THE SIGNIFICANCE OF OUTSOURCED SCIENCE TEACHERS ON LEARNER ACADEMIC PERFORMANCE: AN EDUCATIONAL MANAGEMENT PERSPECTIVE

by

NESANE MMBENGWA ALFRED NESANE

84000609

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PROMOTER: DR LP RAMABULANA

CO-PROMOTER: DR. SJM KAHERU

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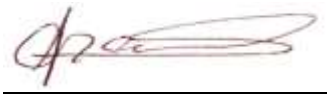
DECLARATION

I, NESANE MMBENGWA ALFRED NESANE, declare that:

THE SIGNIFICANCE OF OUTSOURCED SCIENCE TEACHERS ON LEARNER ACADEMIC PERFORMANCE: AN EDUCATIONAL MANAGEMENT PERSPECTIVE is my own work and has not been previously submitted in any form whatsoever, by myself or anyone to this university or any other educational institution for any degree or examination purposes. All resources that I have used or quoted have been indicated and duly acknowledged by means of complete references.



NESANE MMBENGWA ALFRED NESANE

23 March 2021

DATE

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DEDICATION

I heartily dedicate this exceptional and exquisite achievement to my church members (ZCC), for their spiritual support, all Vhaluvhu vha Sane, ha Mashamba and ha Mulima for being part of my blood and affinity, because my pride should be their brag as Vhaluvhu vha Kokwane kwa nwana wa Ninga. All my family members, particularly, my siblings, cousins, uncles, aunts and all, who never lost their affinity touch when my days were dark and when I hunger and thirst for their support during this study epoch. To Tshatala Farm Service Management (Nesane Khathutshelo Hamilton and Ntuseni Bernard) who picked up their late father's rod hence became 'Kings of Tomatoes' as well and to all my relatives who are ever supportive of me even during my gloomiest days of my life. To you all I say: **'ride on**!'

ABSTRACT

This study explored the significance of outsourced Science teachers on the learners' academic performance. The focus was on academic performance of learners in Physical Sciences in Limpopo Province and outsourced teachers from other countries continentally and abroad. The research population constituted all learners, outsourced teachers, parents, school managers and curriculum advisors involved in Physical Sciences in Limpopo Province. Purposive random sampling was used to obtain 1200 learners, 80 outsourced Science teachers, 40 parents, 40 school managers, and 16 curriculum advisors, all from 8 of the 10 newly demarcated districts of Limpopo Province. Three conceptual frameworks, namely, **Structural Functionalism, Social Constructivism and Community of Practice** coherently underpinned the study. This qualitative study used document analysis as well as face-to-face (individual) and focus-group interview schedules that were semi-structured to solicit data from the participants. Trustworthiness was guaranteed through Guba's model of trustworthiness of qualitative research study. Data was processed, summarized and analyzed, through thematic analysis. The following research questions guided the study:

* What is the significance of outsourced Science teachers on the learner academic performance?
* What are the factors that influence outsourced Science teachers to teach effectively?
* What are the challenges faced by outsourced Science teachers and how do they deal with them?
* What model could be created which schools can envisage for insourced teachers to use?

The study revealed that more than 75% of schools that performed well in 2018 Grade 12 Science from all the ten districts of Limpopo Province are manned by outsourced teachers. Several other reasons attributable to the academic achievement together with the challenges that outsourced Physical Sciences teachers face in their trade were revealed by the study. The study recommended that collaborative work approach among stakeholders to bring about good results.

Key Words:

Outsourced teachers, Physical Science, Social Constructivism, Community of Practice, Structural Functionalism, Stakeholders

Contents

LIST OF ACRONYMS

CAPS	Curriculum and Assessment Policy Statement
CoP	Community of Practice
CPTD	Continuing Professional Teachers Development
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DoE	Department of Education
DSM	District Senior Manager
ELRC	Education Labour Relation Council
FET	Further Education and Training
GSPF	Government Service Pension Fund
HoD	Head of the Department
INSERTS	In-service Trainings
IQMS	Intergraded Quality Management System
LP	Limpopo Province
LPDE	Limpopo Province Department of Education
LRC	Learners Representative Council
NQF	National Qualifications Framework
NSC	National Senior Certificate
OBE	Outcomes Based Education
PPE	Personal Protective Equipment
PSP	Purposive Sampling Procedure
RSA	Republic of South Africa

SACE	South African Council of Teachers
SADTU	South African Democratic Teachers' Union
SAQA	South African Qualifications Framework
SGB	School Governing Body
SRSP	Simple Random Sampling Procedure
TIMSS	Third International Mathematics and Science Study (TIMSS

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CHAPTER ONE: INTRODUCTION AND BACKGROUD

1.1 INTRODUCTION

Countries, including South Africa, have been inundated with persistent calls of shortage of teachers, especially in the field of Science. This shortage of teachers worldwide has become an inconceivable issue which is increasing day-by-day (Holmes, 2013: 13). This leaves the job market ever ungratified with many advertised teaching posts.

Physical Science is one of the most important and scare-skilled learning area which forms the backbone of human life. Human beings, animals, plants and exploration of other planets other than the earth are all but highly dependent on this subject. Technology, the brainchild of Science, is the gist of contemporary life and a bona fide innovation of Science. Human life cannot be without Science and basically there is no decent life without, electricity, automobile, hospitals x-rays and machinery, medical doctors, civil and chemical spheres, laboratory equipment, emergency services, scientific armaments, factories, modern farming, to name but a few. In totality, we live Science (Holmes, 2013:13). Ironically, learners, parents and other stakeholders wear a negative attitude towards this Physical Science learning area with a naïve cliché that it is too difficult a subject to enroll. This viewpoint manifests even though technology and security of the whole world rest entirely in the hands of Science. Interest in the subject must be shown by all stakeholders, especially learners, teachers and parents for the wellbeing and prosperity of generations to come, (Perspectives in Education, 2007: 77).

High rate of failure in Science subject, shortage of Science teachers, lack of interest by learners in the subject, shortage of science equipment, lack of Science teachers' in-service trainings is all but a heartrending concern which hampers progress in the teaching and facilitation of Science at schools. These pose a serious challenge to learners, parents, teachers, principals, senior managers who are stakeholders in the teaching fraternity. Should stakeholders fail to address these problems the country will face a major drawback of technological enhancement (Jones 2013: 25).

It is not enough for South Africa's 12 universities to produce and supply the required teachers to schools adequately. Black education in South Africa has suffered severe deficit in Science. Curriculum development must, therefore, pay special attention to these areas (Van Niekerk, 2005: 21). This great deficit of teachers leaves the Department of Education with no other option but to outsource teachers to close the gap.

The contemporary teaching fraternity worldwide is experiencing a tremendous shortage of educators, which leaves no choice other than outsourcing them globally. Shortages of Science teachers in South Africa is mainly due to reasons ranging from opportunity to earn a higher salary, opportunity to travel, professional development, lack of adequately trained teachers in the host country mainly due to South African teachers migrating to industry and other public sectors which leaves the country with gaps hence compel the authorities to look for qualified teachers elsewhere globally (Perspectives in Education, 2007: 77).

The modern age demands explicitly and extremely professionally trained and skilled citizens equipped with profound knowledge in Science learning area. The globally upsetting unabated Science teachers' shortage has spiraled into South Africa, and so is Limpopo Province. It is alarmingly unacceptable to find 21st century young bright learners in a deplorable condition at school without being taught Science due to scarcity of teachers, which indicates a failure of our national imagination to conceive of anything better for our children (Jones, 2013:25). This undesired compels the Department of Education to outsource teachers from foreign countries, with Zimbabwe on the lead. South Africa has, for the past two decades, been making use of expatriate Zimbabwean teachers. According to Zulu et al (2004: 174), the obligation is on the Provincial Department of Education to motivate and monitor stakeholders such as parents, teachers and businesses to outsource the required relevant teachers from other countries.

South Africa has suffered a severe shortage of Science teachers in both urban and rural public schools. De Villiers (2007: 69) reports that at least 6 000 schools do not have qualified teachers in these subjects. The Council of Education Ministers has also explored

the recruitment of foreign Science teachers. India was one of the countries from which South Africa had agreed to recruit the most number of teachers. However, the Department of Education also intends to recruit teachers from Zimbabwe, Singapore, Malaysia and Uganda through outsourcing means. Forde (2007: 142) states that there are about 10 000 fully trained teachers from Zimbabwe living in this country. Among them are about 4 000 are qualified Science teachers.

Already, the current Education Minister has signaled her eagerness to recruit trained teachers from Zimbabwe to fill some vacant posts in these scarce skills subjects. Bringing in the Indian and Zimbabwean teachers is a short-term solution which would be addressed by the production of more Science teachers in South Africa, (Forde, 2007: 142).

Outsourcing of foreign teachers leaves uninformed South African citizens uncomfortable due to xenophobic sentiments (source). These attacks are prevalent in the wake of the Bill of Rights which stipulates that no one may discriminate, directly or indirectly, against anyone on one or more grounds, including race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth, (Van Niekerk et al. 2005: 6).

Many secondary schools in South Africa today do not offer Science learning subject (scare skill) because of the scarcity of teachers for this area. Consequently, the communities and education system have suffered a severe retard. Learners are forced to study non-science subjects which lead them to ordinary job careers commonly known as non-science (Holmes, 2013:13). While some schools boast well qualified Science teachers, some do not enjoy the service of qualified Science teachers which leaves potentially groomed young Science learners vulnerable in general streams or subjects such as History and Geography, and perceive Science as problematic learning areas, (Holmes, 2013:13). Someone somewhere seems to be poised to jeopardize, gamble and destroy the futures of the youth by coercing them to study common learning areas without Science due to shortage of teachers (Mnyaka, 2006: 321).

The South African Schools Act (Act 84 of 1996) empowers professional management teams of a public school through the school principal and teaching staff under the authority of the Superintendent General of the Provincial Department of Education to outsource professionally trained Science teachers for their schools (Van Niekerk, et al, 2003: 72) and (Calitz, 2002: 77). Thus, in South Africa, and so in Limpopo Province in Vhembe District, Limpopo Province, there is a vigorous recruitment drive of foreign national Science teachers from other countries worldwide.

1.2 STATEMENT OF THE PROBLEM

South African schools have been marred with incredible shortage of Science teachers, high rate of failure in science subject, lack of interest by learners in the subject, shortage of science equipment, lack of Science teachers' in-service training which are all but a mindboggling concern which hampers progress in the teaching and facilitation of Science at schools. These pose a serious challenge to learners, parents, teachers, principals, senior managers who are stakeholders in the teaching fraternity. Should stakeholders fail to address these problems the country will face a major drawback of technological enhancement (Holmes, 2013:17).

The statement of the problem in this research study is the poor performance of learners in Physical Science at schools, mainly with services of under-qualified insourced teachers in Limpopo Province which calls forth outsourcing of better qualified teachers for this learning area, see Department of Education, Limpopo Provincial Government. 2015 Grade 12 Results (DoE, 2016: 5)

A way of addressing the performance of the Science learning area and its performance was by means of outsourcing of teachers, this study considers the challenges and affordances leading to the effectiveness of outsourced Science teachers.

1.3 AIM AND OBJECTIVES OF THE STUDY

The main aim of this study is to investigate the significance made by outsourced Science teachers on learner academic performance in Limpopo Province.

The following were the objectives of the study;

- To identify the significance made by outsourced Science teachers on learner academic performance
- To determine factors that inspire outsourced Science teachers to improve the learner academic performance.
- To explore the challenges, outsourced Science teachers encounter
- To determine how outsourced Science teachers, deal with their challenges and affordances leading to their efficiency

1.4 RESEARCH QUESTIONS.

De Vos, Strydom, Fouche and Delport (2005:321) affirm that all the formulated research questions should be related to the goals, objectives, and hypotheses of the research study. The following were the research questions:

- What is the significance made by outsourced Science teachers on the learner academic performance? How do outsourced Science teachers impact learners' academic performance in Limpopo Province?
- What are the factors that inspire outsourced Science teachers to teach effectively, hence improve learner academic performance?
- What are the challenges that outsourced Science teachers encounter?
- How do outsourced Science teachers deal with their challenges and affordances leading to their efficiency?
- What model could be created with schools can envisage for the insourced Science teacher to improve their academic performance

1.5 THEORETICAL FRAMEWORK

Theoretical framework is the master plan, or a framework analogous to a lens that the researcher uses to find out what he/she is researching Creswell, (2003:140). This is a theory that the researcher applied on the significance of outsourcing Science teachers the Limpopo province area Mc Donald (2004: 87) postulates that theoretical framework is a set of ideas that researcher uses when making judgements. Theory can be used to make predictions.

In line with Creswell (2003:140) theoretical framework of this study raises questions about the significance of outsourced Science teachers, success they achieve, or some related scores. This study focused on the use of outsourced Science teachers in teaching Science at schools, hence advance the learner academic performance. The study was guided by the following theories;

1.5.1 Structural functionalist theory

Structural functionalist theory holds that education is like a human body with parts, a system with subsystem that works for the good of the whole body (Ritzer, 1992:108). In practice, education works for the benefit of the whole society and for the other subsystems of a society such as teachers, parents, curriculum advisors and curriculum advisors. Outsourced science teachers can teach effectively with a full support of these stakeholders.

1.5.2 Social constructivism theory

Social constructivism is an educational theory that acknowledges the role that society plays in the construction of knowledge (Brook, 2002: 75). Social constructivism extends the meaning of social to include the cultural and historical aspects of the social context. This implies that when learners, teachers, principals and curriculum advisors work together under one cluster, interest in teaching and learning Physical Science effectively would improve. This means that the challenges that Science teachers are facing would be managed through the interaction with the stakeholders involved in the teaching and learning of Physical Science under the auspices of the Limpopo Province

1.5.3 Community of Practice Theory

Community of practice (CoP) theory encourages participants' perception of self-assessment of their preparedness to develop collaborative practice agreements (CPAs) before and after their participation in the research study. Stakeholders work together as a community of practice with a view to achieve one common goal (Brook, 2002:143).

The researcher applied community of practice (CoP) approach to find out among other things outsourced Science teachers' development for advancing the learner academic performance and if CoP could identify the significance and factors that motivate outsourced Science teachers as well as challenges they face in their endeavor to advance the learner academic performance (Blanche & Durrheim,1999:11).

Learners and parents who are direct beneficiaries of outsourced Science teachers would be a good source to eradicate the challenges faced by outsourced Science teachers. Teachers, lecturers, curriculum advisors and school principals as a community of practice could offer insight into factors that motivate them to teach effectively as well as challenges they face, hence pave way for finding solutions.

1.6 DEFINITION OF KEY CONCEPTS

Definition of concepts would be explored in line with De Vos et.al. (2012:329) who hold that the real world of participants of a research project can only be understood if the words and expressions they use in specific situations are revealed. This section will reveal and define frequently used terminologies in the text as follows:

1.6.1 Outsourced teachers

Outsourcing is a means of obtaining goods and services by contract from an outside source (Van Deventer, 2000:121). For this study, outsourced would mean contracted or subcontracted teacher from another country. It also means making use of the services of a teacher whose origin is another country other than South Africa. A teacher on the other hand is perceived as any person who educates or provides professional education services, at any public secondary school, and who is appointed in a post under the Employment of Educators Act (Act 76 of 1998). For this study a teacher will be any individual who is officially employed at a school by the Department of Education to teach learners. Subsequently, outsourced teachers would mean contracted or subcontracted teachers from foreign countries who are rendering their services in South Africa.

1.6.2 Physical Science

Physical Sciences is a branch of science which deals with the Sciences used in the study of inanimate natural objects that are concerned with things that do not have life and with natural forces. It is knowledge as of facts, phenomena, laws and proximate causes gained and verified by exact observation, organized experiment and correct thinking also, the sum of universal knowledge (De Vos et al, 2005:3). For this study Physical Science will be referred to as a branch of science subjects (in the FET phase of a school) which deals with the part disciplines of physics and chemistry.

1.6.3 Facilities

National Core Standards for Health in South Africa (2011:6) outlines facilities as the resources for doing something. For the purpose of this study, facilities will cover any structure that assist to promote teaching and learning such as classrooms, laboratories, libraries, school hall, etc.

1.6.4 Resources

Equipment is a safe and secure apparatus used as a tool in the working environment (National Core Standards for Health in South Africa, 2011: 4). For this study, resources will refer to any tool such as books, writing stationery, Science equipment/apparatus, laboratory kits with chemicals, scientific calculators, computers, televisions, etc. which enhance teaching and learning.

1.6.5 Learner

Education Labour Relations Council (1999:2A-4) describes a learner as any person taught at school, or obliged to be taught. In this study the term will mean a pupil at a primary or secondary school who is being trained by a teacher.

1.6.6 Management Team

School management team (SMT) is a team of experts led by the school manager (Calitz, 2002:77). This study will refer to the school management team as a joint operation regulated by a professional management team embracing the school manager, deputy school manager, and heads of departments.

1.6.7 Stakeholders

Stakeholders are people who have an authentic interest in the ongoing efficiency and success of an organization that is involved in an institution, Bush & Heystek (2003: 128). The term “stakeholder” was created by Robert Stake (1974:101) as a reference to a group of people with interest in an object. For this study, stakeholders will include learners, parents, educators, curriculum advisors, the Department of Education, business sector, as well as the government as the major stakeholder.

1.6.8 Education Management

Education management at schools is a procedure whereby education team in charge of learning and teaching try to utilise the services of teachers and pupils, as well as other resources, as effectively as possible to breed a culture of teaching and learning (Van Deventer, 2000:11). Educational management coordinates activities, controls, leads, guides, organizes, supervises, plans, leads and motivates into a meaningful and purposeful endeavor. For this study, educational management will refer to the joint management efforts used by the school management team (SMT), the school governing body (SGB) and other stakeholders such as curriculum advisors, as well as the government as major partners to establish a culture of teaching and learning.

1.7 RESEARCH DESIGN AND METHODOLOGY

This section addresses the research design and methodology employed in this research.

1.7.1 Research Design

Schulze (2002:24) sees research design as a detailed plan of a research study that involves sets of strategies and instructions to be followed in answering the research problem. The researcher employed this design as a plan and strategy through which the entire research is managed until the entire results are reported (Taylor, 2005:13). Furthermore, the research study used this design as a structure a means of the research study used to gather evidence to answer research questions hence describe the technique for indulging into the research study (Mouton, 2009:107) and (Cresswell, 2006:117).

This research study adopted qualitative research design which involves a few respondents with the aim of understanding and describing a phenomenon as well as using words in analysing and interpreting the results (Schulze, 2005:12).

1.7.2 Research Methodology

The research study used a research methodology as a strategy of inquiry which moves from the underlying assumptions to research design and data collection. This is the method used to gather data for making decisions about a study under investigation (Creswell, 2009:510). This unit of the study presents the methods which the researcher employed in gathering research data of the

study. The study engaged qualitative approach of data gathering through which document analysis and interviews were used as instruments to collect data.

1.7.2.1 Qualitative Methods

The study used both interviews and document analysis as part of qualitative data collection instruments.

Document analysis as part of qualitative research instruments was used to collect data about schools in line with their Grade 12 performance in Science viz. poor performance schools (0% - 29%), average performance (30%-59%), enhanced performance (60%-79%), excellent performance (80%-100%). Document analysis was used to collect data about Grade 12 Science schools in line with their learners' academic performance. The researcher used words (not calculations) to analyze and interpret the results secured from document analysis tables (Schulze, 2005:12). The research study employed a t-test analysis to analyze numerical data and statistics to analyze the results of the selected schools.

Qualitative research methods were used as techniques for gathering data based on the views of the participants in the form of words or texts (Creswell, 2005:39). Interviews were adopted as the instrument to collect data from the Science learners and teachers, parents, school managers and the curriculum advisors.

1.8 SAMPLING

Sampling is about selecting a subset of a population that is chosen to present the overall population (Brink, Van der Walt, & Van Rensburg 2012:55). Research participants were selected from the population across of which the results were planned to be generalised. Issues that relate to sampling and generalisation were crucial in statistical studies.

1.8.1 Population

Population refers to individuals in the world who possess specific characteristics. Mouton (2009:134) asserts that population and universe are used interchangeably in the literature. It is a collection of items, events or individuals having some common features that the researcher is interested in studying.

For this study the population to be studied constitutes Science learners, parents, outsourced Science teachers and 40 school managers all from 40 different schools as well as curriculum advisors in Limpopo Province.

1.8.2 Sampling procedures

Snowball sampling procedure was used in sampling. Participants were asked to identify other participants to be interviewed as a strategy where each successive participants or groups were named by a preceding participant or group members (Schulze, 2005:31). Participants were requested to name other participants that might fit the profile (De Vos, 2012:233). Such participants included Science learners, outsourced educators and parents at forty schools from eight out of ten districts of Limpopo Province. Snow balling was used to identify the schools with outsourced teachers.

Purposive sampling was used to identify outsourced Science teachers, school principals and curriculum advisors as research participants in qualitative study. In purposive sampling, the researcher identified participants who could provide rich information about the phenomenon under investigation (Schulze, 2005:32). Furthermore, this sampling procedure was used because the researcher knew the schools with outsourced teachers with Science learning area with grade 12 learners above 15. Purposive Sampling Methods were used to select learners who are doing Physical Sciences.

1.8.3 Samples

Sample can be described as the survival of a population or universe of which the same sample is a minor section (Schulze 2005:31). For the purpose of this study, the sample studied was drawn from learners, parents, outsourced teachers, school managers and curriculum advisors of the Limpopo Province.

The sample of this study constituted 1200 Science learners, 80 Science teachers, 40 Parents and 40 school managers, from each of the selected 8 districts and 16 curriculum advisors.

1.9 DATA ANALYSIS

The data collected through two different data collection methods, viz. qualitative and document analysis data collection methods were analyzed using thematic analysis approach reinforced by social constructivism in line with (Schulze, 2002:37) and Brook (2002:143). This method of analysis was employed because it is theoretically flexible with a variety of research questions, different types and sizes of data, and it yields data-driven as well as theory driven analyzes. Categories of designs were established in line with the three main research questions of the study. Types of themes were guided by the theoretical framework as well as data collected.

The data analysis employed involved categorizing, ordering, manipulating, and summarizing data. As the purpose of data analysis, data was decreased to an interpretable form to arrive at a conclusion, see (Schulze, 2002:37). The data analysis further developed universal statements containing the vital features of a phenomenon or

those things that cause a social coherence, (Schulze, 2005:77), (Creswell, 2009:218 & Hakkarainen, 2011:11).

Data analysis employed in this study involved categorizing, ordering, manipulating, and summarizing data. The purpose of data analysis was to decrease data to an interpretable form to arrive at a conclusion, see (Schulze, 2002:37).

This data analysis approach was done because it focuses on:

* The researcher understood rather than explaining social actions and events within their settings and context
* Remaining true to the natural setting of the actors and concepts they used to describe and understand themselves (Mouton 2009:168).

Once the data have been gathered, they were evaluated (Brink. et al., 2012: 56). Before analysing or processing the data, the researcher examined them for completeness and accuracy. The researcher organized the data in an orderly, coherent fashion (summarized) so that he could distinguish patterns and relationships (Brink, 2012:57). The research results were presented.

Data collection produced new information or data about the world that requires further procession. Data procession involved at least two kinds of operations, namely, data reduction during which qualitative data are summarized and data analysis. Qualitative data analysis includes process such as thematical and content analysis (Mouton, 2009:67). Data processing was followed by synthesis, which involves interpretation or explanation of the data.

1.10 MEASURES OF QUALITY CONTROL

This section discusses measures that the researcher used to ensure quality of the study. The importance of the quality control measures is to ensure that trustworthiness, validity and reliability of the study are espoused. These measures include among other things trustworthiness, credibility, transferability, dependability, confirmability, validity and reliability of the study (Schulze, 2005:79).

1.10.1 Trustworthiness

In this research study, trustworthiness was assured by all the means. Guba's model of trustworthiness of qualitative research was employed. Guba's model for trustworthiness solves ways for warding off biases in the results of qualitative analysis (Schulze, 2005:79). This study cross validated data sources to ensure that trustworthiness and the data produced from analysis underwent member checking to increase trustworthiness and the accuracy of the findings. Marshall and Rothman (1995:143-145) suggest the four tactics for ensuring trustworthiness within this model as follows:

1.10.2 Credibility

The study ensured credibility which demonstrates that the research was conducted in such a way that the phenomenon was accurately described. It denotes how credible the findings of the study are and the criteria used to judge them. Credibility is an alternative to internal validity in which the goal is to validate that the enquiry was conducted in such a manner as to ensure that the subject was accurately identified and described (De Vos, 2005:346). The strength of this qualitative study aims at investigating a problem or describing a setting, a process, a social group or a pattern of interaction will be its validity.

1.10.3 Transferability

The investigation ascertained transferability which demonstrates the applicability of the findings to another context. This is how transferrable and applicable the findings to another setting or group of people are. Those who conduct the policy or research design studies can determine whether the cases described can be generalised for new research policy and transferred to other settings, while the reader or user of specific research can

see how the research ties into a body of theory. Comparability is the degree to which the research plan is adequately described so that researchers may use the research study to extend the results to other studies (Schulze, 2005:79). The researcher ensured that the findings of this study were transferrable to other settings and comparable to such an extent that they can be extended to other studies' findings.

1.10.4 Dependability

The study ensured dependability which reflects whether the findings would be consistent if the enquiry were replicated with the subject or similar context. It is an alternative to reliability in the researcher attempts to account for changing conditions in the phenomenon chosen for study as well as changes in the design created by increasingly refined understanding of the setting, de Vos (2005:346). The researcher would through dependability ascertain that the findings were consistent if the enquiry is replicated with the subject or similar context.

1.10.5 Confirmability

Confirmability focuses on whether the findings are a function solely of the informants and not of the biases and motivations of the research. It stresses the need to ask whether the findings of the study could be confirmed by another, De Vos (2005:347). In this research study, the researcher ensured confirmability of the study by guaranteeing that the findings are a function solely of the informants and not of the biases and motivations of the research.

The researcher employed Guba's model of trustworthiness to address the ways of warding off biases in the results of qualitative analysis.

1. 11. DELIMITATION OF THE STUDY

The employ of outsourced Science teachers in Limpopo schools is very high and this research study could not cover all the areas. This study was conducted in 8 districts of the newly demarcated 10 districts of Limpopo Province. The research study covered 40 schools and 8 districts at 40 schools involving 1200 learners, 40 parents, 80 outsourced Science teachers and 16 curriculum advisors. The study was extended to 8 districts wherein 16 curriculum advisors (2 from each district) were engaged. All participants were in the jurisdiction of Limpopo Province. The research study was limited to 8 districts, leaving out two districts lest data collected would be redundant and over saturated.

1.12. SIGNIFICANCE OF THE STUDY

- Insight about the significance of outsourced Science teachers will capacitate stakeholders with knowledge hence realise their prominence and trigger the desire to make use of them effectively.
- Generating knowledge about outsourced Science teachers may create a framework to facilitate the improvement and their output on learner academic performance.
- The results of the research will further serve as a wakeup call to educators, learners, parents, community members, SGBs, education department and stakeholders regarding the unparalleled importance of outsourced Science teachers insofar as the learner academic performance is concerned.
- The study is expected to produce recommendations for creating a favorable atmosphere for teaching and learning on both outsourced Science teachers and learners and serve as a clarion call to advance a positive mood towards embracing outsourced Science teachers at schools in Limpopo Province and elsewhere in the country.
- The research results would in line with Hakkarainen (2011:11) be utilized by schools and stakeholders to garner the employment of foreign Science teachers at schools hence make use of them efficiently to advance the learner academic performance. Finally, applying qualitative methods will introduce qualitative methodology to the study of outsourced Science teachers and supplement available regional research work done recently in field of Education Management.

1.13. ETHICAL CONSIDERATIONS

- The study employed ethical guidelines which serve as a basis upon which each researcher must evaluate his or her own conduct. Ethical principles should be internalised in the personality of the researcher to such an extent that they guide decision making and sensitive treatment of participants. The researcher undertook to abide by relevant ethical requirements throughout the study (De Vos, 2012: 115-126. The following ethical considerations were observed:
- Participation in the study had been voluntarily. No one was forced to participate in the study.
- Participants were given an informed consent, ie. they were made to understand what would be going on and be given the opportunity to choose what should or should not happen to them. Obtaining informed consent implies that all possible or adequate information on the goal of the investigation, the expected duration of participant's involvement, the procedures which will be followed during the investigation, the possible advantages, disadvantages and dangers to which respondents may be exposed, as well as the credibility of the researcher, be rendered to potential subjects or their legal representatives.
- Deception of the respondents was not given room at all. The researcher shied away from deceiving the subjects though avoiding withholding information, or offering incorrect information to ensure the participation of subjects when they would otherwise possibly have refused it.
- Participants' privacy was ensured by avoiding violation of their privacy/anonymity/confidentiality: The researcher always reminded them of the importance of safeguarding the privacy and identity of the respondents and to act with necessary sensitivity where the privacy of subjects is relevant. Under no circumstances should the researcher use concealed media such as videos cameras, one-way mirrors or microphones without the knowledge and preferably written consent of the research respondents.

