), who see a conceptual framework as the researcher's map or "thinking" tool of the territory being studied. In other words, it is the underlying theory that describes the situation in question and explains what is happening. Maxwell (2005) has also further defined a conceptual framework as "the system of concepts, assumptions, expectations, beliefs and theories that supports and informs your research" (p. 33). The research evidence discussed above shows that there is consensus on both the meaning of a conceptual framework and the role it plays in guiding the conduct of a study or research process (Ferreira, 2012, p.34).

Research evidence has acknowledged the critical role played by education in the development of both human capital and economic growth. However, it also accepts that education is not a panacea for every country's problems. The researcher in this study used the work of Coleman et al. (1966), Bowles (1970), Mincer (1970), Krueger (1999), Hanushek (2007) and Dickey and Houston Jr (2010) as conceptual frameworks to inform the research study. The study also applied concepts such as education production function, human capital, economic returns, screening and signalling models, economic growth, instructional effectiveness or educational productivity and complexity theory. In addition, the study also applied the education production function model as part of the theoretical or conceptual framework to guide or map the research process conducted to investigate the predictors of resource provisioning and learner achievements in public schools. Hence, the model used was multidisciplinary in nature, encompassing research traditions such as the economic

research field (i.e. education production function, human capital, economic returns and economic growth), field of educational effectiveness and evaluations of school improvement programmes. The study utilised these research traditions (economic models, educational productivity and programme evaluations models) as conceptual frameworks to investigate the predictors of school resource allocation, distribution and utilisation and learner achievements in public secondary schools in Limpopo province.

The research study used the education production function (EPF) model as part of its conceptual framework to guide the process of investigating the relationship or correlation between school resource provisioning and learner achievements in public secondary schools in Limpopo province. The above-mentioned framework or model has evolved through a series of development epochs since its conceptualisation by the economist, Jacob Mincer, in the late 1950s until it reached its full conceptual and methodological development in the late 1990s.

3.1.4. SUMMARY OF THE CHAPTER

This chapter began with a conceptualisation of the concepts central to this study, namely, school performance and quality education. A literature review was then conducted to establish the role of educational resources in promoting an effective instructional programme. The roles of specific resources, namely, computers, a school library and a school laboratory were investigated. Both the dissenting and concurring views on the role of resources were explained, compared and constructed so as to reach empirical decisions in the study.

The chapter also focused on theoretical implications that suggest the need for educational resources in promoting learning and highlighted the impact of resources on the school culture and climate. A brief explanation of school performance and quality education was provided. An attempt was also made to explain the subjective

differences between the two terms. In order to reach an informed decision on the role of resources, a link between education resources and school performance was investigated. Both the proponents' and opponents' views were compared and contrasted. Thereafter, the role of resources in promoting teaching and learning was investigated. In order to be able to respond to the research question, the following resources were prioritised, namely, the school library, the role of computer technology and the role of the science laboratory.

---oOo---

CHAPTER 4

RESEARCH PARADIGM, DESIGN AND METHODOLOGY

4.1 INTRODUCTION

This chapter describes the research paradigm, research design, the research methodology and methods used to investigate the research questions on which the study was based, the data collection instruments, the population and the sampling and data analysis techniques used. Common philosophical assumptions were reviewed and presented: the positivist paradigm was identified as the framework for the study. It also explains how the study was piloted to investigate the feasibility of the project. Finally, the profile of the school where the study was conducted is provided. This study has noted that without indicating a paradigm as the first step under this chapter on research paradigm, design and methodology, there will be no basis for subsequent choices regarding methodology, methods, literature or research design (Mertens 2005). Therefore, the first discussion was on the research paradigm followed by research design, methodology and methods to provide coherence in the discussion in this chapter.

4.2. RESEARCH PARADIGM

Research studies have shown some agreement in either the characterisation or definition of a paradigm (Guba, 1990; Kuhn, 1962, 1996; Mackenzie & Knipe 2006; Mertens, 2005; Ponterotto, 2005). Kuhn (1962) and Guba (1990) have defined a research paradigm as “the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed”. According to Mertens (2005, 2009) and Mackenzie and Knipe (2006), the research paradigm is

defined as an “established model accepted by a substantial number of people in a research community.” Whereas, Ponterotto (2005) has defined a paradigm as a “set of interrelated assumptions about the social world which provide a philosophical and conceptual framework for the organised study of that world”. Hence, this study asserts that a paradigm implies a pattern, structure and system of scientific and academic ideas, values, and assumptions as reflected in the above three definitions.

There is a lack of consensus on the categorisation of paradigms as the some traditional studies (Guba, 1990; Guba & Lincoln, 1994) have identified three research paradigms (viz. positivism/postpositivism, interpretivism/constructivism and crtical theory/pragmatism) while the contemporary studies have identified four paradigms (viz. post-positivism, interpretivism, criticalism & postmodernism). This study agrees with the former traditional studies in its categorisation of the paradims as it has shown to be supported by a number of social and educational research studies. Whereas, in the categorisation of paradigms by contemporary studies, Guba and Lincoln (1994) have shown the feasibility of grouing postmodernism and post-structuralism within “critical theory.”

The research studies (Cambell & Stanley, 1963; Gitchel & Mpofu, 2012, Lincoln & Guba, 1985) have identified two paradigms (viz. quantitative and qualitative) as the dominant research paradigms in social science research which have also resulted in two research cultures, viz. “one professing the superiority of deep, rich observational data” and the other the virtues of “hard, generalizable data”. In other words, each of these paradigms makes different assumptions about the nature of reality and how best to understand it. According to Gitchel and Mpofu (2014), a quantitative approach assumes the objective existence of reality, which means that whatever exists can be objectively measured and valid conclusions about it can be reached by observers.

Qualitative research is based on the belief that knowledge is a subjectively constructed reality and widely distributed among communities of knowers. This means that qualitative research typically explores knowledge constructions and boundaries on the terms of the knowers and in their own language. On the other hand, a quantitative study is consistent with the quantitative paradigm, and it is an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analysed with statistical procedures to determine whether the predictive generalisations of the theory hold or not.

The philosophical assumptions can be made through the so-called three significant lenses: viz. ontological, epistemological and methodological assumptions (Maree & van der Westhuizen, 2014). The ontological lense applied by the researcher in this study assumes that social reality is understood from an external point of view or merely through words and names created by the mind and within levels of individual consciousness. The former relates to a realist position that abstract objects have an objective existence; in other words, it means that reality is of an objective nature. In this viewpoint, the latter is a nominalist position. The epistemological assumptions show that knowledge can be viewed in one of two ways: it can either be seen as hard, real and objective which is a positivist stance; a view which might lead to adopting an observer role and using the methods of natural science. Whereas, an interpretive stance is viewed as a softer, more subjective, participatory role, often rejecting the standard methods of natural science (Maree & van der Westhuizen, 2014). This study has adopted a quantitative approach which utilised closed as well as a few open-ended questionnaires in collecting both quantitative data and analysing it using content analysis. The quantitative approach is relevant to the research on predictors of resource provision and learner achievement.

4.3 RESEARCH DESIGN

Vaioleti (2016) defines a research design as conceptual imagery or an architectural impression of what the product of research is expected to look like. A research design determines and outlines the methods and steps a researcher follows in finding out information about the area he/she is investigating. Similarly, Kratochwill and Levin (2015) refer to a research design as a plan for selecting subjects, research sites and data-collecting procedures to answer a research question while its main function is to enable the researcher to anticipate what the appropriate decisions should be so as to maximise the validity of the eventual results.

As mentioned, the schools selected for this research are regarded as disadvantaged because they are in rural areas, poorly resourced and situated in a remote environment. The requisite data was obtained primarily from the educators, the principal, the heads of department and the SGB.

4.4 RESEARCH APPROACH

The choice of research approach is a critically important decision as it not only informs the research design but also provides the researcher with the opportunity to critically consider how each of the various approaches may contribute to, or limit, their study, allow them to realise the articulated research objectives and design an approach which best satisfies the requirements of the research (Creswell, 2003). This study used quantitative research methods. In the main quantitative research attempts to understand the relevant issues from the perspectives of a large number of participants.

The study was carried out using a descriptive research survey design. Research evidence notes that a descriptive research survey design is an appropriate way of evaluating educational programmes as educational activities operate within a social

context. According to Humphries (2017), the descriptive research survey design suits fact-finding study which involves collecting data directly from a population or sample thereof at a particular time. This design was deemed to be ideal for the purposes of this study because the study was conducted in a setting that required direct responses from the respondents while investigating existing phenomena without manipulating the variables. This design also allows the participants to describe and provide their opinions on the variables which are being studied in detail (Flick, 2015).

4.5 TARGET POPULATION

Guetterman (2015) defines a target population as the entire set of relevant units of analysis or data. The target population for this study comprised all five education districts in Limpopo province, their principals, educators, SGBs and heads of department. There are approximately 1354 schools in the province and the study targeted all these schools them. The principals are both the supervisors of the learning resource allocation and the implementers of learning methods in their specific schools and, thus, they were able to supply accurate information about the availability of teaching-learning resources in their schools. The heads of department, on the other hand, are the implementers of the new learning curriculum and, hence, they directly utilise the available teaching-learning resources and are, therefore, in the best position to provide reliable information on teaching-learning resource availability, utilisation and adequacy.

4.6 SAMPLING

According to Vuuren and Maree (2002), sampling refers to the process used to select cases for inclusion in a research study. Sample cases may be individuals, groups, organisations or archival documents. Sampling may be categorised into two groups: viz. probability sampling and non-probability sampling (Maree & Pietersen, 2014).

Probability sampling is a rigorous, systematic sampling because the resultant sample may be viewed as representative of the population and, therefore, the researcher is able to generalise the findings to the population. On the other hand, nonprobability sampling is neither rigorous nor systematic and, hence, the researcher is not able to generalise the findings to the population (Creswell, 2014). There are emphatic arguments about the important role which may be played by sampling and which include sampling assisting the researcher to estimate and evaluate the impact of the sample members on the results or findings (Vuuren & Maree, 2002). In other words, when a sample is well selected, the results of a study's tests may be generalised or applied to the total population (Gay, Mills & Airasian, 2011).

According to Mouton (2012), *sampling* refers to sampling procedures which involve some form of selection of elements from a target population, including the random selection of elements. Maree and Pietersen (2014) asserted that sampling theory has been developed to suggest ways of drawing "scientific" samples. This means that the samples drawn are random and representative of the population and the findings may be generalised to the population in general. Accordingly, the aim of sampling is to produce representative selections of population elements. In this research study a probability sampling technique was used to obtain participants or sample cases of the public secondary schools to be researched.

The researcher did not use the non-probability purposive sampling strategy as this strategy requires the selection of small groups or individuals only who possess knowledge and information about the phenomena in question (Hoy & Adams, 2015). This view is shared by O'Flaherty and Phillips (2015) who argued that the utilisation of this strategy requires critical thinking about the parameters of the population. Hence, in this study both stratified and random sampling were used as it forms the

basis of the assumption of several statistical techniques and also allows for a fair and unbiased selection of participants (Morgan & Sklar, 2012). In simple random sampling, the participants for the sample are selected in in such that any individual has an equal probability of being selected from the population. The aim of this type of sampling is to choose individuals to be sampled who will be representative of the population. In stratified sampling**,** researchers divide (stratify) the population according to a certain specific characteristic (e.g. race) and then, using simple random sampling, sample from each subgroup (stratum) of the population (blacks and whites). This guarantees that the sample will include the specific characteristics that the researcher wants included in the sample (Creswell, 2014).

4.6.1. Description of the sample

The Limpopo Department of Education is responsible for one thousand three hundred and fifty-four (1354) public secondary schools. The research study's sampling frame comprised the list of the total number of secondary schools in the province (viz.1354). This list of schools assisted the researcher to identify each member of the population, thus ensuring a known probability of being selected for the sample. Accordingly, the researcher first used a stratified probability sampling method and divided the population sampling frame per districts per categories (see Table 3.1 below). Thereafter, the stratified population sample in each district was selected using the simple random sampling method to select five percent (5%) of the total number of (viz.1354) secondary schools in the province (see Table 3.2 below).

The population sample consisting of three hundred and forty-five (345) representatives from the SMTs, educators and SGBs from sixty-eight (68) public, secondary schools with different profiles, backgrounds and quintiles (1-to-5) was selected from five (05) districts (viz. Capricorn, Vhembe, Mopani, Sekhukhune &

Waterberg). These target population groups were selected from the following school categories, namely, *farm, rural, township and urban schools*. In each school, one (01) principal, one (01) head of department, one (01) educator and one (0a) SGB member were selected randomly from each secondary school, thus comprising part of the sample cases from sixty eight (68) public schools. The study also described the demographics of the sample cases comprising three hundred and forty-five (345) participants from various school backgrounds. The demographic characteristics which were analysed in the study included the age, gender, race, level of educational qualification and years of experience of the SMTs, educators and SGB members (Morgan & Sklar, 2012).

Table 4.6. Stratified and simply randomised probability sample cases

Name of district	**List of number of secondary schools per district (stratified sample cases of population)**	**Percentage of simply randomised sample cases of population**	**Actual number of selected sample cases simply randomised from the stratified sample frame**
Capricorn	355	17,8%	18
Mopani	244	12,2%	12
Vhembe	281	14,05%	14
Sekhukhune	326	16,3%	16
Waterberg	148	7,4%	08
	1354 (total no of secondary schools in the province	67.75% (converted to the nearest = 68%)	**68**

Source: Master list of secondary schools in Limpopo Province July 2015.

4.6.2 Sampling criteria

Ceulemans, Molderez, and Van Liedekerke (2015) posit that, when identifying the target population, certain characteristics for inclusion should be considered. The characteristics which were considered in this study included the following: inclusivity, geographical location (urban, rural and farm) and quintile classification. When deciding on the size of the population, Wang and Geale (2015) are of the opinion that time and cost considerations usually make it impossible to include the entire population in a study. The selection of participants for the purposes of this study was based on the researcher‘s knowledge and experience of working at both the district and provincial levels as a departmental official coordinating the implementation of both the governance and education management development programmes in the same districts and schools where the study was conducted as a result of which he was in an ideal position to identify data-rich informants (Wang & Geale, 2015).

4.6.3 Sample size

Majid (2016) maintains that a quantitative study is concerned with statistical methods and large samples, often randomly selected. For this reason, it was envisaged that from the entire population, a total of 345 participants, would be interviewed. The characteristics of the sample and the sample size were as follows:

Table 4.2: Sample size

Target population	Number	Sample size	Percentages
Principals	1250	68	5
Educators	31250	98	0.31
Head of departments	5000	68	13.6
School governing body members	8750	90	1

Total	**46250**	**345**	**19.9**

Quantitative studies involve gathering a range of in-depth answers to structured or closed-ended questionnaire.

4.7 RESEARCH INSTRUMENTS

Bakker and Van Eerde (2015) observe that the use of questionnaires is a popular method of data collection in education because of their relative ease of administration and their cost-effectiveness when administered to large samples. This study used questionnaires and content analysis as data collection methods. A questionnaire was generated containing both open and close-ended questions and then administered to the principals, educators, heads of departments and SGB members. There were four categories of questionnaires, namely, for the principals, educators, heads of department and school governing body members. The questionnaires included a section that required basic demographic information such as the respondent's gender, length of service and qualifications, as well as the demographic characteristics of their school, for example, school enrolment and allocation of resources.

4.7.1. Piloting

Before collecting data for this study, the researcher carried out a pilot study in two randomly selected secondary schools in the Pietersburg Circuit under Capricorn South District that were not selected as part of this study. The principals, HoDs and educators of the two schools were given questionnaires to complete. The two SGB members of the two schools were also randomly picked to complete the questionnaires. The researcher also carried out an observation of the available school resources in the two piloted schools. Piloting of the questionnaires was therefore conducted to serve two purposes of testing the suitability, clarity, and length of the

questions and providing training in administering and analysis. Piloting also assisted the researcher to review the research instruments and determine whether respondents understood the questions.

4.8 VALIDITY OF THE INSTRUMENT

According to Bakker and Van Eerde (2015), validity has to do with how accurately the data obtained in a study represent the variables of the study. Construct validity refers to the degree to which a test measures what it claims to measure, thereby giving legitimate operationalisation in a study in relation to the theoretical constructs of the study. In order to ensure the validity of this study, expert judgement was sought with the researcher making the instruments available to experts for analysis. The advice received in this regard was then used to improve the instruments. Based on the analysis of the pilot study, ambiguous or unclear items, inaccurate responses and/or responses which indicated weaknesses were modified and removed so as to ensure that appropriate responses were obtained from the respondents.

4.9 RELIABILITY

Reliability refers concerns the degree to which a particular procedure furnishes similar results over a number of repeated trials (Fox & Alldred, 2015). The same instruments were used for both the pilot and the actual study. Test-retest was conducted in the schools where the instrument was piloted in a span of two weeks apart and a correlation coefficient between the first and second results was then computed using the Pearson product correlation coefficient, which was generated using the Statistical Package for the Social Sciences (SPSS) software to determine reliability.

4.10 DATA ANALYSIS

Data analysis refers to the process of evaluating data analytically and logically so as to examine each component of the data that was collected using the research instruments. Following the data collection, the instruments were checked for completeness and errors, the questionnaires were then be arranged and coded and the ensuing data entered into the computer using SPSS and then analysed. Descriptive statistics were used to analyse the quantitative data by entering the frequencies and percentages in tables, charts and graphs. Open-ended questions and observations were analysed qualitatively in narrative form and also presented in the form of tables.

4.11 ETHICAL CONSIDERATIONS

- Ethical clearance was received from the University of Pretoria Ethical Clearance Committee. This was used to obtain permission to undertake the study.
- All participation in the study was on a voluntary basis and harmful and/or uncomfortable situation were avoided.
- The respondents were made aware they were free to withdraw from the study at any time should they feel like it and that their decision to do so would be respected.
- In view of the fact that it is not possible to maintain anonymity, especially when the data is collected using interviews. Accordingly, the respondents were assured that the information would be treated with the utmost confidentiality and that the data obtained would be used only for the stated purpose of the research and that no other person would have access to the interview data.

- The respondents were assured that they were free to provide honest and complete information.

4.11 CONCLUSION

This chapter provided a detailed description of the research method used in the study. The research instruments used to collect the data were described, as well as the sampling procedures followed and the methods of data analysis employed. The following chapter interprets the data gathered from the questionnaires and discusses the data analysis that was carried out.

---oOo---

CHAPTER 5

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

5.1 INTRODUCTION

The previous chapter discussed all the structural and fundamental methodological components relevant to the study. This chapter examines the approaches used in dealing with the data that was captured for the study. All the data was accessed from the research questionnaires that had been distributed with the aim of investigating resource provisioning as a predictor of learner achievement in public schools in Limpopo province.

This chapter contains the findings of the data analysis which was conducted as well an interpretation of the findings. All the themes related to the same research questions are presented and analysed together. The chapter begins by discussing the demographic information relating to the respondents and schools which participated in the study. This is followed by the analysis, presentation, interpretation and discussion of the research findings based on the demographic characteristics of both the respondents and the schools. These are then discussed in terms of the research questions. Tables, bar graphs and pie charts in the presentation of the findings while frequencies, means and percentages are used in the discussion of the findings.

5.2 RESPONSE RATE

The completion rate refers to the proportion of the sample that participated as intended in all the research procedures. Table 5.2 below presents the total and percentage of the questionnaires that were sent out, the questionnaires that were not answered and the questionnaires that were answered.

Table 5.2: Response rate

Respondents	Expected responds	Actual responses	Percentage
Principals	68	54	79.4
Educators	68	56	82.3
Heads of department	68	56	82.3
School governing body members	68	56	82.3
Total	**271**	**222**	**82**

It is clear from Table 5.2. above that a total of 271 questionnaires were sent out to potential respondents. f the 271 questionnaires which were sent out, 222 (82%) only were completed properly and returned with 54 (79%) of the questionnaires being returned by principals while 56 (82%) each were fully completed by educators, heads of department and school governing body members.

5.3 Statistical analysis

The researcher was assisted by a university statistician who is an expert in quantitative research. The expert provided assistance in various areas of the study. Firstly, the statistician provided guidance on the applicable research design as well as the design and construction of the data collection instrument. When the data was ready for analysis, the statistician provided guidance on choosing the most appropriate data analysis methods as well as how to use the SPSS software to analyse the data. Furthermore, the statistician also assisted by double-checking to ascertain whether the interpretations made by the researcher were accurate. After the questionnaires had been returned, they were screened to eliminate those that were incomplete as well as those in which the same question had been answered

throughout, which indicated that some of the respondents had not read the questions. This procedure was immediately followed by the capturing of the data in a Microsoft Excel computer package. The Excel document was then imported into the IBM SPSS Statistics Version 25 where it was coded in preparation for the data analysis. The data analysis involved several rigorous statistical tests such as reliability tests, correlation analysis, independent t-test, ANOVA, and paired t-test**.** A comprehensive diagrammatic representation of the research path followed in the data analysis in the study is presented in the next section.

5.3.1 Descriptive statistics

Descriptive statistics are techniques that help to indicate the characteristics or appearance of sample data (Zikmund et al., 2013, p. 54). Frequency tables and the mean score ranking technique were the main descriptive statistics that were utilised in this study.

5.3.2 Frequency distributions

Frequency distributions, such as percentages, graphs, line charts, pie charts, histograms and bar charts, were used to display the research findings. Frequency distributions are used to depict absolute and relative magnitudes, differences, proportions and trends (Zikmund et al., 2013). These methods use both horizontal and vertical bars to examine different elements of a given variable (Malhotra, 2011, p. 84).

5.4 Demographical profile of the respondents

Section A of the questionnaire elicited information pertaining to the demographic characteristics of the respondents. The section addressed the following attributes pertaining to the heads of departments, principals, SGB members and educators:

- Age range
- Gender category
- Race category
- Highest standard passed
- Highest academic qualification
- Field of qualification

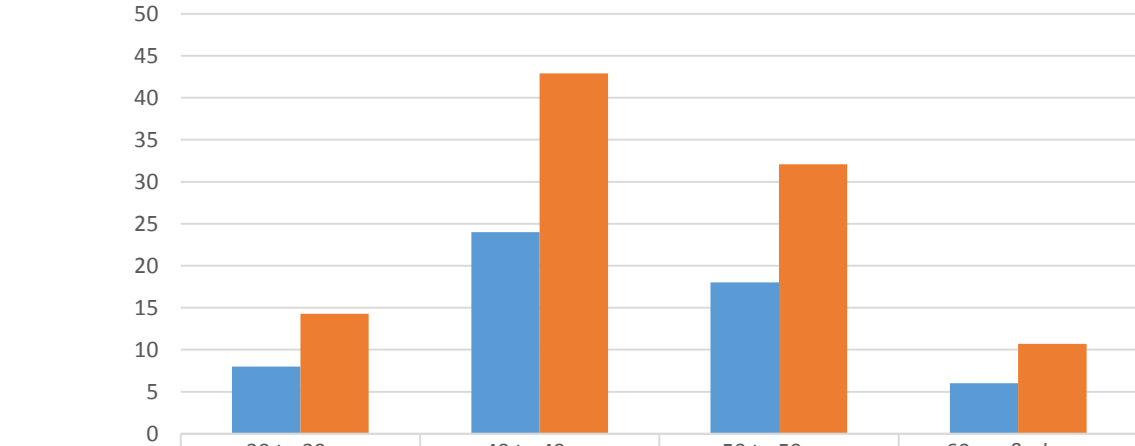
Each of these characteristics is discussed below.

5.4.1 Demographical information of SGBs

It was important to consider the demographical information of the SGB members. The results are presented below.

5.4.1.1 Age category

The respondents were asked to indicate their age group. Figure 5.4.1.1 presents the responses on the age categories as indicated by the 56 SGB members.



	30 to 39yrs	40 to 49yrs	50 to 59 yrs	60 yrs & above
Frequency	8	24	18	6
Percent	14.3	42.9	32.1	10.7

Figure 5.4.1.1: Age categories of SGB respondents (n=56)

The data in Figure 5.4.1.1 reflected the age categories of the 56 SGB members who completed the research questionnaires. The analysis of the data from Figure

5.4.1.1shows that there were no respondents in the age category 20 to 29 years among the 56 SGB members who participated in the research study. There was a small group of respondents, 14%, who indicated that they were in the age category between 30 and 39 years – they were the youngest group of respondents among the 56 SGB members of the 68 sampled schools. The majority (43%) of the SGB members were aged between 40 and 49 years, followed by those aged between 50 and 59 years at 32%. Finally, there were few SGB members of age 60 and above, namely, 6%.

5.4.1.2. **Gender of SGB respondents**

The study sought to ascertain the gender of the registry officers. The gender of 56 SGB members who participated in the study is presented in Figure 5.4.1.2. It was important to know the gender of the respondents to enable the researcher to establish which gender was more involved in management of school as an SGB member.

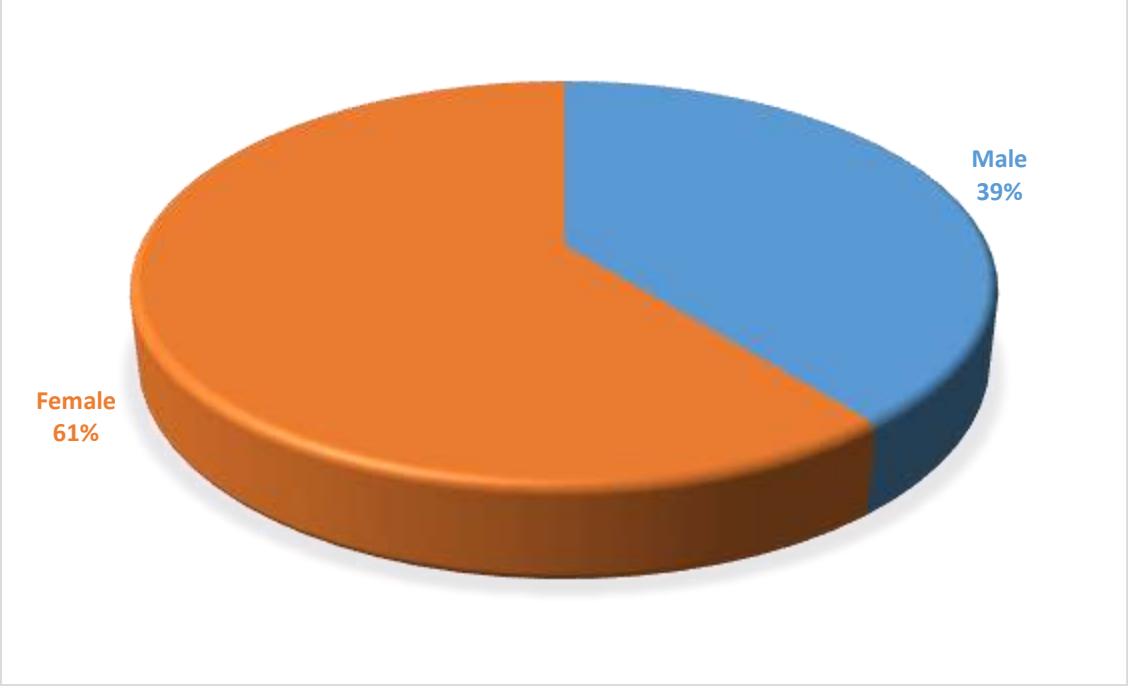


Figure: 5.4.1.2: Gender categories of SGB respondents (n=56)

Figure 5.4.1.2 reflects the gender categories of the 56 SGB member respondents who participated in the research study. The results from Figure 5.4.1.2 reveal that the

majority of respondents (61%) were female, while 39% were male. It was, therefore, evident that there were more females serving as SGB members in many schools compared to their male counterparts.

5.4.1.3. Race category

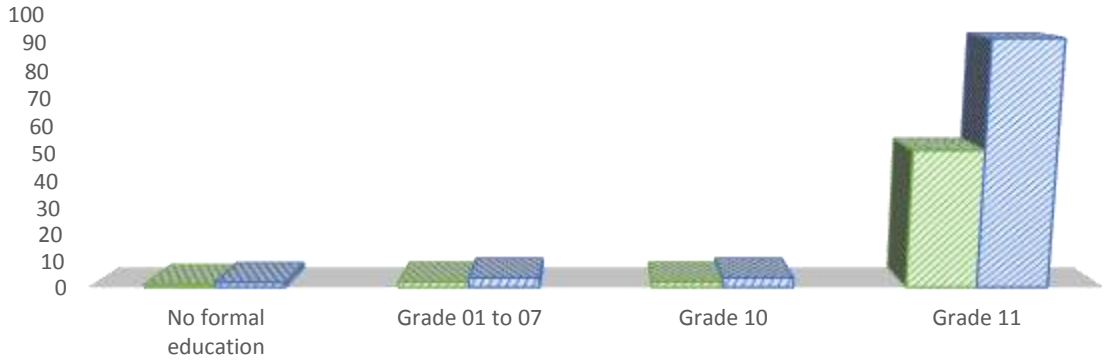
The study sought to ascertain the race of the respondents. The responses from the 56 SGB member respondents who took part in the study are presented in Table 5.4.1.3. It was important to know the race of the respondents as this allows the researcher to establish which races were more involved in the smooth running of the schools.

Table 5.4. 1.3: Race category of the respondents (n = 56)

Race	Frequency	Percentage
African	45	80.4
Coloured	8	14.3
Indian	2	3.6
White	1	1.8
Total	**56**	**100**

Table 5.4.1.3 comprised four categories of races in terms of which the 56 SGB member respondents could be classified or grouped into. The outcomes showed that the majority (80%) of the SGB members were African, 14% were coloured, 4% were Indian and 2% only were white. This is an accurate reflection of the population of Limpopo province where the majority of citizen are Africans according to Statistics South Africa 2013 census.

5.4.1.4. Highest standard passed



	No formal education	Grade 01 to 07	Grade 10	Grade 11
Frequency	1	2	2	51
Percent	1.8	3.6	3.6	91.1

Figure 5.4.1.4.: Highest grade passed by SGB respondents (n=56)

Figure 5.4.1.4 indicates that the highest standard passed by the majority of the SBG members was Grade 11, namely, 91%, while 2% only of the SGB members had not had formal education and 3% indicated the highest standard passed as between Grade 1 and Grade 10.

5.4.1.5. Highest academic qualification acquired

Table 5.4.1.5: Highest academic qualification acquired by SGB respondents (n = 56)

Qualification	Frequency	Percentage
Not stated	3	5.4
None	5	8.9
Certificate	23	41.1
Diploma	12	21.4
Undergraduate degree	9	16.1
Honours degree	4	7.1
Total	**56**	**100**

Table 5.4.1.5 indicates the highest academic qualification which the SGB respondents had acquired in their further studies and careers. Among the total of 56

SGB respondents, 41% had a certificate, followed by 21% with a diploma and 16% with an undergraduate degree. The table also revealed that some of the SGB members did not divulge their qualifications (5%) while others did not have any academic qualifications (9%).

5.4.1.6. Qualification field

Table 5.4.1.6: Qualification field of the SGB respondents

Qualification field	Frequency	Percentage
No qualification field	6	10.7
Law	3	5.4
Education	31	55.4
Financial management	10	17.9
Administration	6	10.7
Total	**56**	**100**

Table 5.4.1.6 shows that majority of the SGB member respondents, approximately 55%, indicated that their field of qualification was Education, 18% were in financial management, 11% were in administration, 11% did not indicate a specific qualification field while 3% were in the legal field.

5.4.1.7. Employment status

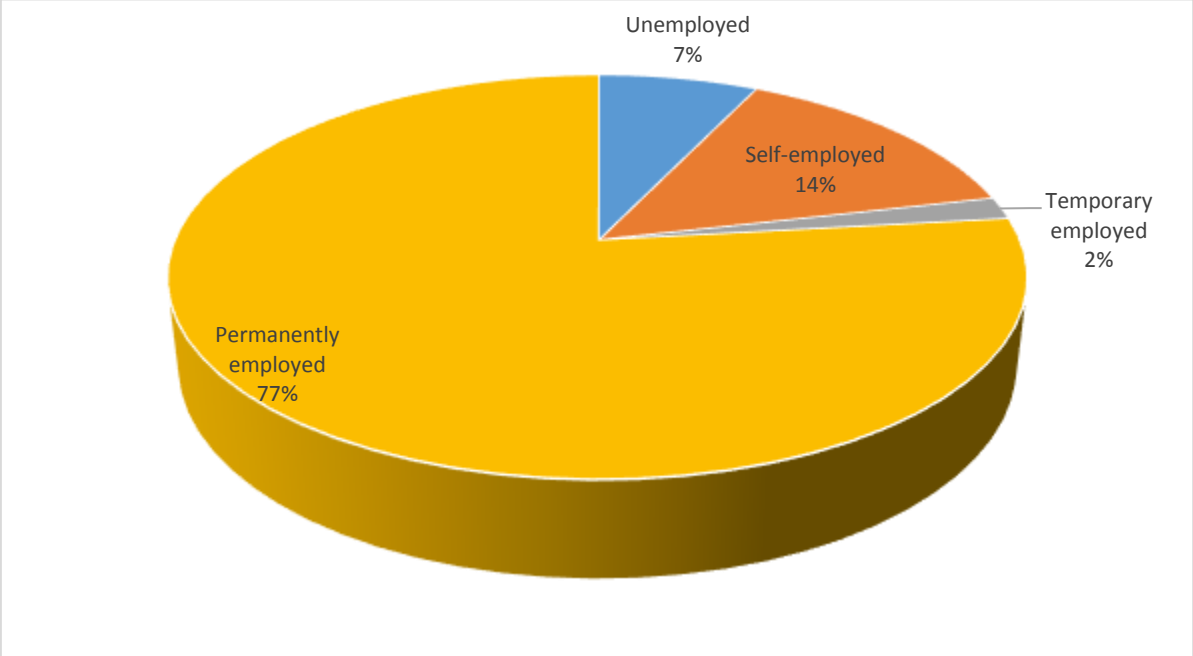
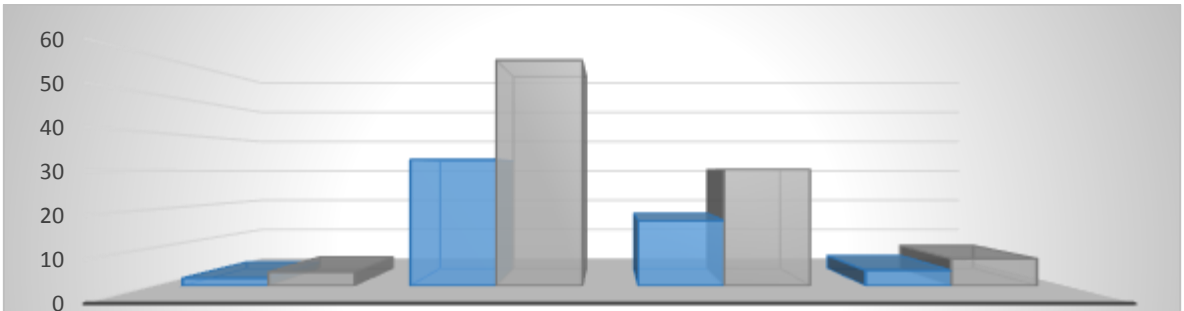


Figure 5.1.1.7: Employment status of the SGB respondents (n = 56)

Figure 5.4.1.7 indicates that more than three-quarters (77%) of the SGB members were permanently employed, 14% were self-employed and 7% were unemployed. In addition, a few of the respondents, namely 2%, indicated that they were temporarily employed.

5.4.1.8. Location category



	Farm school	Village	Township	Town/City
Frequency	2	33	17	4
Percent	3.6	58.9	30.4	7.1

Figure 5.4.1.8: school location of SGB respondents (n = 56)

Table 5.4.1.8 shows that there are four categories of school location. The majority of the SGB member respondents – approximately 59% – indicated that their schools were located in either rural areas or villages, approximately 30% indicated that their schools were located in townships, 7% indicated a town/city, while a minority (2%) cited a farming area.

5.5 VIEWS OF SGB MEMBERS ON RESOURCE ALLOCATION, DISTRIBUTION AND UTILISATION IN PUBLIC SCHOOLS

The views of the SGBs were based on the three categories pertaining to resources, namely, allocation, distribution and utilisation. In addition, the researcher also tested the reliability of those three in terms of physical, financial and human resources. The results are presented below:

5.5.1 Testing reliability of the SGBs' responses

It has to be appreciated that there are several statistical indexes that may be used to measure internal consistency, for example, the average Inter-Item correlation, average item total correlation, split-half reliability and Cronbach's alpha (Wells & Wollack, 2003, p. 4). For the purposes of this study, Cronbach's alpha was adopted as the measure of internal consistency on the measurement scale. According to (Wells & Wollack, 2003, p. 4), Cronbach's alpha provides a measure of the extent to which the items on a measurement scale or test provide consistent information. Cronbach's alpha is often considered a measure of item homogeneity, that is, large alpha values indicate that the items are tapping a common domain. The scale in Cronbach's reliability test ranges from 0 to 1. Scores that are close to 1 indicate that the instrument has a high reliability while scores close to 0 indicate that the reliability of the instrument is very low (Wells & Wollack, 2003:4). Most researchers require a reliability of at least 0.7 before they are prepared to use the instrument in question. In

this study, the Statistical Package for the Social Sciences (SPSS Version 25) was used to test the reliability of the measuring instrument. Once again, the Cronbach's alpha test proved to be both appropriate and handy as it provided a summary of the inter-correlations that existed between the items on an exploration of police officer's alienation among South African Police Service offices in the Tshwane Metropolitan area in relation to the three dimensions of alienation (powerlessness, normlessness and isolation).

In order to determine the reliability and validity of the data collection instruments used in this study, Cronbach's alpha was used. Sekaran (2000, cited in Nyengane, 2007, p. 74) stipulates that "coefficients less than 0.6 are considered poor, while coefficients greater than 0.6, but less than 0.8 are considered acceptable and coefficients greater than 0.7 are considered good". Table 5.5.1 presents Cronbach's alpha for the study variables and indicates that, for all the items, the coefficient was greater than 0.7 which is acceptable, as stipulated by Sekaran (2000, cited in Nyengane, 2007, p. 74).

Table 5.5.1: Testing reliability of the SGBs' responses

		Cronbach's alpha	Average inter-Item correlations	No. items
Allocation	Physical resources	0.937	0.51	15
	Financial resources	0.629	0.143	15
	Human resources	0.651	0.295	5
	Total	0.868	0.123	35
Distribution	Physical resources	0.08	0.017	5
	Financial resources	0.972	0.923	3
	Human resources	0.069	0.015	3
	Total	0.287	0.011	11
Utilisation	Physical resources	0.864	0.399	10
	Financial resources	0.564	0.037	20
	Human resources	0.039	0.008	5
	Total	0.634	0.05	35
	Overall	0.799	0.06	81

Each component (as categorised in the documentation provided) was examined for internal reliability using Cronbach's alpha. Table 5.5.1 presents the Cronbach's alpha of the SGBs' responses for items related to allocation, distribution and utilisation. Overall, the Cronbach's alpha for this study was 0.799 which is above the required alpha of 0.70. that indicates that all the items are reliable.

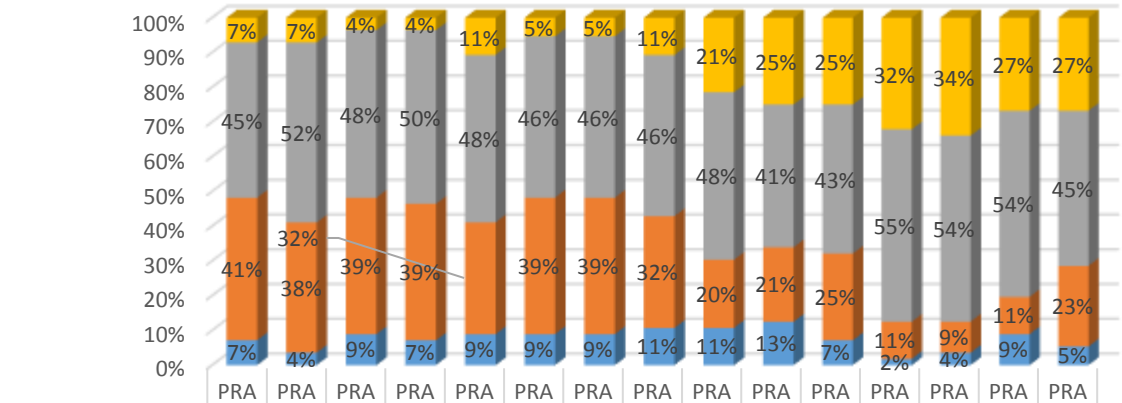
5.5.2 SGBs views on resources allocation

Table 5.5.2.1: Physical resource allocation

Item.no	Statement	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
PRA01	There are enough classrooms	7	41	45	7	100
PRA02	All classrooms have floors	4	38	52	7	100
PRA03	No broken windows	9	39	48	4	100
PRA04	All classrooms have unbroken doors	7	39	50	4	100
PRA05	Classroom ceilings are in a good condition	9	32	48	11	100
PRA06	There are classroom doors	9	39	46	5	100
PRA07	There is an administration block	9	39	46	5	100
PRA08	There is a school fence	11	32	46	11	100
PRA09	There are sufficient toilets for the learners	11	20	48	21	100
PRA10	There are sufficient toilets for the educators	13	21	41	25	100
PRA11	There is sufficient office equipment	7	25	43	25	100
PRA12	There is a laboratory	2	11	55	32	100
PRA13	There is a library	4	9	54	34	100
PRA14	There is a computer centre	9	11	54	27	100
PRA15	There are sports facilities	5	23	45	27	100

Table 5.5.2.1 presents the views of the SGB members on the allocation of physical resources in public schools. The table shows that 52% of the SGB respondents disagreed with the statement that their schools had sufficient classrooms which were

in good condition. Furthermore, the majority of the SGB members – approximately 59% – disagreed with the statement that their schools had sufficient water and sanitation facilities. This was confirmed through the litigation taken by NGO, Section 27, against the Department on behalf of Equal Education which has membership of public schools in rural areas where there was an incident of a learner's death caused by poor sanitation. The majority of the SGB respondents – 48% and 50% – disagreed with the statements that their schools had been allocated sufficient physical resources such as a science laboratory, library, office equipment and a computer centre. In addition, the many, of the SGB respondents either disagreed or strongly disagreed (45% and 27% respectively) with the statement that their schools had sports facilities. Overall, the responses of the majority of the SGB members revealed that the allocation of physical resources to the majority of rural, public schools that provide education for African learners, was either poor or insufficient. Furthermore, the research study revealed that the inadequate allocation of resources may have a direct, negative impact on the provision of quality education in public schools.

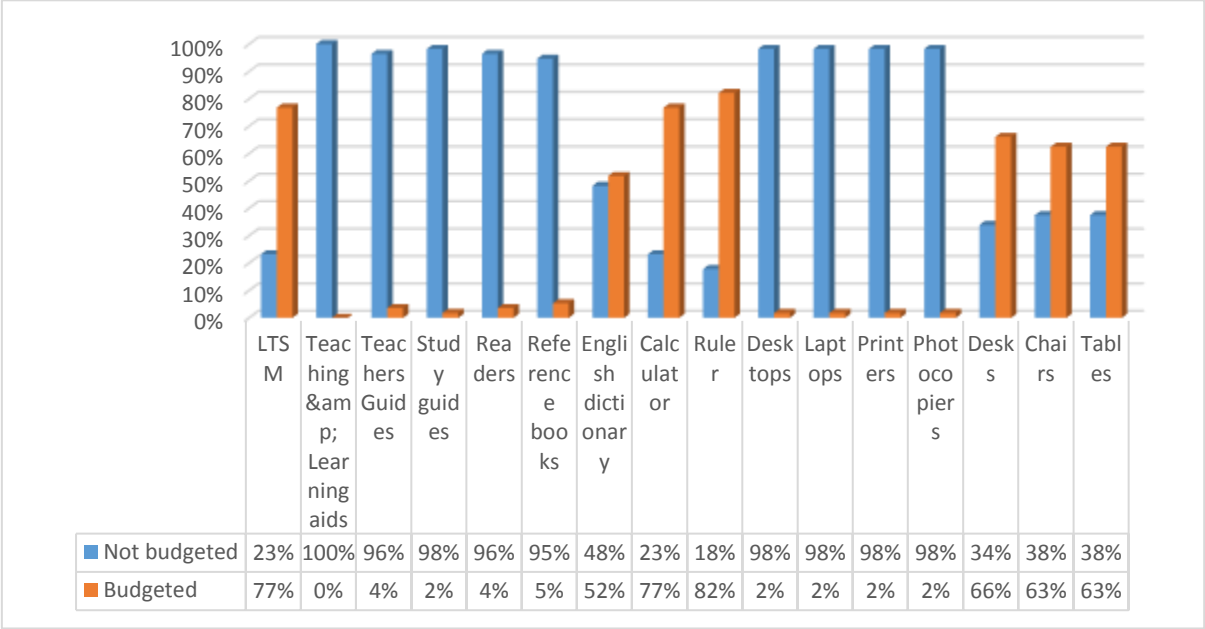


	PRA 01	PRA 02	PRA 03	PRA 04	PRA 05	PRA 06	PRA 07	PRA 08	PRA 09	PRA 10	PRA 11	PRA 12	PRA 13	PRA 14	PRA 15
Strongly disagree	7%	7%	4%	4%	11%	5%	5%	11%	21%	25%	25%	32%	34%	27%	27%
Disagree	45%	52%	48%	50%	48%	46%	46%	46%	48%	41%	43%	55%	54%	54%	45%
Agree	41%	38%	39%	39%	32%	39%	39%	32%	20%	21%	25%	11%	9%	11%	23%
Strongly agree	7%	4%	9%	7%	9%	9%	9%	11%	11%	13%	7%	2%	4%	9%	5%

Figure 5.5.2.2 Financial resource allocation

Figure 5.5.2.2 presents the SGB respondents' views about the allocation of financial resources in the sampled public schools. The first group, comprising the majority of SGB respondents (approximately 77%), indicated that their schools had budgeted for learner and teaching support materials (LTSM), as these were provided by the department through the delivery of textbooks and stationery. The second group, comprising all (100%) the SGB respondents, indicated that their schools had not budgeted for teaching and learning aids. They further indicated that their schools had also not budgeted for teaching resources such as teachers' guides and study guides and readers. However, the third two groups of the majority of SGB respondents, approximately 52% and 82% respectively, indicated that their schools had budgeted for the provision of English dictionaries, calculators and rulers which are delivered by the department as part of the LTSM and stationery packages. Finally, the last group of about 98% – the majority of the SGB respondents – also indicated that their schools had not budgeted for the provision of labour devising resources such as laptops**,** desktops, photocopiers and printers.

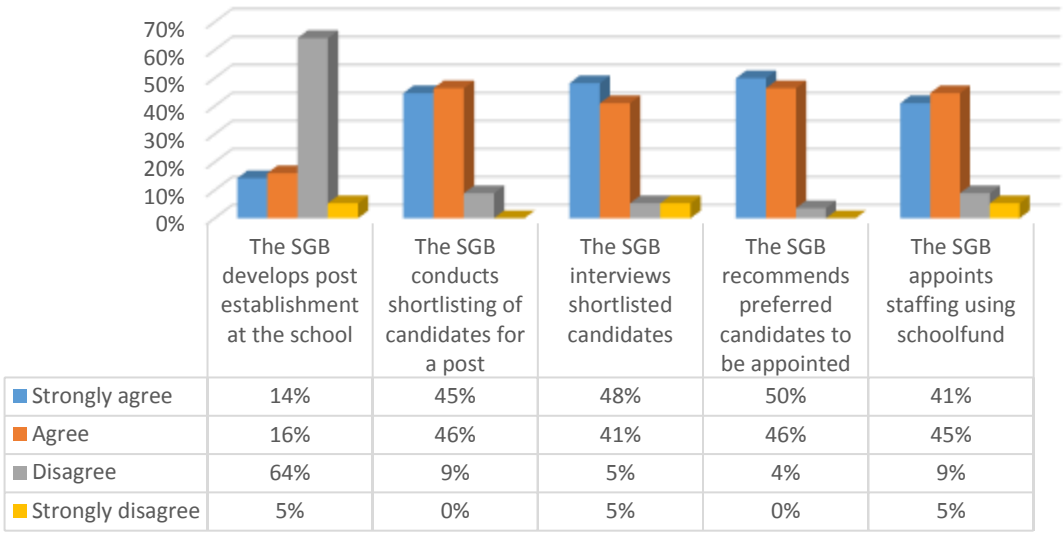
It was surprising that the majority of the SGB respondents had claimed that their schools had not budgeted for labour devising resources as these resources are known to play a critical role in supporting the provision of quality education. The minority of two groups of SGB respondents, of approximately 63% and 66%, indicated that their schools had budgeted for furniture such as desks, chairs and tables as they relied on these being delivered from the department. It is clear from Figure 6 below that the majority of the sampled public schools depended on the department for the provision of teaching and learning resources, including furniture.



5.5.2.3 Human resource allocation

Figure 5.5.2.3 presents the views of the SGB respondents on the allocation of human resources in the sampled public schools. The first group, the majority of the SGB respondents (approximately 64%) disagreed with the statement that their schools developed post establishment for both educator and non-educator provision. On the minority of the SGB respondents, approximately 14% and 16% respectively, either agreed or strongly agreed with the statement that their schools had developed and filled posts in the post establishment. In addition, the majority of the SGB respondents either agreed or strongly agreed – about 45% and 48% respectively – with the statements that their schools shortlisted and interviewed potential candidates for vacant posts and recommended the appointment of successful candidates. On the other hand, a minority of SGB respondents either disagreed or strongly disagreed – approximately 9% and 5% respectively – with the statements that their SGBs shortlisted and interviewed potential candidates for vacant posts. The study also found that the majority of SGB respondents either agreed or strongly agreed – 45% and 41% respectively – that their schools had appointed staff members whose salaries would be paid out of school funds. On the other hand, the minority SGB

respondents either disagreed or strongly disagreed (9% and 5% respectively) with the statement that their SGB members appointed staff members whose salaries would be paid out of school funds.



	The SGB develops post establishment at the school	The SGB conducts shortlisting of candidates for a post	The SGB interviews shortlisted candidates	The SGB recommends preferred candidates to be appointed	The SGB appoints staffing using schoolfund
Strongly agree	14%	45%	48%	50%	41%
Agree	16%	46%	41%	46%	45%
Disagree	64%	9%	5%	4%	9%
Strongly disagree	5%	0%	5%	0%	5%

Figure: 5.5.3 SGB views on resource distribution

5.5.3.1 Physical resource distribution

Figure 5.5.3.1 below presents the views of the SGB respondents on the distribution of physical resources in the sampled public schools. Firstly, the majority of SGB respondents either strongly agreed or agreed (approximately 38% and 27% respectively) with the statement that their classrooms were evenly distributed. However, a minority of SGB respondents either disagreed or strongly disagreed (approximately 21% and 14% respectively) with the statement that the classrooms at their school were evenly distributed. Secondly, the majority of two SGB respondents either agreed or strongly agreed (about 32% and 23% respectively) with the statement that the school toilets were evenly distributed between learners and educators, with the minority of two groups of SGB respondents either disagreeing or strongly

disagreeing (approximately 25% and 20% respectively) with the statement that the school toilets were evenly distributed between learners and educators.

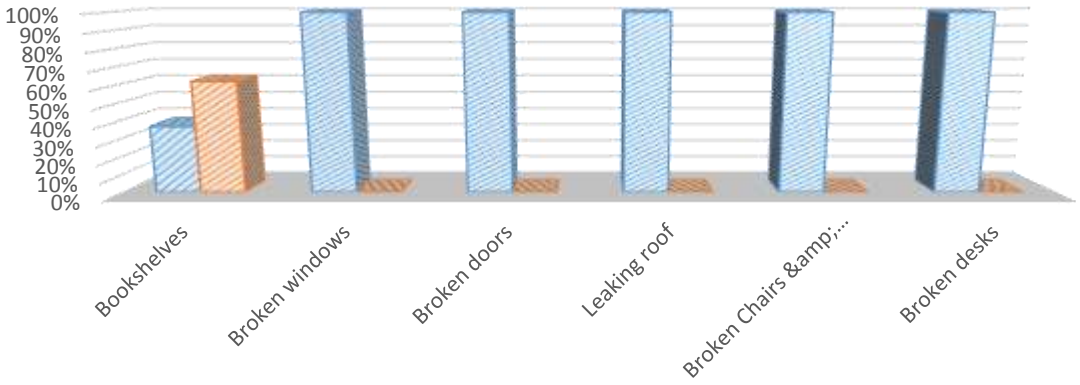
Thirdly, the majority of SGB respondents either strongly agreed or agreed (about 32% and 30% respectively) with the statement that the administrative offices were evenly distributed among staff, although a minority of these respondents either disagreed or strongly disagreed (approximately 21% and 16% respectively) with this statement. Fourthly, the majority of SGB respondents either agreed or disagreed (approximately 29% and 27% respectively) with the statement that the office equipment was fairly distributed among the educators, but the minority of SGBs respondents either strongly disagreed or strongly agreed – approximately 23% and 21% respectively – with the statement that the office equipment was fairly distributed. Lastly, the majority of SGB respondents either agreed or disagreed (about 34% and 27%) respectively, with the statement that the sports facilities at the schools were fairly distributed among the learners.

On the other hand, a minority group of SGB respondents either strongly agreed or strongly disagreed, approximately 23% and 16% respectively, with the statement that the sports facilities at the schools were fairly distributed among the learners. It is thus clear from Figure 4.5.3.2 below, which illustrates the SGBs' responses in relation to the distribution of physical resources, that the majority of the sampled public schools had the basic physical infrastructure and sports facilities which are supposed to contribute positively to learner performance, which is linked to both the research objectives and the research questions.

	The classrooms are eveny distributed	The school toilets are evenly distributed among learners and educators	The admin offices are evenly distributed among staff	The office equipments are fairly distributed among educators	The sports facilities are fairly distributed among learners
Strongly agree	38%	23%	32%	21%	23%
Agree	27%	32%	30%	29%	34%
Disagree	21%	25%	21%	27%	27%
Strongly disagree	14%	20%	16%	23%	16%

5.5.3.2 Financial resource distribution

Figure 5.5.3.2.1 presents the distribution of financial resources in the sampled public schools. The majority of the SGB respondents, approximately 63%, indicated that their schools had not budgeted for the purchase of bookshelves, while the minority of SGB respondents, about 38%, indicated that their schools had budgeted in this regard. It was interesting to note that all (100%) of the SGB respondents indicated that their schools had budgeted for the replacement of broken windows and doors, leaking roofs as well as broken chairs, tables and desks. In other words, none of the SGB respondents indicated that their schools had not budgeted for maintenance. The efficient distribution of financial resources may also be linked to the research questions and research objectives, as it may be said to have a positive impact on improved learner performance by creating a conducive learning environment. The creation of a conducive learning environment is one of the nine areas indicated in Whole School Evaluation Policy, which promotes self-evaluation by schools as well as external evaluation of school performance.



	Bookshelves	Broken windows	Broken doors	Leaking roof	Broken Chairs & Tables	Broken desks
Budgeted	38%	100%	100%	100%	100%	100%
Not budgeted	63%	0%	0%	0%	0%	0%

Table 5.5.3.2: Financial resources distribution in public schools

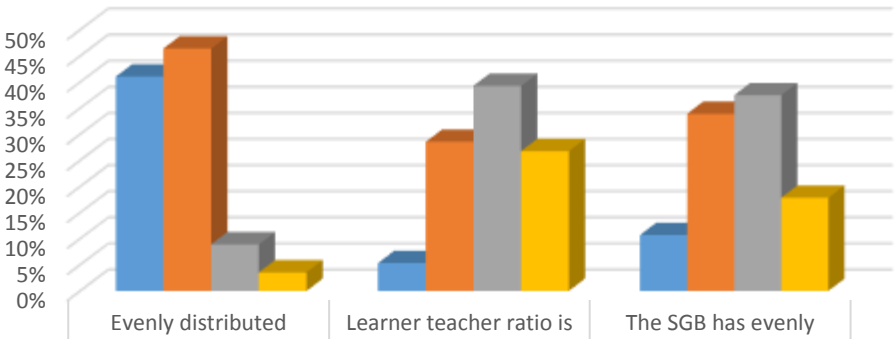
Item No	Years	R25 000– R100 000 %	R101 000 – R200 000 %	R201 000 – R300 000 %	R301 000 – R400 000 %	R401 000 – R500 000 %	R501 000 or more %	Total
FRD53	2014	4	18	13	16	32	18	100
FRD54	2015	4	7	23	18	25	23	100
FRD55	2016	4	7	18	20	25	27	100

Table 5.5.3.2 presents the responses of the SGBs on the distribution of financial resources in public schools for a period of three years (2014 to 2015). Firstly, the majority of the SGB respondents, approximately 32%, indicated that their school had received an allocated budget in 2014 of between R401 000 and R500 000, while in 2015 and 2016, 25% of the SGB respondents confirmed that their schools had received allocated budgets of between R401 000 and R500 000. In other words, the number of enrolled learners at some of the sampled schools dropped from 32% to 25% in 2015 and 2016, leading to a reduction in the subsidy received by the school. It must be noted that the distribution of the departmental Norms and Standards Funds depends on the number of learners enrolled.

Secondly, the second largest groups of SGB respondents, approximately 18% each, indicated that, in 2014, their schools had either received the distributed Norms and Standards Funds from the department of R501 000 and above and R101 000 to R200 000 respectively. The third largest groups of SGB respondents, about 16% and 13%, indicated that their schools had received Norms and Standards Funds of between R301 000 and R400 000 and R201 000 and R300 000 respectively. However, the second largest group of SGB respondents, approximately 23%, indicated that, in 2015, their schools had received the Norms and Standards Funds of R501 000 and above and between R201 000 and R300 000 respectively. The third largest group of SGB respondents, about 18%, indicated that, in 2015, their schools had received a distribution of Norms and Standards Funds of between R301 000 and R400 000.

The last two smallest groups of SGB respondents, approximately 4% and 7%, indicated that in the three-year period between 2014 and 2016, their schools had received Norms and Standards Funds of between R25 000 and R100 000 and from R101 000 to 200 000 respectively. The last two groups of SGB respondents, about 4% and 7% respectively, were interesting cases because they were from the small, non-viable schools with meagre/poor school resources which compromised their provision of quality education. These types of school are declared non-viable because of the low learner enrolment, which results in the allocation of a small number of educators to the school. In most cases, this category of schools underperforms because of the limited school resources caused by low learner enrolment, for example fewer than 100 learners in the primary school and fewer than 200 learners in the secondary school.

5.5.3.3 Human resource distribution



	Evenly distributed additional staff	Learner teacher ratio is 1:35	The SGB has evenly distributed educational resources
Strongly agree	41%	5%	11%
Agree	46%	29%	34%
Disagree	9%	39%	38%
Strongly disagree	4%	27%	18%

5.5.3.3 Human resource distribution

Figure 5.5.3.3 presents the distribution of human resources in the sampled public schools. Firstly, the majority of SGB respondents, approximately 46% and 41% respectively, either agreed or strongly agreed with the statement that there was an even distribution of additional staff at their schools. However, the minority of SGB respondents either disagreed or strongly disagreed, about 9% and 4% respectively, with the statement that there was an even distribution of additional staff at their schools.

Secondly, a majority of two SGB respondents either disagreed or strongly disagreed, approximately 39% and 27% respectively, with the statement that the learner–teacher ratio at their schools was 1:35. This means that the class sizes in their schools exceeded the normal class size as specified in the National Policy for Infrastructure Provisioning. In most cases learner enrolment has increased significantly to the extent that in public schools located in townships as well as in towns/cities, the learner–teacher ratio has increased to 1:50 and 1:45 respectively. The increase in learner enrolment in town/city schools is often the result of the parents' perception that the

well-resourced public schools in towns or cities are able to provide more of a quality education than poorly resourced public schools in either townships or rural areas.

5.5.4 SGBs' views of resources utilisation

Table 5.5.4.1: Physical resource utilisation

Item.no	Statements	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
PRU21	The classrooms are efficiently utilised	9	38	46	7	100
PRU22	The school fence is well maintained	9	30	50	11	100
PRU23	The school toilets for learners are functional	11	21	50	18	100
PRU24	The school toilets for educators are functional and well maintained	11	23	46	20	100
PRU25	The office equipment is functional	13	29	43	16	100
PRU26	The laboratories are effectively used by the learners	2	13	54	32	100
PRU27	The library is well stocked and efficiently used	5	7	50	38	100
PRU28	The computer centre is secured and functional	5	11	50	34	100
PRU29	The sports grounds and facilities are functional	5	23	43	29	100
PRU30	The school sports facilities are well maintained and safe to use	5	18	48	29	100

Table 5.5.4.1 depicts the utilisation of physical resources in the sampled public schools. Firstly, the majority of SGB respondents either disagreed or agreed, approximately 46% and 38% respectively, with the statement that the classrooms were efficiently utilised at their schools. On the other hand, two groups of SGB respondents either strongly agreed or strongly disagreed, 9% and 7% respectively, with the statement that their classrooms were efficiently utilised at their schools. Secondly, the majority of SGB respondents either disagreed or agreed, approximately

50% and 30% respectively, with the statement that the school fence around their schools was well maintained. On the other hand, a minority of SGB respondents either strongly disagreed or strongly agreed, about 11% and 9% respectively, with the statement that the school fence was well maintained.

Thirdly, the majority of SGB respondents either disagreed or agreed, approximately 50% and 21% respectively, with the statement that the school toilets for both learners and educators were functional and well maintained, although a minority of SGB respondents, about 18% and 11% respectively, either strongly disagreed or strongly agreed with this statement.

Fourthly, the majority of SGB respondents either disagreed or strongly disagreed – approximately 54% and 32% respectively – with the statement that the laboratories were effectively used by the learners, although a minority of SGB respondents either agreed or strongly agreed in this regard – about 13% and 2% respectively.

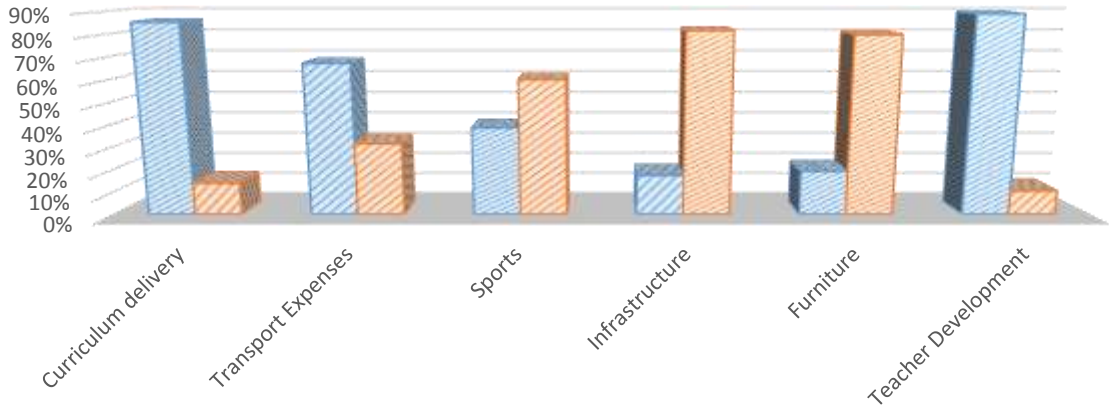
Fifthly, the majority of SGB respondents, either disagreed or strongly disagreed – approximately 50% and 38% respectively – with the statement that their school libraries were well stocked and efficiently used by learners, while the minority of SGB respondents either agreed or strongly agreed with this statement – approximately 7% and 5% respectively.

5.5.4.2 Financial resource utilisation

Figure 5.5.4.2.1 depicts the utilisation of financial resources in public schools. Firstly, the majority of SGB respondents indicated that their schools were compliant in the utilisation of financial resources in relation to both curriculum delivery and teacher development – approximately 86% and 89% respectively, although the remaining minority of SGB respondents, about 14% and 11%, indicated that their schools did not comply with the utilisation of financial resources in this regard.

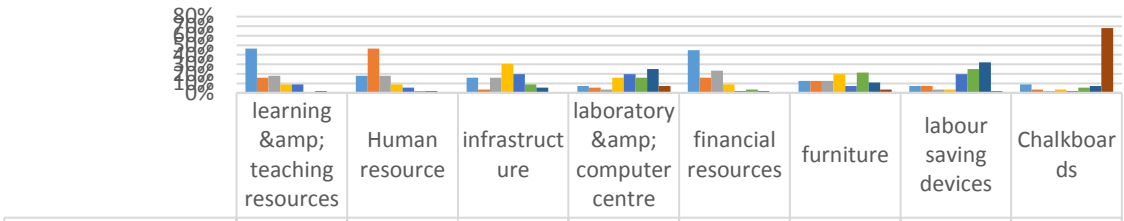
Secondly**,** the majority of SGB respondents, approximately 68%, indicated that their schools did comply with the department's policy on the utilisation of financial resources in respect of transport expenses. The minority of SGB respondents on the other hand, about 32%, indicated that their schools did not comply with the stipulated utilisation of financial resources for the payment of transport expenses.

Thirdly, the majority of SGB respondents indicated that their schools were not compliant in respect of the utilisation of financial resources for the provision of sports, infrastructure and furniture – approximately 61%, 82% and 80% respectively – while the minority of SGB respondents indicated that their schools were compliant in respect of the utilisation of financial resources for the provision of sports, infrastructure and furniture – approximately 39%, 18% and 20% respectively. It is thus apparent from the figure above that the majority of schools valued the provision of quality teaching and learning as they were shown to be prioritising the utilisation of financial resources for both curriculum delivery and teacher development.



	Curriculum delivery	Transport Expenses	Sports	Infrastructure	Furniture	Teacher Development
Compliant	86%	68%	39%	18%	20%	89%
Not Compliant	14%	32%	61%	82%	80%	11%

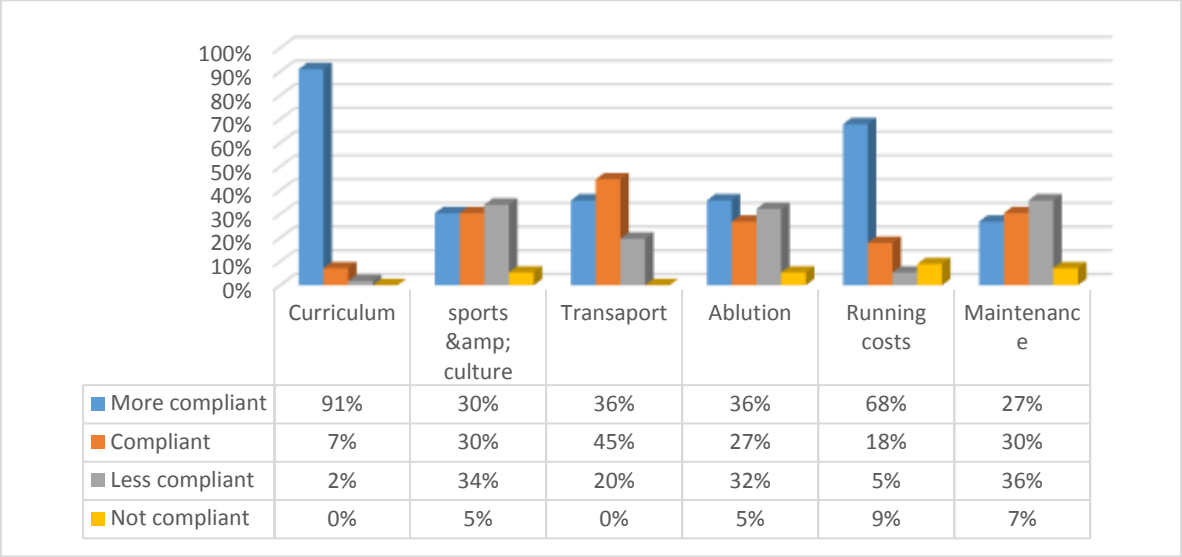
Figure 5.5.4.2.1 (a). Utilisation of financial resources by SGBs



	learning & teaching resources	Human resource	infrastructure	laboratory & computer centre	financial resources	furniture	labour saving devices	Chalkboards
1st Most Important	46%	18%	16%	7%	45%	13%	7%	9%
2nd Most Important	16%	46%	4%	5%	16%	13%	7%	4%
3rd Most Important	18%	18%	16%	4%	23%	13%	4%	2%
4th Most Important	9%	9%	30%	16%	9%	20%	4%	4%
5th Most Important	9%	5%	20%	20%	2%	7%	20%	2%
6th Most Important	0%	2%	9%	16%	4%	21%	25%	5%
7th Most Important	2%	2%	5%	25%	2%	11%	32%	7%
8th Most Important	0%	0%	0%	7%	0%	4%	2%	68%

Figure 5.5.4.2.1 (b): Utilisation of fianacial resources

Figure 5.5.3.4.2.1 depicts the utilisation of financial resources. The figure shows that the majority of SGB respondents ranked both learning and teaching resources and financial resources – approximately 46% and 45% respectively – as the most important school resources. In addition, the majority of SGB respondents, about 46%, ranked human resources as the second most important school resource, financial resources as the third most important school resource by percentage of respondents, and infrastructure as the fourth most important school resource. In addition, the majority of SGB respondents, approximately 20%, ranked a laboratory and computer centre as the fifth most important school resource, about 25% ranked labour saving devices as the fifth most important school resource, 21% ranked furniture as both the fifth and the sixth most important school resource, while approximately 32% ranked labour saving devices as the seventh most important school resource. Lastly, the majority of the SGB respondents, about 68%, ranked the chalkboard as the eighth most important school resources.