- Furthermore, the researcher exercised confidentiality which is about handling of information in a confidential manner. Anonymity was exercised; hence no one including the researcher could identify any subjects afterwards.
- Debriefing session was afforded to the participants during which they get opportunity, to work through their experience and its aftermath and where they could have their questions answered and misconceptions removed. The researcher rectified all misperception that arose in the minds of participants after completion of the project (De Vos, 2012. 115-126).

1.14 OUTLINE OF THE STUDY

This section serves to outline what the researcher discussed in each of the chapters.

Chapter 1: **Introduction and Background of the Study**

This chapter focused on the introduction and research background of the study wherein the following significant aspects were addressed: Introduction, problem statement, aims and objectives, research question definitions of concepts, research design and methodology, Sampling, data analysis, measures of quality control, delimitations of the study, significance of the study, ethical considerations and the outline of the study.

Chapter 2: Literature Review and Theoretical Framework

This division would deal with literature review, focusing on the opinions of other researchers on the same study. Theoretical framework of the study was dealt with in this chapter. This presents theories and theorists followed or to direct the research undertaken.

Chapter 3: Research Design and Methodology

This part encompassed the research design and brief explanation of the theory underpinning the methodology, as well as how the researcher planned to conduct the research, encompassing population, sampling frame, approach and technique, sample size, data collection method, coding and data processing and analysis as well as strategies to enhance methodological integrity and scientific rigour.

Chapter 4: Data Presentations and Analysis

The section encompassed a clear analysis of the data collected, realisation of sample, discussion of results, field notes, and so on. Data were analyzed and interpreted in this chapter.

Chapter 5: Summary, Limitations, Conclusions and Recommendations

This concluding chapter will reflect on summary of the research results, Conclusions, recommendations and limitations.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents review literature and discussed suitable research studies in respect with their contribution to this study. The researcher traced all available literature that is broadly and specifically relevant to the subject of the study. The chapter served to clarify the relationship between the proposed study and previous work on the topic as well as developing an acceptable body of knowledge on a topic and stimulating insight into the topic (Babbie & Mouton 2005: 643). The central drive of the review was to trace the study in context of other academic researchers on the significance of outsourced Science teachers on the learner academic performance. The main aim of the review literature was to institute a solid theoretical basis of the argument for and against the current literature on the study's findings.

In brief, this chapter presents an constricted history of improved learners' performance in Science in South African schools; factors for outsourcing Science teachers in South Africa; stages of outsourcing Science teachers including global, continental, regional, national and provincial; Significance of outsourced Science teachers including factors that inspire them to teach effectively, challenges faced by outsourced Science teachers such as poor infrastructure. The chapter further presents theoretical framework as well as the summary of the chapter.

2.2 LEARNERS' SCIENCE PERFORMANCE IN SOUTH AFRICAN SCHOOLS

During apartheid era, education and training was characterised by the under-development of human potential, especially that of blacks. The teaching and learning of mathematics, science and technology were the hardest hit (Howie, 2003: 19). Research studies reported several shortcomings in the teaching and learning on Mathematics and Science in South Africa. The Third International Mathematics and Science Study (TIMSS) conducted, in which South Africa participated with 41 other countries, reports that South African Mathematics learners came last with a mean score of 351. This mean was significantly lower than the international benchmark of 513. Less than 2% of these learners reached or exceeded the international mean score (Beaton, et al., 1996:112).

Another TIMSS conducted on similar studies indicated no improvement by South African Mathematics and Science learners (Reddy, 2004: 45).

A different investigation Mji and Makgato (2006:254) targeting Grade 12 learners indicated for example that learners only obtained an average of 30% for Maths and 27% for Science. Another study was conducted by the Monitoring Learner Achievement (MLA) project organised by UNESCO and UNICEF. The MLA's objectives are to continuously monitor the quality of basic educational programs and assess learning outcomes (UNESCO/UNICEF: Monitoring Learning Achievement Project, 2005:21). In this project, Grade 11 learners from a number of African countries were assessed against a set of internationally defined Maths and Science learning competencies. Findings from countries including Tunisia, Mauritius, Malawi, Zambia, and Senegal, indicated that South African learners ranked fourth with an average Maths score of 48.1% and rated last with respect to Science, scoring at 30.0% (DoE, 2001:26).

The world has seen a mass migration of teachers from their native countries to other countries for various reasons ranging from political to economic motives. Poor and developing countries are mostly affected by the migration of their homebrew teachers to other countries. South Africa on the other hand suffers migration of teachers to other developed countries as well as relishing outsourcing teachers from poor countries. Limpopo Province is one of the areas in South Africa that conspicuously make use of outsourced teachers, especially in Science learning areas (Manik et al. 2006:16-17).

Learners' performance in Physical Science in Limpopo has not been very impressive over the years. This less impressive performance is due to among other things scarcity of properly qualified teachers in the learning area (Manik et al. 2006:16-17).

Table 2.1: Limpopo Province's Overall Performance in Physical Sciences 2015- 2019

Year	Number of learners who wrote	Number of who learners achieved at 30% - 39%	% of learners who achieved at 30% - 39%	Number of learners who achieved at 40% - 100%	% of learners who achieved at 40% - 100%

2015	28677	16618	57.9%	12059	42.1%
2016	30975	18566	59.9%	12409	40.1%
2017	30758	20180	65.4%	10578	34.6%
2018	26691	17801	66.7%	8890	33.3%
2019	33680	20063	59.6%	13617	40.4%

Depiction of Limpopo Province achievement rate in Physical Sciences as adapted from the Department of Basic Education National Senior Certificate Examination Report (DBE, 2020: 8)

Table 2.1 presents the less impressive Grade 12 Science results between the years 2015 and 2019 as evidenced by Keeton (2010:10) and (DBE 2020:8). While some schools did exceptionally well some schools' performances are not impressive as such. The results are showing that for 5 consecutive years (2015-2019), between 57.9% and 66.7% of the learners of the learners scored between 30% - 39%; these pass rate can only access the learners to study at FET colleges (DBE, 2020: 8) and (Keeton 2010:10). On the other hand between 33.3% and 42.1% of the learners' scores range between 40% and 100%; these scores qualify candidates to register for scientific careers at university level.

Figures in Table 2.1 further show that in 2015 about 57.9 candidates scored between 30% and 39% which access them to study at FET colleges while 42.1% of the candidates scored between 40% and 100% which access them to register for any scientific university careers.

In 2016, 59.9% of the learners scored between 30% and 39% and they can study in FET colleges whereas 40.1% of the learners scored between 40% and 100% and they may register for scientific courses at university level.

In 2017 many candidates (about 65.4%) scored between about 59, 9% of learners achieved between 30% - 39% which access them to FET studies, while 34.6% of the learners scored a good pass which ranges from 40%-100%. The pass percentages of the former candidates access them to university entry for study in scientific fields.

In 2018 about 66.7% of the candidates secured a pass percentage ranging between 30% and 39% while 33.3% of learners achieved between 40% - 100% access them to university study of scientific careers.

In 2019 the learners' performance changed quality wise as 59, 6% of the candidates secured a pass rate ranging between 30% and 39% whereas 40, 4% of the candidates scored between 40% and 100%. Comparing scores percentages between 2018 and 2019 there has been an improvement of 7% of the university entry requirement.

In toto document the figures from the table proved that outsourced Science teachers' performance secured 100% quantitative passes between 2015 and 2017. During the years 2018 and 2019, their performance took a new dive to increased qualitative performance from 33.3%, to 40.4%; a qualitative increase of 7%.

2.3 FACTORS FOR OUTSOURCING SCIENCE TEACHERS IN SOUTH AFRICA

According to Morgan, Sives, and Appleton (2006:227), South Africa's education system needs more than 20 000 teachers per year while its teacher training output is less than 9 000 teachers per annum. The teacher training output figure is just but a drop in the ocean which leaves the country ever experiencing a high shortage in the profession. This brain drain is exacerbated by the international labour market which recruits South Africa's professionally trained teachers in large numbers with the United Kingdom in the forefront. Worse than all, South Africa's homebrew Science teachers rarely opt to teach in their native country to teach their kinsfolks, they instead migrate to industry and other countries in pursuit of greener pastures. Appleton et al., (2006:124) maintain that this exodus of teachers to foreign countries and other sectors leaves South Africa with an acute shortage and need of teachers, especially in the scarce fields of Science. Subsequently, South Africa turned to other countries for the provision of teachers, thereby became receiving country for migrant teachers.

It is estimated that South Africa lost 310 000 of its citizens to emigration between 2002 and 2005, with 50,000 being professionals, (Appleton, Morgan, and Sives, 2006:127).

The major cause of this undesired mobility is finance. South Africa has severely suffered a heavy blow of witnessing its homebrew teachers leaving their native country to other countries with stronger currencies and better working conditions. South Africa's Science teachers cannot be an exception, but they as well engage in the migration process to foreign countries in pursuit of greener pastures which severely impacts on the education of the innocent child who needs to be developed fully in these learning areas (Perspectives in Education, 2007:76-78). The migration of South Africa's homebrew Science teachers to other countries leaves the country with no choice but to outsource educators from other countries such as Zimbabwe and India.

Secondly, post-apartheid South Africa experienced rationalization of teachers' training colleges and this resulted in a shortage of teachers country wide. Teachers training colleges in South Africa had a good reputation of producing extensively and intensively trained teachers whose skills were both curriculum and knowledge based. Rationalization of teachers' colleges called forth a shortage of teachers and scare skills subjects such as Science was severely affected by the new dispensation. The country had no other alternative other than outsourcing teachers from other countries (Appleton et al., 2006:124).

2.4 OUTSOURCINGS OF PHYSICAL SCIENCES TEACHERS

Outsourcing of Science teachers is a global endeavor which is not reduced to South Africa in Limpopo Province alone but the issue has spread to the whole world at large. This study will focus at stages of outsourcing teacher globally, continentally, SADC, nationally, provincially and at district levels.

2.4.1 Outsourcing of teachers globally

Outsourcing of teachers globally cannot be discussed without exploring the term globalisation. Globalisation as the integration of economies through the movement of goods, capital, ideas and labour, has affected education as well as the world witnessed a flow of teachers from country to modernized countries (Oyejide, 2002:15 and Bloom, 2005:3).

South Africa and other African countries are deeply affected by the flows of trade, services and interaction of people of various professions including teachers (Shivji, 2002:101). In line with the Organization for Economic Co-operation and Development in (Manik, Maharaj; Sookrajh, 2006:17 and Shivji (2002:101), the year 1990 has witnessed a marked increase in the international migration of highly skilled professionals in sectors such as health, education and technologies. Wangwe and Musonda (2002:57) hold that increased globalization was characterized by advanced transport and information and communication systems, which called forth a renewed concern about the effects of emigration of skilled labour from developing countries to developed ones. As unearthed by a study conducted by Commonwealth Secretariat in 2005, 50% to 80% of all highly educated people from developing countries in Africa and the Caribbean live and work abroad (Manik et al., 2006:17). observed that developed countries have pro-actively sought to address their critical needs such as the shortage of teachers by developing innovative strategies to attract, recruit and retain teachers from abroad, especially Science teachers.

Developed countries such as the US, UK, the Netherlands, Canada and Australia, cannot entice their young citizens into teaching profession due to its out unfashionable spate (ageing), (Manik et al., 2006:17). Thus, in the wake of this trend, these countries will continue to suffer teacher shortages of which they will seek to resolve by luring teachers from elsewhere in the world hence teachers in developing countries will remain the primary target. South Africa as a developing country cannot be absolved from teacher migration and at the same breadth; teachers from elsewhere in the world are as well lured into South Africa. It is in this international context that the issue of teacher migration in South Africa must be understood (Morgan et.al., 2005:122).

South Africa, as part of the global village constitutes close to thirty percent (30%) of global migrant workers; of which 1492 are South Africans permits holding teachers (Morgan et al., 2005: 124). In comparison to other sender countries, such as Jamaica which had 523 similar permit holders, South Africa was the largest foreign provider of teaching staff in the United Kingdom (Kok, Gelderblom and Van Zyl, 2006:108; Morgan et al., 2005:124).

In the contrary, South Africa is not only a sender but a receiving country as well. While South Africa has suffered a huge loss of its professionally trained teachers and nurses to other international countries, the country is on the contrary a major receiver (outsourcer) of skilled teachers, physicians, technologists, etc. from the world at large (Morgan et al., 2005:124).

Both history and research show that there has been international movement of educators during the early centuries when the ancient Greeks first tutored the Romans. The dawning of 'globalization' in the 1990s has seen such migration return to prominence. Many countries that have suffered net losses of educators articulated concerns that led to the adoption of a protocol on teacher recruitment by the Commonwealth in September 2004 (Morgan et. al., 2005:124). South Africa has been both and sender and a receiver of educators and has been at the forefront of protest about international teacher mobility. It therefore provides an important case where one might expect prima facie to find negative impacts of international teacher mobility on local schools.

The major concern about the migration of teachers from their native countries is centered on finance (Kock 2006:66). Teachers giving/losing countries maintain that teacher training is often heavily subsided, so governments are aggrieved to be responsible for training people who subsequently teach elsewhere abroad. This mobility calls forth the fear that international teacher mobility will leave developing countries with insufficient personnel to run their own education systems, thereby impacting negatively on the progression of their education (Morgan et.al., 2005:122).

Appleton, Sives, and Morgan, (2006b:127) and Manik et al., (2006:17) noted that, South Africa does not keep track of the number of teachers that the country loses due to international recruitment. Available data suggests that South Africans constitute most foreign teachers in the United Kingdom. South Africa is also described as being primarily a sender country to Australia, the United States of America and Canada. While national data on teacher migration are lacking for South Africa, figures provided by Statistics South Africa estimate that an average of 1 000 skilled people (including teachers) leave South Africa for other countries every month (Manik et al., 2006:17). If this approximation is correct, it translates to a yearly total of about 12,000 skilled professionals (including

teachers) leaving South Africa to seek employment elsewhere in the world. This exodus of teachers impacts negatively on South Africa as few qualified and competent teachers man South African schools hence this migration of teachers from South Africa to other countries in the world, hence this leaves South Africa with no choice but to outsource qualified teachers from other countries and abroad.

Professional teachers abandon teaching in their native countries for reasons ranging from poor salaries to better working conditions. Yes, it goes without say these teachers, like other professionals crave for greener pastures in their career. The world has today witnessed a mass migration of teacher from one country to another. As indicated, the world as well as South Africa does not keep track of the number of teachers that the countries lose due to international recruitment (Manik et al., 2006:16-17). Continents such as Europe and America are on the lead to outsource teachers from other countries. South Africa (and so is Limpopo province) like any other developing country which hungers for better quality education cannot be left alone but compelled to outsource teachers from countries abroad especially in the field of Science (Van Niekerk*et* et al., 2005:21).

In the wake of some researchers who sought to downplay the negative impacts of teacher attrition in developing countries, it cannot be argued that the vacuum created by emigrating teachers compromises the developing countries' ability to provide quality education to future generations in their own countries. Manik (2010:109) pointed out that the onus rests on schools and National Education Departments in developing countries to create a conducive, attractive, and supportive environment for their local homebrew teachers or run the risk of losing them to international recruitment agencies offering attractive salaries and travel packages overseas.

2.4.2 Outsourcing of teachers continentally

South Africa, as a fast-developing country which is democratically founded with its political tranquility with its stable currency, is being seen to be adored by many skilled and unskilled migrants from Africa. Today South Africa is enjoying the service of professionals such as physicians, technicians, educators, etc. from Africa and diaspora.

On this note, South Africa is on the prime on issues related to outsourcing in Africa at large (Morgan, Sives and Appelton, 2006a:771).

As indicated earlier on, both outsourcing and globalization have political implications. This trend becomes evident when there is a movement/migration of human capital from one continent, mostly poor continent to a rich one. The receiving country becomes a winner but the donor country becomes a loser in the sense that its product that they trained for so many years and relied on for future development shall have left with the skills that they instilled for years but never enjoyed utilising these skills due to outsourcing and or globalization, (Shivji, 2002:104).

Writers such as Alanana, (2004: 45) and Mlama (2002:120) have embraced the critical perspective to argue that globalization and outsourcing are the same process of exploitation as slavery, colonialism and neo-colonialism. Alanana (2004:45) maintains that slavery and colonization were the fore-runners of globalization and Africa's failure to take advantage of globalization and outsourcing is due to the lack of tangible development in the continent and this is the result of the many decades of exploitation that the continent has suffered at the hands of the rich capitalist countries of the North during the time of slavery, colonialism and neo-colonialism. Mlama, (2002:121) maintains that during slavery and colonialism, the industrialized countries used pillage to exploit African countries; in colonization system. Mlama, (2002:121) further accentuates that African countries were incorporated into the international capitalist system as suppliers of raw materials and as markets for finished goods from industrialised capitalist countries; and in globalization and outsourcing the weakening of the state and capital flight, the brain drain and the unequal exchange in the commodities market are the tools of exploitation.

This unequal exchange of industrialization, globalization and outsourcing refers to a situation where the industrialised countries buy raw materials cheaply from the less developed countries especially African countries but sell refined products to them exorbitantly, (Mlama, 2002:121). On this note, South Africa as well, as a capitalist country and an achiever of globalization and outsourcing of teachers and other professionals from Africa, cannot be absolved from 'brain drain' affected on other poor African continent countries. Astonishingly, the receiving countries such as South Africa, USA, Britain and

others do not have regards over the fate and future of the donor countries as they hid their faces behind democracy.

However, due to the deficiency of data collected on the issue, it is problematic to provide precise figures on the number of teachers trained in Africa who are working in South Africa (Morgan, Sives and Appelton, 2005:127). Nevertheless, the use of the receiving country's immigration and teacher registration data provides the most reliable indication of the number of Africa's educators entering and working within a country and has been used by many researchers to gain some ideas of the extent of teacher migration.

2.4.3 Outsourcing of teachers from SADC

The relocation of teachers from one country to another is not limited to global and continental arenas only but is prevalent and could be explored on the African continent and South African Developing Community (SADC) at large. The research study has evidenced that an increasing number of teachers from SADC countries (e.g. Swaziland, Lesotho, Zimbabwe, Zambia, etc.) are immigrating into South Africa due to the country's democratic set up, economic prosperity, political stability and promise of better working conditions and income. Thus, the question of migration of teachers is a political matter in South Africa which needs to be debated by the legislature (Appleton, 2006b:124).

The mobility of teachers trained in their own countries to other countries provide an additional mechanism whereby international recruitment of teachers acts as a 'brain drain', not only would sending countries directly lose skilled personnel through emigration, shortages in the education sector would severely impair the transfer of skills to their next generation of citizens. The issue of international migration and the possible phenomenon of 'brain drain' have stimulated recent investigation on southern Africa (McDonald & Crush, 2002:163).

It is not enough for South Africa's 12 tertiary learning institutions to train, produce and supply the required number of teachers to schools adequately. These institutions are not producing enough teachers in line with the demand at schools. The country has suffered a severe shortage of Science teachers for the past 5 decades. Van Niekerk *et. al.* (2005: 21) accentuate that curriculum development must therefore pay special attention to these

learning areas. This condition of teachers' shortage leaves the country with no option other than outsourcing teachers from SADC countries with Zimbabwe on the prime (Van Niekerk *et. al.*, 2005:21).

2.4.4 Outsourcing of teachers nationally

The research study conducted painted a gloomy picture of the state of the teaching and learning of Mathematics and Science in South Africa. This country needs suitably qualified teachers, doctors, scientists and many other scientifically oriented professionals. The status of mathematical and scientific literacy is generally poor in the entire schooling system (Howie, 2003:16). It is conceivable that such a system will not be able to produce enough learners who qualify to enroll at universities to pursue further Science studies.

Currently, South Africa does not have the capacity to expand economically without importing foreign scientific and technological expertise (Ramsuran, 2005:77). If this country is to participate in the technologically advancing global village, it is necessary that research should inform policy and drive transformation to a mathematically and scientifically literate society. This is extremely important because the lack of expertise impacts on the general economic outlook of the country. For example, to provide employment for all, either through job creation or employment in the labour market, a level of scientific and technological advancement that will enable growth and expansion of the economy is needed. At present, South Africa is far from this ideal situation.

Morgan et.al. (2006:227) hold that in the past decade, it was estimated that the total teacher population in South Africa was approximately 400 000 and that the country needed to recruit 17 000 to 20 000 teachers per year, yet the teacher training output was about 9 000 newly qualified teachers per year. It was evident that the projected flow of newly qualified teachers was significantly below the number of teaching posts that became vacant each year. Various reasons attributed this condition: an ever-changing education policy landscape and teachers 'under-preparedness to cope with it, unattractive salaries and conditions of service leading to demoralisation and creating higher propensities to leave the profession as well as the impact of HIV and AIDS on the teaching profession. To address the teacher shortage problem, especially at secondary level (and

particularly in Science disciplines), the authorities are bound to focus at outsourcing teachers as the sole option. South Africa subsequently turned to other countries for the provision of teachers, thereby became both a sending and receiving country for migrant teachers (Appleton et.al., 2006b:124).

Most outsourced teachers are generally attracted to render services in South Africa because the country is democratically constituted and its offer for better salaries and incentives to teachers. The major advantage of schools in respect with outsourced teachers is that they are highly cooperative and hardworking and produce excellent results. They hardly take part in protests as they are contractually employed, (Forde, 2007:142).

2.4.5 Outsourcing teachers provincially

Limpopo Province does not have higher learning institutions to train and produce teachers in large numbers. For the area to secure teachers, the Department of Education must move elsewhere nationally and overseas where there are many teachers' training institutions for training teachers, see (Education Law and Policy Handbook, 1999:3A-7). For this idea, Limpopo Province should go all out to outsource teachers nationally from South Africa's 9 provinces and abroad. The Employment of Educators Act 76 of 1998 makes provision for appointment and filling of educators' posts on any educator establishment under this act due regard to equity and other democratic values and principles which are contemplated in section 195 (1) of the South African Schools Act (SASA), Act 108 of 1996 and which include the following factors:

i) The ability and suitability of the of the candidate to occupy the post

ii) The need to redress the imbalance of the past to achieve broad representation

This act makes provision for employment policy which outlines the process of advertising educators' posts, selecting candidates in accordance with their qualifications and experiences, shortlisting, interview process and appointment of the best candidate (Education Law and Policy Handbook, 1999:3A-8). This provision makes it possible for Limpopo Province to outsource Science teachers from elsewhere in the whole world. Thus, today South African schools, including schools in Limpopo Province are enjoying

the services of teachers of all races from different provinces of South Africa and elsewhere in the whole world.

Limpopo Province MEC of Education Hon., Boshielo echoed the sentiment that Physical Sciences subject is generally rated as difficult and challenging with some schools in Limpopo Province producing zero pass percentage in Grade 12 NSC 2020 results, (Limpopo Provincial Government. (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:7). However, Science results in Limpopo Province have significantly improved over the years. Limpopo Grade 12 NSC results increased from 48.9% in 2009 to 72% in 2019, which is tangible evidence that stakeholders have turned the tide, and that the Department of Education is well on its way to turn its dreams into reality, (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:7-8).

The Province has witnessed a significant number of bachelor passes rising between the years 2015 and 2019; from 18 211 in 2015, 19 789 in 2016, 20 323 in 2017, 21 400 in 2018 to 23 641 in 2019. The increase in the number of bachelors is a clear indication that the improvement in pass percentage is not only quantitative but qualitative as well (Limpopo Provincial Government. The Grade 12, 2019 Results, 2020:7-8)

The province has high enrolments in Physical Science; see (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:7-8). The pass rate in these subjects has been improving for the past years. These results are a product of sheer hard work, determination and commitment from our officials, teachers, learners, parents and education partners. Furthermore, the results for Science also show greater differentiation at the upper levels as well as quality. These results are a product of sheer hard work, determination and commitment from our officials, teachers, learners, parents and education partners (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:7-8).

Many schools in Limpopo province have opted to employ the services of outsourced teachers in Science. The Grade 12 results output for outsourced Science teachers have been on the top echelon of the ladder. Provincially, schools which employ the services of outsourced teachers in Science boast the best results. This significant output is the fruit

of commitment and dedication by the outsourced Science teachers, (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:7-8).

Basic education, teacher shortage is a common problem experienced in South African schools, especially in rural areas such as Limpopo Province. In scarce skills areas or subjects like Physical Science, the extent of the shortage is even more greatly felt largely due to the shortage of teachers but also because South African teachers prefer to teach in urban rather than rural areas. This gap in the supply of teachers to rural schools in the scarce skills areas has been exploited by foreign teachers. For many years, Indian nationals highly qualified in Science have been employed in these teaching positions (McConnell, 2009:38).

More recently, with the continued economic and political turmoil in Zimbabwe, millions of Zimbabweans have fled the country (McConnell, 2009:38) and have temporarily settled in South Africa. They brought a wealth of expertise into South Africa; many of these Zimbabweans are qualified teachers who are proficient in the English language. This is an area of expertise much needed in South African rural schools, particularly in Limpopo Province. In this area English is used as a medium of instruction and most learners are English second language learners and speakers. Given this scenario, it would be expected that these teachers would be welcomed at schools in need (Landau et al., 2005:4).

2.5. Factors Inspiring Outsourced Science Teachers to Teach Effectively

Outsourced Science teachers' output as gauged by learners'' results seems to be very excellent. Literature studies confirmed this by among other things providing statistical data or graphs on the issue as follows:

Fig 2.1: Graph and Table 2.6 illustrating Limpopo, Eastern Cape and Mpumalanga Grade 12 Science results over the years 2018 and 2019. (The Grade 12, 2019 Results: 2020: 7-8).

Figure 2.1 Graph

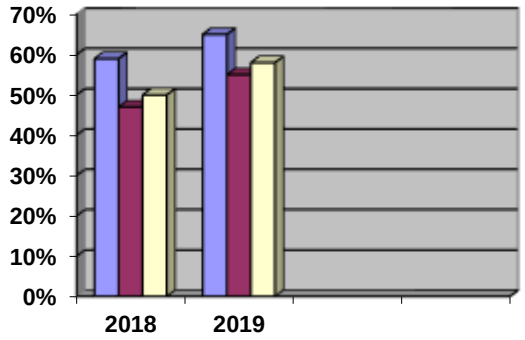


Figure 2.6 Table

Province	2017	2018
Limpopo	59%	65%
Eastern cape	48%	53%
Mpumalanga	50%	58%

Renewal of outsourced Science teachers' contracts in South Africa is one such inspirational factor. The Limpopo Provincial MEC of Education was more thrilled as he announced 2018 Grade 12 results when he pronounced grade 12 results with a smile marked on his face that outsourced Science teachers of this province are doing tremendously as there is a significance improvement in their output. The Grade 12, 2019 Results: 2020: 7-9). This is so despite the general pass rate of the province which slightly increased from 69, 4% in 2018 to 73, 2% in 2019, marking and increment of 3, 8%. This increment in general pass rate is indeed a remarkable improvement. The good grade 12 results are a clear indication of hard work and inspiration. They are obliged to work very hard to secure extension of their employment contracts which are subjected to their output (Davidson, 2018:2).

Intrinsic motivation is another factor which inspires them to teach effectively. This was carried out by the Limpopo MEC of Education who accentuated that out of the three provinces, viz. Limpopo, Eastern Cape and Mpumalanga, it goes without say that Limpopo remains on the top echelon of the ladder, boasting an average of 65% pass rate in Science while others are trembling behind with 53% and 58% respectively. The MEC congratulated best performing learners and encouraged teachers, especially foreign outsourced Science teachers to keep on with their competency as displayed by hard work (The Grade 12, 2019 Results: 2020:7-8). One more factor which inspires them to teach

effectively is rationalization of poor performing schools. The MEC however lambasted poor performing schools and warned them against rationalization or their closure. He hinted that schools which obtained 0% general pass rate are incompetent and obviously targeted for rationalization (The Commission 2004:31). He further accentuated that schools which failed to secure 20% pass set an ample proof of incompetence among teachers in South Africa and such school should be assisted with special programmes to improve the general learner performance. Schools with outsourced teachers are but praise worthy as they do well insofar as the results are concerned; see (The Grade 12, 2019 Results, 2020:7-8). They are inspired to work industriously in fear of rationalization of the schools in which they teach. They feel that schools' rationalization is equivalent to teachers' indolence which they do not want to identify themselves with.