	Curriculum	sports & culture	Transaport	Ablution	Running costs	Maintenance
More compliant	91%	30%	36%	36%	68%	27%
Compliant	7%	30%	45%	27%	18%	30%
Less compliant	2%	34%	20%	32%	5%	36%
Not compliant	0%	5%	0%	5%	9%	7%

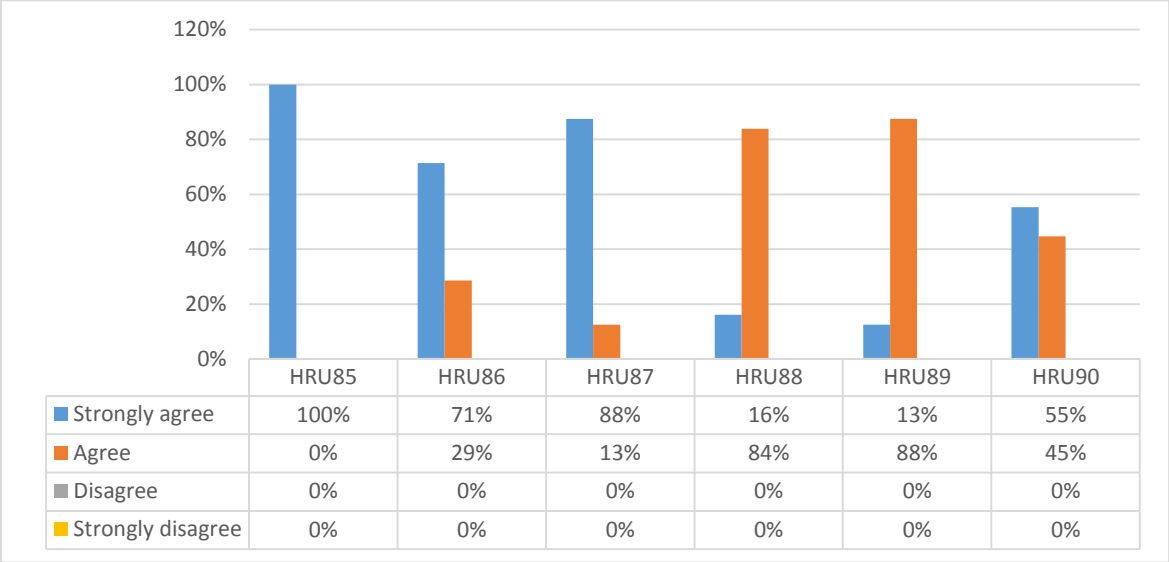
Figure 5.5.4.2.2: SGBs responses on the utilisation of financial resources

Figure 5.5.4.2.2 presents the SGBs' responses on the utilisation of financial resources in the sampled public schools. The majority of SGB respondents, approximately 91%, indicated that their schools were compliant in terms of the utilisation of financial resources for the provision of the curriculum. The majority of SGB respondents, about 60%, indicated that their schools were either compliant or more compliant in respect of the provision of sports and culture, while the minority of SGB respondents, approximately 39%, indicated that their schools were either less or not compliant at all in respect of the provision of sports and culture. The majority of SGB respondents, about 81%, indicated that their schools were either compliant or more compliant in terms of the utilisation of financial resources for the provision of transport while the minority of respondents, approximately 20%, confirmed that their schools were less compliant in this regard. The majority of SGB respondents, about 63%, indicated that their schools were compliant with the utilisation of financial resources for the maintenance of the ablutions, although a small group of SGB respondents, approximately 37%, confirmed that their schools were less compliant in this matter. Finally, the majority of SGB respondents, about 68%, indicated that their schools were

compliant with the policy on the utilisation of financial resources for the running costs of the schools.

5.5.4.3 Human resource utilisation

Figure 5.5.4.3 presents the SGBs' responses on the utilisation of human resources in the sampled public schools. All the SGB respondents (100%) strongly agreed with the statement that the school has post establishment. In addition, all the respondents 100% either agreed or strongly agreed with the statement that all the critical posts at their schools were filled, all (100%) either agreed or strongly agreed with the statement that the subject allocations at their schools took into account the qualifications and experience of the educators and all the SGB respondents (100%) either agreed or strongly agreed with the statement that their schools had appointed unqualified educators to offer subjects in the FET phase. Finally, all the SGB respondents (100%) either agreed or strongly agreed with the statement that their schools had appointed underqualified educator(s) to teach subjects in Grade 12. This statement contradicts the findings indicated in the third statement, where it was claimed that schools took into account qualifications and experience when allocating subjects to educators. This should have addressed the issue of either unqualified or under-qualified educators reaching subjects in the FET phase.



	HRU85	HRU86	HRU87	HRU88	HRU89	HRU90
Strongly agree	100%	71%	88%	16%	13%	55%
Agree	0%	29%	13%	84%	88%	45%
Disagree	0%	0%	0%	0%	0%	0%
Strongly disagree	0%	0%	0%	0%	0%	0%

Figure 5.5.4.3: Human resources utilisation

5.6. RESPONSES OF PRINCIPALS, HEADS OF DEARTMENT AND EDUCATORS

5.6.1 Demographic information on principals, HODs and educators

The respondents were asked to indicate their age group. Table 5.6.1. presents the responses in relation to the age categories of the 56 principals, 56 heads of department and 56 educators.

Table 5.6.1 Demographic information of principals, HoDs and educators

Variables	Respondents' Position			Total
	Principal	HODs	Educators	
Age (years)				
20–30 years	1 (1.9%)	1 (1.8%)	1 (1.8%)	3 (1.8%)
31–40 years	14 (25.9%)	10 (17.9%)	10 (17.9%)	34 (20.5%)
41–50 years	19 (35.2%)	22 (39.3%)	22 (39.3%)	63 (38%)
51–60 years	18 (33.3%)	18 (32.1%)	18 (32.1%)	54 (32.5%)
61 years or more	2 (3.7%)	5 (8.9%)	5 (8.9%)	12 (17.2%)
Gender				
Male	28 (51.9%)	27 (48.2%)	27 (48.2%)	82 (49.4%)
Female	26 (48.1%)	29 (51.8%)	29 (51.8%)	84 (50.5%)

Race				
African	45 (83.3%)	49 (87.5%)	49 (87.5%)	143 (86.1%)
Coloured	7 (13%)	3 (5.4%)	3 (5.4%)	13 (7.8%)
Indian	1 (1.8%)	1 (1.8%)	1 (1.8%)	3 (1.8%)
White	1 (1.9%)	3 (5.4%)	3 (5.4%)	7 (4.2%)
Academic qualification				
Certificate	1 (1.9%)	1 (1.8%)	1 (1.8%)	3 (1.8%)
Diploma	11 (19.9%)	11 (19.9%)	11 (19.9%)	33 (19.9%)
Junior degree	24 (44.4%)	15 (26.8%)	15 (26.8%)	54 (32.5%)
Honours degree	15 (27.8%)	20 (35.7%)	20 (35.7%)	55 (33.1%)
Master's degree	3 (5.6%)	8 (14.3%)	8 (14.3%)	19 (11.4%)
Doctoral or Postdoctoral	0 (0.0%)	1 (1.8%)	1 (1.8%)	2 (1.2%)

Table 5.6.1. presents the demographic information pertaining to the principals, HoDs and educators. The age categories of the respondents ranged between 20 and 60 years. The majority of the school principal respondents (35.2%) were aged between 41 and 50 years old. Similarly, the majority of the HoD and educator respondents (39.3%) were aged between 41 and 50 years. 33.3% of the school principal respondents were in the age bracket of 51 to 60 years, while 32.1% of both the HoDs and educators were in the age bracket of 51 to 60 years. In addition, 25.9% of the school principal respondents fell into the age bracket of 31 and 40 years, while 17.9% of both the HoD and educator respondents were in the age bracket 31 to 40 years. Of the school principal respondents, 3.7% were in the age bracket of 61 years and above while, of the HoDs and educators, 8.9% fell into the same age bracket of 61 years and above. Finally, 1.9% of the school principals and 1.8% of both the HODs heads and educators were between 20 and 30 years. These findings indicate that the

sampled public schools had an aging cohort in the school management teams and among educators which means that the schools would face a crisis if no succession planning were put in place. It must, however, also be noted that, compared to their younger counterparts, the aging cohorts possess more skills and experience in school management and curriculum delivery which contributes to the provision of effective teaching and learning, with such effective teaching and learning resulting in improved school and learner performance.

In respect of the two gender categories the following findings emerged. Firstly, the majority of the school principals, approximately 51%, were male, while 48% were female. Secondly, the majority of the HoD respondents (51.8%) were female while the remaining minority of the HoD respondents (48.2%) were male. The majority of the educators (51.8%) were female while the remaining minority of 48.2% were male.

Table 5.6.1. Also shows the four categories of race. The majority of the principals, approximately 83% were African, about 13% were coloured, 1.8% were Indian and, lastly, 1.9% were white. The majority of both the HoDs and educators, 87.5% each, were African, 5.4% of both HoDs and educators were coloured, while approximately 1.8%e each of the HoDs and educators were Indian. Finally, 5.4% of HoDs and educators were shite**.** The general perception of most of the parents who prefer to enrol their children in town/city public schools is that these schools are superior to township and rural public schools. This perception is influence by the preference in respect of the race of the educators at the town/city public schools. In reality, parents' perceptions are changing as the majority of the rural and township schools with basic school resources have become best performing schools, while the small non-viable and poorly resourced public schools are regular underperformers.

Table 5.6.1 also shows the academic qualification of the principals, HoDs and educators. The majority of the school principals (44.4%) indicated that their highest academic qualification was an honours degree, 27.8% indicated a master's degree, 19.9% an undergraduate degree, 5.6% a doctoral degree and, finally, 1.9% a diploma.

In relation to the HoDs and educators, 35.7% each indicated that their highest academic qualification was a master's degree, 26.8% each indicated an honours degree, 19.9% each an undergraduate degree, 14.3% a doctoral degree, 1.8% a post-doctoral qualification and, finally, 1.9% indicated that their highest academic qualification was a diploma.

5.6.2. Views of principals, HODs and educators on resource allocation items

Table 5.6.2.1: Physical resource allocation

Item No	Statements	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
PRA01	The school has enough classrooms	15	39	39	7	100
PRA02	The school has enough toilets	16	29	49	7	100
PRA03	There is an administrative block	10	31	43	16	100
PRA04	There is a strong fence	11	30	52	8	100
PRA05	There is a resource maintenance plan	9	31	58	2	100
PRA06	There is sufficient office equipment	11	37	49	4	100
PRA07	There is a laboratory and a computer centre	5	20	57	19	100
PRA08	There are school sports facilities	7	19	63	11	100

Table 5.6.2.1 presents the responses of the principals, HoDs and educators on the allocation of physical resources. The majority of these respondents, about 39% each, either disagreed or agreed with the statement that "the school has enough classrooms", approximately 15% each strongly agreed with this statement, while about 7% strongly disagreed with the statement. At the time of the study Limpopo province was still experiencing backlogs in terms of the provision of classrooms and,

as a result, some of the learners in poor rural public schools were still being housed in either dilapidated structures or under trees. Such learning environments impact negatively on teaching and learning and lead to underperformance in the majority of the poorly resourced public schools.

The majority of the principals, HoDs and educators, about 49%, disagreed with the statement that “the school has enough toilets”, approximately 29% agreed with the statement, about 16% strongly agreed and, finally, approximately 7% strongly disagreed. The lack of water and sanitation has been identified as a serious challenge in schools in Limpopo province. This was confirmed by the litigation taken by Section 27 (an NGO) on behalf of Equal Education and two affected families against the Department of Basic Education because of the serious risk learners face with regard to unsafe toilets in public schools. A lack of adequate sanitation affects learner performance as such learning conditions are not conducive to effective teaching and learning.

The majority of the principals, HoDs and educators, about 52% and 43%, disagreed with the statements that their schools had both administrative blocks and strong fences, approximately 31% and 30% agreed with these statements, while about 16% and 8% strongly disagreed with the statement that their schools had administrative blocks and strong fences.

The majority of the principals, HoDs and educators, about 60%, either disagreed or strongly disagreed with the statement that their schools had resource maintenance plans in place. By contrast, a minority, approximately 40%, either agreed or strongly agreed with the statement that their schools had such plans in place. The majority of the principals, HoDs and educators, about 57%, disagreed with the statement that

their schools had laboratories and computer centres while approximately 20% agreed with this statement.

5.6.2.2. Views of Educators, principals and HoDs on Financial resource Allocation in public schools

5.6.2.2.1 Educators' views on financial resource allocation

Table 5.6.2.2.1: School budget allocation in percentages

School budget	Frequency	Percent
40%	6	10.7
50%	1	1.8
60%	19	33.9
70%	10	17.9
80%	9	16.1
90%	4	7.1
100%	7	12.5
Total	**56**	**100**

Table 5.6.2.2.1 shows the views of educators on the allocation of the school budget in percentages (financial resources). The majority of the educators (33.9%) indicated that their schools had received their allocated budgets of 60% from the National Norms and Standards for School Funding (NNSSF), 17.9% confirmed that their schools had received allocated school budgets of 70% from the NNSSF, 16.1% indicated having received budgets of 80% from the NSSFF, 12.5% confirmed that their schools had received 100% from the NNSSF, 10.7% had received 40% and, finally, 7.1% and 1.8% indicated that their schools' allocated budgets from the NNSSF had been 90% and 50% respectively.

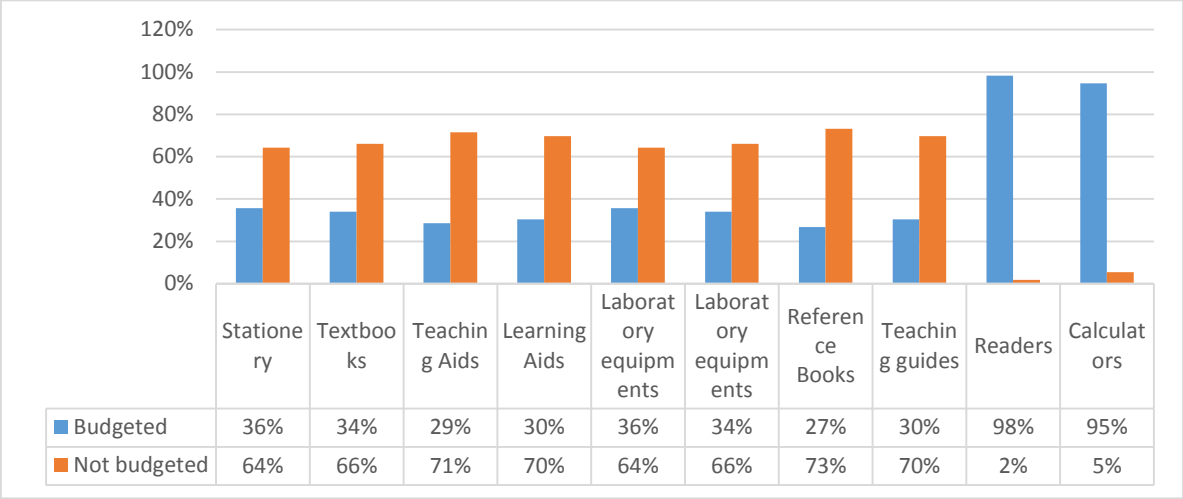


Figure 5.6.2.2.1: Views of the educators on the provision of teaching and learning resources

Figure 5.6.2.2.1 presents the views of the educators on the provision of teaching and learning resources. The majority of the educators indicated that their schools had not budgeted for the provision of stationery and textbooks – approximately 64% and 66% respectively – while about 36% and 34% had indicated that their schools had budgeted for stationery and textbooks respectively. In addition, approximately 71%, 73% and 70% respectively indicated that their schools had not budgeted for the provision of laboratory equipment and laboratory chemicals, although about 29% and 30% respectively indicated that their schools had budgeted for the provision of both laboratory equipment and laboratory chemicals. Of the HoDs and educators, approximately 98% indicated that their schools had budgeted for the provision of reference books. Finally, these two groups of educators indicated that their schools had not budgeted for the provision of LTSM. This was understandable as the schools had expected the Department of Basic Education to deliver LTSM in line with the Gauteng High Court ruling (see Section 27 & Equal Education vs Department of Basic Education). However, the findings on a lack of budgeting for laboratory equipment and laboratory chemicals are problematic as these are important tools for conducting experiments to assist the learners to understand their subjects better. This part is

linked to both the research objectives and research question, which linked the provision of school resources to learner performance.

5.6.2.2.2 Principals' views on financial resource allocation

Table 5.6.2.2.2: Teaching and instructional resources

Item. No	Resources	Budgeted %	Not budgeted %	Total %
FRA23	Stationery	56	44	100
FRA24	Textbooks	52	48	100
FRA25	Teaching Aids	98	2	100
FRA26	Learning Aids	98	2	100
FRA27	Laboratory Equipment	22	78	100
FRA28	Laboratory Chemicals	24	76	100
FRA29	Reference Books	100	0	100
FRA30	Teaching Guides	94	6	100
FRA31	Study Guides	96	4	100
FRA32	Readers	94	6	100
FRA33	Calculators	87	13	100
FRA34	Laptops	100	0	100
FRA35	Desktops	100	0	100
FRA36	Printers	100	0	100
FRA37	Photocopiers	100	0	100
FRA38	Scanners	100	0	100
FRA39	E-education	17	83	100
FRA40	Desks	57	43	100
FRA41	Chairs	59	41	100
FRA42	Tables	57	43	100

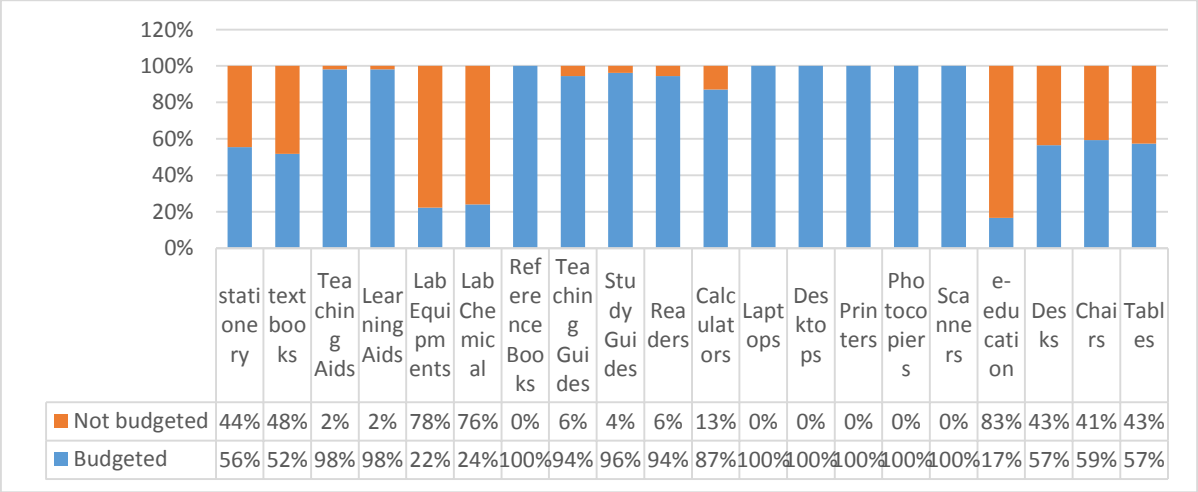


Figure 5.6.2.2.2: Views of the principlas on the provision of teaching and instructional resources

Figure 5.6.2.2.2 presents the views of the principals on the provision of teaching and instructional resources. The majority of the principals indicated that their schools had not budgeted for the provision of e-education, laboratory equipment and laboratory chemicals – approximately 83%, 78% and 76% respectively – while about 17%, 22% and 24% indicated that their schools had budgeted for the provision of e-education, laboratory equipment and laboratory chemicals respectively. All the principals (100%) indicated that their schools had budgeted for the provision of reference books, laptops, desktops, printer, photocopiers and scanners, while approximately 98% indicated that their schools had budgeted for the provision of teaching aids and learning aids. Approximately 96% confirmed that their schools had budgeted for the provision of study guides, about 94% indicated that their schools had budgeted for the provision of teaching guides and readers, approximately 87% confirmed that their schools had budgeted for calculators, about 59% and 57% confirmed that their schools had budgeted for the provision of furniture (chairs, desks and tables), although approximately 43% and 41% indicated that their schools had not budgeted for the provision of furniture (chairs, desks and tables). It may be concluded from the figure above depicting the responses of the SGBs that some public schools have continued to budget for the provision of stationery and textbooks despite the fact that the department delivers both stationery and textbooks every year. On the other hand, it is understandable if schools budget for labour-saving devices such as laptops, desktops, photocopiers and scanners as they are not provided by the provincial education department.

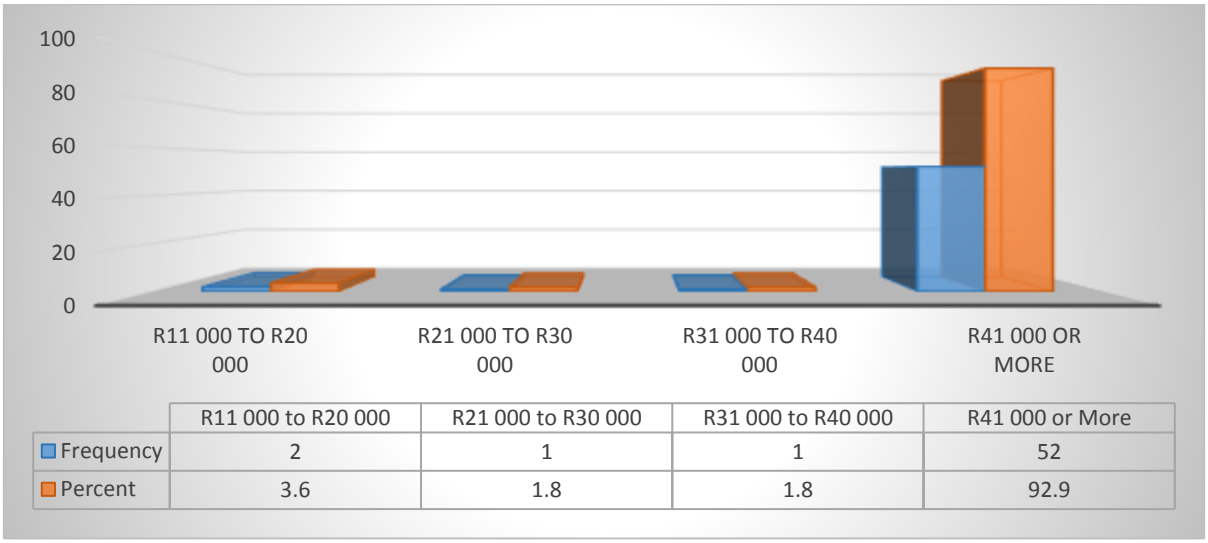
5.6.2.2.3 HODs' views on financial resource allocation

Table 5.6.2.2.3: Percentage (%) of the school budget allocated for the department's resources

School budget	Frequency	Percentage
40%	6	10.7
50%	1	1.8
60%	19	33.9
70%	10	17.9
80%	9	16.1
90%	4	7.1
100%	**7**	**12.5**
Total	56	100

Total school department allocation (norms and standards)

Table 5.6.2.2.3. presents the views of the HoDs on the allocation of school budgets in percentages (financial resources). The majority of the HoDs (33.9%) indicated that their schools had received allocated budgets of 60% from the National Norms and Standards for School Funding (NNSSF), 17.9% confirmed that their schools had received allocated budgets of 70%, 16.1% indicated that their schools had received allocated budgets of 80%, 12.5% confirmed receiving allocated budgets of 100%, 10.7% indicated that their schools had received 40% and, finally, 7.1% and 1.8% indicated that their schools had received allocated budgets of 90% and 50% respectively from the NNSSF.

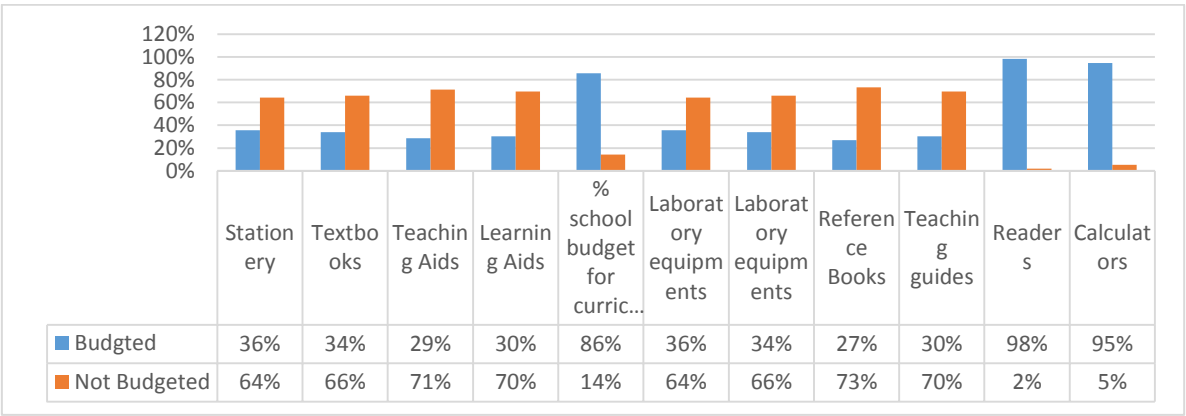


	R11 000 to R20 000	R21 000 to R30 000	R31 000 to R40 000	R41 000 or More
Frequency	2	1	1	52
Percent	3.6	1.8	1.8	92.9

Figure 5.6.2.2.3 (a): Frequency and percentages of the HODs responses in respect of the school budget allocations

Figure 5.6.2.2.3 shows about the frequency and percentages of the HoDs' responses in respect of the school budget allocations. Firstly, the majority of the HoDs, about 92%, indicated that their school budget allocations were R41 000 or more, while 1.8% indicated that their school budgets were between R21 000 and R30 000.

Teaching and instructional resources



	Stationery	Textbooks	Teaching Aids	Learning Aids	% school budget for curric...	Laboratory equipments	Laboratory equipments	Reference Books	Teaching guides	Readers	Calculators
Budgted	36%	34%	29%	30%	86%	36%	34%	27%	30%	98%	95%
Not Budgeted	64%	66%	71%	70%	14%	64%	66%	73%	70%	2%	5%

Figure 5.6.2.2.3 (b): The responses of the HODs on the provision of teaching and instructional resources

Figure 5.6.2.2.3 (b) presents the responses of the HoDs on the provision of teaching and instructional resources. The majority of the HoDs, indicated that their schools had

budgeted for the provision of stationery and textbooks – about 64% and 66% respectively – while approximately 36% and 34% of the HoDs indicated that their schools had budgeted for stationery and textbooks respectively. The majority of HoDs indicated that their schools had not budgeted for the provision of teaching aids, reference books, learning aids and teaching guides – about 71%, 73%, 70% and 70% respectively – while of the HoDs respondents indicated that their schools had budgeted for the provision of teaching aids, learning aids, reference books and readers – about 29%, 30%, 27% and 30% respectively. In addition, approximately 64% and 66% indicated that their schools had not budgeted for the provision of laboratory equipment and chemicals respectively, although about 36% and 34% respectively indicated that their schools had budgeted for the provision of laboratory equipment and chemicals.

Finally, approximately 98% and 95% indicated that their schools had budgeted for the provision of readers and calculators respectively. The finding that some of the HoDs had indicated that their schools had not budgeted for the provision of textbooks and stationery is understandable as they would have been expecting the Department of Basic Education to deliver both textbooks and stationery to their schools as per the Gauteng High Court ruling (see Section 27 & Equal Education vs Department of Basic Education). However, their responses indicating that their schools had not budgeted for teaching and learning aids were not educationally rational, as these are important tools for conducting experiments to enhance the learners' understanding of the subject matter. Thus, this discussion is directly linked to both the research objectives and research questions, which focus on the provision of school resources as a predictor of learner performance.

5.6.2.3. Views of Educators, principals and HoD on HR Allocation

5.6.2.3.1. Educators' views on human resource allocation

Table 5.6.2.3.1: Educators' views on human resource allocation

Item no	Statements	Strongly agree	Agree	Disagree	Strongly agree	Total
HRA47	The school has post establishment	100%	0%	0%	0%	100%
HRA48	The HoDs posts are allocated based on teacher–learner ratio	45%	29%	18%	9%	100%
HRA49	Allocation of HoDs in secondary schools depends on the number of streams	27%	54%	11%	9%	100%
HRA50	SGBs may appoint additional HoDs using school funds	100%	0%	0%	0%	100%
HRA51	Support staff are allocated to various departments	30%	36%	16%	18%	100%
HRA52	HoD should be appointed on a permanent basis	71%	25%	4%	0%	100%

Table 5.6.2.3.1 presents the views of the educators on the allocation of human resources. All the educators (100%) strongly agreed with the statement that their schools had posts establishments as provided by the provincial Department of Basic Education after the approval of the MEC. Of the educators either strongly agreed or agreed – approximately 45% and 29% respectively – with the statement that the HoD posts in their schools were allocated based on the teacher–learner ratio although 18% and 9% either disagreed or strongly disagreed respectively with the statement that the HoD posts were based on the teacher–learner ratio.

Approximately 54% and 27% of the educators respectively either agreed or strongly agreed with the statement that the allocation of HoDs posts in secondary schools depended on the number of streams in the school, while approximately 11% and 9% respectively either disagreed or strongly disagreed with the statement that the allocation of HoDs in secondary schools depended on the number of streams in the schools. All of the educators (100%) strongly agreed with the statement that SGBs may appoint additional HoDs using school funds. Approximately 36% and 30% of the

educators respectively either agreed or strongly agreed with the statement that support staff are allocated to various departments, while approximately 18% and 16% either strongly disagreed or disagreed with the above statement. Finally, about 71% and 25% of the educators either strongly agreed or agreed respectively with the statement that HoDs should be appointed on a permanent basis, while a minority of the educators, approximately 4%, disagreed with the above statement.

5.6.3. Views of principals, HODs and educators on resources distribution items

Table 5.6.3.1: Physical resource distribution

Item No	Statements	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
PRD09	The classrooms are evenly distributed	27	39	28	7	100
PRD10	The toilets are fairly spread	23	32	37	8	100
PRD11	The office equipment is evenly distributed	19	33	32	16	100
PRD12	The access to a laboratory is fairly distributed	17	40	35	8	100
PRD13	The sports facilities are easily accessed by all the learners	14	25	42	19	100

Table 5.6.3.1 displays the views of principals, HoDs and educators on physical resource distribution. The majority of the principals, HoDs, and educators, indicated that they either agreed or strongly agreed – approximately 39% and 27% respectively – with the statement that their “school classrooms are evenly distributed”, while about 28% and 7% respectively indicated that they either disagreed or strongly disagreed with this statement. Of the principals, HoDs and educators, about 37% and 32% either disagreed or agreed respectively with the statement that their “school toilets were fairly spread”, while approximately 23% and 8% respectively indicated that they either strongly agreed or strongly disagreed with the statement. Approximately 33% and 32% of the principals, HoDs and educators indicated that they either agreed or disagreed respectively with the statement that the office equipment in their schools

was evenly distributed, but about 19% and 16% indicated that they either strongly agreed or strongly disagreed respectively with the statement pertaining to the distribution of office equipment.

Of the principals, HoDs and educators, approximately 40% and 35% either agreed or disagreed respectively with the statement that the access to a laboratory is fairly distributed, although about 17% and 8% either strongly agreed or strongly disagreed respectively with this statement. Finally, of the principals, HoDs and educators about 42% and 25% either disagreed or agreed respectively with the statement that “the sports facilities are easily accessed by all learners”.

5.6.3.2 Views of principals, HODs and educators on financial resources distribution items

5.6.3.2.1 Educators’ views on financial resources distribution items

Figure 5.6.3.2.1 presents the views of educators on the distribution of financial resources. The majority of the educators indicated that their schools had budgeted for laptops, desktops and printers – about 95% and 100% respectively – although about 5% indicated that their schools had not budgeted in this regard. Of the educators, approximately 96% respectively indicated that their schools had either budgeted or not budgeted for the provision of photocopiers, scanners and e-education while about 4% and 34% indicated that their schools had either budgeted or not budgeted respectively for the provision of photocopiers, scanners and e-education.

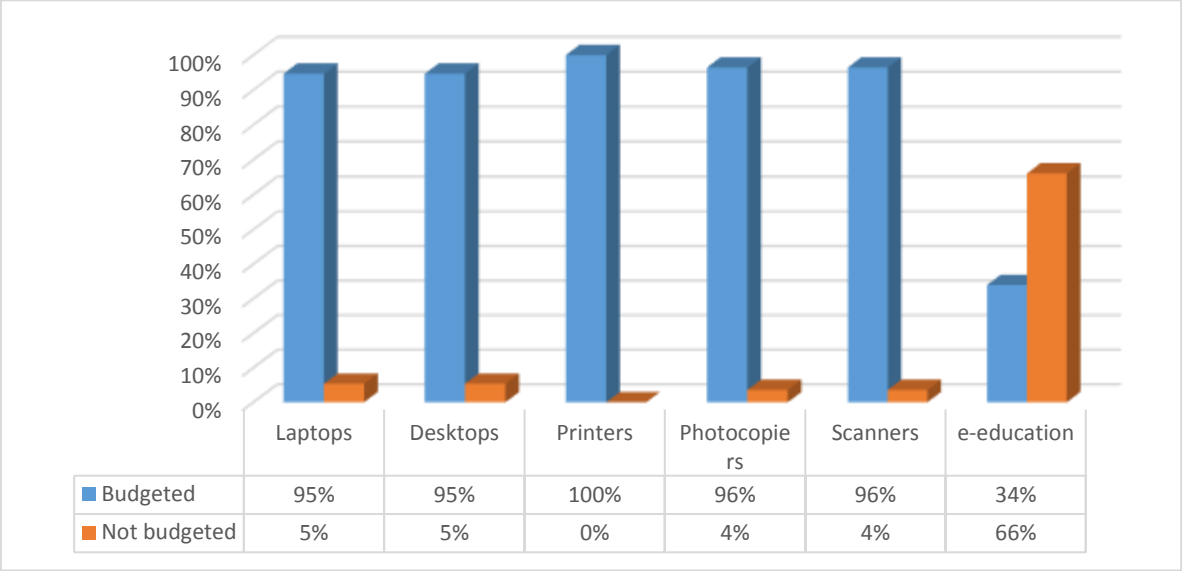


Figure 5.6.3.2.1: Educators' views on financial resource distribution

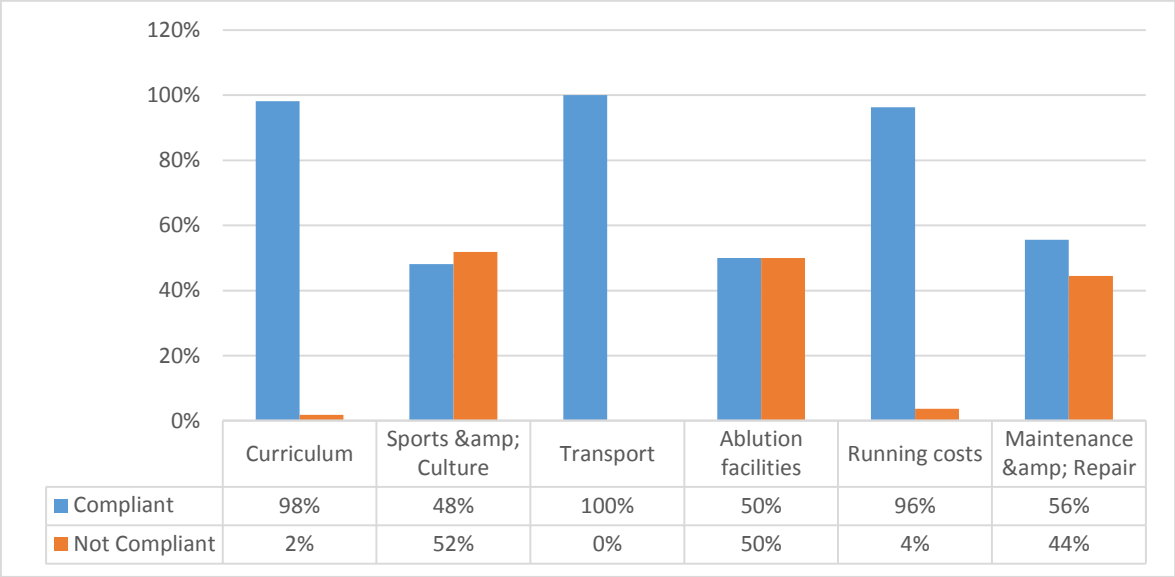


Figure 5.6.3.2.2 presents the principals' views on the distribution of financial resources. Of the principals, about 98%, 100% and 96% indicated that their schools were compliant in respect of the distribution of financial resources relating to the provision of curriculum, transport and running costs respectively, although 2%, 0% and 4% respectively indicated that their schools were not compliant in this regard. Of the principals, about 48%, 50% and 56% indicated that their schools were compliant in respect of the distribution of financial resources for the provision of sports and culture, ablution facilities, maintenance and repairs respectively, while approximately

52%, 50% and 44% respectively indicated that their schools were not compliant in this respect.