The salaries that they receive in South Africa are one such inspirational factor. They are enticed by competitive salaries which are by far higher than what they receive in their native countries. They feel that the attractive salaries offered in South Africa are a bonus not worth losing. This sentiment is corroborated by Section 9.6 of the South African Council of Educators Act (Act 31 of 2000. Educators Act 31 of 2000 which provides that teachers should accept and comply with the requirements of the Council. This stipulation gratifies outsourced Science teachers because they feel happy about what they are paid in South Africa which inspires them to teach effectively.

One other inspirational factor for teaching effectively is their mission of success which is part and parcel of their slogan when they leave their motherlands. Once they exude low output, lose or fail to secure renewal of their work contracts and sent back to their motherlands, it would tarnish their reputation as well as their birth country's image and become painted as indolent teachers hence they are inspired to be workaholics whose output should ever be second to none hence gain recognition in their motherlands. This sentiment is reinforced by the Provincial Department of Education MEC Hon. Boshielo who uttered that Limpopo Province is faced with no other alternative other than employing hardworking outsourced teachers in scare skills learning areas such as Mathematics, Technology and Physical Science, see (2019 Grade 12 Results: 2020).

Another inspirational factor is the nature of the province which is foreigner friendly. The MEC of Safety and Security issued a stern warning against the xenophobic attackers (Vandeyar and Vandeyar 2014:2). This foreigner friendly statement assured foreigners including outsourced Science teachers to feel at home in Limpopo hence inspired to teach effectively

Fear of losing jobs and non-renewal of teaching contract compels them to teach significantly. Davidson (2018:2) postulates that no foreign teacher shall be employed in state schools of any country other than his/her native land. Private schools may employ them but they are not going to get visas for such employment. Extension of their contracts is visited quarterly (four times a year) and their contract may be terminated at any stage. This new international policy does not augur well for outsourced teachers. But in fear of losing their jobs, they are obligated to work harder than ever to secure renewal of their contracts.

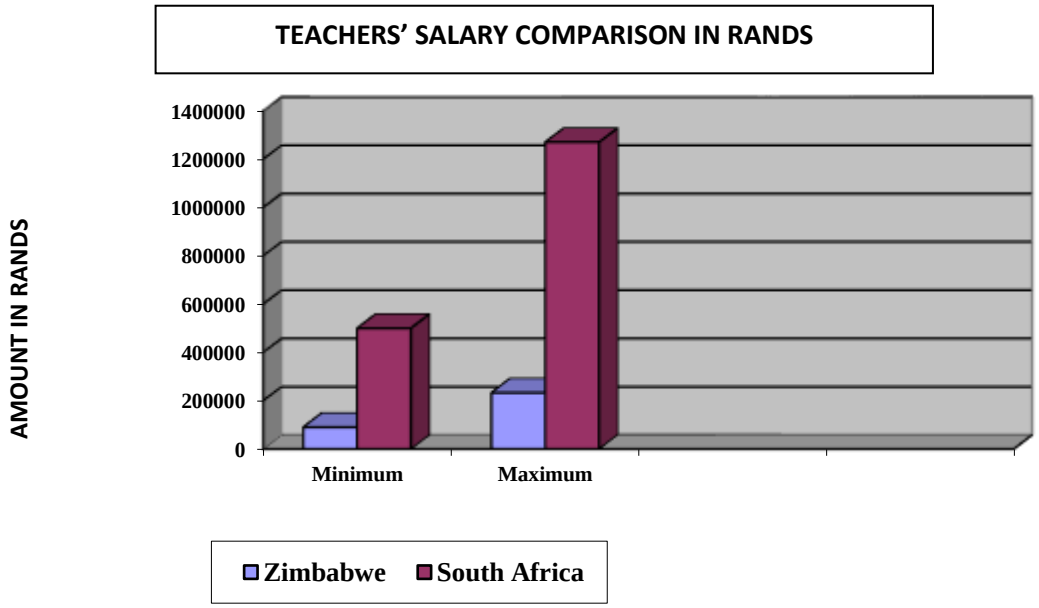
Perks or fringe benefits are some of factors that inspire them to teach effectively. Teachers engage in protest marches and strikes year-in and year-out, demanding that the government increase their salaries and perks ranging from housing subsidies, car allowance, medical aid subsidy, etc, see (Haffajee and Bisseker, 2002: 31). The good part of it is that foreign outsourced teachers abstain from any kind of industrial action because they feel satisfied with what they are given.

COMPARISON BETWEEN SOUTH AFRICAN AND ZIMBABWE TEACHERS' SALARIES: (Maluleke 2018: 9):

i) TABLE 2.7: TEACHERS' SALARY COMPARISON (SOUTH AFRICA IN RANDS AND ZIMBABWE DOLLARS), AT £1 (ZIM DOLLAR) = R17, 80 (S A RANDS)

Country	Minimum qualifications	Minimum {Basic annual starting salary}	Maximum {maximum notch (annual) salary}
South Africa	Four- year teachers diploma/ degree	R 188 200	R 240 600
Zimbabwe	Any four-year teachers qualification	£ 20 000 = R1123.60	£75 000 = R 4213.49

ii) GRAPH 2.2: TEACHERS' SALARY COMPARISON (SOUTH AFRICA AND ZIMBABWE), IN RANDS AT £1 = R 17, 80



South African teachers who join the teaching profession with a four-year Teachers' Diploma or a degree and a University Education Diploma (UED) are receiving R118 200-00 as their basic annual salary. While our Zimbabwean counterpart teachers get R1123.60 as their basic annual salary. This figure still falls short of the current cost of leaving, which is increasing rapidly and constantly (Maluleke, 2018:3). Good South African attractive salaries entice foreign teachers to serve in South Africa.

One more inspirational factor is their relationship with the community which enables them to secure Science equipment for conducting experiments. This in line with Tsotetsi (2020) and Van Ameron (2005:67) who postulate that parents should improvise equipment and resources for their learners at schools which enhance teachers to teach effectively, hence secure good passes.

Taking Science learners to the nearby Science centres as well as the local universities where there are advanced resources wherein they can explore experiments with ease is another inspirational factor for outsourced Science teachers (Buys, 2019).

Jointly with parents and other stakeholders, outsourced Science teachers encourage and commit their learners to exchange programmes in which they enjoy new faces and new

environment'. These programmes are inspirational and to teachers and vital to the learner's welfare as they gather knowledge from new environment with new faces and new set-up (Buys, 2019). Learners exchange programmes serve as a profound inspirational factor for outsourced Science teachers as their learners gain new knowledge from new faces with new approaches.

Participation in Annual National Teachers' Awards is one such factor which inspires outsourced Science teachers to teach effectively. During these awards, the best teachers in various learning areas are awarded some favors. Tsotetsi (2020) holds that National Teachers Awards is a milestone, a dangling carrot to teachers whose ambition is to reach the top echelon of teaching profession.

As an inspiring factor, community members offer outsourced Science teachers with shelter and security which motivate them to embark on teaching effectively. This levels the grounds for them to work and serve children efficiently. This is endorsed by Bheki Cele, Minister of Safety and Security who urged that communities and police forums should ensure the safety and security of foreign nationals in all South African provinces; hence they will stay and work peacefully and productively in this country (Kruger, 2002: 43).

Another inspiring factor is the love, protection and support they enjoy from the community members who offer them residences in line with Maluleke (2019:2) who postulates that communities should support, protect and offer residences to foreign national scare skills teachers who are employed at their schools respectively to enhance their teaching.

Another evident inspiring factor which they enjoy is transport at night after evening classes and night studies with learners to their respective homes. This is accentuated by Pienaar (2003:271) who postulates that parents should assist and support teachers in their difficult task by enlisting parents as partners in education. They help to secure funds for the services of the school, including security and transport of learners and teachers who are on school missions. In light of this kind of support, they are obligated to teach effectively to appease both parents and learners hence enhance the learner academic performance.

As one more inspiring factor, these teachers are offered stationery/tools they need ranging from study guides, laptops, network data, printers, Science apparatus, well equipped laboratory, solicited from the local business community as postulated by Kruger (2002: 43) who upholds that parents should be involved in education of their children, hence help garnering the required stationery of the school.

One other factor that inspires them to teach effectively is their own character of being self-disciplined. They are a law-abiding bundle who remain firm as professional teachers and uphold the code of conduct. They refrain from relationships with learners and though very friendly to the learners they remain firm as teacher-parents in line with Section 9.6 of the South African Council of Educators Act (Act 31 of 2000), clause 2.5 which upholds that teachers must act in a proper and becoming way such that their behaviour does not bring teaching profession into disrepute. Any teacher who violates their code of conduct shall face disciplinary act and the council may strike his/her name from the register. This disciplinary act obligates the outsourced teacher to behave well and teach more efficiently.

One more inspiring factor for teaching effectively is their commitment; literature study revealed that outsourced Science teachers are committed to their work, unlike many insourced teachers who vie for extra income routines after school, outsourced teachers stay put at schools after school every day, teaching the learners. They remain at school on holidays and week-ends and in the evenings with their learners. This attitude is supported by Section 9.6 of the South African Council of Educators Act (Act 31 of 2000) provides that teachers are employed for 24 hours and they should not shy away from staying at schools after schools and on week-ends. Their compliance with the procedures of the Act is another evident factor that inspires them to teach effectively.

As an inspiring factor, outsourced teachers organize TV for learners out of their own pockets to access them to media lessons in SABC 2 and other radio channels every week at school. This is endorsed by Buys (2019) and Maluleke (2018:2) who stress that media lessons are very essential for the success of learners.

One other inspiring factor is their attitude of visiting their learners' homes unannounced. On this occasion, they would discuss the learners' progress parents. This endeavor is executed in line with Buys (2019) who postulates that the teacher should be a psychological counselor capable of picking up any disorder from his learners and gets it addressed imminently, even if it takes a home visit. This act informs them of deeper knowledge about each individual learner; hence win their hearts and minds which as well is a bonus their results.

2.6. Challenges Faced by Outsourced Science Teachers

Outsourced Science teachers are faced with some challenges which hamper their duty execution such as poor infrastructure and facilities, shortage of text books and xenophobic attacks (Ijaiya 1992:1).

2.6.1 Poor Infrastructure and Facilities

The shortage of teaching facilities at schools is a mindboggling obstacle that hampers effective teaching and learning of Science. Research findings showed that poor classrooms, overcrowding, shortage of science laboratories and teaching facilities at schools in South Africa as well as Limpopo Province diminish the quality of teaching and learning and impacts negatively insofar as the attainment of educational goals are concerned (Ijaiya, 1992:1).

Outsourced teachers in South Africa and so are those in Limpopo Province have witnessed a situation wherein learners suffer a humiliating teaching and learning environment of attending school in mud structures and under-tree classrooms, sitting on stones or wooden blocks while using their thighs as desks, and consequently, talking about a science laboratory and equipment in this kind of environment is a farfetched dream. Teachers including the ones outsourced are therefore drearily hampered to teach efficiently in this kind of atmosphere see (Molelekwa, 28 Feb 2013).

While the demands of the dawning technological era cannot be fulfilled in the absence of effective teaching of Science facilities coupled with a germane leading teacher thereof, there are many schools in South Africa which offer Science in their curriculum but without a laboratory at all and in some cases without one single Science equipment to perform

the required science experiments (Cembi, 2013:4). Many a learner in South Africa and so is in Limpopo Province have never tasted the shade of a science laboratory. It is also not an overstatement to mention that many a leaner never saw nor touched a test tube with or without the guidance of a teacher, see (Cembi 2013:3). This is so despite the emphasis from the South African Schools Act of 1996 which accentuates that every child has the right to education, this clause has been failed dismally because children indeed go to schools and only to be greeted with a horrendous shortage of classrooms, laboratories, computer application technology, laboratory equipment and qualified Science teachers.

South Africa, in this 21st dawning age is still facing a horrendous situation of shortages of classrooms. In some stages, the classrooms are in a shoddy state with no window panes and leaking roofs. The government turns a deaf ear against any complaint of the sort. Parents and learners stand up and do the repairs without waiting for the government any more. According to Maluleke (2018:5) reported that pupils repaired the school's roof after numerous pleas to the authorities to fix the school fell on deaf ears. These pupils did what the Department of Education with a budget that runs into millions should have executed. Limpopo Province is not absolved from this kind of a situation as there are many learners who still receive their education from under tree class rooms. This malady is an evident mindboggling barrier to teachers who find it very challenging to teach Science successfully under a tree.

Poor infrastructure in South African schools is an agonizing problem which severely draws back the country's democracy. Schools in South Africa and so are the schools in Limpopo Province face an appalling situation of classrooms' shortage, laboratory and equipment shortage. According to Chewe (2020:2) up to a hundred pupils from Makuya Secondary walked from their homes to camp under a tall green tree that will serve as their new Grade 10 classroom for the rest of 2015. Some learners stand under the tree during the lessons because there are neither chairs nor desks. About five meters away, another tree hovers over as Grade 9 classroom with some of the learners standing and holding up their open umbrellas against to protect them against the rain.

Shortage of classrooms at schools Limpopo Province has been a stark reality for more than 10 years. At the very same school, Grades 10, 11 and 12 learners also suffer the same torrid situation under trees. Grade 12 science learners are being taught under the tree and it is absurd for any credible stakeholder to expect better results at the end of the year from such abandoned learners, (Maluleke (2018:2)

The existing classrooms walls are crumbling due to old age of their erection. The school still uses the mud classrooms erected some three decades ago. Some classrooms have got damaged floors and ceiling. This is all that a South Africa's 21st century learner is facing in a teaching and learning situation, see (Maluleke 2018:3).

There still exists schools in South Africa which are faced with abject poverty to an extent where a young learner aged 5 years died inside the pit toilet while relieving himself, see (Maluleke 2018:2). It would be absurd in such situations to dream about adequate supply of Science text books without a single thread of apparent basic non-negotiable needs. Worse than ever, teachers as well as outsourced Science teachers cannot be expected to deliver effectively in this kind of deplorable environment.

To deal with the problems of poor infrastructure, overcrowding, dilapidating structures (classrooms and walls), mud structures classrooms, leaking roofs, crumbling walls and poor ablution system (learners dying in pit toilets), teachers and parents should stand up and fundraise from the business community hence secure new classrooms, laboratories and equipment Chewe (2020: 2). If these stakeholders want their schools to prosper they should avoid waiting for the government indefinitely and work for the benefit of their own children. The problem of leaking roofs and crumbling walls should as well be addressed by parents who should stand up and execute the repairs themselves. At the same breadth, poor ablution system which even claims children's lives should be avoided at all costs. Nobody including schools should gamble by other persons' children's lives. The question of textbooks shortage could be addressed by subject teachers who should encourage parents photocopy books and guides for their children (Maluleke, 2018:2).

2.6.2 Shortage of Text Books

Factors such as shortages of Science text books and science laboratories and equipment have been identified as obstacles against effective and productive teaching of Science subjects by outsourced teachers (Chewe, 2014:2)

The Department of Education is the sole supplier of learning materials in South African public schools, the very same department, through its tender boards and suppliers has done more harm than good to learners by failing to supply books to schools. In some instances, some schools receive inadequate text books while others receive them very late towards the end of the year. Shortage of text books including Science Limpopo Province has reached endemic proportions that compelled parents to take legal action against the Department of Education's failure to improvise relevant required stationary to the learners at schools which impacts negatively on the learners' progress Chewe (2014:2). The malady of non-delivery of text books to schools by the Provincial Department of Education is a conspicuous teaching and learning barrier against outsourced teachers including Science teachers to teach effectively.

The issues of text books shortages and late delivery were both reiterated by the MEC of Ishmael Kgetsepe during Grade 2015 Grade 12 results announcement when she said that the class of 2015 is the first cohort to present the Curriculum and Assessment Policy Statements (CAPS). This is the cohort which in 2013 when they were in Grade 10, did not receive textbooks timeously. This prompted the Department to develop and distribute study guides for terms 1 and 2, and had teachers conducting lessons during the spring recess using these guides (Limpopo Provincial Government: The Grade 12, 2015 Results, 2016:4-5).

Outsourced Science teachers solve the challenge of text books shortage by taking the Department of Education to task through developing and distributing study guides for learners and also had teachers conducting lessons during the spring recess using these guides, (Limpopo Provincial Government: The Grade 12, 2014 Results, 2015:12).

Outsourced teachers however address the question shortages of text books by means of pursuing the government to prepare study guides for learners and by teaching learners on weekends and school vacations as well as spring and autumn harvest.

2.6.3 A Shift of Curriculum

A new dispensation in South Africa evoked changes in the education system, and hence a shift from one curriculum to another. According to RSA (2013:4), Outcomes Based Education (OBE) was introduced in 1997 to overcome the curricular divisions of the past, but the experience of implementation prompted a review in 2000. This led to the curriculum revision: The Revised National Curriculum Statement Grades R-9 and the National Curriculum Statement Grades 10-12 (2002).

The ongoing implementation challenges resulted in another review in 2009, viz. the Revised National Curriculum Statement (2002) and the National Curriculum Statement Grades 10-12 (2002). In 2012, the two National Curriculum Statements for Grades R-9 and Grades 10-12 were combined in a single document simply known as national Curriculum Statement Grades R- 12. The National Curriculum Statements from Grades R-12 builds on the previous curriculum and updates it and aims to provide clearer specification of what is to be taught and learnt on a term-by-term basis. This National Curriculum Statement include among other things Curriculum Assessment Policy Statement (CAPS) for all approved subjects listed in this document and the National Policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R-12 and national Protocol for Assessment Grades R-12 (Republic of South Africa 2013:4).

Republic of South Africa (2009:1), the South African Education System sought to adopt and implement CAPS curriculum in 2010 from Grade 8. CAPS document provides guidelines for assessment in learning areas in the intermediate and senior phases of the National Curriculum Statement. Since the founding of democracy in 1994, South African Education System has suffered shifts of curriculum from OBE, Revised Curriculum, NCS to CAPS. The shift from one curriculum to another does more harm than good to the

learner and the education system in general. Each generation is faced with its new curriculum which is never a blessing to the labour market as each generation of employees arrives with different modus operandi and skills acquired from their curriculum respectively.

The arrival and introduction of each new curriculum is ululated as an item in fashion, but within some few years of implementation, the curriculum gets phased out and replaced by another new one. The constant shift from one curriculum to another calls forth inconsistency and uncertainty in education fraternity in general. Implementation of a curriculum is too taxing on the side of the department and teachers. Teachers have to undergo training to be acquainted with the newly introduced curriculum. The government has to pay all the costs incurred during training with the expensive material, commodity and knowledge thereof but which material is eventually discarded when the other curriculum comes to shape (Maluleke, 2020:6).

It was the first in time in 2014 that the learners sat for Grade 12 Examinations under the new Curriculum and Assessment Policy Statement (CAPS). The tradition previously was that learner performance declines when a new curriculum is introduced. The Province has for the first time, not been negatively affected by this trend. The performance has instead improved both quantitatively and qualitatively. In terms of the contribution of bachelor passes, Limpopo Province rank position 4 in the country after Gauteng, Kwazulu-Natal and Western Cape. Furthermore, Limpopo is one of the four provinces that have improved in learner performance. Given the general decline in learner performance nationally and in most provinces, Limpopo boasts the achievement of 72.9% even though they have not achieved their target of 80%, (Limpopo Provincial Government: The Grade 12, 2014 Results: 2015:10).

As indicated earlier on, the class of 2014 is the first cohort to present the Curriculum and Assessment Policy Statements (CAPS). This is the cohort which in 2012 when they were in Grade 10, did not receive textbooks timeously. The failure of text books delivery prompted the Department to develop and distribute study guides for terms 1 and 2, and

also had teachers conducting lessons during the spring recess using these guides,(Limpopo Provincial Government: The Grade 12, 2014 Results: 2015:12).

In 2014 of the 72 990 full time candidates who wrote the National Senior Certificate 53 179 passed. This translates to 72.9% overall pass percentage, a significant improvement from 71, 8% secured in 2013 grade 12 Limpopo results. The number of candidates who obtained bachelor passes obtained in 2019 was 23 641 compared with 18 781 obtained in 2014 see (Limpopo Provincial Government: The Grade 12, 2019: Results, 2020:7-8) as well as (Limpopo Provincial Government: The Grade 12, 2014 Results, 2015:5). It should however be noted that this pass improvement is ascribed to Science as well, especially in schools manned by outsourced teachers.

This translates to the notion that the shift of curriculum slightly impacted to the performance of the learners as the 80% pass% target was not achieved. Despite the change of curriculum, the introduction of CAPS at grade 12 in 2014 saw a slight improvement in learners' performance in almost all the learning areas. Almost 73543 full time candidates registered for grade 12 examinations in 2014 and 72 990 sat for examinations with 53 171 candidates passing, setting a new record of 72, 9% pass rate (Limpopo Provincial Government: The Grade 12, 2014 Results, 2015:10).

However, 2019 figures could be compared with 2018 Grade 12 result of which Limpopo was the third province with the highest enrolment figures in the Grade 12 NSC Examinations after KZN and Gauteng Provinces. In Limpopo Province, the National Senior Certificate examinations in 2018 involved a total of 68 786 full time candidates. These candidates wrote in 1 414 examination centers. Altogether, learners wrote a total of 169 examination question papers; and the answer scripts were marked by more than 5 000 markers (Limpopo Provincial Government: The Grade 12, 2019 Results, 2020:8). All in all, comparatively speaking, 2019 Limpopo Grade 12 results registered a significant improvement of 72, 9% overall pass percentage in the wake of the newly introduced CAPS curriculum. The provincial pass rate in Science in 2019 was 46. 8% compared to 39, 9% in 2018 (Limpopo Provincial Government: The Grade 12, 2014 Results, 2015:10).

Outsourced teachers believe in collective efforts. These ills could be solved by teachers and parents working collectively. Curriculum shift could be addressed by engaging teachers in workshops in an effort to adapt them with new changes, see (The Grade 12, 2014 Results, 2015:10).

2.6.4 Disruptions Due to Teachers' Strikes

Brown (2009: 283) postulates that poor teaching and learning results in poor academic performance, particularly in Grade 12. Poor teaching is aggravated by the teachers' strikes. The percentage of learners who obtained university entrance certificates in the entire Limpopo Province in 2013 and 2014 were 18,58% and 22,36% respectively, (Limpopo Provincial Government (The Grade 12 2014 Results 2015:5). Despite the poor academic results in both primary and secondary schools, teachers still engage in repeated salary strikes, which are suspected to be aggravating the poor academic situation in schools, (Betram 2007:81). Teachers' strikes do not augur well for the successful teaching of Science in Limpopo Province schools.

The teachers' salary strike, which takes place annually in South Africa, is so rife that it seems to have gained public tolerance and complete acceptance. Every year the intensity of the strike increases by leaps and bounds and this also impacts negatively on teaching and learning. Although the Teachers' Unions and the Department of Education are well informed of the devastating impact of the strike on the learning and teaching culture in schools, and on the motivation and discipline of both teachers and learners, nothing concrete has been done by either party to solve the impasse; see (Brown 2009:283). The Department of Education and the Teachers' Unions constantly point fingers at each other for the strike. Teachers' salary strikes impacts negatively on the teaching of Science in schools.

All in all, the teachers' strikes are about salaries and salary-related matters; however, every time there is a strike, debates about it shift to the teachers' right to strike and the learners' right to receive education ensue. The justification of the teachers' right to strike frequently comes under the limelight (Masitsa 2013:20).

Ramasehla (2010: 19) upholds that teachers' strikes in South Africa have become a fashion item. In August 2010 South African teachers who participated in a strike called by public servants caused schools across South Africa to be paralysed for a few weeks before year-end exams. Matric pupils were the hardest hit and did not receive tuition for a period of three weeks before commencement of the most important final school examination. Unions representing about 1.3 million public workers, including teachers, embarked on a strike that lasted for 20 days (Singh, 2013; 51). The conduct of some teachers who intimidated and assaulted those who did not strike and who carried on teaching was severely criticized. Many school days are lost every year as a result of strikes by teachers. South African Democratic Teachers Union ("SADTU"), the biggest trade union in the education sector, was responsible for 42% of all working days lost as a result of strikes during the period 1995- 2009, see (Ramasehla 2010:19).

SAPA (2012: 19) enshrines that the strike ended only on 8 February 2012, more than three weeks after the school term had started. Concerns about the poor standard of education in South Africa are exacerbated by the possible impact of strikes on pupils. The Annual National Assessment of 2011 indicated that the national average performance in literacy among Grade 3 pupils was 35%, while the numeracy performance was 28%. In Grade 6 the national average performance in languages was 28% and in mathematics 30%. These figures are even more alarming when South Africa is compared to countries in the region with the same or even lower income levels and a smaller education budget,

Even if South African pupils do pass Matric, they often do not have the necessary skills to find employment. They join the growing pool of unemployed people in South Africa, and currently close to 50% of unemployed people are between the ages of fifteen and 24.8 Low quality education in South Africa has rightly been identified as a poverty trap.9 Although there are many factors contributing to poor performance by South African pupils, the absence of teachers from class during strikes must surely be a contributing factor. Because of concerns about the impact of strikes on the education of children, the Democratic Alliance and the National Association of Parents in School Governance have called on government to declare teaching an essential service. The most recent proposal

for such a step was tabled in the National Assembly on 6 June 2012 by a Ministerial Review Committee appointed by the Minister of Science and Technology, (Department of Basic Education General Household Survey 2010: 24).

The designation of teaching as an essential service will have the effect that teachers are prohibited from participating in strikes, that their disputes will be referred to arbitration, and that they could be dismissed on account of misconduct if they do participate in a strike. It should be kept in mind that all proposed legislation and changes to existing labour legislation must first go through a consensus-seeking process at the Labour Market Chamber of the National Economic Development and Labour Council ("NEDLAC") before any piece of draft legislation is brought before Parliament see (SAPA 2012: 8).

Arguments ensue when teachers' strikes are brought to the lime light, the Bill of Rights contained in the Constitution defines the rights of people and regulates how and when the rights may be limited. The limitation of rights ensures that there is no conflict between the rights or it harmonizes the relationship between the rights. The Bill of Rights further sets out the rights of individual vis-à-vis the state and the rights of individual vis-à-vis the rights of other individuals (Bray, 2000:10). This study endeavors to clear the paradox, if there is any, between the teachers' right to strike and the learners' right to education (Masitsa. 2013:21).

The teachers' right to strike presupposes that their unions' negotiations with their employer (Department of Education) may fail to accomplish the desired results, thus calling forth a strike (Shivji, 2002:10).

The unions' negotiators may deliberately lead the negotiations to a deadlock; hence compel teachers to strike, because they know that the disruptive consequences of a strike would compel the employer to negotiate in their favour. The unions are not deeply concerned about the negative impact of the strike on the learners. On the other hand, the Department of Education is more concerned about the financial implications of the negotiations on its budget, than about the impact of the teachers' strike on the learners.

The Department of Education will only show concern about the plight of the learners when negotiations with the unions have failed, and a strike has been called which consequently deprive the innocent learner of his right to learn hence suffer the consequences as the sole victim of teachers' strikes, (Masitsa 2011:167).

Masitsa (2011:166) posits that the learner has the right to a safe school milieu which the school should provide. Teachers are obliged by virtue of their profession and by law to maintain discipline at school and to act in loco parentis in relation to the learner. Prisloo (2005:10) maintains that the functions that educators should fulfill in terms of the common law principle and in loco parentis include the right to maintain authority and the obligation to exercise considerate supervision of the learner. It is t6herefore reasonable to argue that when teachers go on strike they abdicate their pedagogical and legal responsibilities to exercise caring supervision and to maintain authority over the learners. Stated differently, they abandon the learners. As highlighted by Xaba (2006: 566), township schools are vulnerable to unsafe conditions and threads of violence thereby affected the most by the teachers' strikes. This does not augur well for the schools' Science output.

Section 17 of the Bill of Rights holds that, everyone has the right, peacefully and unarmed, to assemble, to demonstrate, to picket and to present a petition or to strike. This implies that the teachers' right to perform these actions is qualified but they must be performed peacefully and by unarmed people. Consequently, if the teachers' strike is not peaceful or the strikers are armed, their strike will be illegal. Conventional wisdom suggests that rights and responsibilities go hand in hand. From an educational and a moral point of view when striking teachers intimidate the non-striking ones, they set a poor example particularly to the learners who are entrusted to their care and who are influenced by their behavior.