5.6.3.2.3 HoDs' views on financial resource distribution

Table 5.6.3.2.3: HODs' views on financial resource distribution

Item. No	items	Compliant %	Not compliant %	Total %
FRU37	Desktops	95	5	100
FRU38	Printers	100	0	100
FRU39	Photocopiers	96	4	100
FRU40	Scanners	96	4	100
FRU41	E-education	34	66	100
FRU42	Curricula	98	2	100
FRU43	Teacher Guides	25	75	100
FRU44	PDP	80	20	100

Table 5.6.3.2.3 presents the views of the HoDs on the distribution of financial resources. All the HoD respondents (100%) confirmed that their schools were compliant in respect of the distribution of financial resources for the provision of printers. Approximately 98% of the HoDs indicated that their schools were compliant in respect of the distribution of financial resources for the provision of a curriculum, while just two 2% indicated that their schools were not compliant in this regard. Of the HoDs, 96% indicated that their schools were compliant in the distribution of financial resources for the provision of photocopiers and scanners, although a minority of about 4% indicated that their schools were not compliant in relation to the distribution of financial resources for the provision of photocopiers and scanners.

5.6.3.3. Human resource distribution

5.6.3.3.1 Educators' views on human resource distribution

Table 5.6.3.3.1**: Views of educators on the distribution of human resources**

Item no	Statements	Strongly agree	Agree	Disagree	Strongly agree	Total
HRD53	HoD posts are distributed based on post establishment	54%	29%	11%	7%	100%
HRD54	HoD posts are allocated based on streams	45%	27%	18%	11%	100%
HRD55	HoD posts depend of number of subjects	39%	30%	21%	9%	100%
HRD56	There is an even distribution of HoDs	36%	36%	14%	14%	100%
HRD57	HoDs are distributed based on subject specialties	45%	25%	21%	9%	100%
HRD58	Support staff are evenly distributed per department	100%	0%	0%	0%	100%
HRD59	Newly appointed HoDs should have teaching experience	59%	27%	11%	4%	100%
HRD60	HoDs should promote teamwork	57%	39%	4%	0%	100%

Table 5.6.3.3.1 presents the views of educators on the distribution of human resources. Of the educators, about 54% and 29% either strongly agreed or agreed respectively with the statement that "the HoDs posts are distributed based on post establishment. However, approximately 11% and 7% either disagreed or strongly disagreed respectively with this statement. About 45% and 27% respectively of the educators either strongly agreed or agreed respectively with the statement that "the HoD post are allocated/distributed based on streams", although a minority of approximately 18% and 11% either disagreed of strongly disagreed respectively with the statement. In addition, about 39% and 30% of the educators either strongly agreed or agreed respectively with the statement that "the HoD posts depend on the number of subjects" while a minority of the respondents, about 21% and 9%, either disagreed or strongly disagreed respectively with the statement.

Of the principals, HoDs and educators respondents, about 36% either agreed of strongly agreed with the statement that there was even an distribution of HoDs, while a minority of approximately 14% percent either disagreed or strongly disagreed with this statement. Of the principals, HoDs and educators, about 45% and 25% either strongly agreed or agreed respectively with the statement that the “HoDs are distributed based on subject speciality” while a minority of approximately 21% and 9% respectively either disagreed or strongly disagreed. All the principals, HoDs and educators (100%) strongly agreed with the statement that support staff are evenly distributed by department. The general agreement here was surprising. Of the principals, HoDs and educators, about 59% and 27% either strongly agreed or agreed respectively with the statement that “newly appointed HoDs should have teaching experience” although a minority of approximately 11% and 4% percent either disagreed or strongly disagreed respectively with the statement.

Finally, of the principals, HoDs and educators, about 57% and 39% either strongly agreed or agreed respectively with the statement that “HoDs should promote teamwork”, with a minority group of about 4% disagreeing with the statement. According to the post provisioning model, the MEC develops and approves it and distributes the educator posts among all the public schools in the province using the model. The posts which are in addition to the post establishments are funded by the governing body after assurance has been provided to the relevant head of department that the cost is covered in the school budget for the entire year. Thus, it would seem that the responses of the principals, HoDs and educators are in line with the guidelines in the post provisioning policy, which stipulates the way in which the posts are equitably distributed between the public schools in the province.

5.6.4. Resource Utilisation

5.6.4.1. Principals', HoDs' and Educators' views on physical resource utilisation

Table 5.6.4.1.1: responses on the utilisation of physical resources

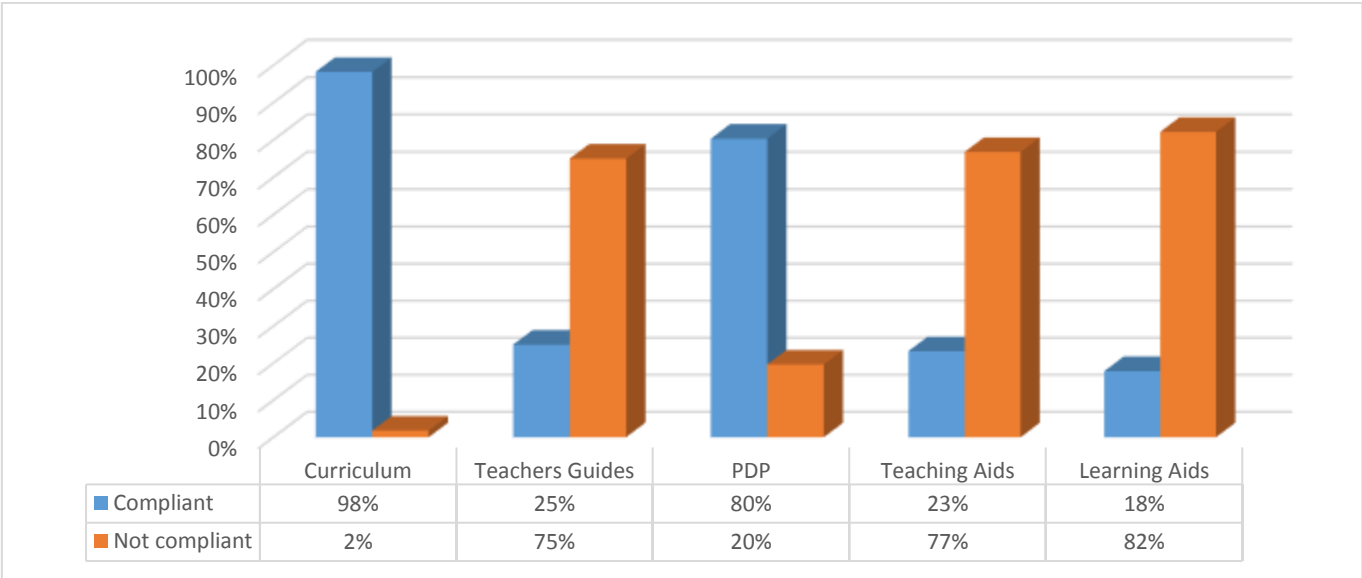
Item No	Statements	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
PRU15	The school toilets are efficiently utilised	14	33	44	8	100
PRU16	The administration block is effectively utilised	12	30	49	9	100
PRU18	The resource maintenance plan is effectively utilised	9	31	52	8	100
PRU19	The office equipment is sufficiently supported	9	30	58	4	100
PRU20	The laboratory and computer centre are efficiently utilised	9	31	52	7	100
PRU21	The school facilities are efficiently utilised	8	28	52	13	100

Table 5.6.4.1 presents the views of the principals, HoDs and educators on the utilisation of physical resources. The majority the principals, HoDs and educators either disagreed or agreed – about 44% and 33% respectively – with the statement that "the school toilets were efficiently utilised" while the minority of approximately 14% and 8% either strongly agreed or strongly disagreed respectively. Of the principals, HoDs and educators, about 49% and 30% disagreed or agreed respectively with the statement that "the administrative block is effectively utilised" although a minority of the respondents, about 12% and 8% respectively, either strongly agreed or strongly disagreed with the statement. Of the principals, HoDs and educators, approximately 52% and 31% either disagreed or agreed respectively with the statement that "the resource maintenance plan is effectively utilised. On the other hand, a minority group of about 9% and 8% either strongly agreed or strongly disagreed respectively with this statement.

About 58% and 30% of the educators either disagreed or agreed respectively with the statement that “the office equipment is sufficiently supported” although a minority of approximately 9% and 4% percent either strongly agreed or strongly disagreed respectively with the statement. About 52% and 31% of the respondents either disagreed or agreed respectively with the statement that “the laboratory and computer centre are efficiently utilised”, but a minority, approximately 9% and 7%, either strongly agreed or strongly disagreed respectively with the statement. Finally, of the educator respondents about 52% and 28% either disagreed or agreed respectively with the statement that “the school facilities are efficiently utilised”.

5.6.4.1.2. Financial resource utilisation

Figure 5.6.4.1.2.1: Educators’ views in financial resource utilisation



	Curriculum	Teachers Guides	PDP	Teaching Aids	Learning Aids
Compliant	98%	25%	80%	23%	18%
Not compliant	2%	75%	20%	77%	82%

Figure 5.6.3.3.3.1 presents the views of the educators on the utilisation of financial resources. The majority of the educators indicated that their schools were compliant in terms of the utilisation of financial resources for the provision of curricula and professional development – approximately 98% and 80% respectively – although a minority of about 2% and 20% respectively indicated that their schools were not compliant in this regard. Of the educators, about 75%, 77% and 82% indicated that their schools were not compliant in relation to the utilisation of financial resources for

the provision of teacher guides, teaching aids and learning aids respectively, with a minority of the respondents of approximately 25%, 23% and 18% confirming that their schools were compliant in respect of the utilisation of financial resources for the provision of teachers guides, teaching aids and learning aids respectively. It may be observed that the views of most of the educators confirmed that there were some challenges regarding the utilisation of financial resources which were having an adverse impact on learner performance in the majority of the sampled public schools.

5.6.4.1.2.2 Principals' views on financial resource utilisation

Table 5.6.4.1.2.2: **Views of principals on the utilisation of financial resources in the sampled schools**

Item. no	Items	Compliant %	Not compliant %	Total %
FRU50	Curriculum delivery	98	2	100
FRU51	Ablution facilities	52	48	100
FRU52	Running costs	96	4	100
FRU53	Maintenance and repair	56	44	100
FRU54	Purchase or lease of Photocopier	100	0	100
FRU55	E-education	17	83	100
FRU56	Laptops	100	0	100
FRU57	Desktops	100	0	100
FRU58	Printers	100	0	100

Table 5.6.4.1.2.2 presents the responses of principals in relation to the utilisation of financial resources. All the principals (100%) indicated that their schools were in compliance with the provincial prescripts in respect of the utilisation of financial resources for the provision of photocopiers, laptops, desktops and printers. The majority of the principals, confirmed that their schools were in compliance with the provincial prescripts in respect of utilisation of financial resources for curriculum

delivery and running costs – about 98% and 96% respectively – although a minority of about 2% and 4% indicated the contrary. The majority of the principals, approximately 83%, indicated that their schools were not in compliance with provincial prescripts on the provision of e-education, while a minority of the respondents, about 17%, confirmed that their schools were in compliance in this respect. Finally, of the principals, approximately 56% indicated that their schools were in compliance with the provincial prescripts on the provision of maintenance and repairs although a minority of about 44% indicated that their schools were not compliant in this regard.

It was apparent from the above findings that the majority of the responses from the sampled schools indicated that the schools were compliant with the policy in the utilisation of financial resources for the provision of teaching and instructional resources. Unfortunately, the majority of rural schools in Limpopo province do not have an internet connection and, hence, they do not even make an attempt to purchase e-education packages as they would not be able to utilise them because of their non-connectivity to ICT. However, the Department of Basic Education offers a special conditional grant which is earmarked for addressing the challenges of connectivity in rural public schools.

5.6.4.1.2.3 HODs' views on financial resources utilisation

Table 5.6.4.1.2.3: The views of HoDs on the utilisation of financial resources

Item. No	items	Compliant %	Not compliant %	Total %
FRU37	Desktops	95	5	100
FRU38	Printers	100	0	100
FRU39	Photocopiers	96	4	100
FRU40	Scanners	96	4	100
FRU41	E-education	34	66	100
FRU42	Curriculum	98	2	100

FRU43	Teachers guides	25	75	100
FRU44	PDP	80	20	100

All the HoD respondents (100%) indicated that their schools were in compliance with provincial prescripts in respect of the provision of printers. The majority of the HoD respondents, approximately 98%, confirmed that their schools were in compliance with the financial policy on the provision of curriculum resources, while a minority group of the HoDs, about 2%, indicated that their schools were not in compliance with these prescripts. A majority of the HoD respondents, approximately 96%, confirmed that their schools were in compliance with the provincial prescripts on the provision of photocopiers and scanners, while a minority (4%) indicated that their schools were not. A majority of the HoDs respondents (95%) confirmed that their schools were in compliance with the provincial policy on the provision of desks with a minority, approximately 5%, indicating that their schools were not in compliance in this regard.

The majority of the HoD respondents (about 80%) confirmed that their schools were in compliance with provincial prescripts on the implementation of professional development portfolios (PDPs), although a minority (about 20%) indicated to the contrary. Of the HoDs respondents, approximately 75% and 66%, indicated that their schools were not in compliance with the provision of teachers' guides and e-education respectively, while a minority of about 15% and 34% confirmed that their schools were in compliance with provincial policy on the provision of teachers' guides and e-education respectively.

5.6.4.3. Human resource utilisation

Table 5.6.4.3.1: Educators' views on human resource utilisation

Item no	Statements	Strongly agree %	Agree %	Disagree %	Strongly agree %	%
HRU61	HoD should delegate responsibilities	61	36	4	0	100
HRU62	HoD should treat all educators with respect	63	34	4	0	100
HRU63	The HoD determines the management of the curriculum at school	52	38	7	4	100
HRU64	The HoD develops subject policy for each department	50	46	2	2	100
HRU65	The HoD allocates subjects to educators	38	39	20	4	100
HRU66	The HoD provides teaching and learning resources to educators	48	45	5	2	100
HRU67	The HoD approves the purchase of additional resources	30	50	16	4	100
HRU68	The HoD efficiently allocates development opportunities	32	41	23	4	100
HRU69	HoD effectively manages the curriculum	54	36	7	4	100
HRU70	The HoD effectively implements the subject policy	50	46	2	2	100
HRU71	The HoD has efficiently utilised additional resources	30	50	16	4	100
HRU72	The HoD efficiently utilises teaching and learning resources	48	45	5	2	100
HRU73	The HoD efficiently allocates development opportunities	32	41	23	4	100

The majority of the educator respondents, approximately 61% and 36%, either strongly agreed or agreed respectively with the statement that the "HoD should delegate responsibilities". However, a minority the respondents (approx. 4%)

indicated that they disagreed with this statement. Of the educators, about 63% and 34% either strongly agreed or agreed respectively with the statement “the HoD should treat all educators with respect”, although a minority of the respondents (approx.. 4%) disagreed . Of the educators, approximately 52% and 38%, either strongly agreed or agreed respectively with the statement that “the HoD determines the management of the curriculum at school”, while a minority of the respondents, approximately 75% and 4% respectively, either disagreed or strongly disagreed with this statement. About 50% and 46% of the educator respondents either strongly agreed or agreed respectively with the statement that “the HoD develops subject policy for each department”, while a small minority of approximately 2% either disagreed or strongly disagreed.

Of the educator respondents, 38% and 39% either strongly agreed or agreed respectively with the statement “the HoD allocates subjects to educators”, while a minority of about 20% and 4% either disagreed or strongly disagreed respectively. Approximately 48% and 45% of the educator respondents either strongly agreed or agreed respectively with the statement that “the HoD provides teaching and learning resources to educators” while a small minority of about 5% and 2% either disagreed or strongly disagreed respectively with this statement. Approximately 30% and 50% percent of the educators either strongly agreed or agreed respectively with the statement that “the HoD approves purchase of additional resources” but a minority of about 16% and 4% respectively either disagreed or strongly disagreed.

About 32% and 41% of the educator respondents either strongly agreed or agreed respectively with the statement that “the HoD efficiently allocates development opportunities”, while a minority of approximately 23% and 4% either disagreed or strongly disagreed respectively with the statement. About 54% and 36% respectively

of the educators either strongly agreed or agreed respectively with the statement that "the HoD effectively manages the curriculum" although a small minority, approximately 7% and 4% respectively either disagreed or strongly disagreed. Of the educator respondents about 50% and 46% percent either strongly agreed or agreed respectively with the statement that "the HoD effectively implements the subject policy" while a minority of about 2% either disagreed or strongly disagreed. Of the educators approximately 30% percent and 50% strongly agreed or agreed respectively with the statement that "the HoD has efficiently utilised additional resources" while a minority of about 16% and 4% respectively disagreed or strongly disagreed.

Of the educator respondents, about 48% and 45% either strongly agreed or agreed respectively with the statement that "the HoD effectively utilises teaching and learning resources" while a minority of about 5% and 2% respectively either disagreed or strongly disagreed. Finally, about 32% and 41% either strongly agreed or agreed respectively with the statement that "the HoD efficiently allocates development opportunities" while a minority of approximately 23% and 4% either disagreed or strongly disagreed respectively.

5.6.4.3.2 Principals' views on human resource utilisation

Table 5.6.4.3.2: Views of principals on utilisation of human resources

Item. No	Statement	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
HRU70	The curriculum is effectively managed	46	37	9	7	100
HRU71	The class teachers are efficiently utilised	52	43	6	0	100
HRU72	The subjects are effectively taught	50	50	0	0	100
HRU73	The teaching and learning resources are efficiently utilised	50	46	4	0	100
HRU74	The additional resources are efficiently utilised	46	44	7	2	100

Of the principals, about 46% and 37% either strongly agreed or agreed respectively with the statement that "the curriculum is effectively managed" although a minority of approximately 9% and 7% either disagreed or strongly disagreed respectively. Of the principals, about 52% and 43% either strongly agreed or agreed respectively with the statement that "the class teachers are efficiently utilised" while a minority (6%) disagreed. Of these respondents, approximately 50% strongly agreed and 50% disagreed with the statement that "the subjects are effectively taught". Surprisingly, none of the respondents either disagreed or strongly disagreed with the above statement.

Of the principal respondents, about 50% and 46% either strongly agreed or agreed respectively with the statement that "the teaching and learning resources are efficiently utilised" although a minority of the respondents (approx. 4%) disagreed with the statement. Of these respondents, approximately 46% and 44% either strongly agreed or agreed respectively with the statement that "the additional resources are

efficiently utilised" while a minority of the respondents, about 7% and 2% respectively, either disagreed or strongly disagreed.

5.6.4.3.3 HODs views on Human resource utilisation

Table 5.6.4.3.3: HoDs' views on the utilisation of human resources in the sampled schools

Item. No	Statement	Strongly agree %	Agree %	Disagree %	Strongly disagree %	Total %
HRU61	Newly appointed HoDs should have teaching experience	61	28	9	2	100
HRU62	HoDs should promote teamwork	57	39	4	0	100
HRU63	HoDs should delegate responsibilities	61	36	4	0	100
HRU64	HoDs should treat all educators with respect	63	34	4	0	100
HRU65	The HoDs determine the management of the curriculum at schools	52	36	7	5	100
HRU66	The HoDs develop the subject policy of each department	51	45	2	2	100
HRU67	The HoDs allocate subjects to the educators	38	40	20	2	100
HRU68	The HoDs provide teaching and learning resources to educators	49	44	5	2	100
HRU69	The HoDs approve the purchase of additional resources	31	51	15	4	100
HRU70	The HoDs efficiently allocate development opportunities	33	42	24	2	100
HRU71	The HoDs effectively manage the curriculum	54	34	7	5	100
HRU72	The HoDs effectively implements the subject policy	51	45	2	2	100
HRU73	The HoDs have efficiently utilised additional resources	31	51	15	4	100
HRU74	The HoDs efficiently utilises the teaching and learning resources	49	44	5	2	100
HRU75	The HoDs efficiently allocate development opportunities	33	42	24	2	100

Sixty-one percent and 28% of HoD respondents strongly agreed or agreed respectively with the statement that "newly appointed HoD should have teaching experience". A minority, however, 9% and 2% respectively, disagreed or strongly disagreed. Of these respondents, 57% and 39% strongly agreed or agreed respectively with the statement that "HoD should promote teamwork". Approximately 4%, however, disagreed with the statement. About 61% and 36% of the HoD

respondents either strongly agreed or agreed respectively with the statement that "HoDs should delegate responsibilities" but about 4% disagreed. Of these respondents, approximately 63% and 34% either strongly agreed or agreed respectively with the statement that "HoDs should treat all educators with respect", with a small minority (4%) disagreeing.

Of the HoD respondents, 52% and 36% either strongly agreed or agreed respectively with the statement that "the HoDs determine the management of the curriculum at schools" although a minority of the respondents, approximately 7% and 5%, either disagreed or strongly disagreed respectively. About 51% and 45% of HoDs respectively indicated that they strongly agreed or agreed with the statement "the HoDs develop the subject policy of each department" although a small minority (approx. 2%) either disagreed or strongly disagreed. In response to the statement that "the HoDs allocate subjects to educators", about 38% and 40% of HODs respectively strongly agreed or agreed, while a minority of approximately 20% and 2% either disagreed or strongly disagreed respectively. Further, about 49% and 44% either strongly agreed or agreed respectively with the statement that "the HoDs provide teaching and learning resources to educators" while a minority of about 5% and 2% either disagreed or strongly disagreed with the statement.

Approximately 31% and 51% of the HoD respondents either strongly agreed or agreed respectively with the statement that "the HoDs approves the purchase of additional resources, although a minority of about 15% and 4% respectively either disagreed or strongly disagreed. Of these respondents, approximately 33% and 42% strongly agreed or agreed respectively with the statement that "the HoDs efficiently allocate development opportunities" with a minority of about 24% and 2% respectively either disagreeing or strongly disagreeing respectively. About 54% and 34% either

strongly agreed or agreed respectively with the statement that “the HoDs effectively manage the curriculum, while a minority of about 7% and 5% disagreed or strongly disagreed respectively with the statement.

Further, approximately 51% and 45% of HoD respondents strongly agreed or agreed respectively with the statement that “the HoDs effectively implement subject policy” although small minority of 2% each either disagreed or strongly disagreed with the statement. Further, 31% and 51% either strongly agreed or agreed respectively with the statement that “the HoDs have efficiently utilised additional resources” but about 15% and 4% either disagreed or strongly disagreed respectively with the statement. Approximately 49% and 44% respectively of these respondents either strongly agreed or agreed with the statement that “the HoDs efficiently utilise teaching and learning resources” although about 5% and 2% respectively either disagreed or strongly disagreed. Finally, a majority of the HoD respondents, about 33% and 42% either strongly agreed or agreed respectively with the statement that “the HoDs efficiently allocate development opportunities” while a minority of about 24%and 2% either disagreed or strongly disagreed respectively with the statement.

5.6.4.3.4 Summary data for merged items on school resource allocations

Figure 5.6.4.3.4 shows the merged views of the respondents from all the sampled public schools in the districts in relation to the allocation of budgets for the provision of teaching and instructional resources.

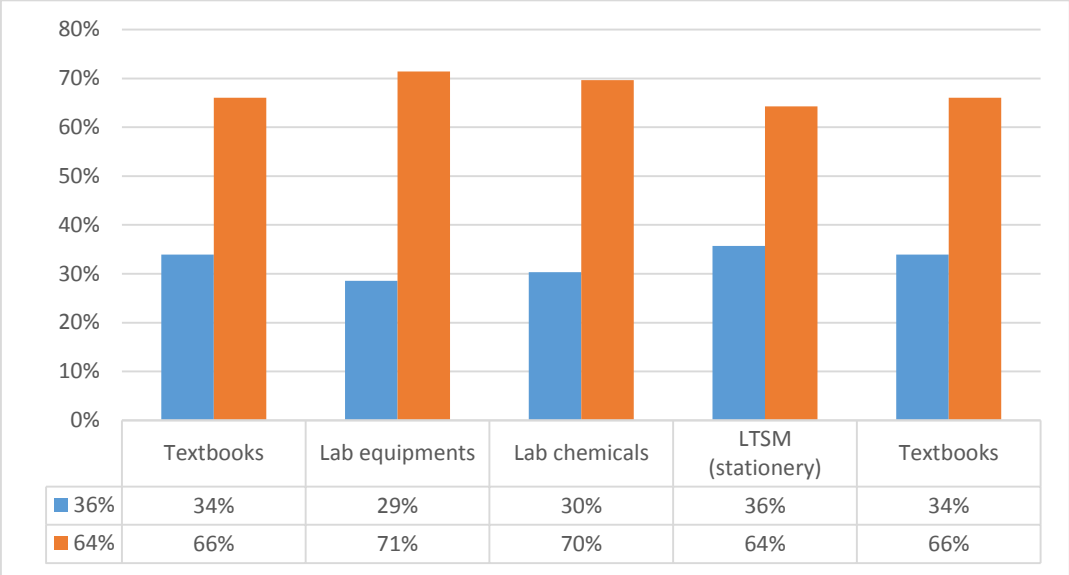


Figure 5.6.4.3.5: Views of the respondents from all the sampled public schools in the districts in relation to the allocation of budgets for the provision of teaching and instructional resources

The majority of the principals, HoDs and educators, in the 56 sampled schools indicated that their schools had not budgeted for the provision of LTSM (textbooks and stationery) –approximately 66% and 64% respectively. This finding was not, however, surprising as it a fact that the department of education delivers both textbooks and stationery annually to all public schools in Limpopo province. This is confirmed by the judgement handed down by the Gauteng High Court Judge in June 2012. The litigation was undertaken by the NGO Section 27 on behalf of the social movement, Equal Education, which represents learners in rural public schools.

On the other hand, a minority of the respondents confirmed that their schools had budgeted for the provision of both textbooks and stationery. The schools which allocated their budgets to the provision of LTSM were typically quintile four (Q4) and quintile five (Q5) schools which are fee-paying schools. Of the principals, HoDs and educators, about 71% and 70% indicated that their schools had not budgeted for the provision of both laboratory equipment and laboratory chemicals respectively. Unfortunately, the department of education is not able to provide laboratory

equipment and chemicals and public schools are therefore expected to utilise either their school budgets or money raised through fundraising activities for the provision of items. On the other hand, about 29% and 30% percent respectively confirmed that their schools had budgeted for the provision of both laboratory equipment and chemicals.

5.6.4.3.6. Location of Sampled public schools

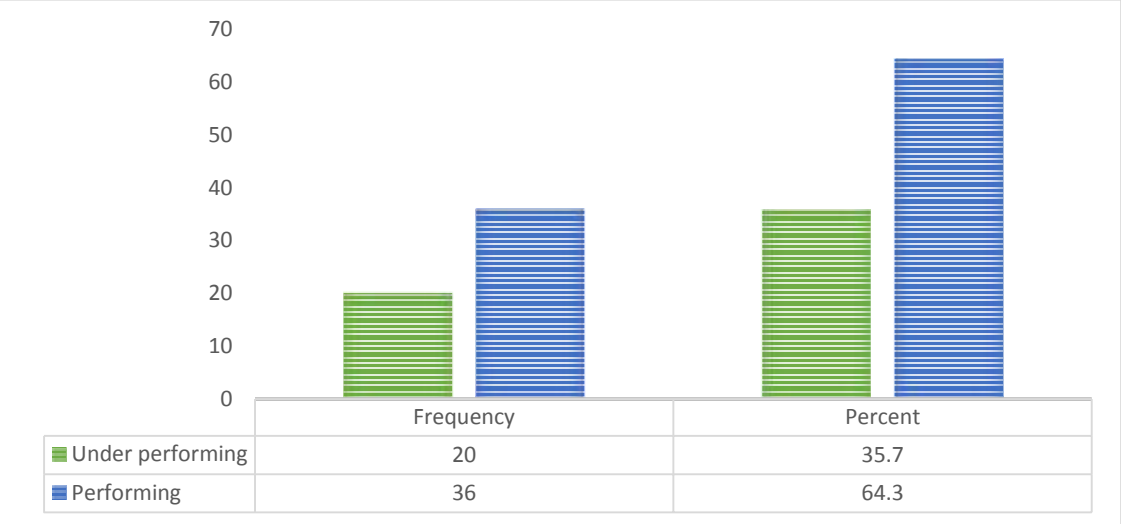
Table 5.6.4.3.6.: Merged responses of the principals, HODs and educators in relation to the location and quintiles of the sampled public schools

School	Frequency	Percent
Farm school (Q1)	3	5.4
Rural/village (Q2)	35	62.5
Township (Q3)	8	14.3
Town/city (Q4&5)	10	17.9
Total	**56**	**100**

The majority of the respondents 62.5% indicated that they were teaching in public schools located in either rural areas or villages. These rural schools are categorised as quintile two (Q2) and have been declared as “No Fee” paying schools. The reason for this is because of the low socioeconomic status of the communities and/or parents in rural areas and/or villages. Consequently, parents are often unable to afford to pay high school fees which may cover the provision of adequate school resources. These schools are known as poorly resourced schools and are the second poorest schools after the farm schools (Q1). Of the respondents, 17.9% indicated that they were teaching in public schools located either in towns or cities. These schools are categorised as either quintile four (Q4) or five (Q5) and are called fee-paying schools. These type of schools usually have extensive infrastructure and other school resources and are sometimes referred as the better-resourced schools. Most of the

learners from these schools are from middle class and wealthy families who are able to afford to pay the high school fees charged by fee paying schools. 14.3% percent of the respondents indicated that they were teaching in public schools located in the townships. The township schools are categorised as quintile four (Q3) and are fee paying schools. This means that all the learners in these schools pay school fees as set by the school governing body, with the amount of the school fees charged being the amount agreed to by parents at the annual general meeting. Of the respondents, a minority of 5.4% indicated that they were teaching in public schools located on farms. These schools are sometimes referred to as farm schools and are categorised as quintile one (Q1) and are declared as “No Fee” schools. This means that the schools in this category are not supposed to charge learners school fees. The public schools in this category are the poorest schools in the country in terms of the provision of school resources.

5.6.4.3.6. Learner achievement in public schools



	Frequency	Percent
Under performing	20	35.7
Performing	36	64.3

Figure 5.6.4.3.6.1: Merged views of respondents on the percentage pass rate at the sampled schools

Of the merged group of principals, HoDs and educators, 64.3% indicated that their schools were maintaining a 65% pass rate in the National Senior Certificate

Examination and that their schools had achieved more than 30% of degree and diplomas passes combined. However, the remaining group of respondents, 35.7%, indicated that the pass percentage in the National Senior Certificate Examination at their schools fell below 65 percent and that their schools had achieved less than thirty percent (30%) degree and diploma passes, combined (see Circular D2 of 2017 on the identification, management and support of underperforming schools). The finding above confirmed that the provision of school resources plays a critical role in improving learner performance.

The percentage of 64.3% performing schools included schools which are located in the rural areas as well as township schools. However, the sampled rural schools which were performing well had received extensive school resources with some of them even being termed state-of-the-art schools because of the nature of their infrastructure and other teaching and instructional resources. The majority of these schools have been declared fee-paying schools because they had applied to be categorised as quintile four (Q4) in order to supplement their resources for the purposes of maintenance and repairs.

5.6.4.3.7 Resource Allocation

Table 5.6.4.3.7.1**: presents the allocation of school resources**

Allocation	Frequency	Percent
Efficient allocation	23	41.1
Inefficient allocation	33	58.9
Total	**56**	**100**

Table 5.6.4.3.7.1: Presents both the efficient and inefficient allocation of school resources. The majority of schools **(+-58.9%)** have experienced inefficient allocation of schools as they fall within the no-fee school category and are unable to supplement their resources through fundraising. On the other hand, a smaller number of schools

(+-**41.1%)** have indicated experiencing efficient allocation of school resources as they are fee-paying schools and are also able to raise funds.