Teachers are expected to set an example of good conduct to the learners. Striking teachers impacts negatively and severely on the general performance of the learners including in Science see Xaba (2006: 566). Prisloo (2005:10) posits that when people engage in a strike it implies that they have exhausted their ability to think and reason. The question may be asked: can we have teachers who will sometimes lose their ability to

think and reason? Rationally, the teachers' right to strike is not a privilege if striking means losing the ability to think and reason. Whichever goal is achieved through a strike cannot be regarded as a good triumph. It is thus difficult to dispute the fact that teachers, like nurses, perform an extremely important service to the entire nation that it should be classified as essential. The teachers' right to strike is thereby considered as rationally a naïve and fatal action insofar as the learner is concerned. This is so due to the stemming conflict or a contradiction between the teachers' right to strike and the learners' right to receive education. Looking into Grade 12 Science results amid strikes at schools, it becomes self-evident that teachers strike impacts negatively insofar as the learners' performance is concerned.

Outsourced teachers deal with this challenge by abstaining from striking do not partake in strikes of any kind, they instead opt to teach learners from their homes through technology means from respective home of teachers' strikes could be addressed by the government listening their employees and engaging teachers unions as opposing to abandoning learners and go for industrial action, (Masitsa 2013:20). Teachers should learner to be mindful about the fate of the learner and money.

2.6.5. Xenophobic attacks

Wallace (1999:5) describes xenophobia as a reaction against foreigners, while racism is a reaction against a generic group. Xenophobia and racism can thus be seen as an attitude or a mind-set (Harris, 2002:169–184). In the South African context, however, xenophobia is not just restricted to an attitude or mind-set; it has resulted in intense tension between indigenous people and foreigners, which in turn has resulted in violent attacks against foreigners (Hassim, Kupe, and Worby 2008: 321) and (Tshitereke, 1999: 4).

According to Vandeyar (2013:448), the politics of belonging for "Makwerekwere" youth and teachers in South African schools has been an ongoing overwhelming concern. Over the past two decades, South Africa has witnessed a notable increase in migration from the Southern African Developing Communities (SADC) region, primarily due to the political and legal demise of apartheid in South Africa and the integration of South Africa

into the global economy, see (Crush 2011:104). Immigrant teachers in South Africa have suffered a humiliating spat as outside of the classroom South African fellow black teachers and students call them 'Makwerekwere' which is a negative slang word for foreigners. These teachers feel desperate and vulnerable as they have no alternative place to run to.

Evidently alongside this, South Africa saw a rise in intolerance and animosity towards immigrants, (Harris 2002:170); (Landau et al. 2005:13); (Reitzes 2009:10). South Africans see foreigners as a threat to the social and fiscal stability of their motherland, see (McDonald 1998:1) and (McDonald *et al*., 2000: 817). Immigrants are seen as potential profiteers of South African resources and are represented as a physical disease that literally threatens the body politic with contamination (Perberdy 1999:296).

Xenophobia and racism in South Africa and so is in South African schools are very rife today. There have been erratic calls of xenophobic and racist attacks in South Africa and this is prevalent in the education arena of the country as well. Xenophobic and racist violence have unprecedentedly spilled into schools. There is no doubt that there is tensions in South Africa between South African inhabitants and immigrant students and teachers, some of which have been expressed in violence against these immigrants, (Vandeyar, (2011:232). There is controversy about whether that was xenophobia or racism Hassim *et al*. (2008:327) or neither of those or just competition. In contributing to identifying what the problem is about this study will create a better situation for finding solutions.

The rush to label South Africans as xenophobic has become a label easily bandied about when foreigners are impacted, The New Age 13 February 2015. South Africa has been inundated with calls of xenophobic attacks. Foreigners employed in different sectors in South Africa today live in fears of attacks by the nationals. South Africans are quoted as profoundly xenophobic group of people; see (News24 Wire (2017:7),

Xenophobic attacks in South Africa have been on the rise since 2008. The outbreak of xenophobic violence as debated by the relevant bodies such as United Nation High

Commission of Refugees (UNHCR), Displaced Migrant Persons Support Programme (DMPSP) and the Consortium of Refugees and Migrants in South Africa (CRMSA), vehemently condemned the attacks on foreigners and conducted mapping on affected shops and people in Soweto and South Africa at large, (Vandeyar 2011:232).

Xenophobic attacks are fashionable in South Africa, the very epitome of democracy in Africa, which is highly ranked by the UN has been marred by the senseless xenophobic attacks. There is no denying that South Africa has had some its xenophobic tendencies displayed on the international stage, particularly the May 2008 series of riots. These left 62 people dead, although 21 of those killed were South African citizens (The New Age, 13 February 2015).

Limpopo Province is no exception to xenophobic attacks. According to Nengovhela (2015:3), a tribal war broke out at Thohoyandou between Zimbabweans and the locals, mostly Vhavenda speaking people and local residents have vowed to clean the town of Zimbabweans. The war broke out when Zimbabwean citizens allegedly attacked and killed a local man with different weapons. Enraged and concerned locals marched around the town in the quest to avenge and badly attacked one Zimbabwean and a Nigerian national, leaving them badly injured. The moribund responses and failure of the government to act decisively against the senseless xenophobic attacks do South Africa more harm than good. This kind of attacks on foreigners does not auger well for foreign employees including teachers who are imminently engulfed with fear of attacks hence cannot teach effectively while death lurks around them at their work places as well as after hours when they go to their residential quarters.

The question of xenophobic attacks could be resolved by stakeholders/community members (learners, teachers, parents and SAPS). These stakeholders should be work shopped and indoctrinated against attacking fellow human beings with their sin being coming from another country (Nengovhela, 2015:3). SAPS should tighten the law and arrest any culprit of xenophobic attacks (Vandeyar, 2011: 232).

Xenophobic attacks on foreigners are sinful. Fellow South African citizens should stay away from the barbaric acts of attacking innocent foreigners who are here to stay, help and interact with them. Foreign teachers are just but a God-given bonus and an answer to our lovely children's future and they should be welcomed and be afforded an opportunity to teach effectively hence pass these innocent folk, the learners. This is endorsed by Bheki Cele, Minister of Safety and Security who urged that communities and police forums should ensure the safety and security of foreign nationals in all South African provinces; hence they will stay and work peacefully and productively in in this country, see (Kruger 2002:43). Perpetrators shall have to face the law and be brought to book.

2.7 THEORETICAL FRAMEWORK

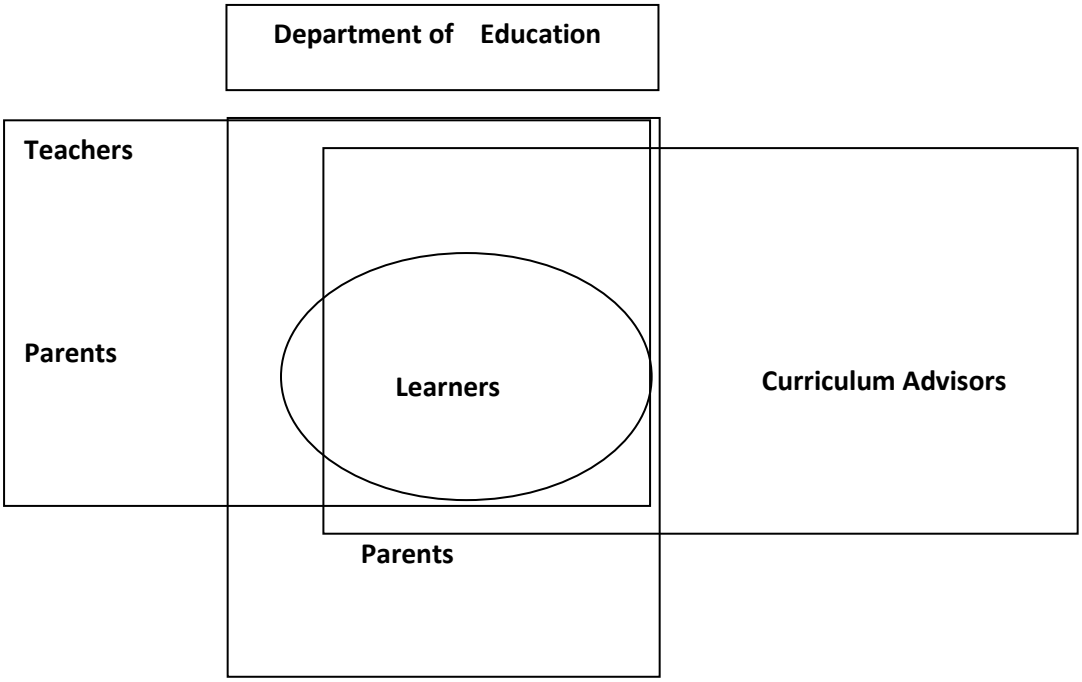
The study employed theoretical framework as the underlying theory that guides and directs the research (Mouton, 2009:134). Theoretical framework was used as a collection of interrelated concepts that can be used to direct research with the purpose of predicting and explaining the results of the study and to provide the rationale for conducting the study on the significance of outsourced Science teachers in Limpopo Province (Robertson, 2007: 113) and (Mc Donald, 2004:87).

2.7.1 Structural functionalist theory

Theorist Carl Max, is the father of structural functionalist theory (Ritzer, 1992:108). This theory holds that that education is like a human body with parts, a system with subsystems that work for the good of the whole.

Structural functionalist theory puts emphasis on the collective efforts by all stakeholders working jointly towards achieving a set goal. The theory emphasizes on the 'system and sub-system' which is analogous to a bureaucratic set up of a democratic command manned by different stakeholders, (Ritzer (1992:108).

FIG 2.1 Illustration of Education with its sub-systems (stakeholders) working for the good of the learner (Structural functionalist theory)



The Department of Education, learners, parents, teachers and curriculum advisors worked jointly for the good of the learner with an objective of attaining one common goal. All these stakeholders operated mutually under one umbrella as a system and sub-systems (department of education and its sub-units) geared to achieve a goal. All the stakeholders participated in a bureaucratic manner with the aim of supporting the outsourced Science teachers and an ultimate objective of developing the learner.

In toto, the theoretical framework employed is based on structural functionalist theory on education which in simple terms holds that education works for the benefit of the whole society and for the other subsystems of a society, viz. stakeholders such as teachers, parents, and curriculum advisors work together to achieve best Science results (Ritzer 1992: 108).

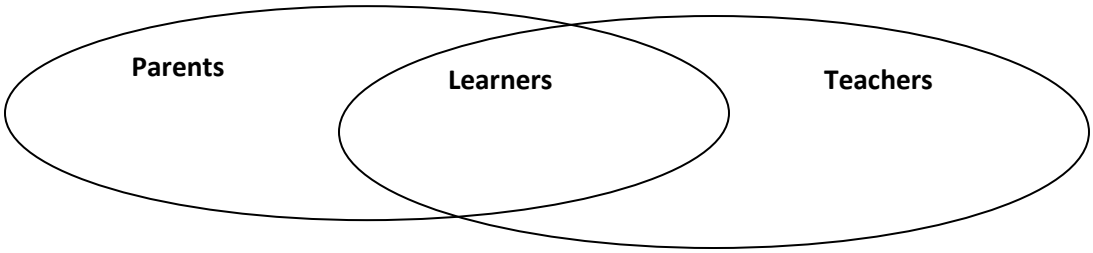
2.7.2. Social constructivism theory

According to Brook (2002:143), social constructivism theory was founded by Emile Durkheim who advocates the role the society plays in the construction of knowledge. Members of the community have a great role to play in shaping education of the learner.

The meaning of “social” in this context is usually restricted to the nature of the interactions between the novice and the expert, Brook (2002:143). This role is direly needed to uplift the significance of outsourced Science teachers at schools, hence improve the learner academic performance.

For this study, social constructivism refers to the role society such as parents and teachers play in shaping education of the learners. This relates to the interaction between the novice and the expert, i.e. the learner and those with expertise knowledge and experience. It further relates to interaction of learners with teachers and other stakeholders’ expertise with a view to enhance the learners’ academic performance in Science (Brook, 2002:143). This implies that community members with knowledge and expertise can improvise the required resources and knowledge expertise with a view to alleviate Science results at schools.

FIG 2.2 The role played by society in construction of the learner’s knowledge (social constructivism theory)



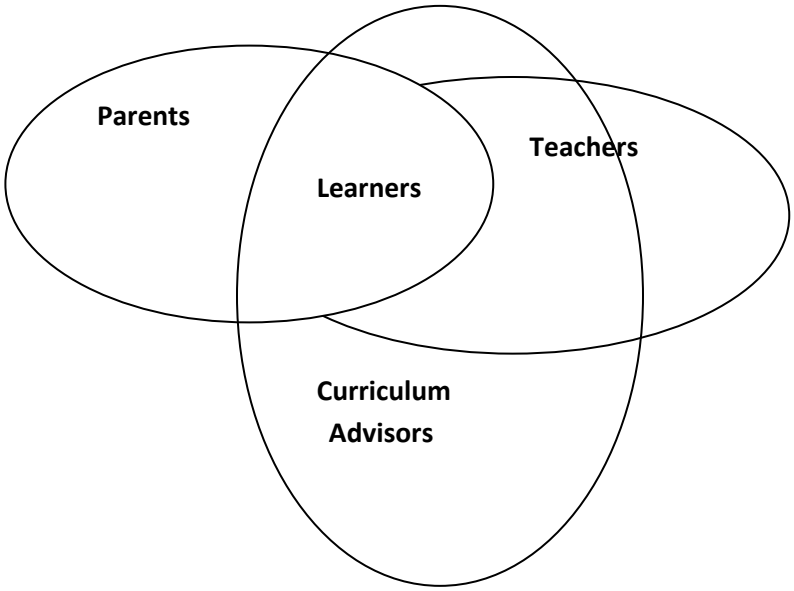
Social Constructivism is a sociological theory of knowledge that applies to generate philosophical constructivism into social focus on individual learning that takes place because of their interaction in groups (Christie, 2005:88). This means that the deterrences that Science teachers and learners are facing were managed through the interaction with community members as well as veterans involved in the teaching and learning of Science.

2.7.3 Community of Practice theory

Herbert Spencer as the father of community of practice theory advocates and puts emphasis on participants' collaborative practice agreements (CPAs) before and after their participation in the research study, (Stakes 2000:4). In this research study, stakeholders (learners, parents, teachers and curriculum advisors) observed collaborative practice agreements on how the outsourced Science teachers improve the learner academic performance of the learners.

The researcher applied community of practice (CoP) approach to find out among other things outsourced Science teachers' development for enhancing the learner academic performance, and if CoP could find out the effectiveness and identify factors that could influence effectiveness of outsourced Science teachers at schools *as* well as challenges they encounter and how to champion these challenges with a view to improve the learner-academic performance (Blanche & Durrheim 1999:207).

Fig 2.3 Collaborative practice agreements by stakeholders (CoP theory)



Stakeholders such as learners, parents, teachers and curriculum advisors who are direct beneficiaries of outsourced Science teachers would be a good source to eradicate the challenges faced by outsourced Science teachers. Fellow teachers, lecturers, curriculum

advisors and school principals could offer insight into what to do. Jointly as a community of practice these stakeholders' efforts enabled Science teachers to advance the learner academic performance.

2.7.4 Synthesis of Theoretical Framework

The three theories applied above were collectively applied to uphold the significance of outsourced Science teachers on learner academic performance, factors that inspire them to teach efficiently or affordance that lead to their best performance as well as challenges they face

Structural functionalist theory ensured that stakeholders function like a human body with parts, a system with subsystems that work for the good of the whole. This alludes to the fact that stakeholders such as learners, parents, teachers, curriculum advisors, business community and the Department of Education worked as a unit with the aim of advancing the learner academic performance, (Ritzer 1992: 108). Social constructivism puts emphasis on the role the society plays in construction of knowledge, as well as the nature of the interactions between the novice and the expert, i.e. the theory will emphasize the role parents and other stakeholders play to ensure that the learner gets the best education that he/she deserves as well as how the learners relate to the teacher and vice-a-vis, (Christie 2005:108). Community of practice theory, through the stakeholders' participation developed collaborative practice agreements (CPAs) to fast-track the learner academic performance. Stakeholders (parents, teachers, school managers and curriculum advisors) worked cooperatively aiming at advancing the learner academic performance (Brook 2002:143).

2.8 SUMMARY

This chapter established what other authors had already written on the subject/problem and what other researchers found out about the topic as well as the results and conclusions which arose from these previous researchers on the topic and how the research linked up with them. The literature consulted includes books, journals, government gazettes and newspaper reports in which news events have been published; ideas have been raised and opinions expressed on the matter under investigation.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This section presents a plan to apply a variety of standardized methods and techniques in the systematic pursuit of knowledge, (Mouton, 2002:35). The section embraces the research paradigm, research design as well as outlining the theory underpinning the methodology and how the researcher plans to conduct the research study. This includes the data collection plan which sets out the detailed strategy for collecting data as to where, when, how and from whom as well as data analysis (Schulze, 2002b:4).

3.2 AIMS OF THIS RESEARCH

The researcher indicated what he intended to achieve by addressing this research problem which sought to explore the impact of outsourced Physical Sciences teachers in learners' academic achievement. The aim of this research study is fourfold:

To achieve this aim, the following objectives have been established:

i) To identify the significance made by outsourced Science teachers on learner academic performance

ii) To determine factors that inspire outsourced Science teachers to improve the learner academic performance.

iii) To explore the challenges they encounter as well as how they deal with them/ affordances leading to their efficiency

iv) To create a model which schools can envisage for the insourced Science teachers to improve their learner academic performance as well.

3.3 RESEARCH PARADIGM

This study employed interpretivism paradigm, also known as anti-positivism. Denzin, & Lincoln (2000: 8) postulate that Interpretivists seek to describe phenomena of the whole world in an attempt to get shared meaning with others. The interpretivism is concerned with understanding the world as it is from the subjective experiences of the individuals. Interpretivist researchers use the meaning oriented methodologies such as interviews, observations and analysis of documents (Cresswell, 2003:4). It attempts to understand

how human beings make sense of events or activities in a social context. Reality can be explored through human interactions and meaningful actions. Thus the researcher opted for this paradigm because the study is using documents analysis as a means of securing information from the participants. Furthermore, the research study is about sharing responsibilities among stakeholders, and it strives to understand how objectives of the study can be achieved. Research paradigm is divided into two categories, viz. positivism which is advocates that knowledge can be advanced by observation and experience and anti-positivism which advocates that reality differs from person to person. This study is going to employ anti-positivism research paradigm by the nature of the research study which advocates interviews and documentary analysis as means of data collection instruments.

Interpretivist paradigm

The research study used interpretivist paradigm as a research tool for collecting information. Interpretivist paradigm emphasizes that reality is subjective and differs from person to person and that a single phenomenon has multiple interpretations. Reality is individually constructed; therefore, there are as many realities as there are individuals (Guba, 1981:76). On the same token, this research study collected information from different participants who gave different responses on one subject.

In interpretivism paradigm researchers believe that reality consists of people's subjective experiences of the external world. The interpretivist paradigm is concerned with understanding the world from subjective experiences of individual (Guba & Lincoln 1994:71). The study used interviews wherein different respondents participated in data collection and gave different views as well as document analysis which uses literature as a means of collecting data related to the study. This is in line with Denzin & Lincoln (2000:88) who accentuates that interpretivists use meaning oriented methodologies such as interviews, observations and document analysis, events, videos or pictures and artefacts that rely on a subjective relationship between the researcher and participants.

3.4 RESEARCH DESIGN

The research design elaborates a plan for selecting subjects, research sites and data-collection procedures to answer the research questions. In this study, qualitative research design was employed. This research design enabled the researcher to anticipate what the appropriate decisions would be to maximize the validity of the eventual results (De Vos et al. (2005:132).

Validity as the ability of an instrument to measure what it is designed to measure will ensure that a careful sampling with appropriate sampling procedures, instrumentation and treatments of data are followed (Kumar, 2011:402). The questionnaire of the study will be thoroughly checked and corrected by the supervisors who will also pre-test to effect possible changes that may enhance the findings of the study.

3.5 RESEARCH METHODOLOGY

The study employed the qualitative research methods of data collections.

3.5.1 Qualitative Research Methods

The research study employed qualitative research methods as techniques for gathering data based on the views of the participants in the form of words or texts (Creswell, 2005:39). The researcher further used qualitative research approach; for it is more commonly used to inductively explore phenomena and provide 'thick' descriptions of phenomena (Blanche and Durrheim, 1999:43).

The qualitative researcher approach is more concerned with understanding rather than explanation; naturalistic observation rather than controlled measurement; and the subjective exploration of reality from the perspective of an insider, as opposed to the outsider perspective that is predominant in the quantitative paradigm. As such, a qualitative study is concerned with non-statistical methods and small samples, often purposely selected (De Vos et al. 2005:74).

The following data collection methods were used, which were document analysis; semi-structured focus-group interviews for learners and face-to-face interview schedules. :

3.5.1. Document analysis

The study employed literature review which according to Blanche & Durrheim (1999:17) involves the identification and analysis of literature related to the objectives of the study. This process includes identifying potentially relevant sources, an initial assessment of these sources through analysis of selected sources and the construction of account integrating and explaining relevant sources. As part and parcel of the objectives of the study, literature review will consider the following aspects:

i) Document analysis on the significance made by outsourced Science teachers on learner academic performance
ii) Determination of factors that inspire outsourced Science teachers to improve the learner academic performance.
iii) Exploration of the challenges they encounter as well as how they deal with them/ affordances leading to their efficiency
iv) Creation of a model which schools can envisage for the insourced Science teachers to improve their learner academic performance as well.

3.6 SAMPLING

Following research methods, the participants' population from which the research data was collected ought to be well defined. Research participants were selected from the population across of which the results were planned to be generalised. Issues that relate to sampling and generalization were crucial in statistical studies.

3.6.1. Population

Population refers to individuals in the world who possess specific characteristics. Mouton (2009:134) asserts that population and universe are used interchangeably in the literature. It is a collection of items, events or individuals having some common features that the researcher is interested in studying. The term universe is about the complete set of elements and their characteristics about which an inference is to be drawn on the basis of a sample. Population could thus be seen as an aggregate of all cases that conform to some designated set of specifications (Mouton, 2009:134). In brief population is a cluster of elements or cases or people to which the findings of the research are generalized. In

this research study, population is concerned with a collection of objects, events, or individuals having some common characteristics that the scholar is interested in studying, it is a group of individuals that have one or more characteristics that are of particular interest to the researcher, Mouton (2009:158). The population identified for this study comprises learners, parents, outsourced Science teachers, school managers and curriculum advisors.

For the purpose of this study the population to be studied constitutes 12000 learners, 40 parents, 80 outsourced Science teachers and 40 school managers all from 40 different schools as well as 16 curriculum advisors from 8 districts (2 from each one of the selected district). The population of this study comprised parents, Science learners, outsourced teachers, school managers and curriculum advisors.

3.6.2 Sampling Procedures

Snowball sampling procedure was used in sampling. Participants were asked to identify other participants to be interviewed (Schulze, 2005:31). The researcher further used network sampling as a strategy where each successive participant or group was named by a preceding participant or group. Participants were requested to name other participants that might fit the profile (De Vos et.ai., 2012:233). Such participants included learners, educators and parents at forty schools from eight out of ten districts of Limpopo Province.

Purposive sampling was used to identify outsourced teachers, school principals and curriculum advisors as research participants in qualitative study. In purposive sampling, the researcher identified participants who could provide rich information about the phenomenon under investigation, (Schulze 2005:32). Furthermore, this sampling procedure was observed because the researcher knew the schools with foreign outsourced teachers with Physical Science learning area with above 20 grade 12 learners.

3.6.3 Samples

Sample can be described as the survival of a population or universe of which the same sample is a minor section (Schulze 2005:31). For this study, the sample studied was drawn from parents, learners, outsourced Science teachers, school principals and curriculum advisors. The sample drawn comprised 40 parents, 1200 learners, 80 outsourced Science teachers, 40 school managers and 16 curriculum advisors were sampled.

3.7 PILOTING THE RESEARCH INSTRUMENT

Piloting of the research instruments was conducted in two secondary schools which were not part of the study in Limpopo Province. Piloting was conducted to check the validity and reliability of the instruments. For the validity and reliability of data collection instruments to prevail, the instruments was verified to make sure that they measure what they intended to measure and to ensure that there was consistency in the data collection instruments, (Cohen, 2008:234).

To accomplish this, pilot-testing was administered before the instruments were used in the said investigation. This was meant to ensure that errors were noticed and rectified before the actual data was collected. Piloting the instruments enabled the researcher to eliminate ambiguity, bias and vague questions.

Interview schedules were piloted. The following errors were discovered during piloting of instruments:

- Similar questions in the instruments were repeated
- Other questions were asked more than once in different ways.
- Some questions were ambiguous, bias and vague.
- The research instruments comprised many questions which caused the process to take a longer period to administer than expected.

3.8 ADAPTATION OF THE RESEARCH INSTRUMENT

The researcher discussed the mistakes that were uncovered through piloting of the instruments with the promoter/s. The errors identified were rectified and the final research instruments were adapted.

The researcher also ensured that ethical measures were maintained throughout this study as discussed in 3.4.1. Empathy, sensitivity, cordiality as well as sincerity were duly maintained to ensure the participants' honesty towards the researcher. Participants felt free to disclose how they consider the impact of outsourced Science teachers at schools could be effectively addressed. The research instruments used in this research study are interviews, and document analysis.

3.9 DATA COLLECTING METHODS

This section detailed the methods in which data was collected in this study. Qualitative methods of data collection were employed.

3.9.1. Qualitative data collection methods

As noted by Mouton (2009:156), data collection exists in the use of a variety of methods and techniques of data collection in a single study. Schulze (2002b:14) holds that data should meet the requirements of a qualitative research design. The instruments used to collect data for the research were interview schedules and document analysis as follows:

3.9.2 Interviews

The research study employed interview schedules as a predominant mode of data collection in qualitative research. It is a data collection encounter in which one person (an interviewer) questions another (a respondent), see (De Vos et al., 2005:287). According to Fox (2009:04), interviews are data collecting methods in which the researcher asks participants open-ended questions and record their answers. Boyce & Neale, (2005:3), posits an interview as a dialogue between two people for gathering information about a phenomenon of study.

The study chose this strategy because of its informal and largely structured nature of the questions encourages participants to display behaviour and attitudes that would otherwise remain unknown. Participants feel more comfortable and secure about confidentiality, (Boyce & Neale, 2005:3). Focus-group interviews and unstructured in-depth interviews were employed. These subsections were fully elaborated on the forthcoming item 3.4.3.7.2.

Interviews were conducted as one of the research tools employed. Two types of interviews were used, viz. focus-group interview and unstructured individual face-to-face interview.

3.9.2.1 Focus-group interviews

Focus-group interview schedules were conducted with learners on challenges faced by outsourced Science teachers. This type of research instrument was used as a discussion conducted by a researcher with a group of research usually focused on a issue or set of issues (Blanche and Durrheim, 1999:478).

The researcher employed focus group interview as a purposive discussion of a specific topic or of a set of related topics by 6-12 learner-participants with similar backgrounds and common interests as a means of collecting data, (Mouton, 2002: 314). He followed this carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment commonly known as focus-group interview. De Vos et.al., (2005:300) highlights that during such an interview a small number of participants, typically six to twelve, talk about a topic of special relevance to a study under the guidance of a moderator. The informal nature of such discussions in the absence of the principal and other figures of authority encouraged participants to display behaviour and disclose information in a way that they would normally consider injudicious in their seniors' presence.

Focus-group interviews were conducted with 1200 learners from the selected 40 schools from eight out of the ten districts of Limpopo Province. Learners and parents participants

were selected on purpose from schools where there are outsourced Science teachers who form part and parcel of this research study.

The groups was small enough for all the participants to have the opportunity to share insights, and big enough to provide diversity of perceptions. The method is appropriate in this situation because of members' common characteristics. For example, they are secondary school learners belonging to the school which is relevant to the question of this study. During this type of interview the researcher played a moderator's role.

The researcher chose this methodology because the research in question deals with school teachers. Since the focus-group interviews were conducted in selected secondary schools in Limpopo Province the size of focus-groups were limited to 6 - 12 members each.

This research study employed focus group interview because the tool allows participants to react to and are built upon the responses of other participants; this might result in the generation of opinions and information which might remain undiscovered in individual interviews and speedy results could be obtained in this way (Mouton, 2002:325).

In this study, the researcher conducted focus-group discussions as an open conversation in which participants had an equal chance to address questions to fellow participants, and to comment on or respond to their comments as well as to the interviewer (Schulze, 2005:68). The focus-group interviews with learners were preceded by the questions which cover the following areas: Factors that inspire outsourced Science teachers to teach effectively as well as challenges outsourced Science teachers encounter and how they deal with them.

In this research study, the researcher conducted focus-group interviews as an open conversation in which participants had an equal chance to address questions to fellow participants, and to comment on or respond to their comments as well as to the interviewer (Schulze, 2005:68). The focus-group interviews were preceded by the question: 'What are the factors that inspire outsourced Science teachers to teach

effectively?' as well as 'What are the challenges outsourced Science teachers encounter and how they deal with them?'

During interview discussions answers and comments extracted from the discussions enabled the researcher to pose probing questions that stimulated the discussion until answers and comments added no more value to what the researcher had found. The proceedings of the focus group were audiotaped and then transcribed verbatim.

Learner participants enshrined the factors that inspire outsourced Science teachers to teach effectively as well as the challenges outsourced teachers face and how they deal with them.

3.9.2.2 Unstructured face-to-face interviews

In-depth interview schedules with the parents, outsourced teachers, school managers and curriculum advisors were conducted on factors that inspire outsourced teachers to teach effectively, challenges they face as well as a model to be created which schools can use where employed.

In-depth interview was chosen as the best way to get an 'inside view' of the interviewees' lives and to explore any issue that comes out during the interview (Schulze, 2002a:54). No questions are formulated or themes identified in preparation for this kind of interview.

In depth interview was chosen because it is a social interaction between equals to obtain the required information, it is also called an informal-conversation interview (Schulze, 2002b:61). It engages one or more face-to-face interactions between an interviewer and an interviewee, with the purpose of understanding the interviewee's life experience or situations as expressed in his/her own words, Schulze (2002b: 60-61). The researcher chose to employ unstructured interviewing as a one-to-one face-to-face interactions between an interviewer and an interviewee with a major purpose of understanding the interviewee's life experience or situations as expressed in his/her own words (Schulze, 2002b:60-61). There are three main types of unstructured interviews: open-ended interviews, scheduled interviews and in-depth interviews. Only the latter was used in this study

In conducting the interviews, the interviewer followed Schulze's precepts, namely that the researcher should establish trust, be genuine, maintain eye contact, and convey meaning effectively through judicious and appropriate phrasing, cadence and tone of voice, (Schulze 2002b:61). These precepts develop confident rapport with a view to eliciting valid data more effectively than would be possible with a rigidly formal depersonalized approach. When the interviewee deviated from the topic the interviewer tactfully steered him/her back. This enabled the interviewer to obtain an inside view of the social phenomenon that was investigated (Schulze 2002b:61).

During interview sessions, the interviewer followed Schulze's precepts, namely that the researcher/interviewer should establish trust, be genuine, maintain eye contact, and convey meaning effectively through judicious and appropriate phrasing, cadence and tone of voice, thus developing confident rapport with a view to eliciting valid data more effectively than would be possible with a rigidly formal depersonalized approach (Schulze, 2002b:61). When the interviewee swayed away from the topic the interviewer tactfully steered him back. This enabled the interviewer to obtain an inside view of the social phenomenon that was investigated.

The in-depth interview as one or more face-to-face interactions between the interviewer and the interviewee with a view to gaining insight into the interviewee's life or situation as expressed in his or her own words (De Vos et. al., 2002:299). The research study conducted in-depth interviews with parents, outsourced teachers, school managers and curriculum advisors. Unstructured in-depth interviews were preceded by the question: what are the factors that inspire outsourced Science teachers to teach effectively? 'What are the challenges outsourced Science teachers encounter and how they deal with them?' What model would you create for insourced Science teachers and other schools to use?'

In toto, following aspects were covered during such studies:

* Factors that inspire outsourced Science teachers to teach effectively
* Challenges which outsourced Science teachers face and how they deal with them

* Creation of a model which schools can envisage for insourced Science teachers to use as well.

The research participants gave their views on all the above cited aspects which eventually answered the research question.

Given that some of the respondents (outsourced Science teachers) are as well investigated in the research study, the researcher ensured that the interview schedules were extended to other stakeholders such as learners, parents, school managers and curriculum advisors. This measure, coupled with measures to ensure trustworthiness as discussed above in item 3.4.1, was taken to test the accuracy of the respondents' testimony. Interviews were extended to these stakeholders to ensure that genuine results of the interview process were achieved.

The researcher ensured that the interviewees in responsible positions could not just be accepted on trust but were subject to reliable confirmation by taking the following precautionary steps:

- Finding out the root causes of the problem.
- Committing many more stakeholders in the interview process than the respondents who gave their different views and suggestions.
- The respondents concerned were not from schools and circuit offices that enjoyed the service of outsourced Science teachers; hence they could not turn into a threat to jeopardize the findings as they were not part and parcel of the research study.
- The interview participants had a recipe for success that could be emulated for success elsewhere.
- Guaranteeing that participants other than the subjects such as learners, parents, school managers and curriculum advisors, are fully engaged in the interview process to reach a satisfactory/appropriate solution to the problem.

To avoid contamination of the interview with knowledge obtained before the investigation began the interviews were conducted without a preliminary literature study.

The interview schedules were naturally time consuming, taking almost an hour with each interviewee. The data collected from this initial session was analyzed and a schedule was then drawn up accordingly for a follow-up session which was duly conducted. All interviews were recorded and transcribed verbatim.

3.9.3 Document analysis

As one of the research tool, the researcher employed document analysis as a means of accessing information from relevant literature traced from information search or sources (Blanche & Durrheim, 1999:477). A literature study was conducted to discover the extent of other writers' coverage of the specific or related subject matter. The documents consulted were basically literature review of available documents such as lexicons, encyclopedias, books, newspapers and journal articles, dissertations, government reports, media reports and periodical usurps, etc. all of which are related to the topic of this study. Literature data were compared with the empirical results. This is called a literature control (Schulze 2002b:21) and (Brink et al., 2012:120). Document analysis piloted provided data of what other researchers had found on the same topic which gave a clear picture to the researcher on the views of different researchers on the same topic. For this methodology, the researcher traced all available literature pertaining to this topic.

More than 70% of schools that performed well in Science in all ten districts of Limpopo Province are manned by outsourced teachers. This sentiment is corroborated by (Inserra & Short 2016:2) who accentuate that professional Science teachers in poor countries migrate to countries with strong currency and work very hard for various reasons such as protecting the status of education of their native countries as well as their personal integrity hence produce good results.

Document analysis revealed that outsourced teachers are self-disciplined, law abiding and adamant educators who serve the learners dedicatedly. Outsourced teachers bear the love of the child right deep at heart and they keep on teaching the learners even after school, on week-ends and holidays; hence serve the learners for 24 hours. This commitment bear fruits at the end of the year when their learners pass excellently (Inserra & Short, 2016:2).

The study showed that many a school in Limpopo Province which boasts the best results in Science are from schools manned by outsourced Science teachers. Schools such as Mbilwi, Thengwe and Capricorn High Schools, with the best grade 12 results ever are using the employ of outsourced teachers (Nengovhela, 2020:2). The following schools were visited to solicit information on their Grade 12 Science performance for the year 2018:

Table 3.1: Poor Performed Schools in 2018 Grade 12 Science Results (0% - 33%)

School	No wrote	No pass	No. Fail	Pass %
A	14	4	10	28%
B	20	3	17	15%
C	15	5	10	33%
D	60	15	45	25%
E	40	10	30	25%
F	10	3	7	30%
G	22	6	16	27%
H	44	6	38	13%
I	11	2	9	18%
J	38	9	29	31%
Average pass %				**21,4%**

Illustration of Poor Performed Schools in 2018 Grade 12 Science Results (0% - 33%)

Table 3.1 above shows the schools with poor performance which ranges between 13% and 33%. The learners' performance is below par (13% to 33%). The average performance percentage for this assemblage is 21.4% which is below par.

Table 3.2: Average performed schools in 2018 Grade 12 Science results (34% -49%)

School	No.wrote	No pass	No. Fail	Pass %
A	20	8	12	40
B	30	12	18	40
C	16	8	10	49
D	24	9	15	40
E	32	14	18	43
F	48	21	27	43
G	11	5	6	45
H	22	10	12	45
I	36	17	19	47
J	31	15	16	48
Average pass %				**40**

Table of average performed schools in 2018 Grade 12 Science results (34% – 49%)

Fig 3.2 enshrines the schools with average performance ranging from 40% and 49%. The above table portrays the schools with average performed learners. The average performance percentage for this cluster is 40% which is relatively fair.

Table 3.3 Enhanced performance schools in 2018 Grade 12 Science Results (50%-79%)

School	No. wrote	No pass	No. Fail	Pass %
K	12	10	2	79%
L	22	13	9	59%
M	30	18	12	60%
N	46	26	20	56%
O	40	22	18	55%
P	10	6	4	60%
Q	16	10	6	62%
R	21	13	8	62%
S	20	13	7	65%
T	18	12	6	67%
Average pass %				**55.8**

Depiction of enhanced Performed schools in 2018 Grade 12 Science Results (50% – 79%)

Table 3.3 enshrines the schools with enhanced performance ranging between 55% and 79%. This table depicts the schools with enhanced performance of Grade 12 learners in 2018. The average performance percentage garnered in this classification is 55, 8 which is very good for a good learner.

Table 3.4: Excellent performed schools in 2018 Grade 12 Science Results

School	No.wrote	No pass	No. Fail	Pass %
KK	22	18	4	82%
LL	340	340	0	100%
MM	41	36	5	88%
NN	261	261	0	100%
OO	80	72	8	90%
PP	697	697	0	100%
QQ	401	401	0	100%
RR	171	171	0	100%
SS	18	16	2	89%
TT	14	14	0	100%
Average Pass %				**84.9**

Illustration of Excellent performed schools in 2018 Grade 12 Sciences (80 – 100%)

Table 3.4 treasures the schools with excellent performance which range between ranging between 82% and 100%. The table portrays the schools with outstanding performance of Grade 12 learners in 2018. The average performance percentage secured in this category is 84, 9 which is exceptionally well.

The research study proved that outsourced Science teachers' performance in 2018 Grade 12 examinations is generally good. The average percentage scores secured by four different clusters are 84.9%, 55.8%, 40% and 21.4% respectively. About three quarter (75%) of the learners in surveyed schools secured passes while 25% of the learners failed. These scores are evident enough of excellent performance radiated by these teachers.

The study hinted that collaborative work approach of outsourced teachers with other stakeholders such as parents, business community, insourced teachers, school managers and curriculum advisors and departmental officials always bear fruits. Collective approach to situations make teaching and learning life easier as burdens are shared to and solved collectively by group members (Blanchard, Masserot, & Holbrook, 2014:2). Collaborative approach puts outsourced teachers at a pole position to be successful in their teaching endeavor.

3.10 DATA ANALYSIS

For this section of the research study, the researcher employed qualitative data analysis. Qualitative data were in the form of text, written words, phrases or symbols describing or representing people Neuman (1997:418).

3.10.1 Qualitative data analysis

The study followed qualitative data analysis endorsed by Neuman (1997:419) who holds that qualitative researchers examine patterns of similarities and differences across cases and try to come to terms with their diversity.

The researcher in line with Patton (2002:432) transformed qualitative data in to findings. This involves reducing the volume of raw information, sifting significance from trivia, identifying significant patterns and constructing a framework of communicating the essence of what data revealed. In qualitative data analysis, the researcher embarked on a search for general statements about relationships among categories of data to build a grounded theory. The amount of data generated in qualitative research in the form of voluminous pages of field notes or mountain of dictation of tape recordings, is more awe-inspiring to the researcher (Marshall and Rossman (1998: 150) and Creswell (1998:139). This kind of data called forth a well formulated and data analysis on the side of the researcher.

The researcher in line with Schulze (a) (2005:15) employed Tesch approach to analyze qualitative data wherein observed the following steps of qualitative data analysis:

- Read all transcripts and jot down ideas

- Selected interviews, analyzed their meanings and wrote down his thought about the meaning of each piece of information
- Drew a list of topics and cluster similar topics together, identified unique and leftover topics
- Abbreviated topics by means of codes and wrote codes next to each segment of data in the transcribed interview. He further saw if new category and code emerged form test, the significance between numbers or frequencies, Schulze (b) (2002:42). For this endeavor, the researcher will draw a table with answering boxes such as 'yes' or 'no' and further information requiring the research participants to enshrine their personal such as: age, years in the current responsibility, gender, etc.

Qualitative data were analyzed thematically. The tape-recorded interviews were transcribed, and the transcripts were analyzed using codes and themes.

3.11 DELIMITATION OF THE STUDY

The study was conducted with learners, parents, teachers (outsourced), principals and circuit managers selected from 40 schools from eight out of ten districts of Limpopo Province. Furthermore the study was extended to 16 circuit offices (two from each district) respectively. However, the results of the study might be generalised to other secondary schools of the Province.

3.12 ETHICAL MEASURES

These are discussions around what is considered acceptable or justifiable behaviour in the practice of social research. Research ethics are concerned with the fairways for the researchers to proceed (Makhanya, 2006:28). The researcher in line with Mauther et al., (eds.) (2002:20) sees ethics as the application of general rules and principles, and the researcher's internalising of moral values. In ethics, the focus was on the researcher's ethical intuitions, feelings and reflective skills including his sensibilities in undertaking dialogue and negotiation with the various parties involved in the research (Mauther et al., 2002:20).

Furthermore, ethics as a set of moral principles adopted by an individual or a group Schulze (2002a:5) were fully observed by the researcher. These include principles such as rules and behavioural expectations that determine ideal conduct as perceived by the group for its members where experimental subjects and respondents, employers, sponsors, other researchers, assistants and students are concerned.

In this research study, the researcher undertook to ensure that all ethical measures were recognized and respected throughout the study. This assurance and reassurance included a guarantee of the researcher's competency De Vos et al. (2005: 63), which naturally included a correct and professional relationship with the participant, which in turn means gaining their informed consent and briefing if necessary (De Vos et al., 2005:63). The following are ethical considerations that received attention in this study:

3.12.1 Relationship with participants

During the research study, the researcher maintained a positive relationship with participants throughout the study. He informed participants of the purpose of the research and allowed them the opportunity to decide to participate at their free will. The researcher fully explained the potential risks that they would be exposed to, and further sought permission to audiotape interviews to ensure that data captured were as accurate as possible (De Vos et al., 2005:61). By doing this, participants were provided a fair chance of sharing their experiences and perceptions concerning the significance of outsourced Science teachers on learner academic performance.

3.12.2 Protection from harm

According to Schulze (2002a:6) respondents or subjects should not be exposed to physical or emotional harm. A precise care was taken to comply with this condition in conducting the research study concerned here. The researcher identified participants who might prove to be vulnerable to harm during the investigation so that they could be eliminated before engaging them in the research study.

3.12.3 Informed consent

The respondents were given adequate information in a language they are well conversant with, and formulated in terms that they were sure to understand, on the aims of the research study, the procedures that were followed, advantages and disadvantages for the respondents, the credibility of the researcher and how the results would be used. This was done in order for respondents to make informed decisions on whether to participate in the research study or not (Schulze, 2002b:17). Acquiescence with this requirement is synonymous with gaining participants' informed consent, which is what the researcher had done. It was found that English was duly comprehensible to all participants in this context. The grounds for the subjects' request to participate in the research study were given to them as basically meeting the criteria of the research study.

3.12.4 Anonymity and confidentiality

For more often than not, subjects become reluctant to participate in the research study because they regard the investigation as an invasion of their privacy. A common strategy to gain interviewees' consent and confidence emphasized anonymity. Respondents were given an assurance that the investigation would not identify the respondents in any way should be regarded as a minimum requirement for validation (Mouton, 2009:157).

The information about the subjects was regarded as confidential unless otherwise agreed through informed consent. The respondents were assured that neither their names nor any traceable information from any one of them, or from the school, would be disclosed nor research records that may bear indications that could lead to discovery of participants' identities should be removed (Schulze, 2002b:18-19). In this study the researcher complied meticulously with the stated guidelines to preserve anonymity and confidentiality.

3.12.5 Debriefing

The respondents were debriefed after participating in the research study, as a means of clarifying and rectifying misconceptions/misunderstandings which might have arisen in their minds (Schulze, 2002a:6). The researcher held debriefing sessions with participants

which afforded them an opportunity to work through their feelings. This might be necessary if the research topic focuses on emotionally distressing issues (Schulze, 2002b:18). In this research study the researcher held debriefing sessions with respondents in almost all emotional issues.

The research respondents were informed of the purpose as well as results that were obtained from the study so that the exercise would be of educational and personal value to both the researcher and to the participants.

3.12.6 Deception of Participants

This concerns deliberate withholding of information or misinformation to entice participation that would otherwise have been less likely (Myburgh & Poggenpoel, 2002:17).

In line with Schulze (2002a:6) subjects were not deceived about the real goal of the study, the real purpose of actions they were expected to perform or experiences they would undergo during the research. This researcher study was in full compliance with these procedures.

3.12.7 Recognition of the limitation of the researcher's competence

The researcher recognised the limitations of his competence and did not attempt to engage in the study beyond such competence (Mackay, 2005:20). In this study the researcher recognised the limitations of his competence, hence did not engage in research that is beyond such competence.

3.12.8 Acknowledgement of financial supporting line

Acknowledgement of financial supporting line with McKay (2005:20) the researcher must acknowledge financial support in the research report or any personal relationship of the researcher with the sponsor that may conceivably affect the research findings. In this study, financial support garnered did not have any bearing towards the research findings.

3.12.9 Influence exerted by the sponsor

If the research project is financially sponsored, this should not influence the research in any way (Schulze, 2002a:6). In this research study, the financial sponsor did not have any bearing or influential clout whatsoever on the outcome of the research study or on how the study was conducted.

3.12.10 Maintenance of objectivity

The researcher was obliged to maintain objectivity in the research study (McKay, 2005:20). In this study, the researcher had at the same breadth maintained objectivity throughout the research.

3.12.11 Restoration of respondents

Debriefing sessions with respondents are necessary after a research project has been completed (Schulze, 2002b:18). This gives them the opportunity to work through their feelings. This may be necessary if the research topic focuses on emotionally distressing issues. In this study the researcher held debriefing sessions with respondents in almost all emotional issues. Furthermore, the researcher held debriefing sessions with participants which afforded them an opportunity to work through their feelings to redress all feelings.

3.12.12 Permission to conduct research at schools

When the research study was conducted in different schools and circuit offices, approval for conducting the research was obtained before any data were collected (Schulze, 2002b:19). For this study, the researcher secured a permission to conduct a research study at schools and circuit offices from the office of the Superintendent General of Limpopo Provincial Department of Education.

3.12.13 Informing subjects about the findings

As a mark of the researcher's gratitude for the respondents' participation, respondents will be informed on the findings of the study (Schulze, 2002b:19). This endeavor should be fulfilled objectively. Unnecessary details would not be supplied and the principle of

confidentiality would not be violated. In this study, the subjects were duly informed of the findings of the study and the principle of confidentiality was maintained.

3.12.14 Final written report

In line with Schulze (2002a:6) the final written report on this study was clearly and accurately documented without bias or plagiarism. The report contained all essential information and shortcomings and errors were acknowledged. A conformability audit as well as external analysis of data had also been conducted.

3.13 MEASURES TO ENSURE TRUSTWORTHINESS

In line with Schulze (2002b: 79) the researcher had an obligation to maintain trustworthiness throughout the study. This premise was ensured by following Guba's model of trustworthiness as represented and endorsed by the *four criteria* of trustworthiness that should be applied in research were addressed by this model.

3.13.1 Truth value ensured by the strategy of credibility

Schulze (2002b: 79) holds that credibility (truth value) should be demonstrated by conducting the research so that the phenomenon at issue is accurately described. Truth value is demonstrated if "the research has established confidence in the truth of the findings" derived from information supplied by the participants in describing their personal experiences and perceptions thereof. This guideline has been observed faithfully and the researcher would report realities as clearly as possible from different perspectives. The credibility strategy followed to this end involved adherence to the following criteria:

* Prolonged engagement

The researcher should spend reasonable time with participants in an attempt to establish a positive rapport, speaking the language they prefer most to solicit their free and full participation, which may even lead to the revelation of facts that could have remained undisclosed (Schulze 2002b: 80). This also affords the researcher an opportunity for continual data analysis, comparison to refine ideas, and time to make observations. In this case, the researcher spent a number of days at the schools and circuit offices where the interviews were conducted.

* Reflexivity

The researcher could not be separated from this research study as he is part of it. To minimize the influence of the researcher's feelings and experiences on the research, it was necessary to promote reflexivity. In this case reflexivity was achieved by making use of a tape recorder as well as interview notes.

* Authority of the researcher

Besides being a qualified educator, former headmaster and part time lecturer with 34 years' teaching experience, the researcher has also studied research methodology in education.

* Triangulation of methods

The researcher used interviews (focus-group interviews and unstructured, (in-depth interviews) to collect data.

3.13.2 Applicability ensured by the strategy of transferability

According to Schulze (2002b: 79), applicability refers to the degree to which the findings can be applied in other contexts and settings or to other groups. Qualitatively, this refers to how well threats to external validity have been managed. The researcher relied on available data from this study to ensure transferability. Strategies employed in the study to ensure transferability were employed as follows:

* Nominate sample

Purposive sampling was used in the study. This means that participants were selected for exceptional ability to give rich data.

* Dense description

The background information with regard to participants and the context of the research was given; this enabled others to decide how transferable the findings were, to their own settings.

3.13.3 Consistency ensured by the strategy of dependability

Consistency advocates on whether the findings would be consistent if the enquiry were replicated with the same participants/subjects or in a similar context Schulze (2002b: 79). The focus here does not only shift to the research design but also to the research method already discussed.

As far as auditing is concerned, which is the situation whereby a subsequent researcher can follow the decision trail clearly as trodden by the original researcher in this study, the relevant data had been kept so that an audit trail can be followed if necessary.

3.13.4 Neutrality ensured by the strategy of conformability

According to (Schulze 2002b: 79), neutrality ensured by the strategy of conformability implies freedom from bias in the research procedures and results or more specifically, the degree to which the findings are a function solely of participants' contributions and of conditions of the study, and not of other biases, motivations and perspectives of the researcher. To ensure that the data reflect the role of educational management in exploring the significance of outsourced Science teachers on learner academic performance, the researcher employed the strategies of prolonged engagement, reflexivity and a conformability audit. External analysis of data had also been conducted.

3.14 DATA COLLECTION

3.14.1 Introduction

Data collection involves the gathering of information about the variables in the study De Vos *et al*. (2005; 335). Mouton (2009: 67) holds that data collection involves applying the measuring instrument to the sample or cases selected for the investigation. The researcher chose from a wide range of techniques and approaches for collecting data from the subjects**.**

Qualitative research studies cover a spectrum of techniques in this research design; the researcher used a wide range of strategies of inquiry (De Vos *et al*. 2005: 333). These strategies would differ with the purposes of the study, the nature of the research question, and the skills and resources at the researcher's disposal. The researcher used

multimethod strategies for data collection. In the present instance these include focus-group interviews conducted with the learners, and unstructured (in-depth) interviews conducted with teachers, parents and school managers as well as circuit managers as well as document analysis.

3.14.2 Population

This research study used population/participants as individuals having some common characteristic that the researcher is interested in studying, Mouton (2009: 134). This is commonly known as a target population. A portion of the target population to which the researcher has reasonable access is known as the accessible population (Mouton 2009: 134). The target population in this study comprised learners, parents, teachers, school managers, all from secondary schools in Limpopo Province, as well as circuit managers from different circuits or clusters in Limpopo Province. The accessible population comprised the principal, learners and parents. Focus-group interviews and unstructured (in-depth) interviews were conducted with members of the selected samples.

3.14.3 Demographic information of participants in data collection

The analyzed data was drawn from the interviews conducted with Grade 12 learners, Grade 12 science teachers, parents (SGB) school managers and circuit managers in respect with the significance of outsourced Science teachers on the learner academic performance. Data were collected and analyzed thematically. Schools were coded from S1 to S40; 40 groups of learners coded LG1 to LG40; 40 parents coded P1 to P 40, 40 teachers coded T1 to T40; 40 school managers coded SM1 to SM40 and 16 circuit managers coded CM1 to CM16. All these stakeholders participated in the study and were coded in line with the schools and circuit offices wherein they were deployed. The collected data focused on significance of outsourced Science teachers on learner academic performance looking into specific areas such as factors that inspire outsourced Science teachers to teach effectively, challenges they face as well as creation of a model to be used by insourced teachers.

The distribution of teachers by their professional qualifications was also considered in the analysis. From the total of forty participants, 32 have foreign Bachelor degrees with

Science as their major and teaching subject while 8 of them had honors degree in Science. Parents are aged between 39 and 68 ie. 6 are 39 years, 14 are 45 years 13 are 56 years and 7 are aged between 60 and 65 years respectively; about 180 leaners are 18 years of age while 19 learners are 150 years of age and 100 learners 20 years with 70 learners being 21 years of age. About 18 teachers are 26 years, while 12 teachers are 30 years; 13 are between 32 and 35 whereas 7 are 40 years of age. About 5 school managers are aged 38 years and 35 are between 46 and 65. All 16 circuit managers are above 46 years of age.

Over 30 school managers' qualifications range from junior to master degrees and 10 have got PHDs qualification. Qualifications of 7 circuit managers range from honors to Master degrees while 9 have got PHD degree, all with Teachers' Diplomas (PTD and/or STD). This shows that in the Limpopo Province almost all outsourced Science teachers are qualified with proper teaching qualifications which meet the requirement level of NQF (National Qualification Framework) and authenticated by SAQA (South African Qualifications Framework).

About 10 outsourced Science teachers have earned more than 5 years teaching experience and 30 of them have already served between 10 and 20 years. About 20 school mangers have earned more than 15 years teaching experience while 25 have served for more than 25 years in teaching profession. All circuit managers have served for more than 20 years.

Fig 3.14.3.2 Demographical data of participants' age

AGE in Years	LEARNERS	PARENTS	OUTSOURCED TEACHERS	SCHOOL MANAGER	CIRCUIT MANAGER
17-20	**230**	**00**	**00**	**00**	**00**
21-25	**170**	**00**	**00**	**00**	**00**
26 – 35	**00**	**00**	**33**	**00**	**00**
36 - 45	**00**	**20**	**07**	**5**	**00**
46 – 65	**00**	**20**	**00**	**35**	**16**

The demography indicates that 230 learner participants were aged between 17 and 20 years, while 170 were aged between 21 and 25 years. No learner participant was above 25 years of age.

Fig 3.14.4.3 Demographical data of participants' qualifications

QUALIFICATION	LEARNRS	PARENTS	OUTSOURCED SC. TEACHERS	SCHOOL MANAGERS	CIRCUIT MANAGERS
Grade 12	**00**		**40**	**40**	**16**
Diploma	**00**		**40**	**40**	**16**
Degree - Master	**00**		**40**	**30**	**07**
PHD	**00**		**00**	**10**	**09**

The demography shows qualifications of interview participants. Parents were not matriculated and learners not matriculated as yet. All forty outsourced teacher participants passed grade 12, degree and professional teachers' qualification, while 30 school managers passed grade 12, degree and professional teachers' qualification and 10 PHDs. Seven out of 16 circuit managers had master degree while 8 had PHD degree.

Fig 3.14.3.4 Demographical data of participants' service experience

EXPERIENCE in YEARS	LEARNERS	PARENTS	OUTSOURCED TEACHERS	SCHOOL MANAGERS	CIRCUIT MANAGERS
1-5 5	**00**	**00**	**40**	**40**	**16**
6-10	**00**	**00**	**10**	**40**	**16**
10-20	**00**	**00**	**30**	**15**	**16**
21-30	**00**	**00**	**00**	**25**	**16**

This demography shows service experience of the interview participants. Parents and learners do not have any service experience at school level. About 10 outsourced Science teachers had earned 10 years of service as teachers while 30 of them have

served between 10 and 20 years of experience as teachers. Fifteen school managers had served between 10 and twenty years whereas 25 of them had already served over 25 years in education fraternity. All sixteen circuit managers had served more than 25 years in the Department of Education.

The study shows that there was no under qualified outsourced Sciences teacher teaching Grade 12 Science. School managers are highly qualified with the least qualified manager with honors degree and the highest having PHD degree. Circuit managers' qualifications range from honors to PHD degrees. All teachers, school managers and circuit managers have teachers' professional qualifications. Most teachers were still youth and their teaching experience ranged between 4 and 16 years. All these outsourced Science teachers had been teaching Science for all the years of their teaching life.