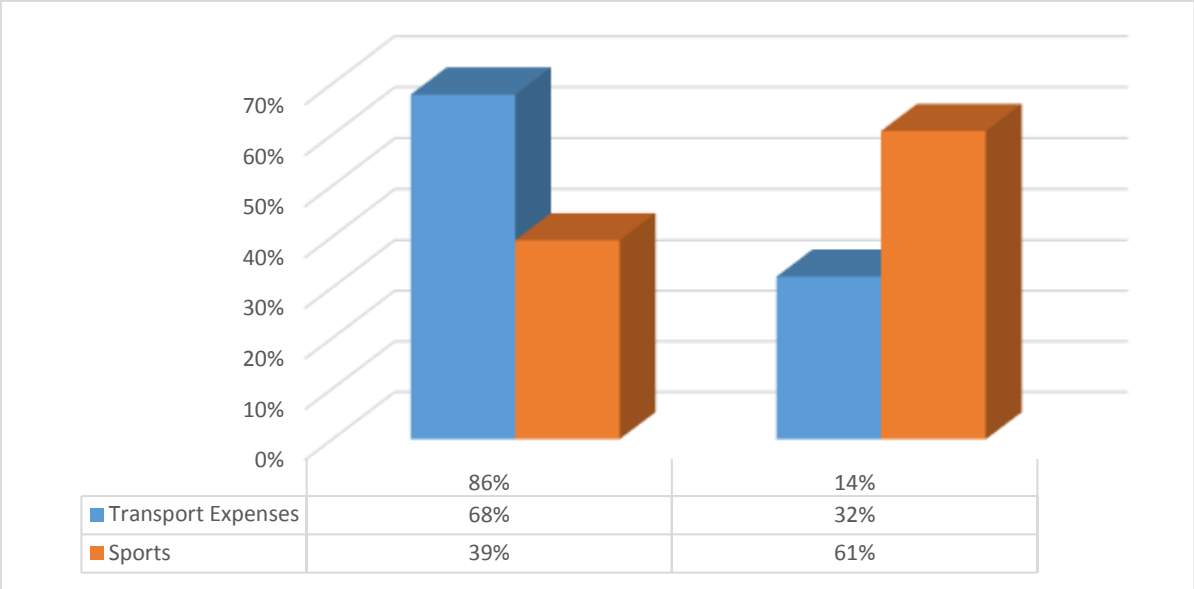


Figure 5.6.4.3.7.2**: Merged views of the respondents on the distribution of school resources**

Table 5.6.4.3.7.2: Distribution of school resources

Distribution	Frequency	Percent
Equitable Distribution	18	32.1
Unequitable Distribution	38	67.9
Total	**56**	**100**

Table 5.6.4.3.7.2 presents the distribution of school resources by showing the merged responses of the principals, HoDs and educators in relation to the distribution of school resources in the sampled public schools. The majority of the respondents (68%) indicated that the distribution of school resources to their schools was unequal and had led to inequitable school and learner performance. The majority of these schools were farm, rural and township public schools which are poorly resourced and cater mainly for African learners. On the other hand, a minority of the respondents (32%) indicated that the distribution of school resources to their schools was

equitable. The majority of these schools were either town or city schools which are better resourced with extensive infrastructure. The findings presented by the table above may be seen to refer also to the situation prior to 1994 because most of the well-resourced schools used to cater for white learners only under the apartheid government. Since 1994, the new government has promulgated the Norms and Standards for School Funding Policy which is poverty biased. Nevertheless, this policy has not succeeded in bridging the gap between the wealthy, well-resourced, former Model C schools and the poorly resourced rural schools.

Table 5.6.4.3.7.3**: Utilisation of school resources**

Utilisation	Frequency	Percent
Maximal utilisation	24	42.9
Minimal utilisation	32	57.1
Total	**56**	**100**

Table 5.6.3.3.7.3 shows utilisation of school resources and presents the merged views of the principals, HoDs and educators on the utilisation of school resources. The merged views of the majority of the principals, HoDs and educators (57.1%) indicated that their schools were characterised by a minimal utilisation of school resources. On the other hand, a minority of respondents (42.9%) confirmed that their schools were characterised by a maximal utilisation of school resources.

Table 5.6.3.3.7.4 presents the association between resource provision (allocation, distribution and utilisation) and the learners' achievement in terms of the percentage pass rate.

Table 5.6.3.3.4.7.4**: Percentage pass rate of learners and resource allocation, distribution and utilisation.**

Variables	**Learners' achievements in terms of percentage pass rate**		**P value**
	Under performing	**Performing**	
Allocation			**0.017**
Efficient allocation	4 (7%)	19 (34%)	
Inefficient allocation	16 (29%)	17 (30%)	$x^2 = 5.707$
Distribution			**0.147**
Equitable distribution	4 (7%)	14 (25%)	
Unequitable distribution	16 (29%)	22 (39%)	$x^2 = 2.103$
Utilisation			**0.044**
Maximal utilisation	5 (9%)	19 (34%)	
Minimal utilisation	15 (27%)	17 (30%)	$x^2 = 4.051$

Table 5.6.4.3.7.4 indicate percentage pass rate of learners and resource provisioning shows that over 30% of the schools characterised by inefficient school resource allocation were likely to perform compared to those which underperformed, namely 29%, while 34% only of the schools characterised by efficient school resource allocation were likely to perform better than those which underperformed, namely 7%. Using a chi-squared test ($x^2 = 5.707$, $p = 0.017$), since $p < 0.05$, this shows a significant association between school resource allocation and learner achievement.

In terms of school resources distribution, Table 4.28 shows that more than one-third (39%) of the schools which experienced an unequitable distribution of resources were likely to perform compared to those schools which underperformed, namely 29%, while 25% only of the schools experiencing an equitable distribution were likely to

perform better than the underperforming schools, namely 7%. Using the chi-squared test ($\chi^2 = 2.103$, $p = 0.147$), since $p > 0.05$, this shows an insignificant association between school resource distribution and learner achievement.

Lastly, in terms of school resource utilisation, Table 4.28 shows that over half of school resource utilisation with minimal utilisation is likely to perform compared to those that underperformed, namely 27%, while 34% only of the school resource utilisation with maximal utilisation is likely to perform better compared to those that underperformed, namely 9%. Using the chi-squared test ($\chi^2 = 4.051$, $p = 0.044$), since $p < 0.05$, a significant association is found between school resource allocation and learner achievement.

5.6.4.3.6.7.5 Learner achievement by percentage pass rate and resource allocation, distribution and utilisation

Table 5.6.4.3.6.7.5 presents the association between the resource provision (allocation, distribution and utilisation) and learner achievement in terms of degree/diploma pass rate:

Table 5.6.4.3.7.5: Learner achievement in terms of degree/diploma pass rate and resource allocation, distribution and utilisation

Variables	**Learner achievement in terms of degree/diploma pass rate**		**P value**
	Underperforming	**Performing**	
Allocation			**0.085**
Efficient allocation	3 (5%)	20 (36%)	
Inefficient allocation	11 (20%)	22 (39%)	$\chi^2 = 2.976$

Distribution Equitable distribution Unequitable distribution	 4 (7%) 10 (18%)	 14 (25%) 28 (50%)	**0.741** $x^2 = 0.109$
Utilisation Maximal utilisation Minimal utilisation	 4 (7%) 10 (18%)	 20 (36%) 22 (39%)	**0.212** $x^2 = 1.556$

Table 5.6.3.3.7.5 shows that over half (39%) of the school resource allocation with inefficient allocation is likely to perform as compared to those underperformed, namely 20%, while 36% only of the school resource allocation with efficient allocation was likely to perform better than underperformed, namely, 5%. Using the chi-squared test ($x^2 = 5.707$, $p = 0.017$), since $p < 0.05$, there is a significant association between school resource allocation and learner achievement.

In terms to school resource distribution, Table 4.28 shows that more than one-third (50%) of school resource distribution with unequitable distribution was likely to perform as compared to those that underperformed, namely 18%, while 25% only of the school resource distribution with equitable distribution were likely to perform better compared to underperformed, namely 7%. Using the chi-squared test ($x^2 = 2.103$, $p = 0.147$), since $p > 0.05$, there is an insignificant association between school resource distribution and learner achievement.

Lastly, in terms of school resource utilisation, Table 4.28 shows that over half of the school resource utilisation with minimal utilisation were likely to perform as compared to those underperformed, namely, 18%, while 36% only of the school resource utilisation with maximal were likely to perform better as compared to underperformed,

36% and 7% respectively. Using the chi-squared test ($\chi^2 = 4.051$, $p = 0.044$), since $p < 0.05$, there is a significant association between school resource allocation and learner achievement.

5.6.4.3.8 Regression analysis

5.6.4.3.8.1 Relationship between the allocation of school resources and learner achievement in public schools

Learner achievement by percentage pass rate was regressed against three predictor variables, namely, physical resource allocation, financial resource allocation and human resource allocation. The regression analysis was conducted at the 5% significance level. The model summary statistics on regression, as presented in Table 4.29 below, were obtained:

Table 5.6.4.3.8.1: Model summary

Regression Statistics	
Multiple R	0.415814
R square	0.172901
Adjusted RsSquare	0.125184
Standard error	0.45222
Observations	56

The aim of the study was to establish the impact of the allocation of school resources on learner achievement in terms of pass rate. The results revealed that there was a weak positive correlation of R = 0.416 between the allocation of school resources and learner achievement in terms of pass rate. The results further indicated that the value of the adjusted R squared was 0.125. This implies that the allocation variables (physical, financial and human resource allocation) may account for 12.5% of the changes in learner achievement in terms of pass rate. A Durbin-Watson statistic of

1.526 indicated that the variable residuals were not serially corrected as the value was more than 1.5.

5.6.4.3.8.2 Analysis of variance (ANOVA)

The study sought to confirm the goodness of fit of the regression model through the ANOVA statistics. The findings are presented in Table 4.30 on analysis of variance:

Table 5.6.4.3.8.2: Analysis of variance

	df	SS	MS	F	Significance F
Regression	3	2.223013	0.741004	3.62345	0.018876
Residual	52	10.63413	0.204502		
Total	55	12.85714			

Based on the ANOVA statistics, it was determined that the regression model had a significance level at 0.0189, thus indicating that the model was ideal for predicting the effect of the allocation of school resources on learner achievement in terms of percentage pass rate, because the value of significance (p-value) was less than 5%. This means that there is a model fit for the data.

5.6.4.3.8.3 Coefficients of determination

The coefficients of determination were used as indicators of the direction of the relationship between the allocation of school resources and learner achievement in terms of by percentage pass rate. The p-value under sig section was connected to demonstrate the importance of the connection between the predictor factors. At 95% certainty level, a p-estimation of under 0.05 was found to be a proportion of factual significance. A p-value below 0.05 demonstrates a statistically significant relationship

between the dependent and the independent variable. Table 4.31 presents the relevant results on coefficients of determination:

Table 5.6.4.3.8.3: Coefficients of determination

	Coefficients	Standard Error	T Stat	P-value	Lower 95.0%	Upper 95.0%
Intercept	1.770594	0.456543	3.878266	0.000297	0.854474	2.686714
Physical resource allocation	-0.03538	0.012704	-2.78511	0.007448	-0.06087	-0.00989
Financial resource allocation	0.002914	0.021184	0.137551	0.891127	-0.03959	0.045422
Human resource allocation	-0.04977	0.028831	-1.72629	0.090232	-0.10762	0.008083

Based on the results presented above, it was evident that the allocation of physical resource produced negative and statistically significant values (high t-values (t = -2.785, $p < 0.05$ and $p = 0.007$) while the financial resource allocation produced positive and statistically insignificant values, as shown by t = 0.138, p = 0.891). On the other hand, the human resource allocation produced negative and statistically insignificant values as demonstrated by t = -1.726, p = 0.090.

The following regression equation was estimated:

$$Y = 1.770 - 0.035x_1 + 0.0029x_2 - 0.0497x_3$$

Where

Y = learner achievement by percentage pass rate

X_1 = physical resource allocation

X_2 = financial resource allocation

X_3 = human resource allocation

According to the estimated regression model above, the constant of 1.770 demonstrates that, if school resource allocation were rated zero, the learner achievement in terms of percentage pass rate would be 1.770. A unit increase in physical resource allocation would result a decrease in learner achievement in terms of percentage pass rate by 0.035. On the other hand, a unit increase in both financial and human resource allocation would result a decrease in learner achievement in terms of percentage pass rate by 0.0029 and 0.049 respectively.

5.6.4.3.9 Degree/diploma pass rate

Learner achievement by degree/diploma pass rate was regressed against the three predictor variables, namely, physical resource allocation, financial resource allocation and human resource allocation. The regression analysis was conducted at the 5% significance level. The study obtained the model summary statistics on regression as presented in Table 4.32:

Table 5.6.4.3.9.1: Regression statistics

Regression Statistics	
Multiple R	0.307381
R square	0.094483
Adjusted R square	0.042242
Standard error	0.427603
Observations	56

The study aimed to establish the impact of the allocation of school resources on learner achievement by degree/diploma pass rate. The study results revealed that there was a weak positive correlation of R = 0.094483 between the allocation of school resources and learner achievement by degree/diploma pass rate. The results further indicated that the value of the adjusted R squared was 0.042242. This implies that the allocation variables (physical, financial and human resource allocation) could

account for 4.2% of the changes in learner achievement by degree/diploma pass rate. A Durbin-Watson statistic of 1.526 indicated that the variable residuals were not serially corrected as the value was greater than 1.5.

5.6.4.3.9.2 Analysis of variance (ANOVA)

The study sought to confirm the goodness of fit of the regression model using the ANOVA statistics. The study results are presented in Table 4.33 on analysis of variance:

Table 5.6.4.3.9.2: Analysis of variance

	df	SS	MS	F	Significance F
Regression	3	0.992074	0.330691	1.808592	0.157064
Residual	52	9.507926	0.182845		
Total	55	10.5			

Based on the ANOVA statistics, it was determined that the regression model had a significance level at 0.157064 which indicated that the model was ideal for predicting the effect of the allocation of school resources on learner achievement by degree/diploma pass rate because the value of significance (p-value) was less than 5%. This meant that the model was a fit for the data.

5.6.4.3.9.3 Coefficients of determination

Coefficients of determination were used as indicators of the direction of the relationship between the allocation of school resources and learner achievement by degree/diploma pass rate. The p-value under sig section was connected to demonstrate the importance of the connection between the predictor factors. At a 95% certainty level, a p-estimation of under 0.05 was found to be a proportion of

factual significance. A p-value below 0.05 shows a statistically significant relationship between the dependent and the independent variable. Table 4.34 presents the relevant results on coefficient of determination:

Table 5.6.3.3.9.3: Coefficients of determination

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.461472	0.431691	3.385456	0.001359	0.59522	2.327724
Physical resource allocation	-0.01905	0.012013	-1.58618	0.118762	-0.04316	0.005051
Financial resource allocation	0.006793	0.020031	0.339127	0.73588	-0.0334	0.046988
Human resource allocation	-0.04638	0.027262	-1.70142	0.094838	-0.10109	0.008321

Based on the results presented above, it was evident that the allocation of physical resources produced negative and statistically insignificant values (high t-values) with t = -1.58618, p < 0.05, p = 0.118762. The financial resource allocation produced positive and statistically insignificant values as evidenced by t = 0.339127, p = 0.73588) while the human resource allocation produced negative and statistically insignificant values as evidence by t = -1.70142, p = 0.094838.

The following regression equation was estimated:

$$Y = 1.461472 - 0.01905x_1 + 0.006793x_2 - 0.04638x_3$$

Where

Y = learner achievement by degree/diploma

X_1 = physical resource allocation

X_2 = financial resource allocation

X_3 = human resource allocation

On the estimated regression model above, the constant of 1.461472 showed that, if school resource allocation were rate zero, the learner achievement by degree/diploma pass rate would be 1.461472. A unit increase in physical resource

allocation would result in a decrease in learner achievement by degree/diploma pass rate of 0.01905 while a unit increase in financial and human resource allocation would result in a decrease in learner achievement by percentage pass rate of 0.006793 and 0.04638 respectively.

5.6.4.3.10 Relationship between the distribution of school resources and learner achievement in public schools

5.6.4.3.10.1Percentage pass rate

Learner achievement by percentage pass rate was regressed against three predictor variables, namely, physical resource distribution, financial resource distribution and human resource distribution. The regression analysis was conducted at 5% significance level. The study obtained the model summary statistics as presented in Table 4.36 presents stats on regression:

Table 5.6.4.3.10.1: Regression statistics

Regression Statistics	
Multiple R	0.35674
R square	0.127264
Adjusted R square	0.076913
Standard error	0.464528
Observations	56

The study aimed to establish the impact of the distribution of school resources on learner achievement by pass rate. The results revealed that there was a weak positive correlation of R = 0.127264 between the distribution of school resource and learner achievement by pass rate. The results further indicated that the value of the adjusted R squared was 0.076913. This implies that the allocation variables (physical, financial and human resource distribution) may account for 7% of the changes in learner

achievement by pass rate. A Durbin-Watson statistic of 1.526 indicated that the variable residuals were not serially corrected as the value was greater than 1.5

5.6.4.3.10.2 Analysis of variance (ANOVA)

The study sought to confirm the goodness of fit of the regression model using the ANOVA statistics. The findings are presented in Table 5.6.4.3.10.3 on coefficients of determination.

Table 5.6.4.3.10.3: Coefficients of determination

	df	SS	MS	F	Significance F
Regression	3	1.636247	0.545416	2.527572	0.067414
Residual	52	11.2209	0.215786		
Total	55	12.85714			

Based on the ANOVA statistics, it was determined that the regression model had a significance level at 0.067414, thus indicating that the model was ideal for predicting the impact of the distribution of school resource on learner achievement by percentage pass rate because the value of significance (p-value) was less than 5%. This meant that the model was a fit for the data.

5.6.3.3.10.4 Coefficients of determination

Coefficients of determination were used as indicators of the direction of the relationship between the distribution of school resources and learner achievement by percentage pass rate. The p-value under sig section was connected to demonstrate the importance of the connection between predictor factors. At 95% certainty level, a p- estimation of under 0.05 was found to be a proportion of factual significance. A p-value below 0.05 shows a statistically significant relationship between the dependent

and the independent variable. Table 5.6.4.3.10.4 presents the relevant results on coefficients of determination:

Table 5.6.4.3.10.4: Coefficients of determination

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.908881	0.456151	1.9925	0.051578	-0.00645	1.824215
Physical resource distribution	-0.04246	0.0161	-2.63721	0.010998	-0.07477	-0.01015
Financial resource distribution	0.006428	0.023095	0.27831	0.781878	-0.03992	0.052772
Human resource distribution	0.027811	0.026272	1.058596	0.294677	-0.02491	0.08053

Based on results, above, it was evident that the distribution of physical resources produced negative and statistically significant values (high t-values) with t = -2.63721, $p < 0.05$, p = 0.010998. The financial resource distribution produced positive and statistically insignificant values as evidenced by t = 0.27831, p = 0.781878, while the human resource distribution produced positive and statistically insignificant values as evidence by t = 1.058596, p = 0.294677.

The following regression equation was estimated:

$$Y = 0.90881 - 0.04246x_1 + 0.006428x_2 + 0.0027811x_3$$

Where

Y = learner achievement by percentage pass rate

X_1 = physical resource distribution

X_2 = financial resource distribution

X_3 = human resource distribution

On the estimated regression model above, the constant of 0.908881 showed that, if school resource distribution were rate zero, learner achievement by percentage pass rate would be 0.90881. A unit increase in physical resource distribution would result in a decrease in learner achievement by percentage pass rate by 0.04246 while a unit increase in financial and human resource distribution would result in a decrease in learner achievement by percentage pass rate by 0.006428 and 0.0027811 respectively.

5.6.4.3.10.5 Degree/diploma pass rate

Learner achievement by degree/diploma pass rate was regressed against three predictor variables, namely, physical resource distribution, financial resource distribution and human resource distribution. The regression analysis was conducted at 5% significance level. The study obtained the model summary statistics on regression as presented in Table 5.6.3.3.10.5.1:

Table 5.6.4.3.10.5.1: Regression statistics

Regression Statistics	
Multiple R	0.225963
R square	0.051059
Adjusted R square	-0.00369
Standard error	0.437736
Observations	56

The study aimed to establish the impact of the distribution of school resources on learner achievement by pass rate. The results revealed that there was a weak positive correlation of R = 0.051059 between the distribution of school resources and learner achievement by degree/diploma pass rate. The results further indicated that the value of the adjusted R squared was -0.00369. This implied that the allocation variables

(physical, financial and human resource distribution) may account for 0.03% of the changes in learner achievement by pass rate. A Durbin-Watson statistic of 1.526 indicated that the variable residuals were not serially corrected as the value was greater than 1.5

5.6.4.3.10.5.2 Analysis of variance (ANOVA)

The study sought to confirm the goodness of fit of the regression model using the ANOVA statistics. The findings are presented in Table 5.6.3.3.10.5.2. presents analysis of variance

Table 5.6.4.3.10.5.2: Analysis of variance

	df	SS	MS	F	Significance F
Regression	3	0.536121	0.178707	0.932644	0.431607
Residual	52	9.963879	0.191613		
Total	55	10.5			

Based on the ANOVA statistics it was determined that the regression model had a significance level at 0.0431607, thus indicating that the model was ideal for predicting the effect of the allocation of school resource on learner achievement by degree/diploma pass rate because the value of significance (P-value) was less than 5%. This meant that the model fit for the data.

5.6.4.3.10.3 Coefficients of determination

Coefficients of determination were used as indicators of the direction of the relationship between the distribution of school resources and learner achievement by degree/diploma pass rate. The p-value under sig section was connected to demonstrate the importance of the associated between the predictor factors. At 95% certainty level a p-estimation of under 0.05 was found to be a proportion of factual

significance. A p-value below 0.05 demonstrates a statistically significant relationship between the dependent and the independent variable. Table 4.41 presents the results on coefficient of determination:

Table 5.6.4.3.10.5.3: Coefficients of determination

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.736181	0.429842	1.712678	0.092729	-0.12636	1.598723
Physical resource distribution	-0.02246	0.015172	-1.48057	0.144756	-0.05291	0.007982
Financial resource distribution	0.010034	0.021763	0.461041	0.646692	-0.03364	0.053705
Human resource distribution	0.021899	0.024757	0.884555	0.380469	-0.02778	0.071577

Based on results presented above it was evident that the distribution of physical resources produced negative and statistically insignificant values (high t-values) with (t = -1.48057, p > 0.05, p = 0.144756. The financial resource distribution produced positive and statistically insignificant values as evidenced by t = 0.461041, p = 0.646692 while the human resource distribution produced positive and statistically insignificant values as evidence by t = 0.884555, p = 0.380469.

The following regression equation was estimated:

$$Y = 0.736181 - 0.02246x_1 + 0.010034x_2 + 0.021899x_3$$

Where

Y = learner achievement by diploma/bachelor

X_1 = physical resource distribution

X_2 = financial resource distribution

X_3 = human resource distribution

On the estimated regression model above the constant of 0.736 showed that, if school resource distribution were rate zero, learner achievement by percentage pass rate would be 1.736. A unit increase in physical resource distribution would result in a decrease in learner achievement by percentage pass rate by 0.02246 while a unit increase in financial and human resource allocation would result in a decrease in learner's achievement by diploma/bachelor pass rate by 0.010034 and 0.021899 respectively.

5.6.4.3.11 Relationship between the utilisation of school resources and learner achievement in public schools

5.6.4.3.11.1 Percentage pass rate

Learner achievement by percentage pass rate was regressed against three predictor variables, namely, physical resource utilisation, financial resource utilisation and human resource utilisation. The regression analysis was conducted at the 5% significance level. The study obtained the model summary statistics on regression as presented in Table 5.6.4.3.11.2:

Table 5.6.4.3.11.2: Regression statistics

Regression Statistics	
Multiple R	0.3609
R square	0.130249
Adjusted R square	0.080071
Standard error	0.463733
Observations	56

The study aimed to establish the impact of the utilisation of school resources on learner achievement by percentage pass rate. The results revealed that there was a weak positive correlation of R = 0.130249 between the utilisation of school resource and learner achievement by percentage pass rate. The results further indicated that

the value of the adjusted R squared was 0.080071. This implied that the allocation variables (physical, financial and human resource utilisation) may account for 8% of the changes in learner achievement by pass rate. A Durbin-Watson statistic of 1.526 indicated that the variable residuals were not serially corrected as the value was greater than 1.5.

5.6.4.3.11.3 Analysis of variance (ANOVA)

The study aimed to confirm the goodness of fit of the regression model using the ANOVA statistics. The study findings on analysis of variance are presented Table 5.6.3.3.11.3.

Table 5.6.4.3.11.3: Analysis of variance

	df	SS	MS	F	Significance F
Regression	3	1.674625	0.558208	2.595733	0.062232
Residual	52	11.18252	0.215048		
Total	55	12.85714			

Based on the ANOVA statistics, it was determined that the regression model had a significance level at 0.062232, thus indicating that the model was ideal for predicting the effect of the utilisation of school resource on learner achievement by percentage pass rate because the value of significance (P-value) was less than 5%. This meant that the model fit for the data.

5.6.4.3.11.4 Coefficients of determination

Coefficient of determination were used as indicators of the direction of the relationship between the utilisation of school resources and learner achievement by percentages pass rate. The p-value under sig section was connected to demonstrate the importance of the connection between predictor factors. At 95% certainty level, a p-

estimation of under 0.05 was found to a proportion of factual significance. A p-value below 0.05 demonstrates a statistically significant relationship between the dependent and the independent variable. Table 4.44 presents the results on coefficients of determination:

Table 5.6.4.3.11.4: Coefficients of determination

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.98438	0.705139	2.814168	0.006889	0.569415	3.399346
Physical resource Utilisation	-0.03064	0.014005	-2.18796	0.03319	-0.05874	-0.00254
Financial resource utilisation	-0.04856	0.048888	-0.99324	0.325193	-0.14666	0.049543
Human resource utilisation	-0.00127	0.009137	-0.13918	0.889842	-0.01961	0.017063

Based on the results above, it is was evident that the utilisation of physical resources produced negative and statistically significant values (high t-values with t = -2.18796, P < 0.05, p = 0.03319. Financial resource utilisation produced negative and statistically insignificant values as evidenced by t = -0.99324, p = 0.325193 while human resource utilisation produced negative and statistically insignificant values as evidenced by t = -0.13918, p = 0.8898.

The following regression equation was estimated:

$$Y = 1.98434 - 0.03064x_1 - 0.04856x_2 - 0.00127x_3$$

Where

Y = learner achievement by percentage pass rate

X_1 = physical resource utilisation

X_2 = financial resource utilisation

X_3 = human resource utilisation

On the estimated regression model above the constant of 1.98434 showed that, if school resource utilisation were rated zero, the learner achievement by percentage pass rate would be 1.98434. A unit increase in physical resource utilisation would result in a decrease in learner achievement by percentage pass rate by 0.03064 while a unit increase in financial and human resource utilisation would result in a decrease in learner achievement by percentage pass rate by 0.04856 and 0.00127 respectively.

5.6.4.3.11.5 Bachelor/diploma pass rate

Learner achievement by diploma/bachelor pass rate was regressed against three predictor variables, namely, physical resource utilisation, financial resource utilisation and human resource utilisation. The regression analysis was conducted at a 5% significance level. The study obtained the model summary statistics on regression as presented in Table 5.6.4.3.11.5.1:

Table 5.6.4.3.11.5.1: Regression analysis

Regression Statistics	
Multiple R	0.254243
R square	0.06464
Adjusted R square	0.010677
Standard error	0.434593
Observations	56

The study aimed to establish the influence of the utilisation of school resources on learner achievement by degree/diploma pass rate. The results revealed that there was a weak, positive correlation of R = 0.06464 between the utilisation of school resource and learner achievement by diploma/bachelor pass rate. The results further indicated that the value of the adjusted R squared was 0.010677. This implied that the allocation variables (physical, financial and human resource utilization) may account for 1.1% of changes in learner achievement by diploma/bachelor pass rate.

A Durbin-Watson statistic of 1.526 indicated that the variable residuals were not serially corrected as the value was greater than 1.5.

5.6.4.3.11.5.2 Analysis of variance (ANOVA)

The study sought to confirm goodness of fit of the regression model using the ANOVA statistics. The findings on analysis of variance are presented in Table 5.6.4.3.11.5.2.

Table 5.6.4.3.11.5.2: Analysis of variance

	df	SS	MS	F	Significance F
Regression	3	0.678716	0.226239	1.197849	0.319755
Residual	52	9.821284	0.188871		
Total	55	10.5			

Based on the ANOVA statistics, it was determined that the regression model had a significance level at 0.319755, thus indicating that the model was ideal for predicting the effect of the utilisation of school resource on learner achievement by diploma/bachelor pass rate because the value of significance (P-value) was less than 5%. This meant that there was a model fit for the data.

5.6.4.3.11.5.3 Coefficients of determination

Coefficient of determination were used as indicators of the direction of the relationship between the utilisation of school resources and learner achievement by percentages pass rate. The p-value under sig section was connected to demonstrate the importance of the connection between predictor factors. At 95% certainty level, a p-estimation of under 0.05 was found to a proportion of factual significance. A p-value below 0.05 shows a statistically significant relationship between the dependent and

the independent variable. Table 4.47 presents the results on Coefficients of determination:

Table 5.6.4.3.11.5.3: Coefficients of determination

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.834603	0.660829	2.776215	0.007627	0.508553	3.160654
Physical resource utilisation	-0.0144	0.013125	-1.09726	0.277585	-0.04074	0.011935
Financial resource utilisation	-0.05654	0.045816	-1.23412	0.222707	-0.14848	0.035394
Human resource utilisation	0.000644	0.008563	0.075171	0.940367	-0.01654	0.017826

Based on the results above it was evident that the utilisation of physical resources produced negative and statistically insignificant values (high t-values) with t = -1.097, P > 0.05, p = 0.277585. Financial resource utilisation produced negative and statistically insignificant values as evidenced by t = -1.2314, p = 0.222707 while human resource utilisation produced negative and statistically insignificant values as evidenced by t = 0.075, p = 0.940367.

The following regression equation was estimated:

$$Y = 1.835 - 0.014x_1 - 0.056x_2 + 0.0006x_3$$

Where

Y = learner achievement by diploma/bachelor pass rate

X_1 = physical resource utilisation

X_2 = financial resource utilisation

X_3 = human resource utilisation

On the estimated regression model above the constant of 1.835 showed that, if school resource utilisation were rate zero, the learner achievement by percentage pass rate would be 1.835. A unit increase in physical resource utilisation would result in a decrease in learner achievement by percentage pass rate by 0.0014 while a unit increase in financial and human resource utilisation would result in a decrease in learner achievement by diploma/bachelor by 0.056 and 0.0006 respectively.

---oOo---

CHAPTER 6

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The aim of the study was to investigate resource provision as a predictor of learner performance in public schools. The resource provision for the purposes of this study referred to the allocation, distributions and utilisation of resources in public schools. This chapter presents a discussions/summary of the findings of the research study in terms of how the findings answered the **research questions, resolved the research problem** and realised the **research objectives**. The discussions also showed how the findings contributed to the existing body of ***knowledge*** on policy, management practice, school governance, financial management and South Africa's education funding framework. The discussion further indicated how the findings contributed to ***theory or model*** used in the study. In addition, the discussion showed how the findings contributed to ***practice*** in relation to the resourcing of schools. The chapter then presents the conclusions and the recommendations which were arrived at based on the findings and, finally, the chapter contains a number of suggestions for further studies.

6.2 SUMMARY OF THE STUDY

This research study investigated resource provisioning as a predictor of learner achievement in public school in Limpopo province. The following research objectives were formulated for the purposes of the study:

- To determine the relationship between the allocation of school resources and learner achievement in public schools.
- To investigate the relationship between the distribution of school resources and learner achievement in public schools.
- To investigate the relationship between the utilisation of school resources and learner achievement in public schools.

The study used a quantitative research design. The target population included heads of department (HODs), educators, school governing body members and principals of secondary schools in the entire Limpopo province. The sample comprised a total of 222 respondents – 56 HODs, 56 educators, 54 principals and 56 school governing body members. The researcher used self-administered questionnaires to gather the data required for the study. There were four sets of questionnaires administered to the heads of department, educators, school governing body members and principals.

6.2.1. How the research findings answered the research questions, resolved the research problem and realised the research aims

6.2.1.1 The relationship between the allocation of resources and learner achievement in public schools

Firstly, the study sought to ascertain the allocation or availability of the school resources, namely, the physical, financial and human resources, in the sampled, public, secondary schools. It was found that the allocation of the physical, financial and human resources was entirely the responsibility of the education department, thus indicating that such allocation is overly dependent on the availability of the department's budget to fund such projects as the provision of classrooms, water and

sanitation, laboratories and libraries, including sports facilities, government subsidy and the provision of educators. According to Mojapelo (2018), equitable resource allocation and provision are critical in all schools, in particular schools in the disadvantaged rural communities, to improve learner outcomes and the quality of the education provided. However, this study noted that the majority of the sampled, public secondary, schools especially those located in the rural areas and townships, are characterised by an inferior quality of education caused by a series of contextual realities and factors. One of the factors related to the serious challenges faced by these schools is the lack of adequate educational facilities and resources in the schools, especially infrastructure. This may be ascribed to the fact that most of the school classrooms provide evidence poor workmanship because of the state of dilapidation and unhealthy conditions for human accommodation. The courts have indicated that it is indisputable that basic school infrastructure plays a significant role in the delivery of basic education and, thus, that the right to basic education is multifaceted as it includes the provision of proper facilities. The cause of the infrastructure problem was identified as the department's limited budget to address the huge infrastructure backlogs created during the apartheid era (Section 27, 2018).

Secondly, the study sought to probe the allocation of the financial resources which are used for the provision of teaching and instructional resources. It was found that the majority of rural schools had been declared "No fee" schools because of the type of communities in which such schools are generally located. The socioeconomic status of these communities which covers quintiles one to three (Q1-Q3) which are dependent on the allocation of funds from the education department in terms of the "No Fee" policy. Accordingly, these type of schools are not allowed to charge fees and accommodate learners from the poorest communities. The findings showed that the allocation of financial resources to the sampled schools was limited and did not

cover most of the schools' needs in relation to the provision of teaching and instructional resources.

Thirdly, the study also sought to investigate the allocation of human resources, including the educators and support staff, through the post provisioning model. It was found that the post provisioning model used by the department to allocate educator posts to the sampled, public secondary, schools did not take into account certain unique factors facing by the public schools located in both the rural and farm areas. The small, non-viable schools found in rural and farm areas are forced to implement multi-grade teaching as their allocation of educators depends on the small number of learners enrolled. These type of schools are supposed to be given a special dispensation of being allocated sufficient educators to deliver the school curriculum, irrespective of the small numbers of learners enrolled. On the other hand, the allocation of resources to public schools in both towns or cities as quintiles four (Q4) and five (Q5) schools was found to be high compared to the rural areas as these schools were able to increase their revenue by charging schools fees.

The study findings revealed that public schools characterised by an inefficient allocation of resources were likely to underperform while those characterised by an efficient allocation of resources would, in all likelihood, perform better. The analysis of the results using the chi-squared test showed that there was a significant association between school resource allocation and learner achievement.