The following codes were used to designate the interview participants:

T = teachers (T1 – T40)

P = parents (P1 – P40)

LG = learners' group (LG 1 – LG 40)

SM = school manager (SM1 – SM40)

CM = circuit manager (CM1 – CM40)

3.14.4 Sampling method/procedures

The researcher used purposive sampling of which the sample is composed of elements that contain the most characteristic, representative, or typical attributes of the population, De Vos *et al*. (2005: 202). The researcher further used snowball sampling method which involves approaching a single case that is involved in the phenomenon to be investigated to gain information on other similar persons, who in turn will be requested to identify further people who could make up the sample, Barker (1988: 159) & De Vos *et al*. (2005: 203). In this study the researcher proceeded until he identified a sufficient number of cases to make up his sample.

The selection was entirely based on the judgment of the researcher whose overriding motivation was to gain as much information as possible from what were considered to be the richest potential participants. The research study sample included learners, parents, teachers, school managers and circuit managers. The researcher presumed that his personal knowledge regarding the population might be useful in selecting interviewees.

It should be noted that the schools from which the greater part of the sample (learners and parents) were drawn boast the significance of outsourced teachers while others do not. The precedence given to the school in question was based on the surmise that the learners and parents had constructive ideas on the significance of outsourced Science teachers at schools.

3.14.5 Sample criteria

Some common characteristics for inclusion in the target population were considered (McKay: 2005: 12). Characteristics of the research participants in this study are as follows:

- Learners are senior secondary school learners enrolled for grades 12.
- Only parents who have served in the school governing body for more than three years were selected.
- Educators (outsourced Science) teachers were confined to those who had served in the teaching fraternity for more than 5 years. These educators would help identifying other schools with same educators
- Education officials include circuit managers serving in any of the eight out of ten selected districts of Limpopo Province.

All the interviewees were interviewed in English as they all understand the language and can express themselves in it without difficulty.

3.14.6 Sample size

In line with Schulze (2002b: 31-32) time and cost considerations would usually make it impossible to include the whole population in the study. The researcher opted to use smaller numbers (sample size) results in accurate information because with a sample,

time and effort can be used to produce better quality research. The first question decided the number of participants to be included in the sample.

In a study which is qualitative in nature, the size of the sample is determined by repetition of data that the researcher obtains from interviews with participants (Schulze 2002b: 32). In this study the researcher employed interviews with all participants. Interviews included focus-group interviews with learners in groups of six each until they no longer added any new information to the topic under investigation. Unstructured face-to-face (in-depth) interviews were conducted with parents, insourced teachers, school managers and circuit managers respectively.

3.14.7 Instrumentation

This research study employed instrumentation as a tool used by an investigator to measure items of interest in data collection (Hsu & Sandford 2012: 2). It is not only related to instrument design, selection, and assessment, but also to the situations under which the selected instruments are managed. This section enshrined how qualitative data instruments were developed.

3.14.7.1 Qualitative Data Collecting Instrument

Three interview schedules were developed to collect data from outsourced Science teachers, learners, parents, school managers and circuit managers.

3.14.7.2 Appendix B: ***Interview Schedule***: Outsourced Sciences Teachers learners, parents, school managers and circuit managers' views on the significance of outsourced Science teachers on learner academic performance.

The interview schedule used to collect data from the outsourced Sciences teachers, learners, parents, school managers and circuit managers was made of two sections. Section 1 sought to gather the participants' bibliographical information that included gender, age, and experience as Sciences teacher. Section 2 had questions that sought to gather information related to the participants' views on the significance of outsourced Science teachers on learner academic performance.

3.14.7.3 Piloting the research instrument

Piloting of the research instruments was conducted in two secondary schools which were not part of the study in Limpopo Province. Piloting was conducted to check the validity and reliability of the instruments. For the validity and reliability of data collection instruments to prevail, the instruments should be verified to make sure that they measure what they intended to measure and to ensure that there is consistency in the data collection instruments, see Cohen, (2008:234).

To accomplish this, pilot-testing was administered before the instruments were used in the said investigation. This was meant to ensure that errors were noticed and rectified before the actual data was collected. Piloting the instruments enabled the researcher to eliminate ambiguity, bias and vague questions.

Interview schedules were piloted. The following errors were discovered during piloting of instruments:

- Similar questions in the instruments were repeated
- Other questions were asked more than once in different ways.
- Some questions were ambiguous, bias and vague.
- The research instruments comprised many questions which caused the process to take a longer period to administer than expected.

3.14.7.4 Adaptation of the research instrument

The researcher discussed the mistakes that were uncovered through piloting of the instruments with the promoter/s. The errors identified were rectified and the final research instruments were adapted.

3.14.7.5 The researcher as instrument

The researcher employed a field researcher who observed everything within his field of study (De Vos *et al*. 2005: 327). The supervisor's advice to the researcher will be secured to minimize bias and value judgements. The researcher also ensured that ethical measures were maintained throughout this study as discussed in 3.4.1. Empathy,

sensitivity, cordiality as well as sincerity were duly maintained to ensure the participants' honesty towards the researcher. Participants felt free to disclose how they consider the impact of outsourced Science teachers at schools could be effectively addressed. The research instruments used in this research study are interviews, and document analysis.

3.14.8 Qualitative data collection methods

As noted by Mouton (2009: 156), data collection exists in the use of a variety of methods and techniques of data collection in a single study. Schulze (2002b:14) holds that data should meet the requirements of a qualitative research design research. Data for this study were collected through document analysis, focus-group interviews and unstructured (face-to-face) interviews as follows:

3.14.9 Document analysis

As one of the research tool, the researcher employed document analysis as a means of accessing information from relevant literature traced from information search or sources (Blanche & Durrheim, 1999:477). A literature study was conducted to discover the extent of other writers' coverage of the specific or related subject matter. The documents consulted were basically books, dissertations, articles and newspapers, government reports, media reports and periodical usurps, et cetera; all of which are related to the topic of this study. The literature data were compared with the empirical results. This is called a literature control (Schulze 2002b: 21).

Document analysis piloted provided data of what other researchers had found on the same topic which gave a clear picture to the researcher on the views of different researchers on the same topic.

3.14.10 Interviews

Interviews were conducted as one of the research tools employed. Two types of interviews were used, viz. focus-group interview and unstructured individual face-to-face interview.

3.14.10.1 Focus-group interviews

Focus-group interviews were conducted with learners on challenges faced by outsourced Science teachers. This type of research instrument was used as a discussion conducted by a researcher with a group of research usually focused on a particular issue or set of issues, Blanche and Durrheim (1999: 478).

The researcher employed focus group interview as a purposive discussion of a specific topic or of a set of related topics by 6-12 learner-participants with similar backgrounds and common interests as a means of collecting data, Mouton (2002: 314). He followed this carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment commonly known as focus-group interview. De Vos et.al (2005: 300) highlights that during such an interview a small number of participants, typically six to twelve, talk about a topic of special relevance to a study under the guidance of a moderator. The informal nature of such discussions in the absence of the principal and other figures of authority encouraged participants to display behavior and disclose information in a way that they would normally consider injudicious in their seniors' presence.

Focus-group interviews were conducted with 400 learners from the selected schools from eight out of the ten districts of Limpopo Province. Learners and parents were selected on purpose from schools where there are outsourced Science teachers who form part and parcel of this research study.

The groups were small enough for all the participants to could share insights, and big enough to provide diversity of perceptions. The method is appropriate in this situation because of members' common characteristics. For example, they are secondary school learners belonging to the school which is relevant to the question of this study. During this type of interview the researcher played a moderator's role.

The researcher chose this methodology because the research in question deals with school teachers. Since the focus-group interviews were conducted in selected secondary schools in Limpopo Province the size of focus-groups were limited to 6 - 12 members each.

This research study employed focus group interview because the tool allows participants to react to and are built upon the responses of other participants; this might result in the generation of opinions and information which might could remain undiscovered in individual interviews and speedy results could be obtained in this way Mouton (2002: 325).

In this study, the researcher conducted focus-group discussions as an open conversation in which participants had an equal chance to address questions to fellow participants, and to comment on or respond to their comments as well as to the interviewer. The focus-group interviews with learners were preceded by the questions which cover the following areas: Factors that inspire outsourced Science teachers to teach effectively as well as challenges outsourced Science teachers encounter and how they deal with them.

In this research study, the researcher conducted focus-group interviews as an open conversation in which participants had an equal chance to address questions to fellow participants, and to comment on or respond to their comments as well as to the interviewer. The focus-group interviews were preceded by the question: 'what are the factors that inspire outsourced Science teachers to teach effectively?' as well as 'what are the challenges outsourced Science teachers encounter and how they deal with them?'

During interview discussions answers and comments extracted from the discussions enabled the researcher to pose probing questions that stimulated the discussion until answers and comments added no more value to what the researcher had found. The proceedings of the focus group were audiotaped and then transcribed verbatim.

Learner participants enshrined the factors that inspire outsourced Science teachers to teach effectively as well as the challenges outsourced teachers face and how they deal with them.

3.14.10.2 Unstructured (In-depth) interviews

Unstructured (in-depth) interviews with the parents, outsourced teachers, school managers and circuit managers were conducted on factors that inspire outsourced

teachers to teach effectively, challenges they face as well as a model to be created which schools can use where employed.

In-depth interview was chosen as the best way to get an 'inside view' of the interviewees' lives and to explore any issue that comes out during the interview Schulze (2002a: 54). No questions are formulated or themes identified in preparation for this kind of interview.

Unstructured interview was chosen because it is a social interaction between equals to obtain the required information, it is also called an informal-conversation interview, see Schulze (2002b: 61). It engages one or more face-to-face interactions between an interviewer and an interviewee, with the purpose of understanding the interviewee's life experience or situations as expressed in his/her own words, Schulze (2002b: 60-61).The researcher chose to employ unstructured interviewing as a one-to-one face-to-face interactions between an interviewer and an interviewee with a major purpose of understanding the interviewee's life experience or situations as expressed in his/her own words Schulze (2002b: 60-61). There are three main types of unstructured interviews: open-ended interviews, scheduled interviews and in-depth interviews. Only the latter was used in this study.

In conducting the interviews, the interviewer followed Schulze's precepts, namely that the researcher/interviewer should establish trust, be genuine, maintain eye contact, and convey meaning effectively through judicious and appropriate phrasing, cadence and tone of voice, Schulze (2002b: 61). These precepts develop confident rapport with a view to eliciting valid data more effectively than would be possible with a rigidly formal depersonalized approach. When the interviewee deviated from the topic the interviewer tactfully steered him/her back. This enabled the interviewer to obtain an inside view of the social phenomenon that was investigated (Schulze 2002b: 61).

During interview sessions, the interviewer followed Schulze's precepts, namely that the researcher/interviewer should establish trust, be genuine, maintain eye contact, and convey meaning effectively through judicious and appropriate phrasing, cadence and tone of voice, thus developing confident rapport with a view to eliciting valid data more

effectively than would be possible with a rigidly formal depersonalized approach, Schulze (2002b: 61). When the interviewee swayed away from the topic the interviewer tactfully steered him back. This enabled the interviewer to obtain an inside view of the social phenomenon that was investigated.

The in-depth interview as one or more face-to-face interactions between the interviewer and the interviewee with a view to As a means of gaining insight into the interviewee's life or situation as expressed in his or her own words (De Vos et al. 2002: 299), the research study conducted in-depth interviews with parents, outsourced teachers, school managers and circuit managers. Unstructured in-depth interviews were preceded by the question: 'what are the factors that inspire outsourced Science teachers to teach effectively'; 'what are the challenges outsourced Science teachers encounter and how they deal with them;' as well as what model would you create for insourced Science teachers and other schools to use?'

In total, the following aspects were covered during such studies:

* Factors that inspire outsourced Science teachers to teach effectively
* Challenges which outsourced Science teachers face and how they deal with them
* A model to be created which insourced Science teachers and other schools may use as well.

The research participants gave their views on all the above cited aspects which eventually answered the research question.

Given that some of the respondents (outsourced Science teachers) are as well investigated in the research study, the researcher ensured that the interview was extended to other stakeholders such as learners, parents, school managers and circuit managers. This measure, coupled with measures to ensure trustworthiness as discussed above in item 3.4.1, was taken to test the accuracy of the respondents' testimony. Interviews were extended to these stakeholders to ensure that genuine results of the interview process were achieved.

The researcher ensured that the interviewees in responsible positions could not just be accepted on trust but were subject to reliable confirmation by taking the following precautionary steps:

- Finding out the root causes of the problem.
- Committing many more stakeholders in the interview process than the respondents who gave their different views and suggestions.
- The respondents concerned were not from schools and circuit offices that enjoyed the service of outsourced Science teachers; hence they could not turn into a threat to jeopardize the findings as they were not part and parcel of the research study.
- The interview participants had a recipe for success that could be emulated for success elsewhere.
- Guaranteeing that participants other than the subjects such as learners, parents, school managers and circuit managers, are fully engaged in the interview process to reach a satisfactory/appropriate solution to the problem.

To avoid contamination of the interview with knowledge obtained before the investigation began the interviews were conducted without a preliminary literature study.

The research study/interviews were naturally time consuming, taking almost an hour with each interviewee. The data collected from this initial session was analyzed and a schedule was then drawn up accordingly for a follow-up session which was duly conducted. All interviews were recorded and transcribed verbatim.

3.14.11 Data processing

Data collected was processed in a systematic process of categorizing, comparing synthesizing, and interpreting to provide explanations of the phenomenon of interest, De Vos *et al*. (2005: 333). Data processing involved two kinds of operations, namely data reduction, during which both quantitative and qualitative data are summarized; and data analysis which included qualitative, i.e. thematic and content analysis, Mouton (2009: 67).

Data processing began with whole events which are fragmented analytically and then reintegrated. Data was coded and prepared for processing, to which end field notes were organized and synthesized, and data were summarized, manipulated and reduced to enable descriptive and hypothesis testing.

3.15. Data management

3.15.1 Qualitative data management

Managing or organizing data is the first step in data analysis away from the site, De Vos *et al*. 2005:336). The data generated by qualitative research methods are voluminous and organizing and analyzing them is a challenging task. In getting these data organized for analysis, the researcher began with the inventory of what he had; checked if the field notes were complete; noted some parts that ought to be trimmed off; recorded glaring holes in the data that needed to be supplemented by collecting additional data before the analysis began; checked if all the data were properly labeled with dates, places, interviewee information and whether the interview transcriptions were complete, De Vos *et al*. (2005:336). The researcher was obliged to make backup copies for all his data and one Master copy and put them away somewhere secure for safekeeping De Vos. *et al*. (2005:337).

In this section, the research study dealt with management of qualitative data that were primarily verbal, Schulze (2002:13b). The collected qualitative data were managed proficiently in the form of transcribed interviews and field notes. The researcher organized his data into file and computer files; hence converted his file into appropriate units such as words, sentences and entire story for analysis, De Vos *et.al*. (2005: 336) This is a 'Master file' that contained transcribed interviews and field notes, Schulze (2002:60b). The researcher further used a 'Background file' consisting of material accumulated during the course of the research for qualitative data management. Data was managed manually using highlighting pens as well as the color-coding pages of the interviews on the left margins, Schulze (2002:60-61b).

3.15.2 Method of data processing

During qualitative research, data analysis was separable from data collection (Booyse *et al.* 2002: 31). As data was collected from learners, parents, teachers, school managers and circuit managers, a consistent review of how educational management can effectively uplift the significance of outsourced Science teachers on learner academic performance. Additional questions that need to be clarified could be discovered. Although data analysis and data collection took place simultaneously in such a process, the two were conducted separately.

The typed transcripts of all focus-group interviews, phenomenological interviews and unstructured (in-depth) interviews were made available by the researcher. The researcher not only read and reread the verbatim transcripts, but also played and replayed the audiotaped focus-group interviews, phenomenological interviews and in-depth interviews to establish themes and concepts, together with ideas of how educational management can effectively improve the poor performance of learners in Science. The researcher also sought assistance from an outside professional as far as data analysis was concerned. The two (the researcher and the sought professional) analyzed data separately and met to establish consensus on the data analyzed. Comparing, contrasting, aggregating and ordering were applied in the analysis of data as follows:

i) Categorizing

The researcher described what he observed and divided the observed phenomenon into units because this fragmentation helped him to work distinguishably and easily on each part of the observed phenomenon.

ii) Contrasting

The researcher indicated how units were similar or dissimilar because this indication assisted him to draw a line of demarcation and similarities between the units.

iii) Aggregating

The researcher determined which items were associated with each other and might be aggregated into groups because the endeavor helped him to put together and study items

with similar characteristics, which reduced the burden of looking into similar items in a fragmentary way.

iv) Ordering

Through divergent thinking, patterns and themes were refined. This ordering provided and accommodated the framework of different thinking approaches and patterns which helped the researcher to refine themes.

3.15.3 Data analysis

For this section of the research study, the researcher employed both qualitative and quantitative data analysis. While qualitative data are in the form of text, written words, phrases or symbols describing or representing people, quantitative data are the form of describing basically the quantity of people or objects of the research study, Neuman (1997: 418).

3.15.3.1 Qualitative data analysis

The research study followed qualitative data analysis endorsed by Neuman (1997: 419) who hold that qualitative researchers examine patterns of similarities and differences across cases and try to come to terms with their diversity.

The researcher in line with Patton (2002: 432) transformed qualitative data in to findings. This involves reducing the volume of raw information, sifting significance from trivia, identifying significant patterns and constructing a framework of communicating the essence of what data revealed. In qualitative data analysis, the researcher embarked on a search for general statements about relationships among categories of data to build a grounded theory. The amount of data generated in qualitative research in the form of voluminous pages of field notes or mountain of dictation of tape recordings, is more awe-inspiring to the researcher (Marshall and Rossman (1998: 150) and Creswell (1998: 139). This kind of data called forth a well formulated and data analysis on the side of the researcher.

The researcher in line with Schulze (a) (2005: 15) employed Tesch approach to analyze qualitative data wherein observed the following steps of qualitative data analysis:

- Read all transcripts and jot down ideas
- Selected interviews, analyzed their meanings and wrote down his thought about the meaning of each piece of information
- Drew a list of topics and cluster similar topics together, identified unique and leftover topics
- Abbreviated topics by means of codes and wrote codes next to each segment of data in the transcribed interview. He further saw if new category and code emerged form test, the significance between numbers or frequencies, Schulze (b) (2002: 42). For this endeavor, the researcher will draw a table with answering boxes such as 'yes' or 'no' and further information requiring the research participants to enshrine their personal particulars such as: age, years in the current responsibility, gender, etc.

Qualitative data were analyzed thematically. The tape-recorded interviews were transcribed, and the transcripts were analyzed using codes and themes.

3.15.4 Literature consulted

The researcher placed the findings of the study in the context of what had already been discovered about the significance of outsourced Science teachers on learner academic performance thereby providing the basis for comparing and categorizing (Schulze 2002b: 22). This was done in chapter two.

3.16 SUMMARY

This chapter presented the research design/methodology and research framework used in gathering data on 'The significance of outsourced Science teachers on the learner academic performance' from respondents who included learners, teachers, parents, school managers and curriculum advisors. The aims of this research, the research design and the research methods have been given. The following aspects were explored in detail in this chapter: Qualitative research design which employs descriptive analysis was used. Simple random sampling technique was engaged to generate a qualitative sample. The research used document analysis, focus-group interviews and unstructured face-to-face interviews to generate qualitative data. Qualitative data were analyzed thematically.

Research instrumentation and adaptions of the instruments were included in the discussion.

Data processing and data management were explored to fulfill this section of the study. The data collected were presented, analyzed and interpreted. All considerations to ensure trustworthiness of the research were explored and discussed while ethical considerations were also observed. The results of the research were discussed in chapter 5 where they were compared to what had been written about the topic in the literature.

CHAPTER FOUR: DATA PRESETATION AND ANALYSIS

4.1 INTRODUCTION

The aim of the study is to explore the significance of outsourced Science teachers on learner academic performance and factors that inspire them to teach exceptionally in South Africa, challenges they face as well as a model for outsourced teachers to use. To achieve this aim interviews were conducted from selected schools and circuit offices from eight out of the newly demarcated ten districts of the Limpopo Province. Interviews with learners, teachers, school manager, and parents from different schools as well as curriculum advisors were conducted. All the interviews were tape-recorded and transcribed verbatim.

4.2 ANALYSIS AND INTERPTRETATION OF QUALITATIVE DATA

This section of the study presented, analyzed and interpreted qualitative data regarding the significance of outsourced Science teachers on learner academic performance. The analyzed data helped in answering research questions 1 to 4.

4.2.1 Demographic information of learners, parents, outsourced Science teachers, school managers and curriculum advisors

The section of the study analyzed and interpreted qualitative data. The analyzed data was drawn from the interviews conducted with Grade 12 learners, Grade 12 Science teachers, Parents (SGB), school managers and curriculum advisors in respect of the significance of outsourced Science teachers on the learner academic performance. Data were analyzed and interpreted thematically. Schools were coded from S1 to S40; 40 groups of learners coded LG1 to LG40; 40 parents coded P1 to P 40, 40 teachers coded T1 to T40; 40 school managers coded SM1 to SM40 and 16 curriculum advisors coded CM1 to CM16. All these stakeholders participated in the study and were coded in line with the schools and circuit offices wherein they were deployed. The collected data focused on the significance of outsourced Science teachers on learner academic performance, factors that inspire outsourced Science teachers to teach effectively, challenges they face as well as the creation of a model to be used by outsourced teachers.

The distribution of teachers by their professional qualifications was also considered in the analysis. From the total of forty participants, 32 had foreign Bachelor degrees with Science as their major teaching subject while 8 of them had honors degree in Science. Parents were aged between 39 and 68 years, that is. 6 were 39 years, 14 were 45 years, 13 were 56 years and 7 aged between 60 and 65 years respectively. 180 leaners were between 17 and 20 years of age while 150 learners were 150 between 21 and 25 years of age, a. About 18 teachers were 26 years, while 12 teachers were 30 years; 13 were between 32 and 35, whereas 7 were 40 years of age. About 5 school managers were aged 38 years and 35 were between 46 and 65 years. All 16 curriculum advisors were above 46 years of age.

Over 30 school managers' qualifications ranged from junior to Master degrees and 10 had PHD qualifications. 7 curriculum advisors' qualifications ranged from Honors to Master degrees while 9 had PhD degrees, all with Teachers' Diplomas (PTD and/or STD/UED). This shows that in the Limpopo Province, almost all outsourced Science teachers were qualified with proper teaching qualifications which meet the requirements level of NQF (National Qualification Framework) and authenticated by SAQA (South African Qualifications Framework).

About 10 outsourced Science teachers had more than 5 years teaching experience and 30 of them had served between 10 and 20 years. Almost 20 school mangers had more than 15 years teaching experience while 25 had more than 25 years in the teaching profession. All curriculum advisors had served for more than 20 years.

4.3 FINDINGS FROM THE INTERVIEW SCHEDULES (QUALITATIVE)

Qualitative analysis of the collected data collected conducted in line with Tech's approach (De Vos *et al*. 2002: 343). The analysis revealed the following outcomes on how outsourced Science teachers contributed to the academic performance of learners. The results of the analysis emanated from the interviews conducted in line with the established four main objectives of this research study:

i) Documentary analysis on the significance of outsourced Science teachers on learner academic performance
ii) Determination of factors that inspire outsourced Science teachers to improve learner academic performance
iii) Exploration of the challenges outsourced teachers encounter in improving the academic performance of learners
iv) Creation of a model which schools can envisage for insourced Science teachers to use as well

4.3.1 Significance of outsourced Science teachers on learner academic performance

Document analysis which involves a review of literature, magazines, government gazettes, speeches and media as well as Grade 12 results of interviewed schools were intensively conducted on the significance made by outsourced Science teachers as follows:

The main reasons for outsourced teachers to immigrate into South Africa are, among other things, the country‘s democratic set up, economic prosperity, political stability and promise of better working conditions and income (Appleton, 2006b: 124). Outsourced teachers are thus compelled to deliver in the classroom to secure these benefits.

Document analysis evidenced that outsourced Science teachers’ performance in 2018 Grade 12 examinations is evident enough for their outspoken performance. The average percentage scores secured by four different clusters (Fig. 2.1 to Fig 2.4) is 21.4%, 40%, 55.8%, and 84.9%, respectively. About three quarter (75%) of the learners at surveyed schools secured passes while 25% of the learners failed. These scores are evident enough of excellent performance radiated by these teachers.

Document analysis on the significance of outsourced Science teachers revealed that outsourced Science teachers are doing tremendously well in South African schools. Limpopo MEC of Education, Hon., Boshielo, at the release of 2019 Grade 12 results on 8 January 2020, revealed that most top Science results were obtained in schools that are manned by outsourced teachers (Department of Education,2020: 4-5).

The majority of Grade 12 best performing schools in Science learning are garnered in in schools manned by outsourced teachers. This statement is corroborated by the confirmation by the MEC of Education, Honourable Boshielo, who articulates that schools with Science subject manned by foreign outsourced teachers in Limpopo performed exceptionally well in the 2019 examinations.

In all ten districts of the Limpopo Province, about 70% of schools that performed well in Science were manned by outsourced teachers. Inserra and Short (2016: 2) substantiate this assertion by revealing that professional Science teachers in poor countries migrate to countries with strong currency and work very hard for various reasons, such as protecting the status of education of their native countries as well as their personal integrity, hence produce good results.

Outsourced teachers are, by virtue of being immigrant self-disciplined, law abiding and adamant to serve the learners in a dedicated way. They do not shy away from their responsibilities as teachers even after school, on week-ends and holidays; thus serving the learners for 24 hours. This commitment is analogous to their output with their results ever atop (Inserra & Short, 2016: 2).

In the Limpopo province, as well, outsourced Science teachers have a good track record for producing the best Grade 12 results. Many schools in the Limpopo Province, which boast the best results in Science, are manned by outsourced Science teachers. Schools such as Mbilwi, Thengwe and Capricorn High Schools, just to name but a few are ever on the top echelon of the ladder insofar as Science results are concerned. Science teachers in these schools are just but foreign outsourced (Nengovhela, 2020: 2).

Outsourced Science teachers work collectively with other stakeholders such as parents, school managers, departmental officials and the business sector. Collaborative work simplifies school burdens for teachers as they just refer the problematic condition to the responsible stakeholders. Collective responsibility does not allow an individual teacher to own a problem because such a burden belongs to a group of people (collectivism

theory) (Blanchard, Masserot & Holbrook, 2014: 2). Collaborative approach makes outsourced teachers to be successful in their teaching endeavour.

Document analysis proved that Limpopo Province is second to none when it comes to the issue of concerning teachers' hard-work and their academic outputs. This Province had seen several its homebrewed teachers participating and receiving medals in the National Teachers' Awards as exemplified by Mr. William Mathipa, who secured the third place for Excellence in 2019 Physical Science Teaching and Mr. Linford Molaodi, who secured the first place for Excellence in Technology Enhanced Teaching and Learning in 2019 during the 19th National Teachers' Awards (Tsotetsi, 2019). The award winners curved a milestone to which many ambitious and progressive minded teachers in the Limpopo province aspire to achieve, including outsourced teachers who also hope to have their own day to celebrate in the programme.

4.3.2 Analysis and Interpretation of Contextual Data generated from interviews

This section presents data that were generated from interviews conducted with parents, learners, outsourced Science teachers, school managers, and curriculum advisors. The analysis was guided by the research questions and the purpose of the study on the significance of outsourced Science teachers on learner academic performance. The data gathered were coded and grouped into emerging themes and patterns.

4.3.2.1 Theme 1: Factors that influence outsourced Science teachers to teach effectively

Theme 1 sought to establish the factors that inspire outsourced Science teachers to teach effectively to improve learner academic performance. To establish these factors, focus was given on the following sub-themes: teachers' salaries, renewal of outsourced teachers' contracts, fringe benefits, improvisation of needs, extra lessons and learners' incentives and Annual National Teachers' Awards.

To cover these themes adequately, interviews were conducted with outsourced Science teachers, parents and learners on factors that inspire outsourced Science teachers to teach effectively, hence improve the learner academic performance

4.3.2.1.1 Responses of outsourced Science teachers on factors that inspire them to teach effectively to improve learner academic performance.

The following question kick-started the discussion: What are the factors that inspire you to teach effectively to improve the learner academic performance? The outsourced Science teacher-participants' responses included the following:

i) South African teachers' salaries

The study unearthed in line with Mona (2004: 4) that although homebrew South Africans teachers always engage the government dialogue for salaries, demanding salary increment outsourced Science teachers are gratified by the salaries they receive in South Africa; however the government must improve the salaries to retain ambitious best teachers. The reason for leaving their motherlands is the rand currency which is by far above many foreign currencies as well as the tranquility of the country due to its democratic setup. In this regard, respondents had these to say:

T1: South Africa has been inundated with calls of industrial actions including teaching profession, but outsourced teachers feel that their salaries in South Africa are by far above what they get in their native lands. South African teachers do not care for the learners' future but they care for themselves and their pockets. We feel gratified by receiving the department's offer.