6.2.1.2 The relationship between the distribution of resources and learner achievement in public schools

The study sought to ascertain the extent to which the distribution of resources impacts on learner achievement in public schools. The majority of the respondents from the public schools from the rural and farm public schools indicated that their schools suffered from an inequitable distribution of resources because they received such a meagre allocation of funds from department of education which made it impossible for them to distribute such funds in an equitable way to meet all their various needs. These types of schools are categorised as quintiles one and two (Q1 and Q2) schools. On the other hand, the majority of the respondents from the former model C schools which comprise well-resourced schools indicated that their schools were able to distribute their resources to meet all their various needs. The findings of the study revealed that that the majority of the schools characterised by an equitable distribution of resources were likely to perform better as compared to those schools where was an inequitable distribution of resources which were likely to be underperformers. Using the Chi-squared test the p value showed that there was insignificant association between school resource distribution and learner achievement.

6.2.1.3 The relationship between the utilisation of resources and learner achievement in public schools.

The study found that the majority of the sampled, public schools had indicated that their existing physical infrastructure was dilapidated and, thus, their schools were finding it very difficult to achieve an effective utilisation of their resources without placing their learners at risk. In addition, the research evidence has shown that well-resourced and functional libraries are important resource centres for both learners

and educators, especially in the historically disadvantaged public schools (Mojapelo 2018). Unfortunately, however, the reality is that such important resources are either lacking or non-existent in these schools. Mojapelo (2018) argued that a small percentages of public schools only have well-resourced and functional school libraries. This research study found that, in Limpopo Province, 2,3 % of the public schools only appear to have well-resourced and functional libraries. The majority of these schools are former Model C schools which had been provided with rich resources during the apartheid era. This in turn highlights that the majority of the sampled, public schools serving African learners do not have well-resourced and functional libraries. Relevant literature revealed that research has shown that libraries have an impact on student achievement and, thus, it is imperative that all public schools must find a way of resourcing libraries and ensuring that they are functional (Hart & Zinn, 2007). Based on the findings of international studies, there is convincing evidence showing the vital contribution of school libraries and information systems to quality education (DAC, 2009, Lonsdale, 2003). The findings of this study revealed that there was poor allocation, distribution and utilisation of human resources in public school as reflected by the views of the heads of department, educators, principals and school governing body member. The research study highlighted the poor allocation, distribution and utilisation of resources in the majority of underperforming, public, secondary schools which had an adverse impact on learner achievement in terms of both pass percentages and also degree/diploma passes combined. In addition, as indicated by the principals, educators, HODs and SGD members, the study findings also revealed either a shortage or total lack of latrines/toilets for both learners and educators in the majority of the public schools, especially the rural schools,.

The study established that there were chairs and tables available for the educators and learners in the schools although the respondents had strongly agreed that there was a shortage of chairs and tables in the staffrooms. These results indicated that the schools do not prioritise issues that do not appear to be directly related to tuition (teaching and learning). An analysis of the teaching and instructional materials/ resources showed that the majority of the educator respondents had strongly agreed that teaching and instructional materials were not available except for textbooks, stationery provided by the department, reference guides, field trips, resource persons, and computers for teaching and learning. Teaching materials such as resource manuals and chalk were adequate, as were educator guides and reference books and were neutral on field trips and the use of computers for teaching and learning. Teaching and instructional resources are of no use unless they are effectively/maximally utilised. The study showed that the teacher respondents strongly agreed on the utilisation of the teaching and instructional resources who also argued that, if they were not available, they should use textbooks in their teaching. The other resources to be utilised included set books, reference books, discussion groups and other additional resources they could access.

6.3.1. Discussion on the predictors of resource provisioning in public schools.

This discussion focuses, firstly, on identifying the three (3) predictor variables of resource provision and, secondly, of the elements of the new proposed funding model/framework.

6.3.2.1. The discussion on the three (3) predictor variable of resource provisioning identified

The findings from the statistical analysis conducted revealed that there are three variables of the predictors of resource provisioning in the education sector which

informs the resourcing of public schools. These three (3) predictor variables of resource provisioning include the following: Firstly, the **allocation** predictor variable of resourcing is an independent variable with learner achievement becoming a dependent variable, secondly, the **distribution** predictor variable of resource provisioning is an independent variable with learner achievement as a dependent variable and, thirdly, the **utilisation** predictor variable resource provisioning is an independent variable with learner achievement becoming a dependent variable. This study proposed that the three abovementioned independent variables of predictors of school resource provisioning should be considered or adopted by the Department of Basic Education as a new funding model for public schools in South Africa.

The statistics did not identified the demographic factors of the respondents as one of the predictor variable of resource provision and, therefore, the demographic factors were not included in the recommended three predictor variables of resource provisioning. In other words, the findings of the study revealed that there was a negative and insignificant relationship/association between the demographic factors relating to the respondents and learner achievement in public schools in Limpopo Province. The debate on the role played by these factors in terms of having an indirect impact on learner achievement was not the focus of this study although it is suggested that this may be the research topic in further studies.

6.3.2.2. Discussion on the proposed new funding framework/model to be adopted or considered in the South African context

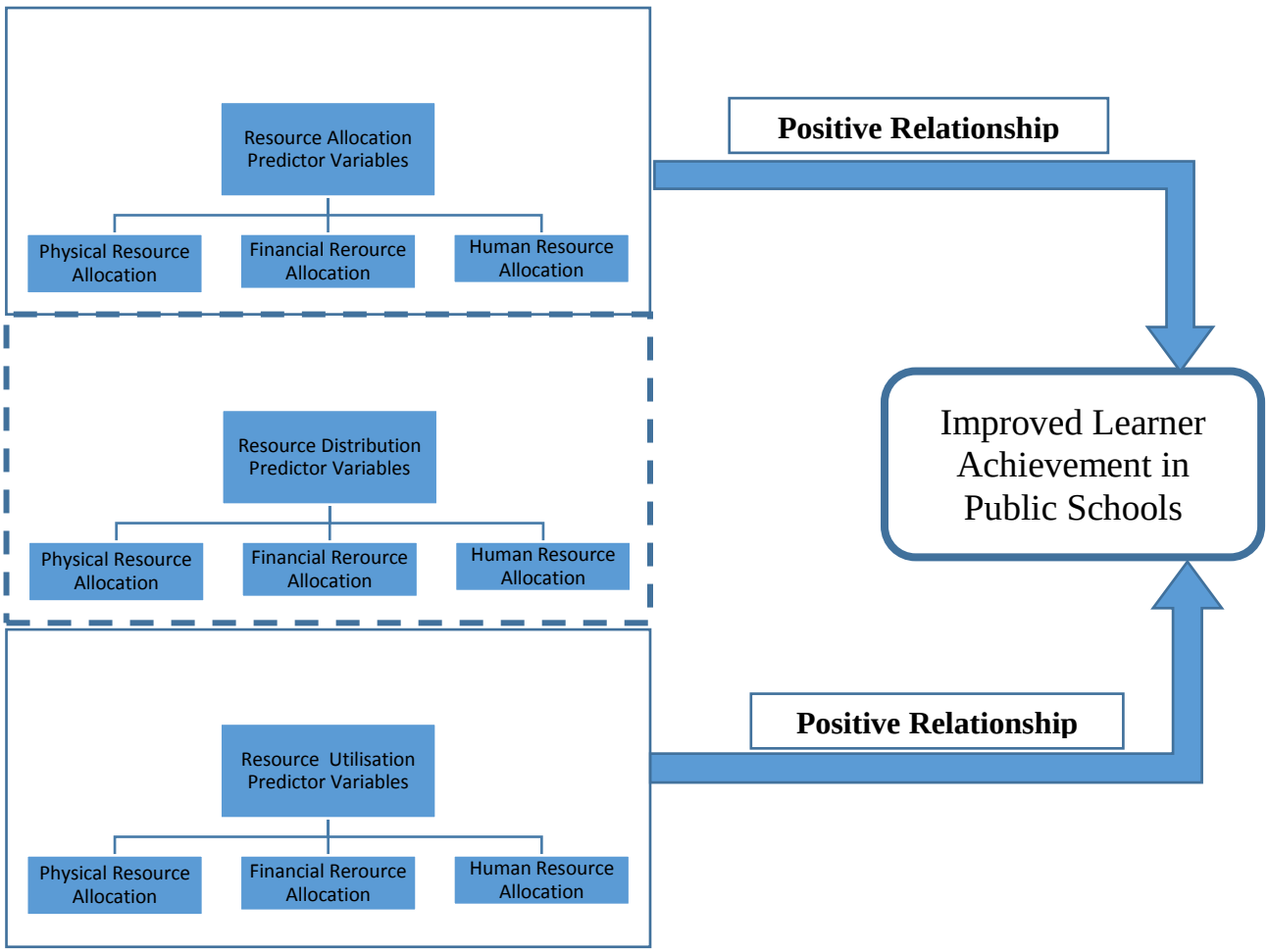
In the main the state of resource provisioning in public schools in South Africa is viewed as problematic. The negative perception of numerous of the education sector in South Africa may be attributed, in part, to the way in which the school resources

allocation is distributed to schools. South Africa's education budgets are informed mainly by the number of learners in each province and the relative wealth of the surrounding community a particular school. The second challenge is that the new democratic government has never undertaken to conduct a broader costing exercises to estimate the cost of the provision of a minimum package of education inputs and outputs for both primary and secondary schools. Such an exercise would have informed the government as to whether there is a need to review the current funding model in order to improve the provision of resourcing in public schools. Research evidence (Maphoso & Mahlo, 2014) has shown that the norms and standards for the school funding model apply to a very small portion of the education budget, while the bulk of the spending (compensation of employees' budget) is not redistributed. In other words, educator salaries of educators are not allocated on a pro-poor basis.

The study proposed a new funding model/framework for public schools in South Africa for the Department of Basic Education to adopt or consider to assist in guiding public secondary schools in the management of their school funds. The management of school finances in public schools should be based on the two predictor variables of resource provisioning in in respect of which the study found evidence of a significant association/relationship between school resources and learner achievement, namely, the allocation predictor variables of resource provisioning and the utilisation of resources. This implies that the schools should ensure that there is both efficient allocation and maximal utilisation of resources in the majority of public schools. The main purpose of resource provisioning is to meet the educational needs of all learners. Furthermore, there should also be equitable distribution of school resources between the needs of the various school departments or schools in terms of the different streams offered at the schools.

The school allocation provided by the Department of Basic Education through the Norms and Standards for School Funding should be increased annually in order to address the needs of both the schools and the learners. The existing pro-poor funding model, which is based on the weight of the learners or number of learners enrolled at a particular school, does not take into account the unique contextual situation of the small, non-viable schools. The researcher is of the opinion that, if the school allocation is increased annually, this will enable the schools to allocate more basic facilities and resources according to their particular needs which would be presented at the parents' meeting for adoption as part of the budgeting processes.

Figure 6.3.2.2: Proposed new funding model/ framework for public schools in South Africa



The diagram in Figure 4.19 shows the new funding model proposed by the study. The model makes it possible to determine whether there is any significant relationship between learner achievement and resource allocation, distribution and utilisation in public schools in Limpopo Province.

The new funding model above demonstrates the relationship between the allocation predictor variables and learner achievement as confirmed by the results of this study. Firstly, the study investigated the relationship between the allocation of school resources and learner achievement. The analysis of the results using the chi-squared test ($x2 = 5.707$, $p = 0.017$) found $p < 0.05$, thus providing evidence of a significant association between school resource allocation and learner achievement. The three predictor variables of resource allocation include physical resource, financial resource and human resource allocations.

Secondly, the study investigated the relationship between the distribution of school resources and learner achievement. Using the chi-squared test ($x2 = 2.103$, $p = 0.147$), the study found $p < 0.05$, thus providing evidence of an insignificant association between school resource distribution and learner achievement. Hence, this predictor variable is depicted using dotted lines. There is no line connecting with box on learner achievement, thus show that there no significant association between school resource distribution and learner achievement and, hence, it is not included in the recommended new funding model.

Thirdly, using the chi-squared test ($x2 = 4.051$, $p = 0.04$), the study found $p < 0.05$, thus providing evidence of a significant association between school resource utilisation and learner achievement. Hence, it was recommended that the predictor variables of physical resource, financial resource and human resources utilisation be included in the new funding model/framework depicted above.

There are four important issues which the above model attempted to answer. South Africa needs a model which will ensure that there is equitable school funding in the public schools. Thus, it is essential that the efficient allocation of school resources ensures that there are sufficient resources to provide quality education to all learners. The principle to be considered is that the school allocation must be distributed in a way in which it will allow all learners to reach certain prescribed standards of education, irrespective of their race, class, gender, area of residence, and family wealth (Mudulia, 2012). The allocation and utilisation of resources should redress the historical inequalities in respect of accessing quality education and improving the learning outcomes of all learners, especially the most disadvantaged.

The existing funding model uses a top down approach with education budget being based on the total revenue available to the government and the total number of enrolled learners. The new proposed funding model is based on the cost per learner required to ensure a minimum standard of quality education. The cost of the initial quality education per learner is calculated based on the cost of education inputs, educator salaries, the provision of school nutrition or meals, scholar transport and the effective management of school learning and teaching programmes. The key factors for the success of the school funding model include the following: resource targeting to disadvantaged schools and the emphasis on cost-effectiveness. The proposed funding model also accommodates the needs based criteria in the funding formulae as a way of to ensuring that the allocation of learning resources is more responsive to education needs than is currently the case.

6.4.1 Contribution of research findings to existing body of knowledge

The research findings brought some insights into the way in which the predictors of resource provision in public schools may play a critical role in learner achievement. Learner achievement by percentage pass rate was regressed against the three predictor variables, namely, physical resource allocation, financial resource allocation and human resource allocation. The study aimed to establish the impact of the allocation of school resources on learner achievement. However, the results revealed a weak, positive correlation of R = 0.416 between the allocation of resources and learner achievement by pass rate. There was evidence that the physical resource allocation produced negative and statistically significant values with high t=values, namely, t = -2.785, P < 0.05, p = 0.007. In contrast, financial resource allocation produced positive and statistically insignificant values as evidenced by t = 0.138, p = 0.891. Similar to the former the human resource allocation produced negative and statistically insignificant values as evidenced by t = -1.726, p = 0.090. These results have contributed to the existing body of knowledge and practice in relation to the way in which the allocation of school resource contributes to learner performance in terms of pass percentages.

Learner achievement by degree/diploma pass rate was regressed against the three predictor variables, namely, physical resource allocation, financial resource allocation and human resource allocation. The results revealed that a weak, positive correlation of R = 0.051059 between the distribution of school resource and learner achievement by degree/diploma pass rate. The results further indicated that the value of the adjusted R squared was -0.00369. This implied that the allocation variables (physical, financial and human resource distribution) may account for 0.03% of the changes in learner achievement by degree/diploma pass rate. The above results have

contributed positively to the existing body of research evidence. In addition, this new insights should be relevant to both informing the education department policy and the management practice both in Limpopo province and nationally.

The study included a literature review which enabled the researcher to identify a number of gaps in the existing literature with the researcher establishing the following current existing knowledge in the relevant literature: Firstly, most of the existing literature has focused on the relationship between school resources and learner achievement with the majority of the studies concluding that there was little or no significant relationship between school resources and learner performances in schools (Filsecker & Hickey, 2014, Fulantelli, Taibi & Arrigo 2015; Hanushek 1997, 1999,). However, a few of the studies indicated that there was a positive relationship between school resources and learner achievement in schools (Chamber, 2015; Glatthorn et al.; Hedges, Laine, & Greenwald, 2014). Secondly, it is critical to note that the context in which these studies (majority of them) were conducted was the developed countries while the context of the developing countries was not considered. This study was focused on the developing countries which is a different context to that of the developed countries and, hence, its contribution to knowledge about the developing countries. This study argued that, because of different contexts of the developing countries and the developed countries, there might be some differences between the findings of the studies mentioned above and this study. In addition, this study also focused on the different aspect of resources, namely, the predictors of resource provisioning.

In view of the above discussion, the research study argues that it has contributed significantly to the existing body of knowledge by focusing on resource provisioning as a predictor of learner achievement in public, secondary schools. These predictors

were those factors which influence the allocation, distribution and utilisation of school resources in public schools. The majority of the existing research studies have focused on the relationship between school resources and learner achievement and not on the way in which these resources are allocated, distributed and utilised. Thirdly, as was revealed in the literature review, the issue of the predictors of resource provisioning in public schools has not been included in the existing research topics of studies conducted in the developing countries. In other words, these studies did not extend the scope of their research to focus on the predictors of resource provisioning as did this study. It is interesting to note that the predictors of resource provisioning as the research topic in this study were found to play a critical role in determining the relationship between the allocation, distribution and utilisation of resources and learner achievement in public schools. In addition, it also became apparent that the demographic factors pertaining to the school management teams (SMTs) and school governing bodies (SGBs) played an important role in their decision making in relation to the allocation, distribution and utilisation of resources in public, secondary schools in Limpopo Province.

It is further argued that the literature review revealed that there is gap in the existing literature in relation to addressing the issues of resource provisioning (Gray, 1999). Firstly, the majority of the literature on resource inputs has focused on the relationship between school resources and learner performance at a state level in the developed countries and not on the relationship at the school level. In addition, some of these studies investigated resourcing at the district and county levels and did not drill down to the local level (school) as expected. This study identified a gap in the research on resource provisioning at the local level and has generated findings which will assist other researchers who wish to pursue the issue of resource provisioning. In addition, the existing literature has also not addressed the relationship between the distribution

of school resources and learner achievement at the local/school level while the majority of the existing research studies have neglected the relationship between school resource utilisation and learner achievement at the local/school level (Levacic, 2014).

In particular, most of the existing literature has indicated the critical role played by educational leaders in the utilisation of resource inputs. However, it is worth noting that, in her study Levacic (2014) indicated that, in the research on school effectiveness (SER), it would seem that the issue of resource utilisation does not appear explicitly in any of the processes. It is also revealed that that which link to resources include both professional development and the quality of instruction. It is asserted that the latter is dependent on teacher quality and is known as adequate learning resources. It may be said that this study has bridged the above mentioned gaps by focusing on the relationship between the utilisation of school resources and learner achievement at the school level with the findings indicating that there is, indeed, a significant relationship between the utilisation of resources and learner achievement at the school level. The study also showed that, in the majority of the schools, their geographic location, as part of predictors, determined the allocation, distribution and utilisation of school resources. For example, as compared to the under resourced schools in townships/rural areas and farm schools, well-resourced schools in town/city more opportunity for the efficient allocation of resources, there will an equitable distribution of resources to address all the schools' needs while they also have the capacity to maximally utilise such allocated school resources.

Although ICT as a resource concept has not been established in school resource provisioning it has, nevertheless, been researched as a research topic on its own and not as a subtopic within the context of resource provisioning. Thus, this study

contributed to the existing body knowledge by including ICT both in the literature review and also as a subtitle of the research topic, namely, Predictors of resource provisioning. The study has shown how the ICT may be utilised as part of the education resource of e-education to enhance the effectiveness of learning and teaching in rural, public schools where much of the quality teaching and learning is generally neglected and compromised.

6.3 CONCLUSION

It is clear from the study that resource provision was shown to be a predictor of learner achievement in public schools. The study highlighted that the way in which school resources are allocated, distributed and utilised has an influence on learner achievement. It also emerged from the study that there are not sufficient teaching and learning resources available and that there is a shortage of physical facilities. In addition, the few available physical facilities are in a poor condition/state and are often too small/insufficient. Recreational facilities are inadequate and there is a gross lack of human resources. The majority of the rural, public, are staffed by both unqualified and underqualified educators. An analysis of the physical facilities revealed that these facilities are over-stretched with the educators further indicating that the lack of facilities had a negative impact on the performance of learners in public schools. Teaching and learning materials tend to be inadequate and have to shared, especially in the compulsory subjects. In addition, the human resources are also an issue of serious concern as the enrolment in schools is increasing every year, thus leading to inadequate curriculum supervision and implementation in schools. The study also established that the allocation of human resources was not carried out either efficiently or effectively.

6.4 RECOMMENDATIONS

Based on the findings, data analysis and conclusions of the study, the following recommendations were made:

- The government should allocate more funds to provide and equip the physical facilities in public schools which were, at the time of the study, either inadequate or completely lacking. In addition, more funds should be allocated to provide schools with human resources, internet facilities and recreational facilities as well as to enable field trips and excursions. In addition, specific subject rooms, such as agriculture rooms, libraries and laboratories should be equipped to enhance effective teaching and learning.
- More funds are required to enable public schools to employ more quality educators to cater for the enormous educator shortage. In-service training programmes should also be initiated to address the manpower needs that have resulted from the changing times to enable teachers to have access to and to use computers, the internet and e-materials or e-education. Where the internet is unavailable, unreliable or unaffordable, the development of local school networks and the provision of e-materials to schools on compact disks (CDs/flash disks) may support e-learning via school servers and networks.
- The curriculum advisors and officials responsible for education management and governance development in the province should be more empowered with the resources required to enable them to carry out their advisory and support work more effectively in the schools. Regular visits to and monitoring of schools on their part would be beneficial as their guidance and support would enable schools to maintain the expected standards of effective learning and teaching.

This would also assist principals to ensure that all teaching and learning resources are utilised effectively.

- The researcher recommends that the government should build more schools to meet the rising, yearly enrolment figures and to avoid overcrowding in respect of the physical facilities, overextended teaching and learning materials and overworking the available educators, all of which compromise the quality of the education provided.

---ooOoo---

LIST OF REFERENCES

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development*, *34*(1), 1–14.

Adams, J. E., Jr. (2017). Organizational context and district resource allocation: Does the setting matter? *Journal of Education Finance, 23*, 234–258.

Alexander, H. A. (2006). A view from somewhere: Explaining the paradigms of educational

research. *Journal of philosophy of education*, *40*(2), 205-221.

Ary, D., Jacobs, L.C., & Sorenson, C. (2010). Introduction to research in education.

(8thed.).Belmont, CA: Wardsworth.

Agudo-Peregrina, Á. F., Iglesias-Pradas, S., Conde-González, M. Á., & Hernández-García, Á. (2014). Can we predict success from log data in VLEs? Classification of interactions for learning analytics and their relationship with performance in VLE-supported F2F and online learning. *Computers in Human Behavior*, *31*, 542–550.

Albayrak, D., & Yildirim, Z. (2015). Using social networking sites for teaching and learning: Students' involvement in and acceptance of Facebook® as a course management system. *Journal of Educational Computing Research*, *52*(2), 155–179.

Albert, M., & Beatty, B. J. (2014). Flipping the classroom applications to curriculum redesign for an introduction to management course: Impact on grades. *Journal of Education for Business*, *89*(8), 419–424.

Alexander, N. (2013). Thoughts on the new South Africa. Auckland Park: Jacana Media.

Alharbi, H. A. (2015). Improving students' English speaking proficiency in Saudi Public Schools. *International Journal of Instruction*, *8*(1), 105–116.

Andersen, L. B., Heinesen, E., & Pedersen, L. H. (2014). How does public service motivation among teachers affect student performance in schools? *Journal of Public Administration Research and Theory*, *24*(3), 651–671.

Anderson, J., & Boyle, C. (2015). Inclusive education in Australia: Rhetoric, reality and the road ahead. *Support for Learning*, *30*(1), 4–22.

Bacca, J., Baldiris, S., Fabregat, R., & Graf, S. (2014). Augmented reality trends in education: a systematic review of research and applications. *Journal of Educational Technology & Society*, *17*(4), 133.

Bakker, A., & Van Eerde, D., 2015. An introduction to design-based research with an example from statistics education. In *Approaches to qualitative research in mathematics education* (pp. 429–466). Netherlands: Springer.

Bakosh, L. S., Snow, R. M., Tobias, J. M., Houlihan, J. L., & Barbosa-Leiker, C. (2016). Maximizing mindful learning: Mindful awareness intervention improves elementary school students' quarterly grades. *Mindfulness*, *7*(1), 59–67.

Baleni, Z. G. (2015). Online formative assessment in higher education: Its pros and cons. *Electronic Journal of e-Learning*, *13*(4), 228–236.

Ballou, D. (2008). The condition of urban school finance: Efficient resource allocation in urban schools. In W. J. Fowler, Jr. (Ed.), *Selected papers in school finance, 1996* (pp. 61–84). Washington, DC: National Center for Education Statistics.

Bansilal, S. (2012, September). What can we learn from KZN ANA results? *South African Education Journal, 9*(2).

Barber, W., King, S., & Buchanan, S. (2015). Problem based learning and authentic assessment in digital pedagogy: Embracing the role of collaborative communities. *Electronic Journal of e-Learning*, *13*(2), 59–67.

Baroody, A. E., Rimm-Kaufman, S. E., Larsen, R. A., & Curby, T. W. (2014). The link between responsive classroom training and student-teacher relationship quality in the fifth grade: A study of fidelity of implementation. *School Psychology Review*, *43*(1), 69.

Bayne, S. (2015). What's the matter with 'technology-enhanced learning'? *Learning, Media and Technology*, *40*(1), 5–20.

Beeby, C. E. (2016). The states of growth in educational systems. In S. P. Heinemann & D. S. White (Eds), *Education and economic development* (pp. 37–44). Washington, D.C: World Bank.

Behrman, J. R. (2010). Investment in education: Inputs and incentives. *Handbook of Development Economics, 5*, 4883–4975.

Bell, L. M., & Aldridge, J. M. (2014). Introduction. In L. M. Bell. & J. M. Aldridge (Eds), *Student voice, teacher action research and classroom improvement* (pp. 1–46). Rotterdam/Boston/Taipei: Sense.

Biddle, B. J., & Berliner, D. C. (2014). Small class size and its effects: Schools and society. *A Sociological Approach to Education,* 76.

Biesta, G., Priestley, M., & Robinson, S. (2015). The role of beliefs in teacher agency. *Teachers and Teaching*, *21*(6), 624–640.

Bipath, K. (2008). The emotional intelligence of the principal is essential in the leadership of a functional school. *The International Journal of Learning, 15*(10), 57–64.

Blair, C., & Raver, C. C. (2014). Closing the achievement gap through modification of neurocognitive and neuroendocrine function: Results from a cluster randomized controlled trial of an innovative approach to the education of children in kindergarten. *PloS one*, *9*(11), e112393.

Bloch, G. (2012). *The toxic mix: What's wrong with South Africa's schools and how to fix it?* Cape Town: Tafelberg.

Bohrnstedt, G., Kitmitto, S., Ogut, B., Sherman, D., & Chan, D. (2015). *School composition and the black-white achievement gap.* NCES 2015-018. Washington, DC: National Center for Education Statistics.

Bol, T., Witschge, J., Van de Werfhorst, H. G., & Dronkers, J. (2014). Curricular tracking and central examinations: Counterbalancing the impact of social background on student achievement in 36 countries. *Social Forces*, *92*(4), 1545–1572.

Botha, A. J. (2O14). Outcomes-based education and educational reform in South Africa. *International Journal of Leadership in Education, 5*, 361–371.

Bradshaw, C. P., Waasdorp, T. E., Debnam, K. J., & Johnson, S. L. (2014). Measuring school climate in high schools: A focus on safety, engagement, and the environment. *Journal of School Health*, *84*(9), 593–604.

Branson, N. Garlick, J. Lam, D. & Leibbrandt M. (2012). *Education and inequality: The South African case.* Southern Africa Labour and Development Research Unit. Working Paper Series Number 75. Cape Town: SALDRU, University of Cape Town

Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, *27*, 1–13.

Busch, V., Loyen, A., Lodder, M., Schrijvers, A.J., Van Yperen, T. A., & De Leeuw, J. R. (2014). The effects of adolescent health-related behavior on academic performance: A systematic review of the longitudinal evidence. *Review of Educational Research*, *84*(2), 245–274.

Busse, H., Aboneh, E. A,. & Tefera, G. (2014). Learning from developing countries in strengthening health systems: An evaluation of personal and professional impact among global health volunteers at Addis Ababa University's Tikur Anbessa Specialized Hospital (Ethiopia). *Globalization and Health*, *10*(1), 64.

Butler, Y. G. (2014). Parental factors and early English education as a foreign language: A case study in Mainland China. *Research Papers in Education*, *29*(4), 410–437.

Campbell, P. F., Nishio, M., Smith, T. M., Clark, L. M., Conant, D. L., Rust, A. H., … Choi, Y. (2014). The relationship between teachers' mathematical content and pedagogical knowledge, teachers' perceptions, and student achievement. *Journal for Research in Mathematics Education*, *45*(4), 419–459.

Carpenter, J. P., & Krutka, D. G. (2014). How and why educators use Twitter: A survey of the field. *Journal of Research on Technology in Education, 46*(4), 414–434.

Christie, P., Butler, D., & Potterton, M. (2007). Report to the Minister of Education Ministerial Committee on schools that work.

Carrese, J. A., Malek, J., Watson, K., Lehmann, L. S., Green, M. J., McCullough, L. B., … Doukas, D. J. (2015). The essential role of medical ethics education in achieving professionalism: the Romanell Report. *Academic Medicine*, *90*(6), 744–752.

Castillo-Merino, D., & Serradell-López, E. (2014). An analysis of the determinants of students' performance in e-learning. *Computers in Human Behavior*, *30*, 476–484.

Castro, M., Expósito-Casas, E., López-Martín, E., Lizasoain, L., Navarro-Asencio, E. & Gaviria, J. L. (2015). Parental involvement in learner academic achievement: A meta-analysis. *Educational Research Review, 14*, 33–46.

Ceulemans, K., Molderez, I., & Van Liedekerke, L. (2015). Sustainability reporting in higher education: A comprehensive review of the recent literature and paths for further research. *Journal of Cleaner Production*, *106*, 127–143.

Chambers, J. G. (2015). Public school teacher cost differences across the United States: Introduction to a teacher cost index (TCI). In W. J. Fowler, Jr. (Ed.), *Developments in school finance*, 1995 (pp. 21–32). Washington, DC: National Center for Education Statistics.

Cheema, J. R., & Kitsantas, A. (2014). Influences of disciplinary classroom climate on high school student self-efficacy and mathematics achievement: A look at gender and racial–ethnic differences. *International Journal of Science and Mathematics Education*, *12*(5), 1261–1279.

Chrusciel, M. M., Wolfe, S., Hansen, J. A., Rojek, J. J., & Kaminski, R. (2015). Law enforcement executive and principal perspectives on school safety measures: School resource officers and armed school employees. *Policing: An International Journal of Police Strategies & Management*, *38*(1), 24–39.

Cobb-Clark, D. A., & Jha, N. (2016). Educational achievement and the allocation of school resources. *Australian Economic Review*, *49*(3), 251–271.

Coe, R., Aloisi, C., Higgins, S., & Major, L. E. (2014). What makes great teaching? Review of the underpinning research. United Kingdom: CEM/Durham University, the Sutton Trust.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (2016). *Equality of educational opportunity*. Washington, DC: US Government Printing Office.

Conklin, A., Morris, Z., & Nolte, E. (2015). What is the evidence base for public involvement in health-care policy?: Results of a systematic scoping review. *Health Expectations*, *18*(2), 153–165.

Conroy, M. A., Sutherland, K. S., Vo, A. K., Carr, S., & Ogston, P. L. (2014). Early childhood teachers' use of effective instructional practices and the collateral effects on young children's behavior. *Journal of Positive Behavior Interventions*, *16*(2), 81–92.

Creswell, J. W. (2014). Educational research: Planning, conducting and evaluating quantitative and qualitative research (4th ed.). Boston, MA: Pearson.

Cross, M. (2015). State power, transition and new modes of coordination in higher education in South Africa. In *Higher Education in the BRICS Countries* (pp. 353–376). Netherlands: Springer.

Cueto, S., Guerrero, G., Leon, J., Zapata, M., & Freire, S. (2014). The relationship between socioeconomic status at age one, opportunities to learn and achievement in mathematics in fourth grade in Peru. *Oxford Review of Education*, *40*(1), 50–72.

Cummins, J., Hu, S., Markus, P., & Kristiina Montero, M. (2015). Identity texts and academic achievement: Connecting the dots in multilingual school contexts. *TESOL Quarterly*, *49*(3), 555–581.

Darling-Hammond, L. (2014). Strengthening clinical preparation: The holy grail of teacher education. *Peabody Journal of Education*, *89*(4), 547–561.

Darling-Hammond, L., Wilhoit, G., & Pittenger, L. (2014). Accountability for college and career readiness: Developing a new paradigm. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, *22*.

Darolia, R. (2014). Working (and studying) day and night: Heterogeneous effects of working on the academic performance of full-time and part-time learners. *Economics of Education Review*, *38*, 38–50.

Deakin Crick, R., & Goldspink, C. (2014). Learner dispositions, self-theories and student engagement. *British Journal of Educational Studies*, *62*(1), 19–35.

DeBoer, J., Ho, A. D., Stump, G. S., & Breslow, L. (2014). Changing “course” reconceptualizing educational variables for massive open online courses. *Educational Researcher*, *43*(2), 74–84.

Delaney, G., & Bates, J. (2015). Envisioning the academic library: A reflection on roles, relevancy and relationships. *New Review of Academic Librarianship*, *21*(1), 30–51.

DeMatthews, D., & Mawhinney, H. (2014). Social justice leadership and inclusion exploring challenges in an urban district struggling to address inequities. *Educational Administration Quarterly*, *13.*

Department of Basic Education. (2009). *The National Education Infrastructure Management System (NEIMS) Report*. Pretoria: DBE.

Department of Basic Education (2006). *National Curriculum Statement (NCS).* Pretoria: DBE.

Department of Basic Education. (20). *Curriculum Assessment Policy Statement (CAPS).* Pretoria: DBE.

Department of Basic Education. (2000). *Regulations on minimum norms and standards for public school infrastructure*. Pretoria: DBE.

Dias, S. B., & Diniz, J. A. (2014). Towards an enhanced learning management system for blended learning in higher education incorporating distinct learners' profiles. *Educational Technology & Society*, *17*(1), 307–319.

DiPaola, M., & Tschannen-Moran, M. (2014). Organizational citizenship behaviour in schools and its relationship to school climate. *Journal of School Leadership*, *11*(5), 424.

Donohue, D., & Bornman, J. (2014). The challenges of realising inclusive education in South Africa. *South African Journal of Education*, *34*(2), 01–14.

Duflo, E., Dupas, P., & Kremer, M. (2015). School governance, teacher incentives, and pupil–teacher ratios: Experimental evidence from Kenyan primary schools. *Journal of Public Economics*, *123*, 92–110.

Eguchi, A. (2015). Integrating educational robotics to enhance learning for gifted and talented students. In *Cases on instructional technology in gifted and talented education* (pp. 54–90). IGI Global.

Engelbrecht, P., Nel, M., Nel, N., & Tlale, D. (2015). Enacting understanding of inclusion in complex contexts: Classroom practices of South African teachers. *South African Journal of Education*, *35*(3), 1–10.

Erlanger, H. S., & Klegon, D. (2014). Socialization effects of professional school: The law school experience and students' orientation to public interest concerns.

Evans, D. K., & Popova, A. (2016). What really works to improve learning in developing countries? An analysis of divergent findings in systematic reviews. *The World Bank Research Observer*, *31*(2), 242–270.

Fägerlind, I., & Saha, L. J. (2016). *Education and national development: A comparative perspective*. Oxford: Pergamon Press Elsevier.

Filsecker, M., & Hickey, D. T. (2014). A multilevel analysis of the effects of external rewards on elementary learners' motivation, engagement and learning in an educational game. *Computers & Education*, *75*, 136–148.

Fischer, L., Hilton, J., Robinson, T. J., & Wiley, D. A. (2015). A multi-institutional study of the impact of open textbook adoption on the learning outcomes of post-secondary students. *Journal of Computing in Higher Education*, *27*(3), 159–172.

Flick, U. (2015). *Introducing research methodology: A beginner's guide to doing a research project*. London: Sage Publications.

Foster, V. (2014). Is female educational 'success' destabilising the male learner-citizen? In Arnot M & Dillabough J (eds). *Challenging democracy: International perspectives on gender education and citizenship* p. 203). New York: Routledge.

Fowles, J. (2014). Funding and focus: Resource dependence in public higher education. *Research in Higher Education*, *55*(3), 272–287.

Fox, N. J., & Alldred, P. (2015). New materialist social inquiry: Designs, methods and the research-assemblage. *International Journal of Social Research Methodology*, *18*(4), 399–414.

Freitas, S., Gibson, D., Du Plessis, C., Halloran, P., Williams, E., Ambrose, M., … Arnab, S. (2015). Foundations of dynamic learning analytics: Using university student data to increase retention. *British Journal of Educational Technology*, *46*(6), 1175–1188.

Froiland, J. M., & Davison, M. L. (2014). Parental expectations and school relationships as contributors to adolescents' positive outcomes. *Social Psychology of Education*, *17*(1), 1–17.

Fulantelli, G., Taibi, D., & Arrigo, M. (2015). A framework to support educational decision making in mobile learning. *Computers in Human Behavior*, *47*, 50–59.

Fullan, M., Rincón-Gallardo, S., & Hargreaves, A. (2015). Professional capital as accountability. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, (23).

Fuller, B. (1985). *Raising school quality in developing countries: What investments boost learning?* World Bank. Education and Training Material Series. Retrieved from http://documents.worldbank.org/curated/en/161041468741003695/pdf/multi-page.pdf

Fyfe, E. R., McNeil, N. M., Son, J. Y., & Goldstone, R. L. (2014). Concreteness fading in mathematics and science instruction: A systematic review. *Educational Psychology Review*, *26*(1), 9–25.

Gardiner, M. (2007). Education Monitor. CEPD, Vol.15, No 1. Pages 1-4.

Garganté, A. B., Narango, J. M., & Tamarit, C. G. (2015). Technology use for teaching and learning. *Pixel-Bit. Revista de Medios y Educación*, (46), 9–24.

Gitchel, W., & Mpofu, E. (2012). Basic issues in thesis writing. Complete your thesis or dissertation successfully: *Practical guidelines*, 56-68.

Guba, E. G. (1990). The paradigm dialog. In *Alternative Paradigms Conference, Mar, 1989,*

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research*. Handbook of qualitative research, 2(163-194), 105. Indiana U, School of Education, San Francisco, CA, US*. Sage Publications, Inc.

Garrett, R., & Steinberg, M. P. (2015). Examining teacher effectiveness using classroom observation scores: Evidence from the randomization of teachers to students. *Educational Evaluation and Policy Analysis*, *37*(2), 224–242.

Gašević, D., Dawson, S., & Siemens, G. (2015). Let's not forget: Learning analytics are about learning. *TechTrends*, *59*(1), 64–71.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2011). *Educational research: Competencies for analysis and applications* (10th ed.). New Jersey: Pearson.

Glatthorn, A. A., Jailall, J. M., & Jailall, J. K. (2016). *The principal as curriculum leader: Shaping what is taught and tested*. California: Corwin Press.

Goff, P., Edward Guthrie, J., Goldring, E., & Bickman, L. (2014). Changing principals' leadership through feedback and coaching. *Journal of Educational Administration*, *52*(5), 682–704.

Graham, C. R., Henrie, C. R., & Gibbons, A. S. (2014). Developing models and theory for blended learning research. *Blended Learning: Research Perspectives*, *2*, 13–33.

Grant, M. M., Tamim, S., Brown, D. B., Sweeney, J. P., Ferguson, F. K., & Jones, L. B. (2015). Teaching and learning with mobile computing devices: Case study in K-12 classrooms. *TechTrends*, *59*(4), 32–45.

Graven, M. H. (2014). Poverty, inequality and mathematics performance: The case of South Africa's post-apartheid context. *ZDM*, *46*(7), 1039–1049.

Greenwald, R., Hedges, L. V., & Laine, R. D. (2016). The effect of school resources on student achievement. *Review of Educational Research, 66*, 361–396.

Grier, L. A. (2015). *Decolonising the media: The use of indigenous African languages in South African television advertisements* (Doctoral dissertation). University of Cape Town.

Grissmer, D., Flanagan, A., & Williamson, S. (2008). Does money matter for minority and disadvantaged students? Assessing the new empirical evidence. In W. J. Fowler, Jr. (Ed.), *Developments in school finance*, *1997* (pp. 15–30). Washington, DC: National Center for Education Statistics.

Grix, J. (2010). *Research skills: The foundation of research*. London: Palgrave Macmillan.

Guetterman, T. C. (2015, May). Descriptions of sampling practices within five approaches to qualitative research in education and the health sciences. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 16*(2).

Haglund, J., Jeppsson, F., & Ahrenberg, L. (2015). Taking advantage of the "big mo": Momentum in everyday English and Swedish and in Physics teaching. *Research in Science Education*, *45*(3), 345–365.

Hahn, C. L. (2015). Teachers' perceptions of education for democratic citizenship in schools with transnational youth: A comparative study in the UK and Denmark. *Research in Comparative and International Education*, *10*(1), 95–119.

Halupa, C. M. (2015). Transformative learning: Theory and practice for faculty and students. In *Transformative Curriculum Design in Health Sciences Education* (pp. 1–39). IGI Global.

Hansen, M., & Gonzalez, T. (2014). Investigating the relationship between STEM learning principles and student achievement in math and science. *American Journal of Education*, *120*(2), 139–171.

Hanushek, E. A. (1989). The impact of differential expenditures on school performance. *Educational Research, 18*(4), 45–51, 62.

Hanushek, E. A. (1995). Interpreting recent research on schooling in developing countries. *World Bank Observer, 10*, 227–246.

Hanushek, E. A. (2003). The failure of input-based schooling policies. *Economic Journal, 113*(485), F64–F98.

Hanushek, E. A. (2016). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis, 19*(2), 141–164.

Harvey, L. (2015). Beyond member-checking: A dialogic approach to the research interview. *International Journal of Research & Method in Education*, *38*(1), 23–38.

Hauserman, C., & Stick, S. L. (2014). The leadership educators want from principals – transformational. *Canadian Journal of Education/Revue Canadienne De l'éducation*, *36*(3), 184–203.

Hedges, L. V., Laine, R. D., & Greenwald, R. (2014). Does money matter? A meta-analysis of studies of the effects of differential school inputs on student outcomes. *Educational Researcher, 23*(3), 5–14.

Heitzer, J. (2015). *Web-based instruction improves teaching*. Texas Lutheran University.

Howie, S. J. (2001). *Mathematics and Science Performance in Grade 8 in South Africa 1998/1999: TIMMS-R 1999 South Africa*. Human Sciences Research Council.

Hell, M. (2006, December). Libraries as a tool for education and social change: Exploring the situation of school libraries in post-apartheid South Africa. *New Global Times,* (6).

Republic of South Africa. Department of Basic Education. Report on the Annual National Assessment. Pretoria: Government Printer.

Henderson, M., Selwyn, N., & Aston, R. (2017). What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Studies in Higher Education*, *42*(8), 1567–1579.

Hew, K. F. (2016). Promoting engagement in online courses: What strategies can we learn from three highly rated MOOCS. *British Journal of Educational Technology*, *47*(2), 320–341.

Higgins, S., Katsipataki, M., Villanueva-Aguilera, A. B., Coleman, R., Henderson, P., Major, L.E., … Mason, D. (2016). The Sutton Trust-Education Endowment Foundation Teaching and Learning Toolkit.

Hills, A. P., Dengel, D. R., & Lubans, D. R. (2015). Supporting public health priorities: Recommendations for physical education and physical activity promotion in schools. *Progress in Cardiovascular Diseases*, *57*(4), 368–374.

Horn, S. A. (2015). The social and psychological costs of peer review stress and coping with manuscript rejection. *Journal of Management Inquiry*, 16.

Horvat, A., Dobrota, M., Krsmanovic, M., & Cudanov, M. (2015). Student perception of Moodle learning management system: A satisfaction and significance analysis. *Interactive Learning Environments*, *23*(4), 515–527.

Howard, S. K., Chan, A., & Caputi, P. (2015). More than beliefs: Subject areas and teachers' integration of laptops in secondary teaching. *British Journal of Educational Technology*, *46*(2), 360–369.

Hoy, W. K., & Adams, C. M. (2015). *Quantitative research in education: A primer*. Ohio: Sage Publications.

HSRC & EPC. (2005). *Emerging voices: A report on education in South African rural communities*. Research for Nelson Mandela Foundation.

Hu, H., Lu, S., & Huang, C. C. (2014). The psychological and behavioral outcomes of migrant and left-behind children in China. *Children and Youth Services Review*, *46*, 1–10.

Huang, J. C., Huang, A. Y., Lu, O. H., Tseng, H. C., & Yang, S. J. (2016, September). *Learning dashboard: Visualization of learning behaviour in MOOCs*. Paper presented at the International Workshop on Technology-Enhanced Collaborative Learning (TECL 2016). In conjunction with CRIWG/CollabTech, 1, 25.

Humphries, B. (2017). *Re-thinking social research: Anti-discriminatory approaches in research methodology*. Taylor & Francis.

Hunter, M. (2015). Schooling choice in South Africa: The limits of qualifications and the politics of race, class and symbolic power. *International Journal of Educational Development*, *43*, 41–50.

Hurst, E. (2015). “The thing that kill us”: Student perspectives on language support in a South African university. *Teaching in Higher Education*, *20*(1), 78–91.

Hwang, G. J., Hung, C. M., & Chen, N. S. (2014). Improving learning achievements, motivations and problem-solving skills through a peer assessment-based game development approach. *Educational Technology Research and Development*, *62*(2), 129–145.

Iftanti, E. (2015). What makes EFL students establish good reading habits in English. *International Journal of Education and Research*, *3*(5), 365–374.

Izadpanah, S., & Asadi, J. (2015). The comparison of computer assisted teaching and traditional explicit method in learning/teaching English vocabulary. *Modern Journal of Language Teaching Methods*, *5*(2), 554.

Jackson, C. K., Johnson, R. C., & Persico, C. (2015). The effects of school spending on educational and economic outcomes: Evidence from school finance reforms. *The Quarterly Journal of Economics*, *131*(1), 157–218.

James, C., Brammer, S., Connolly, M., Spicer, D. E., James, J., & Jones, J. (2013). The challenges facing school governing bodies in England: A perfect storm? *Management in Education*, *27*(3), 84–90.

Jennings, P. A. (2015). Early childhood teachers' well-being, mindfulness, and self-compassion in relation to classroom quality and attitudes towards challenging students. *Mindfulness*, *6*(4), 732–743.

Jiyane, G., Fombad, M., & Mugwisi, T. (2016). Overview of segregated development in South Africa and its implications in the provision of school libraries. *Libri*, *66*(1), 45–57.

John, M., Molepo, J. M., & Chirwa, M. (2015). How do learners conceptualize plane mirror reflection? A case study of Grade 11 South African learners. *International Journal of Educational Science, 10*(3), 391–398.

Johnes, J. (2015). Operational research in education. *European Journal of Operational Research*, *243*(3), 683–696.

Johnson, J.L. (1978). The role of student in the higher education production function. Research in Higher Education, 9 (2), 169-179.

Johnstone, S. M., & Soares, L. (2014). Principles for developing competency-based education programs. *Change: The Magazine of Higher Learning*, *46*(2), 12–19.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *Journal Information*, *105*(11).

Kanno, Y., & Kangas, S. E. (2014). “I’m not going to be, like, for the AP”: English language learners’ limited access to advanced college-preparatory courses in high school. *American Educational Research Journal*, *51*(5), 848–878.

Karbach, J., Gottschling, J., Spengler, M., Hegewald, K., & Spinath, F. M. (2013). Parental involvement and general cognitive ability as predictors of domain-specific academic achievement in early adolescence. *Learning and Instruction*, *23*, 43–51.

Katz, J. (2015). Implementing the three block model of universal design for learning: Effects on teachers' self-efficacy, stress, and job satisfaction in inclusive classrooms K-12. *International Journal of Inclusive Education*, *19*(1), 1–20.

Kearney, M., Burden, K., & Rai, T. (2015). Investigating teachers' adoption of signature mobile pedagogies. *Computers & Education*, *80*, 48–57.

Kearns, N. C. (2015). *An illustration of changing paradigms in water resource management in South Africa* (Doctoral dissertation). University of Cape Town.

Kgosikebatho, K. (2013). *Experts pinpoint causes of poor results*. Retrieved 19 August, 2013 from: www.thepatriotonsunday.co.bw/experts-pinpoint-causes-of-poor-results

Kimani, G. N., Kara, A. M., & Njagi, L. W. (2013). Teachers' factors influencing students' academic achievement in secondary schools in Nyandarua County, Kenya. *International Journal of Education and Research, 1*(3), 1–14.

Kivunja, C. (2015). Innovative methodologies for 21st century learning, teaching and assessment: A convenience sampling investigation into the use of social media technologies in higher education. *International Journal of Higher Education*, *4*(2), 1.

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2014). *The adult learner: The definitive classic in adult education and human resource development*. Routledge.

Kornhaber, M. L., Griffith, K., & Tyler, A. (2014). It's not education by zip code anymore – but what is it? Conceptions of equity under the common core. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, *22*.

Kraft, M. A., & Papay, J. P. (2014). Can professional environments in schools promote teacher development? Explaining heterogeneity in returns to teaching experience. *Educational Evaluation and Policy Analysis*, *36*(4), 476–500.

Kratochwill, T. R., & Levin, J. R. (Eds.). (2015). *Single-case research design and analysis (psychology revivals): New directions for psychology and education*. Routledge.

Kuo, Y. C., Walker, A. E., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of learner satisfaction in online education courses. *The Internet and Higher Education*, *20*, 35–50.

Kuhn, T. S. (1962). The structure of scientific revolutions. *Chicago and London*.

Lai, C. (2015). Modeling teachers' influence on learners' self-directed use of technology for language learning outside the classroom. *Computers & Education*, *82*, 74–83.

Lauring, J., & Klitmøller, A. (2015). Corporate language-based communication avoidance in MNCs: A multi-sited ethnography approach. *Journal of World Business*, *50*(1), 46–55.

Lavy, V. (2015). Do differences in schools' instruction time explain international achievement gaps? Evidence from developed and developing countries. *The Economic Journal*, *125*(588).

Lee, L. (2015). Digital media and young children's learning: A case study of using iPads in American preschools. *International Journal of Information and Education Technology*, *5*(12), 947.

Lemon, A. 2004. Redressing school inequalities in the Eastern Cape, South Africa. *Journal of Southern African Studies*, 30 (2) 269-290.

Le Roux, S. (2002). School library policy in South Africa: Where do we stand? *South African Journal for Libraries and Information Science, 68*(2).

Lester, L., Mander, D. J., & Cross, D. (2015). Bullying behaviour following students' transition to a secondary boarding school context. *International Journal of Child and Adolescent Health*, *8*(2), 141.

Levacic, R. (2014). Managing resources to support learning. In Bush, Bell & Middlewood (Eds.), *The principles of educational leadership & management* (2nd ed). Los Angeles, CA: Sage.

Levin, H. M. (2015). Cost-effectiveness and educational policy. *Educational Evaluation and Policy Analysis, 10*, 51–69.

Levy, M., Hubbard, P., Stockwell, G., & Colpaert, J. (2015). Research challenges in CALL. *Computer Assisted Language Learning*, *28*(1), 1–6.

Lewallen, T. C., Hunt, H., Potts-Datema, W., Zaza, S., & Giles, W. (2015). The whole school, whole community, whole child model: A new approach for improving educational attainment and healthy development for students. *Journal of School Health*, *85*(11), 729–739.

Litosseliti, L. (2017). *Research methods in linguistics*. Bloomsbury Publishing.

Liu, C., & Mikesell, J. L. (2014). The impact of public officials' corruption on the size and allocation of US state spending. *Public Administration Review*, *74*(3), 346–359.

Locke, J., Olsen, A., Wideman, R., Downey, M. M., Kretzmann, M., Kasari, C., & Mandell, D. S. (2015). A tangled web: The challenges of implementing an evidence-based social engagement intervention for children with autism in urban public school settings. *Behavior Therapy*, *46*(1), 54–67.

Lockheed, M. E., Vail, S. C., & Fuller, B. (2016, Winter). How textbooks affect achievement in developing countries: Evidence from Thailand. *Educational Evaluation and Policy Analysis*, *8*(4), 379–392.

Loeb, S., Soland, J., & Fox, L. (2014). Is a good teacher a good teacher for all? Comparing value-added of teachers with their English learners and non-English learners. *Educational Evaluation and Policy Analysis*, *36*(4), 457–475.

Ma, J., Han, X., Yang, J., & Cheng, J. (2015). Examining the necessary condition for engagement in an online learning environment based on learning analytics approach: The role of the instructor. *The Internet and Higher Education*, *24*, 26–34.

MacNell, L., Driscoll, A., & Hunt, A. N. (2015). What's in a name: Exposing gender bias in learner ratings of teaching. *Innovative Higher Education*, *40*(4), 291–303.

Majid, F. A. (2016). The use of reflective journals in outcome-based education during the teaching practicum. *Malaysian Journal of ELT Research*, *4*(1), 11.

Malik, S. 2014. Effectiveness of ARCS model of motivational design to overcome non completion rate of learners in distance education. *Turkish Online Journal of Distance Education*, *15*(2), 194–200.

Mackenzie, N. & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research*. ***16(2),*** 193-205 http://www.iier.org.au/iier16/mackenzie.html.

Maree, K., & van der Westhuizen, C. (2014). Planning a research proposal. In K. Maree (Ed.), First Steps in Research (pp. 24-45). Pretoria: van Schaik

Mertens, D. M. (2010). Divergence and mixed methods.

Mertens, D. M. (2012). What comes first? The paradigm or the approach?

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of mixed methods research*, *1*(1), 48-76.

Manathunga, K., & Hernández-Leo, D. (2015). Has research on collaborative learning technologies addressed massiveness? A literature review. *Journal of Educational Technology & Society*, *18*(4), 357.

Mandy, W., Murin, M., Baykaner, O., Staunton, S., Hellriegel, J., Anderson, S., & Skuse, D. (2015). The transition from primary to secondary school in mainstream education for children with autism spectrum disorder. *Autism*, 136.

Maree, K., & Pietersen, J. (2014). The quantitative research process. In K. Maree (Ed.), *First steps in research*. Pretoria: Van Schaik.

Mar-Molinero, C., Prior, D., Segovia, M. M., & Portillo, F. (2014). On centralized resource utilization and its reallocation by using DEA. *Annals of Operations Research*, *221*(1), 273–283.

Martin, D. (2016). *Assessing the distribution and utilisation of education funds in the Northern Cape* (Doctoral dissertation). Stellenbosch University, Stellenbosch, South Africa.

McEwan, P. J. (2015). Improving learning in primary schools of developing countries: A meta-analysis of randomized experiments. *Review of Educational Research*, *85*(3), 353–394.

McMillan, J. H., & Schumacher, S. (2010). *Research education: Evidence-based inquiry* (7th international ed.). Virginia: Pearson Education.

McNeal Jr, R. B. (2015). Parent involvement and learners performance: The influence of school context. *Educational Research for Policy and Practice*, *14*(2), 153–167.

McNerney, C., Hill, V., & Pellicano, E. (2015). Choosing a secondary school for young people on the autism spectrum: A multi-informant study. *International Journal of Inclusive Education*, *19*(10), 1096–1116.

Merchant, Z., Goetz, E. T., Cifuentes, L., Keeney-Kennicutt, W., & Davis, T. J. (2014). Effectiveness of virtual reality-based instruction on students' learning outcomes in K-12 and higher education: A meta-analysis. *Computers & Education*, *70*, 29–40.

Mestry, R., & Ndhlovu, R. (2014). The implications of the National Norms and Standards for School Funding policy on equity in South African public schools. *South African Journal of Education*, *34*(3), 01–11.

Mistry, R. S. (2010). Family and social risk, and parental investments during the early childhood years as predictors of low income children's school readiness outcomes. *Early Childhood Research Quarterly, 25*(4), 432–449.

Mohammadi, H. (2015). Investigating users' perspectives on e-learning: An integration of TAM and IS success model. *Computers in Human Behavior*, *45*, 359–374.

Moloi, M., & Strauss, J. (2015). *The SACMEQ II Project in South Africa: A study of conditions of schooling and quality of education.* Harare: SACMEQ.

Monk, D. H. (1989). The education production function. Its evolving role in policy analysis. *Education Evaluation and Policy Analysis, 11*(1), 31–45.

Monk, D. H., & Rice, J. K. (2009). Modern education productivity research: Emerging implications for the financing of education. In W. J. Fowler, Jr. (Ed.), *Selected papers in school finance, 1997–99* (pp. 111–139). Washington, DC: National Center for Education Statistics.

Monyooe, L. (2015). "From cradle to grave": Transforming South Africa's learning ecologies. *Journal of Higher Education in Africa/Revue de l'enseignement Supèrieur en Afrique*, *13*(1–2), 89–110.

Msila, V. (2014). Educator unionism and school management: A study of (Eastern Cape) schools in South Africa. *Educational Management Administration & Leadership*, *42*(2), 1–16

Muijs, D., Kyriakides, L., Van der Werf, G., Creemers, B., Timperley, H., & Earl, L. (2014). State of the art–teacher effectiveness and professional learning. *School Effectiveness and School Improvement*, *25*(2), 231–256.

Munoz, M. A., & Dossett, D. (2014). Equity and excellence: The effect of school and sociodemographic variables on student achievement. *JSL, 11*(2), 120.

National Planning Commission (2011). *National Development Plan: Vision 2030*.

Navimipour, N. J., & Zareie, B. (2015). A model for assessing the impact of e-learning systems on employees' satisfaction. *Computers in Human Behavior*, *53*, 475–485.

Nawrot, I., & Doucet, A. (2014, April). Building engagement for MOOC students: Introducing support for time management on online learning platforms. In *Proceedings of the 23rd International Conference on World Wide Web* (pp. 1077–1082). ACM.

Nazarko, J., & Šaparauskas, J. (2014). Application of DEA method in efficiency evaluation of public higher education institutions. *Technological and Economic development of Economy*, *20*(1), 25–44.

Nguyen, L., Barton, S. M., & Nguyen, L. T. (2015). Ipads in higher education: Hype and hope. *British Journal of Educational Technology*, *46*(1), 190–203.

Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *MERLOT Journal of Online Learning and Teaching*, *11*(2), 309–319.

Ngware, M. W., Oketch, M., & Mutisya, M. (2014). Does teaching style explain differences in learner achievement in low and high performing schools in Kenya? *International Journal of Educational Development*, *36*, 3–12.

Nisar, M. A. (2015). Higher education governance and performance based funding as an ecology of games. *Higher Education*, *69*(2), 289–302.

North, S. M., Richardson, R., & North, M. M. (2014). To adapt MOOCs, or not? That is no longer the question. *Universal Journal of Educational Research*, *2*(1), 69–72.

Norwich, B., & Eaton, A. (2015). The new Special Educational Needs (SEN) legislation in England and implications for services for children and young people with social, emotional and behavioural difficulties. *Emotional and Behavioural Difficulties*, *20*(2), 117–132.

Oberle, E., Domitrovich, C. E., Meyers, D. C., & Weissberg, R. P. (2016). Establishing systemic social and emotional learning approaches in schools: A framework for schoolwide implementation. *Cambridge Journal of Education*, *46*(3), 277–297.

O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*, *25*, 85–95.

Okongo, R. B., Ngao, G., Rop, N. K., & Nyongesa, W. J. (2015). Effect of availability of teaching and learning resources on the implementation of inclusive education in pre-school centers in Nyamira North Sub-County, Nyamira County, Kenya. *Journal of Education and Practice*, *6*(35), 132–141.

Olutola, A. (2015). School planning and maintenance. In S. Adesina (Ed.), *Introduction to educational planning* (pp. 210–219). Ile-Ife, Nigeria: University of Ife.

Orphanos, S., & Orr, M. T. 2014. Learning leadership matters: The influence of innovative school leadership preparation on teachers' experiences and outcomes. *Educational Management Administration & Leadership*, *42*(5), 680–700.

Pai, H. H., Sears, D. A., & Maeda, Y. (2015). Effects of small-group learning on transfer: A meta-analysis. *Educational Psychology Review*, *27*(1), 79–102.

Paradis, J., & Kirova, A. (2014). English second-language learners in pre-school profile effects in their English abilities and the role of home language environment. *International Journal of Behavioral Development*, *38*(4), 342–349.

Perkins, T. (2015). School–Community partnerships, friend or foe? The doublespeak of community with educational partnerships. *Educational Studies*, *51*(4), 317–336.

Picus, L. O. (1995). Does money matter in education? A policymaker's guide. *Selected Papers in School Finance*, 19–35.

Picus, L. O., & Fazal, M. B. (2015). The $300 billion question: How do public elementary and secondary schools spend their money? In W. J. Fowler, Jr. (Ed.), *Developments in school finance* (pp. 79–96). Washington, DC: National Center for Education Statistics.

Pienaar, A. E., Barhorst, R., & Twisk, J. W. R. (2014). Relationships between academic performance, SES school type and perceptual-motor skills in first grade South African learners: NW-CHILD study. *Child: Care, Health and Development*, *40*(3), 370–378.

Powell, E., Woodfield, L. A., & Nevill, A. A. (2015). Children's physical activity levels during primary school break times: A quantitative and qualitative research design. *European Physical Education Review*, doi:1356336X15591135

Powell, M., Reddy, V., & Juan, A. (2016). Skills in South Africa: The journey towards credible planning. *Development Southern Africa*, *33*(3), 298–311.

Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of counseling psychology*, *52*(2), 126.

Pruet, P., Ang, C. S., & Farzin, D. (2016). Understanding tablet computer usage among primary school students in underdeveloped areas: Students' technology experience, learning styles and attitudes. *Computers in Human Behavior*, *55*, 1131–1144.

Reardon, S. F., & Owens, A. (2014). 60 years after Brown: Trends and consequences of school segregation. *Annual Review of Sociology*, *40*, 199–218.

Reback, R., Rockoff, J., & Schwartz, H. L. (2014). Under pressure: Job security, resource allocation, and productivity in schools under No Child Left Behind. *American Economic Journal: Economic Policy*, *6*(3), 207–241.

Reddy, P. S. (2016). From national to local economic development (LED): The South African case. In E. D. Schoburgh, J. Martin, & S. Gatchair (Eds.), *Developmental Local Governance: A critical discourse on "alternative development"* (pp. 86–106). Palgrave Macmillan UK.

Reschovsky, A., & Imazeki, J. (2008). The development of school finance formulas to guarantee the provision of adequate education to low-income students. In W.J. Fowler, Jr. (Ed.). *Developments in school finance 1997* (pp.121–148). Washington, DC: National Center for Education Statistics.

Rice, J .K. (2007). Cost analysis in education: Paradox and possibility. *Educational Evaluation and Policy Analysis, 19*(4), 309–317.

Rimm-Kaufman, S. E., Larsen, R. A., Baroody, A. E., Curby, T. W., Ko, M., Thomas, … DeCoster, J. (2014). Efficacy of the Responsive Classroom approach: Results from a 3-year, longitudinal randomized controlled trial. *American Educational Research Journal*, *51*(3), 567–603.

Rjosk, C., Richter, D., Hochweber, J., Lüdtke, O., Klieme, E., & Stanat, P. (2014). Socioeconomic and language minority classroom composition and individual reading achievement: The mediating role of instructional quality. *Learning and Instruction*, *32*, 63–72.

Reddy, V. (2005). State of mathematics and science education: Schools are not equal:

conversations. *Perspectives in Education*, *23*(1), 125-138.

Ryan, M. D., & Reid, S. A. (2015). Impact of the flipped classroom on student performance and retention: A parallel controlled study in general chemistry. *Journal of Chemical Education*, *93*(1), 13–23.

Samu, T. W. (2016). The 'Pasifika Umbrella' and quality teaching: Understanding and responding to the diverse realities within. *Waikato Journal of Education*, *12*(1).

Samwel, J. O., Omari, S., & Szumbah, M. (2016). The role of employees' retention on performance outcomes of family owned business in Nyamagana and Ilemela Districts, Tanzania. *African Journal of Education and Human Development, 2*(2).

Savery, J. R. (2015). Overview of problem-based learning: Definitions and distinctions. In A. Walker, H. Leary, C. Hmelo-Silver, & P. A. Ertmer (Eds.), *Essential readings in problem-based learning: Exploring and extending the legacy of Howard S. Barrows* (pp. 5–15). Purdue University Press. ePub.

Scherer, R., Siddiq, F., & Teo, T. (2015). Becoming more specific: Measuring and modeling teachers' perceived usefulness of ICT in the context of teaching and learning. *Computers & Education*, *88*, 202–214.

Schiffrin, H. H., Liss, M., Miles-McLean, H., Geary, K. A., Erchull, M. J., & Tashner, T. (2014). Helping or hovering? The effects of helicopter parenting on college learners' well-being. *Journal of Child and Family Studies*, *23*(3), 548–557.

Schultz, D., Duffield, S., Rasmussen, S. C., & Wageman, J. (2014). Effects of the flipped classroom model on student performance for advanced placement high school chemistry students. *Journal of Chemical Education*, *91*(9), 1334–1339.

Scott, W. R., & Davis, G. F. (2015). *Organizations and organizing: Rational, natural and open systems perspectives*. Routledge.

Seidel, T., & Shavelson, R. J. (2017). Teaching effectiveness research in the past decade: The role of theory and research design in disentangling meta-analysis research. *Review of Educational Research*, *77*, 454–499.

Shadiev, R., Hwang, W. Y., Yeh, S. C., Yang, S. J., Wang, J. L., Han, L., & Hsu, G. L. (2014). Effects of unidirectional vs. reciprocal teaching strategies on web-based computer programming learning. *Journal of Educational Computing Research*, *50*(1), 67–95.

Shannon, D. M. (2016). Principals' perspectives of school librarians. In M. A. Mardis (Ed.), *Librarians and educators collaborating for success: The international perspective* (p. 28–45). Santa Barbara, CA: Libraries Unlimited.

Scheerens, J. (1997). Conceptual models and theory-embedded principles on effective schooling. *School Effectiveness and School Improvement*, *8*(3), 269–310.

Simon, N. S., & Johnson, S. M. (2015). Teacher turnover in high-poverty schools: What we know and can do. *Teachers College Record*, *117*(3), 1–36.

Simonson, M., Smaldino, S., & Zvacek, S. M. (Eds.). (2014). *Teaching and learning at a distance: Foundations of distance education*. Charlotte, NC: IAP.

Sleeter, C. (2014). Toward teacher education research that informs policy. *Educational Researcher*, *43*(3), 146–153.

Smith, T. E., Polloway, E. A., Patton, J. R., Dowdy, C. A., & Doughty, T. T. (2015). *Teaching learners with special needs in inclusive settings*. USA: Pearson.

Stacey, K. (2014). The PISA view of mathematical literacy in Indonesia. *Journal on Mathematics Education*, *2*(02), 95–126.

Stiefel, L., Berne, R., Iatarola, P., & Fruchter, N. (2010). High school size: Effects on budgets and performance in New York City. *Educational Evaluation and Policy Analysis, 22*, 27–39.

Stats, S. A. (2005). Census 2001: achieving a better life for all–progress between Census 1996 and Census 2001. *Statistics South Africa, Pretoria*.

Stright, A. D., & Yeo, K. L. (2014). Maternal parenting styles, school involvement, and children's school achievement and conduct in Singapore. *Journal of Educational Psychology*, *106*(1), 301.

Suleman, Q., & Hussain, I. (2014). Effects of classroom physical environment on the academic achievement scores of secondary school students in Kohat division, Pakistan. *International Journal of Learning and Development*, *4*(1), 71–82.

Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, *94*, 252–275.

Tam, A. C. F. (2015). The role of a professional learning community in teacher change: a perspective from beliefs and practices. *Teachers and Teaching*, *21*(1), 22–43.

Taniguchi, K., & Hirakawa, Y. (2016). School dropout at the basic education level in rural Cambodia: Identifying its causes through longitudinal survival analysis. *International Journal of Educational Development*, *49*, 215–224.

Tarhini, A., Hassouna, M., Abbasi, M. S., & Orozco, J. (2015). Towards the acceptance of RSS to support learning: An empirical study to validate the Technology Acceptance Model in Lebanon. *Electronic Journal of e-Learning*, *13*(1), 30–41.

Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. *The International Review of Research in Open and Distributed Learning*, *16*(1).

Tobin, M., Lietz, P., Nugroho, D., Vivekanandan, R., & Nyamkhuu, T. (2015). *Using large-scale assessments of students' learning to inform education policy: Insights from the Asia-Pacific region.* Melbourne: ACER and Bangkok: UNESCO.

Todd, R. J., & Kuhlthau, C. C. (2016). Student learning through Ohio school libraries, Part 2: Faculty perceptions of effective school libraries. *Librarians and Educators Collaborating for Success: The International Perspective*, p.46.

Totura, C. M. W., Karver, M. S., & Gesten, E. L. (2014). Psychological distress and student engagement as mediators of the relationship between peer victimization and achievement in middle school youth. *Journal of Youth and Adolescence*, *43*(1), 40–52.

Tsang, M. C. (2007). Cost analysis for improved educational policymaking and evaluation. *Educational Evaluation and Policy Analysis, 19*, 318–324.

Tseng, F. C., & Kuo, F. Y. (2014). A study of social participation and knowledge sharing in the teachers' online professional community of practice. *Computers & Education*, *72*, 37-47.

Tsingos, C., Bosnic-Anticevich, S., & Smith, L. (2015). Learning styles and approaches: Can reflective strategies encourage deep learning? *Currents in Pharmacy Teaching and Learning*, *7*(4), 492–504.

Vaioleti, T. M. (2016). Talanoa research methodology: A developing position on Pacific research. *Waikato Journal of Education*, *12*(1).

Vassilakaki, E., & Moniarou-Papaconstantinou, V. (2015). A systematic literature review informing library and information professionals' emerging roles. *New Library World*, *116*(1/2), 37–66.

Vaz, M. (2015). *How principals use distributed leadership in leading and managing teaching and learning: a case study of two primary schools in Gauteng* (Doctoral dissertation).