T2 If the government is adamant about securing the best teachers in the country, they must improve these teachers' salaries and benefits. This government must improve teachers' salaries and benefits hence retain the best teachers' services for the ultimate benefit of the learner.

T3: We hardly participate in salary protest marches because South African rand value is by far higher than the value of our native lands' currency. We feel more gratified by

what we get here in here in South Africa which is far better than what we would be receiving in our native countries.

Outsourced Science teachers refrain from participating in salaries industrial action in line with Mona (2004: 4) and Section 9.6 of the South African Council of Educators Act (Act 31 of 2000) which provide that teachers should accept and comply with the procedures and requirements of the Council. The study further revealed that the South African homebrewed teachers do not hesitate to register their dissatisfaction with salaries through engaging in industrial action. The study further unearthed that although outsourced teachers refrain from participating in strikes, they do so technically in fear of being branded nonconformists and their refrainment from participating in strikes gives them enough time to interact with their learners. These sentiments are also supported by SACE (1999: 4-9) in clause 2.5 of the Teachers' Code of Conduct (Act 31 of 2000), which stresses that teachers must act in a proper and becoming way such that their behaviour does not bring the teaching profession into disrepute. In these regard interviewees responded:

T2: Insourced teachers may engage in strike as their right to do so. We however do not have any tangible reason to engage in strike as we are contractually employed and we do not have any privilege for teaching benefits. Besides, we cannot afford to abandon the child for picketing whatever reason.

T4: We hear people saying that the value of South African rand is weakening day-by-day. Teachers protest marches for demanding appropriate salaries in any country are justifiable. We do not abandon learners in the classrooms for picketing. We have to act in a proper and becoming way such that our behaviour does not bring the teaching profession into disrepute. In this regard, three participants said:

ii) Contracts renewal

This research study found that renewal of teaching contracts for outsourced teachers is one strong factor which obligates them to teach vigorously as the renewal of their teaching contracts depend on their classroom outputs. On this note, respondents said:

T5: The Limpopo Province Our province is faced with no other alternative other than employing hardworking outsourced teachers in scare skills learning areas such as Mathematics, Technology and Physical Science (DoE, 2020).

T7: We came a long way from our motherland and we are contractually employed, hence the renewal of our teaching contracts depends on the output and we are bound to work very hard to get our contracts renewed periodically.

T8: The problem of international policy rescinding employment of foreign nationals in countries other than their birth countries is a thorn in the flesh. Anyway, as long as South Africa does not have enough teachers, we are still going to secure some teaching spaces.

The study found in line with Hon., Boshielo, MEC of Limpopo Provincial Department of Education who indicated that that the Limpopo Province is faced with no other alternative other than employing hardworking outsourced teachers in scare skills learning areas such as Mathematics, Technology and Science (DoE, 2020).

The study further established that employment of outsourced teachers has been rescinded internationally. However, due to the incessant shortage of scare skills teachers, countries/schools may employ these teachers contractually with their contracts getting renewed periodically in line with their performance as well as the need to employ them further. This sentiment is corroborated by Davidson (2018: 2) who stresses that outsourced teachers are obliged to work very hard to secure extension of their employment contracts which are subjected to their output. On this note, three participants said:

T7 Contract renewal is totally dependent on our work performance, you perform poorly you get axed; hence we are obligated work harder than ever. I cannot allow a situation wherein I go back home without any achievement. I am thus duty-bound to work very hard, hence secure a contract renewal.

T8: We toil industriously to avoid being axed. I am not ready to be axed whatsoever, thus I work harder than ever to convince my employer so that he recommends for my contract renewal.

iii) Fringe benefits

The study established that fringe benefits do, among other things, inspire outsourced teachers to teach effectively. These teachers, while they often serve on contractual capacity, dream of acquiring the benefits which insourced teachers secure. These perks range from housing subsidy, car allowance, medical schemes, annual bonus and annual vacation leave, study leave, to family responsibility leave. These perks do not exclude service bonus, housing loan scheme, housing subsidy scheme, special leave, leave for urgent private affairs, maternity leave, sick leave, medical aid, defined-benefit, pension fund, retirement on medical grounds, resignation benefits and payment of pension to beneficiaries of a teacher who was a member of the Government Service Pension Fund (GSPF) at the time of his/her death as corroborated by Badenhorst (2003: 155) that outsourced teachers aspire to benefit from the wide range of benefits which are available to public workers in South Africa. On this issue, two participants said:

T9: We, although working on contractual capacity, dream of acquiring the benefits which insourced teachers enjoy. These are perks ranging from Government Service Pension Fund (GSPF) scheme membership, housing subsidy, car allowance, medical schemes, annual bonus and annual vacation leave, study leave to family responsibility leave. In the absence of all these incentives, outsourced Science teachers still continue to work effectively for the prosperity of the learner.

T10: I would first secure permanent citizenship status before I consider thinking of perks issue.

The study found that outsourced teachers crave as well for inspirational fringe benefits factors such as service bonus (Badenhorst, 2003: 155). However outsourced teachers feel gratified by their salaries. They receive perks which motivate them to teach more effectively. This response is substantiated by Section 9.6 of the South African Council of

Educators Act (Act 31 of 2000), which provides that teachers should accept and comply with the procedures and requirements of the Council. Once more, in line with Section 9.6 of the South African Council of Educators Act (Act 31 of 2000), the study revealed that on the question of teaching benefits for outsourced teachers, the majority of which do not qualify to get, cannot be their deep worry as they are content with their salaries. On this note, respondents said:

T11: As outsourced teachers, we are content with the salaries we receive because they are by far higher than what we used to get in our native countries, but getting perks would motivate us to be more productive. We still remain adamant to teach effectively as we feel satisfied with salaries we get.

T12: The salaries that we would be receiving in our native land are by far lesser than what we are getting here in South Africa. The salaries that we get are good enough and obligate us to teach effectively and productively.

iv) Annual National Teachers 'Awards

The study uncovered that Annual National Teachers' Awards is one factor that inspires outsourced Science teachers to teach effectively. These teachers hunger for their success to be inscribed in the history of the teaching career in South Africa by being afforded an opportunity to become recipients of the Annual National Teachers Awards. This is corroborated by Tsotetsi (2020) who accentuates that Annual National Teachers Awards is open to all teachers irrespective of their race and gender. In this regard, the respondents said:

T21: We feel challenged when we see our fellow Science colleagues and many other teachers participating in Annual National Teachers' Awards while we only sit and watch. We want our success to be written down in the history of the teaching profession in South Africa

T22: I crave to ascend the podium and receive an award on full public view. This could be a milestone, a gala moment not to forget in a life time.

This study established, in line with Tsotetsi (2020) that outsourced Science teachers are willing to participate in the Annual National Teachers Awards as a milestone, a dangling carrot to teachers whose ambition is to reach the top echelon of the teaching profession. Outsourced Science teachers are no exception, they should as well continue with their hard work so that they access such an opportunity as well and receive some awards and gain national and international popularity. In this regard, the respondents said:

T23: We feel encouraged as outsourced Science teachers to produce excellent results so that we secure an opportunity to participate in Annual National Teachers' Awards wherein the best teachers in various learning areas are awarded some favors.

T24: Yes, hard work will afford me an opportunity to participate in Annual National Teachers' Awards

4.3.2.1.2 Responses of parents on factors that inspire outsourced Science teachers to teach effectively to improve learner academic performance.

The responses of parents were solicited through individual face-to-face interviews on factors that inspire outsourced Science teachers to teach effectively. The following question initiated the discussion: What are the factors that inspire outsourced Science teachers to teach effectively?

i) Improvisation of needs

The study established that parents should assist teachers to secure funds for the services of the school, including security and transport of learners and teachers who are on study at schools; see (Van der Westhuizen et al. 2003: 24). This endeavour inspires both the teachers and learners to work industriously, hence secure better results. Members of the community should provide the needed resources to advance teaching and learning in

schools. Parents should ensure teachers' security at school and that transport is availed to teachers on duty when they leave school at night to their respective homes. This involvement inspires outsourced Science teachers to teach effectively hence advance the learner academic performance. On this note, two participants said:

P1: As SGB, we ensure that we support these teachers and improvise all their needs including transporting them from schools with their learners at night to their respective homes after night studies.

P2: We thus ensure that both the learners and teachers' needs are made available. We ensure that the learners have got transport to take them from their respective homes in the evening to school and back.

This corroborates literature which stipulates that parents should assist and support teachers in their areas of difficulty as partners in the education of their children (Pienaar, 2003: 271). Chartier (2005: 45) concurs that the SGB should improvise all necessities for teachers and learners engaged in studies at night as well as arranging security with SAPS members to take turns to monitor teachers and learners through moving around schools, especially during business times.

The research participants also indicated that parents should supply the schools with all the required stationery ranging from study guides, laptops, network data, printers, science apparatus and well equipped laboratories from the local business community (Van der Westhuizen et al. 2003:24). This effort inspires both the teachers and learners to become worker bees which eventually advance the results. On this note respondents had these to highlight:

P3: We assist these teachers by securing all the required stationery; we secure all these from the local business community, which improve the learner academic performance".

P4: We do not have problems with securing the learners' needs ranging from study guides to a well-equipped laboratory. We garner all these from our own local business community who deeply feel for these learners.

This view is supported by Kruger (2002:43) who maintains that parents should be involved in the education of their children through helping with the needed tools such as laptops network data, stationary and printers. The partnership between teachers and parents is central in raising the academic achievement of learners in Science subjects.

4.2.2.1.3. The responses of learners on factors that inspire outsourced Science teachers to teach efficiently.

i) Extra lessons as well as incentives for the learners

Focus-group interviews were conducted with learners in groups of six to eight learners each, on factors that inspire outsourced Science teachers to teach efficiently and produce the best results. The following question initiated the discussion: What are the factors that inspire outsourced Science teachers to teach efficiently to produce the best results?

The study established that outsourced teachers are workaholics who offer extra lessons after school, on week-ends and holidays for free. They do this because of their inspiration to pass the learners excellently to the next level. The outsourced teachers are inspired to work hard by the simple desire to see their learners attaining good scores in examinations. In this regard, participants said:

LG1: These teachers are workaholics who offer extra-lessons after school, on week-ends and holidays. Unlike many local teachers, outsourced teachers do this without demanding a cent from the schools' coffer.

LG2: Outsourced teachers offer extra lessons after school, on week-ends and holidays for free. They do this because of their inspiration of passing the learner to the next level excellently.

The inspiration of outsourced teachers to teach learners even outside the designated school periods for better outcomes is corroborated by Buys (2019), who advocates that

some teachers are motivated to teach effectively because of their inspiration to secure good passes.

The participants revealed that outsourced teachers teach exceptionally. In addition to conducting lessons outside scheduled times, they make sure that learners are incentivized. They organize incentives for best performing learners as a strategy to encourage them to continue engaging with their academic work. This kind of a benefit inspires all the learners to work very hard. In this regard, two groups of participants said:

LG3: Outsourced teachers are very exceptional to us. They are very courageous to all their learners. Once learners perform outstandingly in his learning area, he organizes incentives for them.

LG4: It is prudent for outsourced Science teachers to organize incentives for their best performing learners. This offer encourages inactive learners to work hard to receive the incentive as well.

The strategy to give incentives to high performing learners is supported with literature, which states that top learners should be rewarded for their best performance in line with Nduvheni (2020: 9), who reports that Gautrain Chief Audit Executive Mr. Livhuwani Phume rewarded the top 2019 Grade 12 leaners of Muhuyuwathomba Secondary school with a laptop. This ensures that the academic performance of learners is being supported and encouraged.

4.3.2.2 What challenges do outsourced Science teachers encounter which retard the learner academic performance?

4.3.2.2.1 Responses of outsourced Science teachers on challenges they face which retard the learner academic performance

Individual face-to-face interviews were conducted with outsourced Science teachers on challenges they face and how they deal with them to enhance learner academic performance. The following question initiated the discussion: ‘What are the challenges

that you encounter at schools and how do you deal with them to advance the learner academic performance?'

i) Poor resources

On the aspect of poor resources (lack of laboratory and equipment), the study established that schools are facing a daunting challenge of poor resources such as laboratories and equipment. At times teachers arrange with the District Science Centres and local universities to accommodate their Grade 12 Science learners at least twice a month to conduct experiments. Laboratories that are well equipped create favorable conditions for research and experimentation. On this view, participants had these to answer:

T32: Limpopo schools had for long been facing a big challenge of poor resources such as laboratories and equipment. These schools find a short term solution hence they to strike a short term solution by arranging with the District Science Centres and local universities to use their facilities by accommodating their Grade 12 Science learners at least twice a month to conduct experiments there.

Literature supports the method where by teachers arrange with better equipped institutions to conduct experiments with their learners. This endeavor is encouraged by the MEC of Education, Hon. Boshielo in the Limpopo Provincial Government: (2020:4-5), who holds that schools without proper Science facilities should strike arrangements with the local Science centers and universities (well furnished with Science resources) to take their learners for experimentation.

Teachers need to conduct artificial experiments with learners in situations of grave shortages of resources and equipment. It is imperative that teachers should improvise or apply innovative means to ensure that experiments are done even in conditions of scarcity. This is usually possible in cases where teachers are very knowledgeable in the content of teaching. The study established that schools are obligated to perform artificial experiments using any available devices. Two respondents said:

T34: Yes, our schools indeed experience a dire shortage of Science equipment. This problem cannot be solved overnight. We as Science teachers with deep knowledge of learning area's content, devise some means of performing artificial experiments using any available devices.

T35: On the shortage of equipment Science teachers should be innovative enough to perform artificial experiments using any available tool.

The use of innovative means to conduct experiments using ant available materials corroborates the view by the MEC of Education Hon. Boshielo in the Limpopo Provincial Government: (2020: 6), who postulates that Science teachers should be innovative to create artificial experiments in the absence of apparatus. They should not just sit back and bemoan the shortage of equipment without making efforts to address the situation.

ii) Shortage of text books:

The study revealed that in the wake of textbooks shortage, especially in the light of the newly introduced curriculum, known as Curriculum and Assessment Policy Statements (CAPS), teachers and learners may use study guides developed and distributed by the Provincial Department of Education. Teachers are to use available study guides and to utilise the period for recess to ensure learners are acquainted with the contents of study. At times the textbooks are delivered late or fail to be delivered, thereby affecting teaching and learning. In the absence of text books outsourced Science teachers can use study guides to teach their learners. In this regard, participants responded:

T37: Textbook shortage and late delivery of these text books have been a thorn in the hearts of education-minded citizens. There has been an outcry of non-delivery of text books to schools Teachers and learners are now vulnerable to use any document in the absence of new text books.

T8: Text books shortage prompted the Department of Education to develop and distribute study guides for terms 1 and 2, and also requested teachers to conduct lessons during the spring recess using these guides

The shortage of text books and subsequent use of study guides during spring recess is supported by literature, which postulates that the Department of Education developed and distributed study guides for terms 1 and 2, and teachers conducted lessons during the spring recess using these guides (Limpopo Provincial Government: 2016: 4-5).

iii) A shift of curriculum

The research study established that the shifts in curriculum of the South African Education System are abnormal, that is, from Curriculum 95, OBE (Outcomes-Based Education) and Curriculum Assessment and Policy Statement (CAPS) in less than 16 years. These periodic changes of curriculum must enable teachers to go for in-service training to familiarize them with the logistics of the new curriculum. While the Department battles with the preparation of textbooks in line with the new curriculum, there must be study guides for learners and teachers' handbooks which would fast track and keep teaching and learning on-going. Outsourced Science teachers do not have problems with the new curriculum as they sit down even before going for training and scrutinize the new curriculum and possess it. For them the training is just but a formality because they would have mastered the new curriculum and its contents. In this regard the respondents said:

T39: A shift of curriculum is another challenge which draws back teaching and learning. Curriculum changes in South Africa have become the order of the day. The country has seen curriculum shifting more than three times in two decades. Teachers have to be trained to adjust with the new curriculum.

T40: Curriculum shift is too taxing on the side of the learner development. While teachers are getting trained learners are left on their own at schools. The issue of using study guides from the Department of Education as well photocopied text books is inconveniencing as these are mere papers which easily fade and get lost.

4.3.2.2.2 Responses of parents on challenges faced by outsourced Science teachers

Individual face-to-face interviews were conducted with parents on challenges outsourced Science teachers face in improving learner academic performance The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter to advance learner academic performance?

i) Shortage of text books

The study revealed that the question regarding the shortage of text books can be addressed by organizing campaigns (jointly with parents) targeting different capable community members and the local business sector to fundraise for the learners' text books, as well as the teachers' handbooks and study guides, and photocopying previous question papers and memoranda for the learners. The campaigns should target all possible funders in towns, farms and villages. Parents should also be incorporated to participate in raising funds to procure learning materials and equipment." Under normal circumstances, it is the onus of the Provincial Department of Education to improvise text books for learners as well as the teachers' handbooks but it is unable to fulfill this obligation. On this note, participants said:

P16: This province had for years suffered severe effect of text books shortage.

P17: The question of text books shortage might be solved by a joint venture of all the stakeholders in education staging a fundraising campaign to the business sector as well as the middle class citizens in the community.

P18: Business sector and community members should be consulted in an effort to fundraise for textbooks shortages. The campaign should embrace local businesses including towns and farms and surrounding villages.

This effort is supported by Mabuza (2014: 8) who accentuates that the community members and business sector should be involved into campaigns to fundraise for the learners' text books, teachers' handbooks, study guides and photocopying previous question papers and memoranda for the learners which lead to the improvement of the learners' academic performance.

ii) Corruption

The study established that corruption is a stumbling block to the learners' progress and officials who halt the supply of learners' text books to schools should be arrested and prosecuted. It is common place that some government officials disrupt the distribution of study materials either through delays or non-delivery of critical resources. This effectively affects teaching and learning in schools, and subsequent poor performance of learners in examinations. On these findings, participants said:

P22: Our country is inundated with outcry of corruption and this seems to be falling in deaf ears. Corruption is a stumbling block to the learners' progress.

P23: Arresting corrupt officials who halt the supply of learners' text books to schools is a key to eradicate this delinquency. Corrupt officials involved in non-delivery of text books to schools must be arrested, prosecuted and upon conviction be given a corrective sentence.

In relation to corrupt practices, Baker (2000: 109-16) observes that education management needs to do everything at its power and disposal to address corrupt practices in schools by teachers and government officials who halt the supply of text books to schools..

The study showed that there is need for the government to take drastic measures to ensure corrupt officials are apprehended and brought to book. There should be no tolerance of corrupt practices. Once perpetrators are arrested, lengthy sentences should

be meted out to as a means to nip the practice in the bud. The culprits need to be expelled from their posts and given long sentences. In this regard, respondents stated:

P24: It is high time that the government stands up to take a zero-tolerance stance against corrupt people and protect the victim by imposing longer sentences on the perpetrators.

P28: The government should exercise a zero tolerance stance by arresting, sentencing after conviction of corrupt officials and expel them from their posts, lest corruption in this country shall not stop.

According to Baker (2000: 109-16), the government needs to take a zero-tolerance stance against corrupt teachers, government officials and community members by protecting the victims and hammering the convicted perpetrator by imposing harsher sentences on them. This is corroborated by Kleyn and Viljoen (2002:143), who postulate that the government should take a zero tolerance stance and impose harsher sentences on corrupt officials who have been convicted on corruption charges.

iii) Poor discipline

The study established that poor discipline is another challenge faced by outsourced Science teachers in the classroom. Ill-disciplined learners enjoy disturbing committed learners in the classroom through noise making, flirting, and acting negatively in a destructive manner. This misbehavior could be corrected by imposing work assignment or any punitive labour to them. On this evidence, participants responded:

P29: Poor discipline is another drawback faced by outsourced Science teachers in the classrooms. Some learners just enjoy disturbing committed learners in the class through acting negatively in a destructive manner.

P30: Poor discipline is equivalent to poor results at school. Teachers should however exercise their professional mandate as teachers for calling the

learner to order; they may use the learners' code of conduct which enshrines all offences and their disciplinary measures.

Learners who are ill-disciplined must be corrected based on available code of conduct to ensure transparency. This is supported by literature which states that work assignments must be imposed on misbehaving students as a means of correcting their ill-discipline which in turn advances the learner academic performance (Sohnge, 2003: 37) .

Throughout this research mention was made in line with Section 8 (1) of the South African Schools Act (Act 84 of 1996) that schools need to formulate and adopt a code of conduct for learners which prescribes behavior that is respectful towards learners' rights. The aim of the code of conduct must be to establish an environment which is disciplined and purposeful as well as to facilitate effective teaching and learning in schools hence advance the learner academic performance. On this premise, participants said:

P31: Schools should formulate and adopt a code of conduct for the learners which prescribe behavior that is respectful towards learners' rights.

P32: The schools must formulate a learners' code of conduct which aims at establishing an environment which is disciplined and purposeful as well as to facilitate effective teaching and learning in schools.

Mention was made in the study in line with Education Law and Policy Handbook (2001: 17) which maintains that as a means of curbing ill-discipline, good behavior should be rewarded as well by potential donors from business sector through handing out ribbons, T-shirts, baseball caps and tote bags to recompense well behaving learners and reinforce good behaviour hence improve the learner academic performance. On this note, respondents said:

P34: Ill-discipline could be addressed by rewarding good behavior through handing out ribbons, T-shirts, baseball caps and tote bags to recompense well behaving. This

reward dangles for the poor disciplined learners to behave themselves well hence be afforded the rewards as well.

The participants established the need for learners' code of conduct in schools in line with Section 8 (1) of the South African Schools Act (Act 84 of 1996) which accentuates that governing bodies are authorized to maintain discipline in schools by adopting a Learners' Code of Conduct relating to learners which enjoins teacher behaviour that is respectful of learners' rights. This view is further reinforced by Department of Education, Arts, Culture and Sport (2001: 20) which urges that school governing bodies should draw up a code of conduct for learners after a full consultation and negotiation with educators, learners and parents; and all students should be thoroughly conversant and compliant with. Such compliance is sure to eliminate the problems related to ill-discipline. On this note, three participants replied:

P36: *For schools to curb poor discipline, the SGB should adopt a Learners' Code of Conduct relating to learners which enjoins teacher behaviour that is respectful of learners' rights.*

P37: *School governing bodies should draw up a code of conduct for learners after a full consultation and negotiation with educators, learners and parents; and all students should be thoroughly conversant and compliant with. Such compliance is sure to eliminate the problems related to ill-discipline.*

4.3.2.2.3 Responses of school managers on challenges faced by outsourced Science teachers

Individual face-to-face interviews were conducted with school managers on challenges faced by outsourced Science teachers. The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter to advance the learner academic performance?

i) Poor parental involvement

The research study established that parental involvement is an important tool for the academic welfare of the learner, but this involvement is very poor in South African communities. The parents should be deeply involved in the education of their children and they should be true partners with other stakeholders in all educational matters. The involvement of parents as equal partners in education of their children by outsourced Science teachers advances the learner academic performance hence escalates their output to the top echelon of Grade 12 results. These teachers visit parents at their homes to encourage them to participate in buying needed materials as well as encourage them in school work. On this note participants said:

SM1: We as school managers have realized that parents are not motivated to participate or involve themselves in the welfare of their children at schools. Parental involvement is very poor in our communities.

SM2 Parental involvement is very vital for the welfare of their children. Parents should be recognizes as equal partners in education.

The involvement of parents in the education of their children is supported by literature as Kruger (2002:43) and Clause 4.1 of The Educators' Code of Conduct (Act 31 of 2000) accentuates that parental involvement is very vital for the welfare of their children. Parents should be recognizes as equal partners in education.

The research study found that teachers alone cannot fulfill the education task completely. Teachers have to be assisted by parents to undertake their difficult tasks. At times these parents do not know how they chip in regarding the education of their children, as such, teachers and the education department must come in to encourage and embrace their involvement. On this evidence, participants said:

SM3: Parents could be willing to involve themselves in the education of their children, but they do not know how. It is the responsibility of both the

government and teachers to familiarize parents with and actively involve them in the school activities of their children.

SM4: Parents should work and assist the teachers in their difficult tasks and their involvement in the education matters of their children should be improved. The Department of Education and the private sector must empower parents with appropriate training.

Parents should be encouraged to work and assist the teachers in their difficult tasks and their involvement in the education matters of their children should be improved. This is supported by Calitz et al. (2002:119) who postulates that the Department of Education and the private sector must empower parents with appropriate training. The implication is that teachers cannot work successfully in the education of learners without the needed support from their parents.

The study established that forging strong partnership with parents benefits the schools largely. The parents may need to be trained to work appropriately with educators and other stakeholders in the education of learners. There must be a symbiotic relationship between parents and teachers. On this note, participants said:

SM5: Strong partnership with parents should be forged at schools as it benefits the school largely. Teachers and parents must be trained and work together.

SM6: Teachers must be assisted and supported in their most challenging and difficult task by enlisting parents as partners in education. Parents and teachers should pose as one entity to the learner.

The partnership between parents and teachers should allow teaching and learning to be prospered. Literature concurs with this view as Pienaar (2003: 271) highlights that teachers must be assisted and supported in their difficult task by enlisting parents as partners in education.

ii) Overcrowding

The research study found that overcrowding is a big problem in teaching and learning and for schools to attain good passes they must establish a conducive atmosphere. Teachers tend to teach learners in small groups for experimentation, at times, even after normal working hours. This makes teaching amd learning successful to allow for a positive academic performance of learners. Two respondents said:

SM7: Overcrowded classrooms are very detrimental to the success of the child. This does not augur well for the success of the learner. Learners in overcrowded classrooms hardly concentrate on the lessons but instead they engage in petty stuff such as quarreling, stealing and playing.

SM8: In an overcrowded classroom, outsourced Science teachers ascertain that their learners are taught in small groups, (especially during experimentation times) prolonging their teaching time to the afternoon study time.

The overcrowding of classes is detrimental to the successful teaching and learning at schools. This is confirmed by Ijaiya (1992:1) who maintains that teaching Science successfully can only be attained when lessons are dished in a lesser overcrowded environment or laboratories which are adequately furnished with Science equipment. This state of affairs hinders the teaching of Science in the province.

The study further established that it is not the responsibility of the government alone to build the required school structures, but parents as well should be involved in this endeavour. The business community, together with parents have to make concerted efforts to assist in the learning of children through the provision of teaching materials, resources and erecting the requisite infrastructure. Teachers need to liaise with relevant stakeholders to facilitate fundraising activities and keeping up to schedules in the development of the desired environment. Two participants said:

SM9: One unnerving challenge faced by outsourced teachers is overcrowding. Science learners need adequate space and proper laboratory and equipment to perform practical teaching genuinely. This is not the case in many South African schools

SM10: To alleviate overcrowding outsourced Science teachers advise stakeholders to fundraise from business community hence secure funds to erect structures and alleviate overcrowding.

The challenge of overcrowding in Science classes which impedes the performance of learners is witnessed in most schools in the Limpopo Province. That parents should play a part in education of their children is attested to by Kruger (2002:43) who avers that parents must stand up and fundraise for their schools from the local business community.

iii) Poor resources and infrastructure

The study established that South African learners are vulnerable to the scorching sun and excruciating cold weather seated under the trees as their only classrooms. Outsourced Science teachers champion this situation by convincing stakeholders to go all out to fundraise from individual rich people to donate money for erecting classrooms. On this note, respondents said:

SM11: It is pathetic that in this Forth Industrial Revolution Era a learner would be greeted by a soil floor under tree classroom. The poor child would suffer humiliation of the dust, scorching sun and excruciating cold. This happens in the wake of the country's immeasurable wealth.

SM12: It is high time that the government, parents and business sector should stand up and ensure that classrooms are erected as a matter of urgency.

Literature states that to remedy poor resources and infrastructure, the government, parents and the business sector should stand up and ensure that classrooms are erected as a matter of urgency (Nengovhela, 2020:1). This is corroborated by Mac Bride (2013:4)

who highlights that committed international donors such as Oprah Winfrey who changed the crumbling Vele Secondary School in Vhembe District into a state of art school could be roped in for larger projects sponsorship.