Van der Berg, S. (2008). How effective are poor schools? Poverty and educational outcomes in South Africa. *Studies in Educational Evaluation*, *34*(3), 145-154.

Verger, A., & Curran, M. (2014). New public management as a global education policy: Its adoption and re-contextualization in a Southern European setting. *Critical Studies in Education*, *55*(3), 253–271.

Vos, L., 2015. Simulation games in business and marketing education: How educators assess student learning from simulations. *The International Journal of Management Education*, *13*(1), 57-74.

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis. *Psychological Bulletin*, *140*(4), 1174.

Vrasidas, C. (2015). The rhetoric of reform and teachers' use of ICT. *British Journal of Educational Technology*, *46*(2), 370–380.

Vu, P., Cao, V., Vu, L., & Cepero, J. (2014). Factors driving learner success in online professional development. *The International Review of Research in Open and Distributed Learning*, *15*(3).

Wachanga, S. W., Githae, R. W., & Keraro, F. N. (2015). Effects of collaborative concept mapping teaching approach on secondary school students' motivation to learn biology in Nakuru North County, Kenya. *Journal of Educational Policy and Entrepreneurial Research*, *2*(8), 1–17.

Walker, A. D., Lee, M., & Bryant, D. A. (2014). How much of a difference do principals make? An analysis of between-schools variation in academic achievement in Hong Kong public secondary schools. *School Effectiveness and School Improvement*, *25*(4), 602–628.

Wang, C. C., & Geale, S. K. (2015). The power of story: Narrative inquiry as a methodology in nursing research. *International Journal of Nursing Sciences*, *2*(2), 195–198.

Wang, M. T., & Sheikh-Khalil, S. (2014). Does parental involvement matter for learner achievement and mental health in high school? *Child Development*, *85*(2), 610–625.

Wanner, T., & Palmer, E. (2015). Personalising learning: Exploring student and teacher perceptions about flexible learning and assessment in a flipped university course. *Computers & Education*, *88*, 354–369.

Whitworth, B. A., & Chiu, J. L. (2015). Professional development and teacher change: The missing leadership link. *Journal of Science Teacher Education*, *26*(2), 121–137.

Wilder, S. (2014). Effects of parental involvement on academic achievement: A meta-synthesis. *Educational Review*, *66*(3), 377–397.

Wilson, E. (Ed.). (2017). *School-based research: a guide for education students*. Sage Publications.

Wlodkowski, R. J., & Ginsberg, M. B. (2017). *Enhancing adult motivation to learn: A comprehensive guide for teaching all adults*. John Wiley & Sons.

Wright, W. E. (2015). *Foundations for teaching English language learners: Research, theory, policy, and practice*. Philadelphia, PA: Caslon.

Yang, W. (2015). Content and language integrated learning next in Asia: Evidence of learners' achievement in CLIL education from a Taiwan tertiary degree programme. *International Journal of Bilingual Education and Bilingualism*, *18*(4), 361–382.

Zeichner, K., & Pena-Sandoval, C. (2015). Venture philanthropy and teacher education policy in the US: The role of the New Schools Venture Fund. *Teachers College Record*, *117*(6), 1–24.

Zhang, D., Katsiyannis, A., Ju, S., & Roberts, E. (2014). Minority representation in special education: 5-year trends. *Journal of Child and Family Studies*, *23*(1), 118–127.

Appendix A: Questionnaire for educators

Department of Education Management and Policy Studies

RESEARCH INSTRUMENT (OR TOOL) QUESTIONNAIRE FOR COMPLETION BY SCHOOL EDUCATORS

A. **BIOGRAPHICAL INFORMATION**

Answer the following questions by inserting the correct answer in the space or box provided:

1. Name (optional)……

2. Indicate your age by placing an X in the space next to the corresponding correct answer provided in the table below:

Indicate your age range	**Mark with a tick in the space provided below**
20–30	
31–40	
41–50	
51–60	
60 or more	

3. Indicate your gender by placing a tick in the space provided next to the correct answer:

Gender	**Mark with a tick in the space below**
Male	
Female	

4. Indicate in which former South African race you may be categorised? Choose by making a tick in the space next to the corresponding answer provided in the table below:

Race	Mark with an X in the space provided below
African	
Coloured	
Indian	
White	

5. Indicate the highest standard passed by making an X in the space provided next to the correct answer in the table below:

Highest standard passed	Mark with an X in the space provided below
No formal education	
Grades 1–7	
Grades 8–9	
Grades 10–12	
Post matriculation	

6. Academic qualification acquired. Choose the highest qualification by making a tick in the space next to the correct answer provided in the table below:

Highest academic qualification acquired	Mark with a tick in the space provided below
Certificate	
Diploma	
Undergraduate degree	
Honours	
Masters	
Doctoral or postdoctoral degree	

7. Your highest ***qualifications fall in the following field***? Choose one relevant field by making a tick next to the corresponding correct answer provided in the table below:

Field in which your qualification falls	Mark with a tick in the space provided below
Law	
Education	
Financial management	
School administration	
Engineering	

8. Which other or relevant management courses or diplomas do you have? Select all that apply but do not reselect any of the answers selected in no. 7 above.

no	**Other management courses passed**	**Reselect correct answer**
(i)	Advanced Certificate in Education (ACE)	
(ii)	Advanced Diploma in Education Management	
(iii)	Advanced Diploma in Public Administration	
(iv)	Master's in Business Administration (MBA)	

8. Please indicate which statement is or is not important *by circling a single number provided in the table below*:

	Extremely important			**Not important**
Statements on school teaching and learning	1	2	3	4
All educators should be inducted and appointed on a permanent basis to enable them to teach their subjects effectively with confidence				
Newly appointed educators should be placed on probation for a period not exceeding twelve months				
Educators should be professional by working in a team or promoting team work to improve learner achievements				
Educators should give learners some responsibility with regard to their studies				
All educators should treat their colleagues with respect by showing humanity				

9. In which area is your school located and categorised. Mark with an X in the space provided next to the corresponding answer in the table below:

Location or category of school	**Mark with an X in the correct space below**
Farming area	
Village	
Township	
Town/city	

SECTION B (ALLOCATION OF RESOURCES)

BUDGET:

10. What percentage (%) of the school budget is allocated to departmental resources? Choose one answer from those provided in the table below. What percentage of funds is collected through school fundraising? Indicate this % in the column provided below.

Percentage of the school budget allocated to your department	**Choose the one correct answer and mark with an X**	**% of funds collected through fundraising. Mark with an X in the corresponding column**
40%		
50%		
60%		
70%		
80%		
90%		
100%		

11. Indicate by making a tick in the appropriate space provided in the table below which of the following teaching and instructional resources are budgeted for in your school department? However, if they are supplied by the Department of Basic Education, indicate with an X in the corresponding column .

Teaching and instructional resources	**Mark the appropriate box for resources budgeted by the school with an X**	**Indicate with an X for resources supplied by Education Department**
Stationery		
Textbooks		
Teaching aids		
Learning aids		
Laboratory equipment		
Laboratory chemicals		
Reference books		
Teaching guides		
Study guides		
Readers		
Calculators		

12. Indicate with a tick in the appropriate space provided in the table below which of the following labour devising resources are budgeted for in your **school department**? Indicate with an X in the corresponding space those supplied by the **Education Department** or that are accessed through donations.

Education labour devising resources	**Mark with a tick in the corresponding space for those resources budgeted**	**Indicate with an X next to the corresponding resource supplied by**

	by school department	either department or through donation
Laptops		
Desktops		
Printers		
Photocopiers		
Scanners		
E-education programmes		

13. Indicate by making an X in the appropriate space provided in the table below which of the following school furniture is budgeted for in your department? If not budgeted for in your department, indicate with a tick in corresponding space those items which were purchased through money raised by the school through fundraising.

School furniture	Mark with an X next to the corresponding space provided	Mark with a tick for those access through school fundraising funds
Desks		
Chairs (educators and learners)		
Tables (educators and learners)		

12. What was the total school's department allocation (Norms and Standards) for your school in the past three academic years? Please make a tick in the space next to the correct answer provided in the table below:

School departmental allocation (budget)	Mark with a tick in the space provided below	2014	2015	2016
R0 – 10 000				
R11 000 – R20 000				
R21 000 – R30 000				
R31 000 – R40–000				
R41 000+				

13. Please fill in the following information in relation to the *school departmental budget of the previous three years*:

No	*Items*	*Amount allocated*	*Expenditure*	*Percentage of total budget*	*2014*	*2015*	*2015*
(i)	Curriculum						
(ii)	Teacher guides						
(iii)	PDP						
(iv)	Teaching aids						
(v)	Reference books						
(vi)	Learning aids						

HUMAN RESOURCES

Instructions: For each statement, please check whether you: **Strongly Agree, Agree, Disagree or Strongly Disagree** by placing a mark in corresponding space in the table provided below.

14. Allocation and distribution of resources in public schools

Statements on the allocation and distribution of resources	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
14.1. The educator determines the learners' tasks or assessment tasks at the school				
14.2. The educator adheres to the subject policy of her/his department				
14.3. The educator allocates time to the learners' assessment tasks				
14.4. The educator provides teaching and learning resources to learners				
14.5. The educator approves the purchase of additional resources				
14.6. The educator identifies areas for development opportunities for other educators				

15. PHYSICAL RESOURCES:

Instructions: For each statement, please check whether you **Strongly Agree, Agree, Disagree or Strongly Disagree** by marking the corresponding circle in the table below.

Resource allocation, distribution and utilisation	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
15.1. The school has sufficient classrooms to accommodate all learners				
15.2**.** The school has sufficient toilets to accommodate all learners				
15.3. There is an administration block to accommodate management and staff				
15.4. There is a strong school fence and the gate is manned by a security guard				
15.5.The school has a resource maintenance plan				
15.6. There is sufficient office equipment to support management and staff				
15.7. There is a laboratory and a computer centre which accommodate all learners				
15.8. School facilities are available, for example, sports grounds, swimming pool				

15.9. The school has sufficient LTSM which caters for all learners and educators, including guides				

16. Learner and School Achievements

Instruction: Please circle just one correct response per question

16.1. Which of the years indicated below was your school able to achieve the national performance target of 60%? What was/were the pass percentages? Mark with an X in the spaces provided in the table below:

Years in which the school achieved the national performance target of 60%	**School pass percentage(s) above 60% achieved:**	**Mark with an X in the correct spaces provided**
2011		
2012		
2013		
2014		
2015		

16.2. Which of the years indicated below was your school able to achieve the provincial performance target of 70%? What was/were the school pass percentages? Mark with a tick in the relevant space in the table below.

Years in which provincial target was achieved	**School pass percentage(s) above 70% achieved:**	**Mark with a tick in the spaces provided**
2012		
2013		
2014		
2015		

16.3. The overall average pass percentage of your learners per grade in the past **three** academic years was:

Overall pass percentages per grade

Grades	**2014**	**2015**	**2016**	**0–20%**	**21–40%**	**41–59%**	**60–79%**	**80%+**
Grade 8								
Grade 9								
Grade 10								
Grade 11								
Grade 12								

16.4. The total **number** of achievements in the matriculation examination in the past **three** years in terms of the pass categories was the following:

Qualification obtained	**2014**	**2015**	**2016**
Degrees (Matriculation exemption)			
Diplomas			
Higher certificates			
Total number of failure			

18.4. The number of distinctions obtained by learners per subject in their final matriculation examination for the past **three** academic years was the following:

Number of distinctions obtained by learners per subject per academic year

Subjects offered at the school	**Total no. of learners per subject**	**2014**	**2015**	**2016**	**Total no. for the past three years**
Home Language					
English Second Language					
Mathematics					
Physical Science					
Life Sciences					
Geography					
History					
Accounting					
Business Economics					
Engineering Graphics and Design					
Agriculture					
Total no. of distinctions in all subjects per year					

Appendix B: Questionnaire for heads of department

Faculty of Education

Department of Education Management and Policy Studies

RESEARCH INSTRUMENT (OR TOOL) QUESTIONNAIRE FOR COMPLETION BY SCHOOL HODs

SECTION A **DEMOGRAPHIC INFORMATION**

Answer the following questions by inserting the correct answer in the space or box provided:

1.1 District

……

……..

1.2 Circuit

……

……..

1.3 In which area is your school located and categorised. Make an X in the space provided next to the corresponding answer provided in the table below:

Location or category of school	**Mark with an X in the correct space below**
Farming area	A
Village	B
Township	C
Town/city	D

1.3

1.4 Indicate your age by making an X in the space next to the corresponding correct answer provided in the table below:

Indicate your age range	**Mark with a tick in the space provided below**
20–30	A
31–40	B
41–50	C
51–60	D
60 or more	E

1.5 Indicate your gender by making a tick in the space provided next to the correct answer:

Gender	**Mark with a tick in the space below**
Male	A
Female	B

1.6 Indicate into which former South African race you could be categorised? Make a tick in the space next to the corresponding answer provided in the table below:

Race	**Mark with an X in the space provided below**
African	A
Coloured	B
Indian	C
White	D

1.7 Indicate the highest standard passed by making an X in the space provided next to the correct answer in the table below:

Highest standard passed	**Mark with an X in the space provided below**
No formal education	A
Grades 1–7	B
Grades 8–9	C
Grades 10–12	D
Post matriculation	E

1.8 Academic qualification acquired. Indicate your highest qualification by making a tick in the space next to the correct answer provided in the table below:

Highest academic qualification acquired	**Mark with a tick in the space provided below**
Certificate	A
Diploma	B
Undergraduate degree	C
Honours	D
Masters	E
Doctoral or post-doctoral	F

1.9 Your highest ***qualification falls into which of the following fields***? Choose one relevant field by making a tick next to the corresponding correct answer provided in the table below:

Field into which your qualification fall	**Mark with a tick in the space provided below**
Law	A
Education	B

Financial Management	C
School Administration	D
Engineering	E

SECTION B (HUMAN RESOURCE ALLOCATION PER SCHOOL)

2.1 What are your views on the appointment of heads of department. Choose from **Strongly** agr**ee,** agree, disagree or strongly disagree

Statements on school leadership and management	Strongly	Agree	Disagre	Strongly
1. School HoDs should be appointed on a permanent basis to manage their departments effectively	A	B	C	D
2. Newly appointed HoDs should have served as CS1 educators for more than five years or acted as a HoD previously	A	B	C	D
3. The HoD should be able to work in a team or promote team work to improve learner achievements	A	B	C	D
4. The HoD should delegate responsibilities to team members	A	B	C	D
5. All department members should be treated equally with respect	A	B	C	D
6. The HoD approves the purchase of additional resources	A	B	C	D
7. The HoD identifies areas for development opportunities for all educators	A	B	C	D

SECTION C (ALLOCATION OF OPERATIONAL RESOURCES)

BUDGET:

3.1 What percentage (%) of the school budget is allocated to departmental resources? Choose one answer from the answers provided in the table below:

Percentage of the school budget allocated for your department	**Choose one correct answer**
40%	A
50%	B
60%	C
70%	D
80%	E
90%	F
100%	G

3.2 Indicate with a tick in the appropriate space provided in the table below which of the following teaching and instructional resources are budgeted for in your department. Choose from **Strongly Agree, Agree, Disagree and Strongly Disagree.**

Teaching and instructional resources	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagreed**
1. Stationery	A	B	C	D
2. Textbooks	A	B	C	D
3. Teaching aids	A	B	C	D
4. Learning aids	A	B	C	D
5. Laboratory equipment	A	B	C	D
6. Laboratory chemicals	A	B	C	D
7. Reference books	A	B	C	D

8. Teaching guides	A	B	C	D
9. Study guides	A	B	C	D
10. Readers	A	B	C	D
11. Calculators	A	B	C	D

3.3 Indicate with a tick in the appropriate space provided in the table below which of the following labour devising resources are budgeted for in your department? Choose from strongly agree, agree, Disagree and strongly disagree

Education labour devising resources	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagreed**
Laptops	A	B	C	D
Desktops	A	B	C	D
Printers	A	B	C	D
Photocopiers	A	B	C	D
Scanners	A	B	C	D
E-education programmes	A	B	C	D

3.4 Indicate with an X next to the appropriate space provided in the table below which of the following school furniture is budgeted for in your department? Choose from Strongly Agree, Agree, Disagree and Strongly Disagree

School furniture	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagreed**
Desks	A	B	C	D
Chairs (educators and learners)	A	B	C	D
Tables (educators and learners)	A	B	C	D

3.5 What was the school's total department allocation (Norms and Standards) for your school in the 2015 academic year? Please make a tick in the space next to the correct answer provided in the table below:

School departmental allocation (budget)	Strongly agree	Agree	Disagree	Strongly disagreed
R0 – R10 000	A	B	C	D
R11 000 – R20 000	A	B	C	D
R21 000 – R30 000	A	B	C	D
R31 000 – R40 000	A	B	C	D
R41 000+	A	B	C	D

SECTION E PHYSICAL RESOURCES:

Instructions: For each statement, please check whether you S**trongly Agree, Agree, Disagree or Strongly Disagree** with the statement by marking the corresponding space in the table below.

Resource allocation, distribution and utilisation	Strongly Agree	Agree	Disagree	Strongly Disagree
15.1. The school has sufficient classrooms to accommodate all learners	A	B	C	D
15.2**.** The school has sufficient toilets to accommodate all learners	A	B	C	D
15.3. There is an administration block to accommodate management and staff	A	B	C	D
15.4. There is a strong school fence and the gate manned by a security guard	A	B	C	D
15.5.The school has a resource maintenance plan	A	B	C	D
15.6. There is sufficient office equipment to support management and staff	A	B	C	D

15.7. There is a laboratory and a computer centre which accommodate all learners	A	B	C	D
15.8. The school has facilities, for example, sports grounds, swimming pools	A	B	C	D

5.2 Learner and school achievements

Instruction: Please circle just one correct response per question

19.1. In which of the indicated years indicated below was your school able to achieve the national performance target of 60%? Make an X in the spaces provided in the table below:

Years in which the school achieved the national performance target of 60%	**Mark with an X in the correct spaces provided**
2011	A
2012	B
2013	C
2014	D
2015	E

5.3 In which of the years indicated below was your school able to achieve the provincial performance target? Mark with a tick in the space provided in the table below.

Years in which provincial target was achieved	**Mark with a tick in the space provided**
2012	A
2013	B

2014	C
2015	D

5.4 The overall average pass percentage of your learners per grade in 2015:

Overall pass percentages per grade

Grades	**0–20%**	**21–40%**	**41–59%**	**60–79%**	**80%+**
Grade 8	A	B	C	D	E
Grade 9	A	B	C	D	E
Grade 10	A	B	C	D	E
Grade 11	A	B	C	D	E
Grade 12	A	B	C	D	E

5.5. The percentages of learner achievements in the matriculation examination in 2015 in terms of the pass categories were the following:

Qualification obtained	**0–25%**	**26–50%**	**51–70%**	**71–80%**	**81%+**
Degrees (Matriculation exemption)					
Diplomas					
Higher certificates					
Total number of failures					

19.5. The number of distinctions obtained by learners per subject in their final matriculation examination in 2015 was the following:

Percentages of distinctions obtained per subject

Subjects offered	**0–10%**	**11–20%**	**21–40%**	**41–60%**	**61%+**

Home Language					
English Second Language					
Mathematics					
Physical Science					
Life Sciences					
Geography					
History					
Accounting					
Business Economics					
Engineering Graphics and Design					
Agriculture					

Appendix C: Questionnaire for school governing body members

RESEARCH INSTRUMENT (OR TOOL) QUESTIONNAIRE FOR COMPLETION BY SCHOOL GOVERNING BODY MEMBERS

SECTION A: BIOGRAPHICAL INFORMATION

1. Name (optional)……

2. Answer the following questions by making an X next to the correct answer in the space or box provided:

2.1. Select the correct age category to which you belong by making an X in the corresponding space in the table below:

Age category	**Insert X in the space provided below next to the correct age category**
20–24	
25–29	
30–34	
35–39	
40–44	
45–49	
50–54	
55–59	
60–64	
65+	

2.2. Gender (select one correct answer only by making an X to the corresponding space provided below)

Gender	**Insert an X in space provided below**
Male	
female	

2.3. Race (select one correct category by inserting an X in the box below)

Race	**Insert an X in correct space below**
African	
Coloured	
Indian	
White	

2.4. Highest standard passed (select by making an X next to the correct answer)

Highest standard passes	**Mark appropriate column with X**
No formal education passed	
Grades 1–7	
Grades 10	
Grade 11	
Grade 12	

2.5. Academic qualification acquired. Choose the highest academic qualification you have attained by making a mark in the box provided below:

Academic qualification	**Highest academic qualification**
Certificate	
Diploma	

Undergraduate degree	
Honours degree	
Master's degree	
Doctoral degree	
Post-doctoral	

2.6. Which of the following fields are relevant to your qualification? You may choose more than one option by making an X in the box provided.

Relevant field	**Mark with an X in appropriate**
Law	
Education Management	
Financial Management	
Administration	

2.7. Please indicate your employment status by making an X in the correct box below:

Employment status	**Mark correct status with X**
Unemployed	
Self-employed	
Temporary employment	
Permanent employment	

2.8 Indicate the area where you live and/or the location of the school at which you are serving as an SGB member by making an X in the box provided below:

School type	**Mark appropriate category with X**
Farm school	

Rural/village	
Township	
Town/city	

SECTION B: FINANCIAL RESOURCES

3. Financial resource allocation

Instructions: Choose one correct answer from the answers provided below by making an X in the circle in the correct box.

Budget:

3.1. What percentage (%) of the school budget is allocated to the provision of curriculum resources, transport, sports facilities, administration? Please express each answer in percentages:

Budget allocation	**Budget percentages (%)**
Curriculum delivery	
Transport expenses	
Sports facilities	
Infrastructure	
Furniture	
Teacher development	

3.2. Which of the following resources are critical for the provision of quality learning and teaching at your school? Select the four types of school resources from the table below and rank either 1, 2, 3 or 4 with 1 for the most important, 2 for the second most important, 3 for the third most important and 4 for the fourth most important.

Resource types	**Ranking**	
Learning and teaching resources		

Human resource (educator and non-educator)		
Infrastructure (classrooms and administration block)		
Science laboratory, computer centre, library		
Financial resources (budget)		
School furniture (desks, chairs and tables)		
Labour saving equipment (printers, photocopiers and scanners)		
Chalkboards (including electronic boards)		

3.3. Choose by ticking in the appropriate box which of the following learning and teaching materials are budgeted for?

School resources	**Mark with a tick materials which have been budgeted for**
LTSM (textbooks and stationery)	
Teaching and learning aids	
Teachers' guides	
Study guides	
Readers	
Reference books	
English dictionaries	
Calculator(s)	
Rulers	

3.4. Choose the relevant labour device equipment covered in the school budget from the list provided below by placing an X mark in the corresponding spaces:

Labour device equipment	**Mark with an X indicating the equipment which has been budgeted for**
Desktops	
Laptops	
Printers	
Photocopiers	

3.5. Which of the following school furniture is the school permitted to buy using norms and standards funds? Mark the correct answer with an X in the corresponding space.

School furniture	**Mark with an X in a space next to the correct answer**
Desks	
Chairs	
Tables	
Bookshelves	

3.6 Choose which of the following assets is budgeted for by the school repair purposes:

School assets	**Mark with a tick to corresponding asset**
Broken windows	
Broken doors	
Leaking roofs	
Broken chairs and tables	
Broken desks	

3.7 What was the total school allocation (**Norms and Standards**) for your school in for the past three academic years? Select the correct answer by making a mark in the corresponding box provided below:

School allocation	Make a mark in the correct corresponding space		
	2014	2015	2016
R25 000 – R100 000			
R105 000 – R200 000			
R205 000 – R300 000			
R305 000 – R400 000			
R405 000 – R500 000			
R505 000+			

3.8 Please fill in the following information in relation to the school budget allocation, distribution and utilisation of financial resources at your school for the past three academic years **(2014, 2015 and 2016):**

No	Items	Amount allocated	Expenditure	Percentage per budget items	2014	2015	2016
(i)	Curriculum						
(ii)	Sports and culture						
(iii)	Transport						
(iv)	Ablution facilities						
(v)	Running costs						
(vi)	Maintenance and repairs						
	Total						

C. HUMAN RESOURCES

Instructions: For each statement, please check whether you **Strongly Agree, Agree, Disagree or Strongly Disagree** and then make a mark in corresponding space in the table provided below.

4. Resource allocation, distribution and utilisation

Allocation and distribution of resources

4.1 Recruitment, selection and recommendations for appointment of educators and support staff:

Statements on the allocation and distribution of resources	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
(a)The SGB formulates the post requirements at the school				
(b) The SGB conducts the shortlisting of candidates for a post				
(c)The SGB interviews the shortlisted candidates				
(d) The SGB recommends preferred candidates for appointment.				
(e) The SGB appoints support staff using school funds				

Utilisation of human resources

4.2 Which of the following statements are true or false in relation to the way in which human resources are utilised at your school? Mark each statement with an X in the block under either true or false.

Human resource statements	true	false
The school has post establishment		
All the critical posts are filled		
The subject allocation takes into account the s and experience of educators		
The school has appointed unqualified educators to offer subjects in the FET phase		
The school has appointed underqualified educator (s) to teach subjects in Grade 12		
The school has additional educators appointed by the SGBs		

D. PHYSICAL RESOURCES:

5. Resource allocation, distribution and utilisation

5.1 Choose the correct statement by making a tick in the corresponding space the table below:

Statements on resource allocation, distribution and utilisation in public schools	Strongly agree	Agree	Disagree	Strongly disagree
(i)There are sufficient classrooms in the school				
(ii) All classrooms have even floors without holes				
(iii) Not one of the classrooms has broken windows				
(iv) All classrooms have unbroken doors with functional handles				
(v) Each classroom has a ceiling in a good state of repair				

(vi) The school has an administration block which accommodates both the SMT and staff members				
(vii) The school fence is well maintained without holes				
(viii) The school has sufficient toilets for the learners				
(ix) The school toilets for the learners are functional and well maintained				
(x) The school has sufficient toilets for the educators				
(xi) The school toilets for the educators are functional and well maintained				
(xii) The school has sufficient office equipment				
(xiii) Office equipment (such as computers, laptops, printers and photocopiers) are well maintained and functional				
(xiv) Laboratories are well stocked and secured for use by both educators and learners				
(xv) Library is well stocked with books, teaching and learning materials				
(xvi) A well-stocked library is ready for use by both educators and teachers				
(xvii) Computers in the computer centre are well secured				
(xviii) The secured computers are functional and ready for use by both educators and learners				
(xix) Sports ground and other facilities are secured				
(xx) School sports facilities are well maintained and safe for use by learners				

E. Learner Achievements

6. Indicate which of the following statements are TRUE or FALSE by placing an X in the spaces provided in the table below:

Confirm the following statements relating to learner achievements	**True**	**False**
(a) The provincial performance target in 2015 was 80%		
(b) School performance was above the provincial target		
(c) The overall average pass percentage of your learners per grade was above the provincial pass percentage		
(d) There were very few matriculations exemptions than school leaving pass		
(e) There were top learners who received meritorious awards in their NSC examinations in 2015		

Appendix D: Letter of introduction

Faculty of Education

LETTER OF INTRODUCTION (SCHOOL GOVERNING BODY (SGB) MEMBERS)

Mr Azwindini Moses Molaudzi
University of Pretoria
P/Bag x
Pretoria
molaudzia@yahoo.co.uk
079 511 8494/ 082 732 9676

17 August 2015

Dear

Thank you for agreeing to hear more about my current research interest. My research topic is: **Predictors of resource provisioning in public schools.**

The information provided through this process will be used as part of completion of my PhD research on "***Predictors of resource provisioning in public schools"***. Your co-operation through filling in questionnaire will be confidential; no individual nor will your educational institution be identified with your responses.

I have included the consent form that briefly summarizes the intention of this research project, the voluntary participant status, the intention to retain your anonymity and confidentiality of all data, and your time commitment to this project. Please sign and return the form to me. In case you need to know more about the research process, feel free to contact Mr **Azwindini Moses Molaudzi** at the above mentioned e-mail addresses and cell phone numbers.

Your cooperation in this regard will be highly appreciated.

Educationally yours,

Azwindini Moses Molaudzi

……. **……..**

Appendix E: Consent form

Faculty of Education

CONSENT FORM

You are invited to participate in the research project: **Predictors of resource provisioning in public schools.**
The study is examining the relationship between resource allocation, distribution and utilisation and learner achievements in public schools of Limpopo Province. If you agree to participate, you will be requested to fill in a questionnaire which might take plus or minus **25 minutes** of your time.
Your identity will be protected to the best of the investigator's ability. All data gathered will be kept confidential, and your identity will not be disclosed in the final report. Your participation in this project is completely voluntary and the information recorded during this study will be kept in a locked file. You may choose to withdraw and not to participate at any time without penalty. For more information about the research process, feel free to contact Mr **Azwindini Moses Molaudzi** with addresses below.

molaudzia@yahoo.com/moss.molaudzi@gmail.com
079 511 8494/ 082 732 9676

I have read the consent form and volunteer to participate in this study.

---------- **----------**
Signature **Date**

Print Name

Appendix F: Consent letter I

Faculty of Education

Faculty of Education

Enq : Mr Molaudzi AM
Cell: 082 732 9676 or
079 511 8494

From : Mr Molaudzi AM
P.O Box 318
Levubu
0929

To : The School Manager/ SGBs Chairperson
School address Line 1
School address Line 2
Recipient address Line 3

Subject: Consent sought for school managers, educators and SGBs to participate in a PhD Research study namely**: Predictors of resource provisioning in public schools.**

I am presently enrolled for my PhD in Policy Studies at the Department of Education Management and Policy Studies of the University of Pretoria. In partial fulfilment for the requirements of this degree; I am requested to conduct a research project. The title of my thesis is: **Predictors of resource provisioning in public schools.**

The purpose of the project:	The aim of the study is to investigate the predictors of school resource allocation, distribution and utilisation and learner achievements in public schools of Limpopo Province. I would be grateful for your school participation if possible**.**
Who can be included in the sample?	The study will be carried out in Limpopo Province, in all five districts (viz. Capricorn, Mopani, Vhembe, Sekhukhune and Waterburg). 272 participants (68 principals, 68 HoDs, 68 educators and 68 SGBs) from 68 public secondary schools. Each participant has to meet the following criteria: • A participant should be ***attached*** to a sampled public secondary school in the Province • Educators should be ***permanent*** employees appointed either by department or SGBs at one of the sampled public schools • A parent participant should be an ***elected*** member of the SGB.

	• An SGB's member should have served as a member for a minimum of ***two*** terms (+-6 years)
Is participation mandatory?	The participants will participate voluntary and nobody will be forced to participate in the study. Every participant has the right to withdraw from the study at any time without having to explain why they no longer wish to participate. Participants are free to decline to answer any question or questions they do not want to answer. There will be no negative consequences to the participants who wish to withdraw from the study or choosing not to answer any question in the study.
Will the research impact the school?	I have applied for permission at the Limpopo Department of Basic Education, the involved educators and parents before I conduct the study in the sampled public schools. Their privacy will be respected and the identity of the parties involved will not be published in my thesis. The researcher (I) will also need to go to the public schools to make observation. The researcher will also take photo of the school infrastructures. Learners will not participate in the study but they might be on the photos. Identities of only learners with signed concert letters will be revealed on the photos. Those that will appear on the photos without signed consent forms, their identity will be protected.
What is the format of the research	The educators and parents (SGB members) will participate in completion of the questionnaires which will take each participant about thirty minutes to complete. I, the researcher will observe the conditions of school buildings, records of LTSM distribution, facilities (sports) and equipments. Reflective journal notes will be done. Photographs and drawings about the school location will be taken. Documents (resource provisioning and learner performance will be analysed).
Consent forms need to be received from:	The following key role players will need to give consent: 1. School managers, SMTs, educators and SGBs • Completion of questionnaires on school resources and learner achievement • Observations of their school buildings, human resources, financial resources, learning materials and facilities etc.. • Photographs of the display of school buildings and or classroom conditions, analysis of list of staff members and their learners performance results. **2. Schools sites** Photographs about the indoor and outdoor settings will be taken in the presence of the children. Parents should give consent to allow the researcher to reveal their identity.

Possible benefits of the study are:	The study aims to investigate the relationship between learner performance and school resource provisioning. This will help the department to understand the extent or degree of shortages or lack of school resources in public schools of Limpopo Province
Possible disadvantage or risks of the study:	There are no risks to the participant's health or safety of any participant. All measureable steps and procedures will be followed to ensure that the participant's dignity and identity is protected and that what is said in the questionnaire is kept confidential.
Is participation confidential?	The names of the school and participants as well as other identifiable information will not be recorded on the observation sheet. To collect data accurately, data will be given numbers (pseudonym) e.g, 1, 2,3,4,5 and reference will only be drawn to this number and will not be linked to the participant's personal information. It is my presumption that the research findings will make a creditable contribution towards improving learner achievements and provision of school resources in the Limpopo Province.
Will the data collected be available for use?	All data collected with public funding may be available in an open repository for public and scientific use
Ethical views of the University of Pretoria:	It is very important that the ethical views of the University of Pretoria are respected at all times. A high standard for the ethical considerations throughout the study is important and will be respected at all times. This includes that I subscribe to the principles of: • **Voluntary participant in research**, implying that the participants might withdraw from the research at any time. • **Informed consent**, meaning that research participants must at all times be fully informed about the research process and purposes, and must give consent to their participation in the research. • **Safety in participation** put different, that the human respondents should not be placed at risk or harm of any kind e.g. research with young children. • **Privacy,** meaning that the confidentiality and anonymity of human respondents should be protected at all times. • **Trust**, which implies that human respondents will not be subjected to any acts of deception or betrayal in the research process or its published outcomes.
Who is organising and funding the research?	The organisation of the research is done and funded by me, under the supervision of Dr Samuel Adeyemo from the University of Pretoria.

If you require further information after reading this document, please feel free to contact me or my supervisor on the details below:
Contact for further information:

Name:	Position	Contact details:

Mr Molaudzi AM	Director: Institutional Governance	082 732 9676/079 511 8494 MulaudziA@edu.limpopo.gov.za
Dr Adeyemo S	Supervisor Education Management and Policy Studies Department	012 420 Samuel.Adeyemo@up.ac.za

I trust that you will agree on the importance of this research project to support your school management, educators and school governing bodies and would appreciate your willingness for participation of your school in this research project.
Kind regards

_____ _____

Mr Molaudzi A.M
PhD Student

Dr Adeyemo S
Supervisor

Appendix G: Consent letter II

Faculty of Education

Faculty of Education

Research project: Predictors of resource provisioning in public schools.

Name of researcher : Mr Molaudzi AM
PhD student

If you are willing to participate in this study, please initial in the box on the right if you agree to the statement:

I confirm that I have read and understand the contents of the letter that I received from the researcher about the above research topic.	