The study uncovered that international magnate donors should be consulted and be rallied around to secure donations for bigger structures. This is designed to alleviate the challenges that teachers and learners endure in their quest to attain better performance at school. Learners sometimes have to walk long distances and cross rivers to attend classes. In others schools lessons are held inside buildings with roofs that were blown off by the wind or cross rivers where bridges were washed away by floods. On this note participants said:

SM15: South African scholars suffer a severe challenge of heading to school on foot where they have to cross the rivers without any bridge infrastructure. Parents are forced to escort their children to help them cross the rivers

SM16: Learners predicament could not be limited to the washed away bridges only but to be extended to the blown up roofs of the school structures. This harsh situation confuses the learners as well as the teachers, not knowing what to do.

The challenges of infrastructure are confirmed by Mac Bride (2013:4) who postulates that stakeholders and the government should pursue foreign donors and moguls to improvise infrastructures such as road bridges and blown out classrooms.

The study also found that stakeholders should work collaboratively in an effort to secure resources which obligate teachers to stay put at schools teaching the learners. Schools which are well resourced encourage teachers to spend most of their time in the school premises. This is what outsourced teachers do. It is through the collaborative work of parents, teachers and other stakeholders which ensures that schools are learner friendly. On this note, participants said:

SM17: Stakeholders should work hand-in-hand and collaboratively to secure resources which compel teachers to stay put at schools teaching the learners. This obligates teachers to teach effectively as they are ever at schools with the learners.

SM18: Parents should improvise resources for their learners at schools which enhance teachers to teach effectively and committedly. Well resources and apt equipment obligates teachers to stay put at school with learners.

The importance of improvisation in the teaching of learners is reinforced by Tsotetsi (2020) and Van Ameron (2005:67) who postulate that parents should improvise resources for their learners at schools which equips teachers to teach effectively and committedly. This implies that there will not be teaching time lost as arrangements are always put in place to teach using whatever possible is available.

4.3.2.2.4 Responses of curriculum advisors on challenges encountered by outsourced Science teachers

Individual face-to-face interviews were held with curriculum advisors on challenges encountered by outsourced Science teachers which hinder their efficiency. The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter as which hinders their efficiency?

i) Periodical renewal of contracts

The study found that the rescinding of employment of foreign nationals world wide is a blow to South Africa. This means that foreign teachers employed in South Africa are forced to work harder to convince their employers to retain them. To these teachers, the pressure to have their contracts renewed is of the paramount importance; hence they become workaholics and experts in their learning areas. One participant said:

CM1: All foreign nationals are contractually employed and their contracts should be renewed periodically. Unfortunately the position now is different as employment of foreign educators has been rescinded, not only in South Africa but worldwide.

CM2: The international policy on withdrawal of employing foreign nationals in other countries has severely affected teaching and learning, especially in scare skills learning areas such as Physical Science.

The rescinding of employment of foreign nationals worldwide is a blow to South Africa and worldwide (Davidson, 2018: 2). The policy cannot be honoured as the shortage cannot be closed as homebrew teachers migrate to industry and other private sectors. This leaves the employer with no choice but to keep on renewing foreign teachers' contracts *(Davidson, 2018: 2).* This implies that employment of foreign nationals in Science in South Africa shall not come to an end, today tomorrow and forever. In this regard participants said:

CM 3: Wow! These people have been doing well in our schools and we do not know how to replace them because South African homebrewed Science teachers migrate to industry and other private sectors in pursuit of greener pastures.

The study found that outsourced Science teachers are not happy with periodical renewal of their teaching contracts. They instead need to be employed permanently. Due to them being bona fide professionals, they remain dedicated and committed to their job despite the uncertainty of their fate as teachers. To them the learner comes first and the rest may then follow. On this note, one participant said:

CM 4: Periodical renewal of outsourced teachers does not augur well insofar as the learner's welfare is concerned. We cannot expect a teacher to perform well knowing fully well that his contract is on the verge of expiry.

Nonetheless these outsourced teachers, ignore all the demerits and focus on prospering the learner.

Despite the uncertainty which is created when contracts of outsourced teachers are on the verge of expiry, these teachers accept their situation and remain dedicated to their work. This sentiment is echoed *by Mona (2004: 4),* who states that teachers should accept and comply with the procedures and requirements of the Council. This explains the resilience of outsourced teachers, who continue to give their all in the face of uncertainties resulting from contractual issues.

The study further unearthed that foreign nationals are not happy with the pronouncement that they will no longer be employed in state schools as they have no citizenship. They have to be employed in private schools where their contracts are renewed quarterly and which can be terminated at any given time. This new international policy does not augur well for outsourced teachers. But in fear of losing their jobs, they are obligated to work harder than ever. In this regard, participants said:

CM 5: A prominent challenge of outsourced Science teachers is their employment stoppage in public schools and endorsement of their employment in private schools. In public schools renewal of their teaching contracts is done periodically and this depends on their output which obligates them to work harder than ever in fear of losing their beloved jobs.

Davidson contends that (2018: 2) that no foreign teacher shall be employed in state schools of any country other than his/her native land. Private schools may employ them but they are not going to get visas for such employment. This is the confirmation of literature regarding the international proclamation rescinding the employment of foreign nationals.

ii) Xenophobic attacks

The study established that Limpopo is foreigner-friendly as opposed other provinces with sporadic incidents of xenophobic attacks. In Limpopo, communities embrace foreign

nationals they even vouch to protect them in the wake of xenophobic attacks. This foreigner friendly statement assured foreigners including outsourced Science teachers to feel at home in Limpopo hence teach effectively. On this regard, participants said:

CM 6: This province is foreigner-friendly as opposed other provinces where there are sporadic incidents of xenophobic attacks. Communities embrace us a warm welcoming as their children's mentors. All community members ranging from parents to learners are very friendly to us and they even vouch to protect us in the wake of senseless xenophobic attacks.

This endeavor is in line with Vandeyar (2014: 2) who holds that foreigners in Limpopo should not be threatened by sporadic incidents of xenophobic attacks, as the MEC of Safety and Security issued a stern warning against the attackers.

The study established that communities should embrace and love foreign teachers and offer them security and residence. The community should be friendly and protective of foreign nations as some of them have scarce skills which are on demand in the country. As such, they should be provided with security and accommodation to enable them to share their skills with the community.. On this view, participants said:

CM 7: We love foreign national teachers as they man scare skills subjects such as Science and Maths. The community is obliged to offer them residence and security right on their arrival.

CM 8: Community should care for and love outsourced teachers as they do to their children. We workshop parents and learners to accommodate and love foreign outsourced teachers as their fellow citizens. We provide them with shelters and security as priorities.

The need to appreciate foreign nationals is supported by Maluleke (2019: 2) who emphasizes that communities should support, protect and offer residences to foreign

national scare skills teachers who are employed at their schools respectively to enhance their teaching and output. Bheki Cele, Minister of Safety and Security who urged that communities and police forums should ensure the safety and security of foreign nationals in all South African provinces; hence they will stay and work peacefully and productively in in this country, see Kruger (2002: 43).

iii) Lack of laboratory and Science apparatus

The study established that teaching Science without laboratory and equipment is a setback which renders teaching efforts useless. In some schools there are no well-equipped laboratories or conducive infrastructures to facilitate exploration and experimentation. Teachers have to do artificial experimentation and conduct their studies in buildings which are either damaged or under trees. On this note respondents said:

CM 9: Shortage of laboratory and equipment is another setback against securing a sound success by learners in Science. The department is gradually striving to attain laboratory and equipment for Science learners; provisionally, artificial experimentation could be the solution and this is what outsourced Science teachers could be using.

This finding corroborates the views of Hon. Boshielo (2020: 5), who shares the participants' sentiments that the Department gradually strives to attain laboratory and equipment for Science learners; provisionally, artificial experimentation could be the solution and this is what outsourced Science teachers could be using.

The study found that the teaching of Science is affected by lack of requisite resources and equipment. Teachers rely on improvisation but they can organise with nearby science centres and universities which are well equipped, so that they conduct experiments in a conducive environment. On this aspect participants said:

CM10: A major challenge faced by our school is the lack of laboratory and Science apparatus. To alleviate this malady, we agree with our teachers and parents

to take the learners to the nearby well equipped nearby Science centres as well as universities to perform experiments.

Buys (2019) postulates that schools must take their Science learners to the nearby Science centres as well as the local universities where there are advanced resources, wherein they can conduct experiments with ease, which advances the learner academic performance. On this note, participants said:

CM11: Jointly with parents and other stakeholders, outsourced Science teachers encourage and commit their learners to exchange programmes in which they enjoy new faces and new environment.

Literature reveals that learners' exchange programmes are inspirational to teachers, motivational and vital to the learner's welfare as they gather knowledge from the new environment with new faces and new set-up (Buys, 2019). This attests to the importance of involving learners in exchange programmes to boost their understanding of concepts.

4.3.2.3 Research question 4: What model could be created which schools can envisage for insourced Science teachers to use?

4.3.2.3.1 Responses of outsourced Science teachers on a model to be created to improve their learner academic performance

Individual face-to-face interviews were held with outsourced Science teachers on a model to be created which schools can use to improve their learner academic performance as well.

The following question kick started the discussions: "What model would you create which schools can use to improve their learner academic performance?

i) Refraining from participation in teachers' strikes

The study established that teachers should refrain from participating in teachers' strikes which makes outsourced teachers to be always in touch with their learners. Outsourced

teachers are always in the classroom mainly to teach and develop the learner. They vouch to accept the salary that the employer offers them with great satisfaction hence focus on teaching the learner. Although it is the teachers' right to engage in industrial action, they should think of the future of the innocent child before embarking on the strike. On this note participants said:

T34: My created model would embrace cautioning Science teachers to refrain from participating in strikes and advise them to accept what they are given by the employer.

T35: The model should embrace advising the d teachers to love children so that they consider them before embarking on industrial action.

The need for teachers to refrain from strikes is supported by Section 9.6 of the South African Council of Educators Act (Act 31 of 2000) provides that teachers should act and comply with the policies and procedures of the Council which maintains that bona fide teachers should have the love of the child right deep at heart, and on the same breadth they must cultivate a boundless love for all their learners, hence refrain from leaving the for picketing. This is crucial to increase teaching contact between teachers and learners.

ii) Abstinence from extra-income routines

The study established that bona fide Science teachers should totally refrain from amassing wealth after school or during the week-ends, and instead should teach the learners on these days as well. They have to focus on the learner's development and welfare throughout the year, thus increasing the chances of yielding the best results. Teachers are employed 24 hours a day, and as such they should not engage in professional duties for extra income. In this regard participants said:

T36: Science teachers should abstain from any means of collecting wealth after school or during the week-ends. We should opt to teach the learners on these days as well.

T37: Engagement of teachers after school and on weekends for extra-income routine deprives the learner of his/her right to learn as the teacher is employed for 24 hours a day for 365 days.

The emerging trend form the findings is that teachers should stop providing lessons to learners after school and during week-ends as they are employed 365 days a year. This is supported by Masitsa (2011: 167) who maintains that engaging in other extra-income routines during school hours deprives the innocent learner of his right to learn, hence suffer the consequences as the sole victim of the situation. Teachers should focus solely on delivering instruction to students without additional pay.

iii) Organizing incentives for learners:

The study established that outsourced Science teachers should organize incentives for the best performing learners which serves as a very strong motivation. They should solicit these incentives from the local business community and individual community tycoons. Two participants said:

T38. As a model envisaged for the schools for insourced Science teachers to adopt, outsourced Science teachers organize incentives for the best performing learners which serves as a very strong motivation.

T39: Outsourced Science teachers solicit these incentives from the local business community and individual community moguls. When the learners receive these incentives, they then feel more honoured hence become encouraged to study very hard.

This finding is supported by Nengovhela (2020:5) who reveals that the best performers must be rewarded by any form of a benefit. This implies that performance incentives are crucial for learners who are motivated to continue doing even better in their studies.

4.3.2.3.2 School managers on a model to improve learners' academic performance

Individual face-to-face interviews were held with school managers on a model to improve learner academic performance.

The following question initiated the discussions: "What model would you create which schools can use Science teachers to improve learner academic performance as well?

i) Rapport/friendship with other teachers

Participants revealed that insourced teachers should socialize with outsourced teachers and other stakeholders. There must be a very strong chemistry between these teachers who should keep on sharing ideas. Teachers should love and support each other for the sake of learners. Respondents said:

SM22: Insourced teachers should be friendly with outsourced teachers and other stakeholders. They must establish a strong relationship with each other and they must keep on sharing ideas.

SM23: Insourced teachers should adopt a collaborative work approach with other teachers and stakeholders. These teachers should love and support each other. Through this approach, success of the learner is ensured.

It emerged that teachers should form partnerships in schools to facilitate the sharing of ideas. This collaboration should entail between insourced and outsourced teachers. Literature support this stance as evidenced by Maluleke (2019:1), who postulates that teachers should form a united front and work collaboratively to rear the child whose future lies in their hands.

ii) Learners' study groups

In response to study groups school managers pointed out that Science teachers should encourage learners to study in groups and take them to the laboratory in their respective groups as well. The groups must work together, share ideas and concerns collectively which promotes a collective approach to learning. Respondents said:

SM24: The model that outsourced teachers employ is among other things encouraging their learners to form study groups. These learners develop a sense of collective approach to their work and encourage each other to study very hard.

SM25: The learners develop a sense of love and competition amongst themselves which encourages all group members to study deeply. During group study, problematic areas are reserved for the outsourced teacher when he/she avails him/herself to the learners.

The primacy of group work in the academic performance of learners is is echoed by Mmako, (2018: 6) who upholds that learners' collaborative approach to study is of paramount importance for their success. This strategy allows learners to assist each other as they work cooperatively to solve problems.

iii) Fundraising for teaching aids

The study highlighted that insourced teachers should follow outsourced teachers' means of securing teaching aids. This can be done through consultation with parents who then jointly fundraise through the business sector for materials such as calculators, overhead projectors, laptops, network data, printers, study guides and apparatus.. Respondents said:

SM26: As a model to envisage for insourced teachers to copy, outsourced teachers must secure teaching aids through consultation with parents to fundraise from business sector.

SM27: Insourced teachers should consult the relevant stakeholders to fundraise for teaching aids such as calculators, overhead projectors, laptops, network data, printers, study guides, Science apparatus, teachers' handbooks and photocopying previous question papers from the local business sector.

The essence of fundraising for effective teaching of learners is reinforced by *Vandeyar (2011: 232),* who posits that schools should fundraise for resources such as laptops, network data, printers, overhead projectors and Science apparatus, improvising teachers' handbooks and photocopying previous question papers from the local business sector.

4.3.2.3.3 Parents on a model to improve their learner academic performance

Individual face-to-face interviews were held with parents on a model to be created to improve learner academic performance.

The following question kick started the discussions: "What model would you create which schools can use Science teachers to improve their learner academic performance as well?

i) Interacting with learners in their homes

The study revealed that the model to be should enable teachers to understand their learners' backgrounds. This should be done by visiting their learners' homes to understand the individual learner's situation. This would allow teachers to have a fuller understanding of the learners' social life and establish a mutual relationship with their parents. Interacting with learners in their homes is a key to enhance learner performance. Respondents said:

P27: If truly insourced teachers want to succeed as outsourced teachers do they should as well establish their learners' backgrounds by visiting their homes in quest to understand their social lives at home which might be of assistance in solving study problems attached to individual learners.

P28: Bona fide learner-minded teachers strive to know and understand their learners' home backgrounds including their family setup/situation which might warrant social services and psychological intervention.

P29: Teachers who are mindful of their learners establish their learners' home background and where necessary seek professional intervention of social workers and psychologists to alleviate some problems in the families.

Participants accentuated in line with Kruger (2002: 48) who suggests that bona fide child loving teachers dig deep down to understand their individual learners' environment by visiting his home and know the learner's situation at breadth, and if needs be, they may secure professional intervention of social workers and psychologists.

ii) Science experimentation

The study esteemed that the model to be created should include fundraising for Science kits for experimentations from the business sectors as well as the communities' elites. Parents are invited to fundraising meetings and told about the need for Science apparatus and kits for experimentation, wherein some parents donate funds for this endeavour right on the spot. Furthermore, some parents would voluntarily ask quotations for all the needs, hence buy whatever the school is lacking.

P30: As parents, we are obligated to advise insourced Science teachers to consult us and fundraise for Science kits for experimentations. We go all out to consult business sectors as well as the communities' elites in pursuit of funds to buy Science kits and equipment for experimentations. We want our children to be taught genuinely.

P31: As a model for schools to envisage for insourced Science teachers to enhance their learner academic performance, we invite parents to the meetings and divulge to them the need for Science apparatus and kits for experimentation. Parents usually donate funds for this endeavor right on the spot hence secures the required Science stuff.

P32: Yes, situations differ, at certain occasions during parents meetings, some parents would voluntarily ask quotations for all the needs hence buy whatever the school is lacking.

Parental involvement is supported by Kruger (2002:43) and Clause 4.1 of The Educators' Code of Conduct (Act 31 of 2000) which maintain that parental involvement is very vital for the welfare of their children. Parents should be involved in the entire education life of the learner, inclusive of life at school as well as the academic life while at home.

iii) Forging friendship with parents

The research study indicated that the relationship between teachers and learners should be good. Science teachers should forge good relationships with parents, hence smoothening the teaching and learning atmosphere at school. The study further endorsed good rapport between teachers and parents as a key to the learner's success. A warm relation between teachers and parents leads to sound teaching and learning.

P33: We as parents should not be sidelined in matters that relate to the education of their children. Teachers cannot progress smoothly without involving parents in the education of their children.

P34: Forging friendship between parents and teachers is vital to the learners' success. Science teachers must forge a very strong friendship with parents.

P35: We should be seen as official partners in the governance of their children's welfare at school; hence they should be deeply involved in education of their children. Involving parents in education of their children amounts to forging strong ties between parents and teachers hence safeguarding the welfare of children at school.

The importance of parents in the education of their children is supported Vandeyar (2011: 232) and SASA (1996: Section 18) where parents are identified as the official partners in the governance of their children's welfare at school, hence they should be incorporated in the education of their children.

4.3.2.3.4 Responses of curriculum advisors on a model created to improve the learner academic performance

Individual face-to-face interviews were held with curriculum advisors on a model to be created to improve learner academic performance.

The following question initiated the discussion: “What model would you create which schools can use Science teachers to improve learner academic performance?”

i) Engaging veterans as motivators

The research study highlighted the importance of engaging veterans in motivating the learners in their studies as a vital tool. Science teachers should learn from outsourced teachers who engage veterans in motivating their children academically. The veteran educators have the wealth of experience in education which they can readily share with children. These also tend to be enthused by invitations which require them to demonstrate their expertise. These professionals tend to be elated when afforded a latitude to address the learners on their future in education. Participants said:

CM7: Schools cannot progress well without involving veteran teachers as the learners’ motivators. Veterans who have amassed voluminous experiences in education are the right professionals to stand in front of the learners and motivate them about their future life/careers through education. These veterans are very relevant to be afforded this platform because they are well informed academically.

CM9: Veterans are inevitable in any healthy teaching and learning environment. Schools should engage these academic think tanks in education of the learners. They should be invited to schools to motivate the learners on their unknown and unpredictable future.

Interviewees concurred with Maluleke (2018: 2) who postulates that schools which are success-minded involve veteran motivators to give courage to the learners about their

future in education. This presents veteran educators as pivotal in the academic achievement of leaners.

ii) Revocation of employment of foreign national teachers

The research study found that employment of foreign nationals in any country in the whole world has been revoked. This is an international policy which rescinds employing of foreigners including teachers in any country other than their birth land. This means that no matter what Province in the country, foreign teachers cannot be employed in State Schools. This is a setback in the country which still has not managed to train adequate manpower in scarce skills in science. The policy however, allows SGBs to engage foreign teachers who they pay using school coffers. This decision may bring relief to South Africans that are not employed as it brings a glimmer of hope for employment. Participants said:

CM10: This policy which is internationally conferred rescinds employing of foreigners including teachers in any country other than their birth land. This is a hard blow in South African context which is not as yet ready to offer adequate teachers for scare skills subjects.

CM11: Anyway this harsh decision could be justified by many unemployed South African teachers The stark reality is that South Africa still suffers a huge shortage of Science teachers as the majority of newly qualified Science teachers vie for private sector as opposed to what they term 'peanuts salaries' in the government.

CM12: The policy cannot be enforced due to the uncurbed shortage of teachers. Schools should workshop their insourced homebrew teachers to copy from the outsourced ones. Furthermore, schools should employ the services of outsourced teachers who must be paid by the SGBs'.

This finding highlights the existence of a policy which prohibits the employment of foreign teachers in South African public schools. This policy, however comes at a time when the government has not trained enough personnel to take up posts in scares skills. These sentiments are supported by Davidson (2018:2) who reports that the Department of Basic Education in South Africa has taken a decision not to employ foreign teachers – even those who have work permits - in their schools. This is despite the uncurbed shortage of scare skills teachers as well as the homebrewed Science teachers who vie for the private sector in pursuit of greener pastures (Davidson, 2018:2). Schools should workshop their insourced homebrewed teachers to copy from the outsourced ones (Davidson, 2018:3).

iii) Employment of outsourced teachers by SGBs'

The study found that SASA (ACT 84 of 1996) empowers the SGB to employ teachers and pay them out of the parents' coffers. Public schools which crave for the services of outsourced teachers may still employ them out of their own coffers. Furthermore, the study found that despite the new policy that stopped their employment, many schools in South Africa are still using them. The employer is bound to renew the contracts of outsourced teachers once satisfied with their performance. This renders the repealing policy inoperable. Participants said:

CM14: Oh thanks Lord, for despite the new policy that revoked their services, they are still available and continuing with their services owing to the scarcity of Science teachers which obligates the employer to renew their teaching contracts. In certain cases, they are employed and remunerated by SGBs'.

CM15: Extension of outsourced teachers' contracts depend on the employer, once the employer gets satisfied with their output, he is duty bound to renew their employment contracts. This stance renders the repealing policy inoperable.

Literature states that the scarcity of Science teachers obligates the employer to renew the teaching contracts of outsourced teachers (Davidson, 2018: 4). Home brewed

Science teachers should be work shopped to copy and adopt the teaching and life styles of outsourced teachers so that they do the same in the class, (Davidson, 2018:6). transcribed verbatim.

4.4 SUMMARY

The chapter presented, analyzed and interpreted qualitative data regarding. It has heightened the findings of the research regarding the significance of outsourcing science teachers to enhance learner academic performance. It is clear from the contents that the problems initially formulated in the study have been investigated for the achievement of the crafted aims and objectives. The major findings from literature review and the empirical study are summarized to simplify the in-depth investigations. The findings discussed emerged from the analysis of documents and interview data.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents the summary, conclusions, recommendations, limitations and suggestions for further studies. All these were realized and guided by the research questions, literature review and the empirical investigations. Conclusions arrived at from the findings of the study enabled the recommendations to be made about the significance of outsourced Science teachers on learner academic performance. The limitations of the study were also discussed. Submissions for future studies were taken to offer a conducive environment for prospective research investigations in the field. The suggested model to enhance the learner academic performance was finally established and presented.

5.2 SUMMARY OF FINDINGS OF THE STUDY

The summary of findings of this study was informed by the research questions, literature review and empirical investigations.

5.2.1 How the Study Responded to the Research Questions?

The study was guided by the following main research question: What significance do outsourced Science teachers have on the learner academic performance?

The following subsidiary questions were established to address the main aim of the research question stated above:

i) What significance is made by outsourced Science teachers on learner academic performance?
ii) What are the factors that inspire outsourced Science teachers to teach effectively, hence improve learner academic performance?
iii) What are the challenges they encounter and how do they deal with them/ affordances leading to their efficiency?
iv) What Model can be created which schools can envisage for the insourced Science teachers to improve their learner academic performance as well?

5.2.1.1 Research question 1 What significance is made by made by outsourced Science teachers on the learners' academic performance

This study responded to this research question through documentary analysis or literature review. The researcher embarked on a rigorous document analysis to solicit information about the significance made by outsourced Science teachers on learner academic performance. The document analysis conducted for this study involved the analysis of available documents such as lexicons, encyclopedias, books, newspapers, journal articles as well as the schools involved in interview process.

The analysis of documents pertaining to this study disclosed that more than 70% of schools that performed well in Science in all the ten districts of Limpopo Province are manned by outsourced teachers. Outsourced teachers are self-disciplined, law abiding and adamant educators who serve the learners in a dedicated way. They bear the love of the child right deep at heart and they keep on teaching the learners even after school, on week-ends and holidays; hence serve the learners for 24 hours. This commitment bears fruits at the end of the year when their learners pass with excellent grades. These include schools such as Mbilwi, Thengwe and Capricorn High Schools and many others.

It was revealed that the collaborative work approach of outsourced teachers with other stakeholders such as parents, the business community, insourced teachers, school managers and circuit managers and departmental officials bring forth best results. The collective approach to situations makes teaching and learning easier as burdens are shared and solved by all group members. This approach helps outsourced teachers to succeed in their teaching endeavor. Outsourced Science teachers immigrate into South Africa for various reasons such as economic prosperity, political stability and the promise of better working conditions and attractive salaries. These teachers are thus compelled to deliver in the classroom to secure these promises and benefits. The research established that the presence of outsourced Science teachers at schools in Limpopo Province is very significant.

5.2.1.2 Research question 2: What are the factors that inspire outsourced Science teachers to teach effectively hence improve the learner academic performance?

The study found that teachers' salary is the most prominent factor which inspires outsourced Science teachers to teach effectively. These teachers are gratified by the salaries they receive in South Africa; as opposed to the weaker currencies in their native lands. The teachers feel that they are at schools for the sake of the child and not for money, hence for them teaching is a priority and the salary is a bonus. Their slogan is learner first and the rest will follow. The professional teachers' training in their native lands prohibits them from abandoning the child in the classroom. Thus they refrain from participating in industrial action hence accept and comply with the procedures and requirements of the SACE.

This research study unveiled that the renewal of teaching contracts for outsourced teachers is one strong factor which obligates them to teach vigorously as this depends on their classroom output. The better results of their learners, the better the chance of securing a renewal of teaching contracts. The study further established that employment of outsourced teachers has been rescinded internationally. However due to the incessant shortage of scare skills teachers, countries/schools may employ these teachers on a contract basis, with such contracts renewed periodically in line with their performance and needs of institutions.

The study highlighted that fringe benefits inspire outsourced teachers to teach effectively. These perks include housing subsidy, car allowance, medical schemes, annual bonus and annual vacation leave, study leave to family responsibility leave. The study noted that although most teaching benefits are not available for outsourced teachers, the majority appear content with their salaries.

The Annual National Teachers' Awards is one factor that inspires outsourced Science teachers to teach effectively. These teachers hunger for their success to be inscribed in the history of the teaching career in South Africa by being afforded an opportunity to become recipients of the Annual National Teachers Awards. The key to participate in this gala is hard work and producing the best results, which lead to awards of gifts and national and international recognition of the outstanding teachers' performance.

The study highlighted that parents should be conscripted as partners in education. They should help to secure funds for the services of the school, including security and transport of learners and teachers who are on teaching and learning routine after hours, on holidays and weekends. This inspires both teachers and learners to work industriously, hence secure better results.

The SGB should improvise all necessities for teachers and learners engaged in studies, inclusive of arranging security with SAPS members and taking turns to monitor learning through moving around the schools. Parents should also supply the schools with the required stationery ranging from study guides, laptops, network data, printers, science apparatus and well equipped laboratories from the local business community. This effort inspires both the teachers and learners to work for better results.

The study unveiled that outsourced teachers are workaholics who offer extra lessons after school, on week-ends and holidays for free. They do this because of their inspiration produce excellent results. The research study further revealed that top learners should be rewarded for their best performance in order inspire those who are indolent who just sit, watch and idle in the classroom.

5.2.1.3 Research question 3
What are the challenges encountered by outsourced Science teachers?

The research study established that poor resources such as lack of laboratories and equipment are daunting challenges at schools. The research study found that schools tend to perform artificial experiments using any available devices at hand. Science teachers practice innovative ways to create artificial experiments in the absence of apparatus. The study revealed that school experience a shortage of textbooks especially in the light of the newly introduced curriculum, known as Curriculum and Assessment Policy Statements (CAPS). The availability of adequate text books at schools is an important strategy to improve the quality of teaching and learning. The presence of learners' textbooks at schools enable learners to do their class and home activities proficiently.

The research study established that the shifts in curriculum of South African Education System are abnormal, viz. from Curriculum 95, OBE (Outcomes-Based Education) and Curriculum Assessment and Policy Statement (CAPS) in less than 16 years. These periodic changes of curriculum must access teachers to in-service training that familiarizes them with the logistics of the new curriculum.

The study also established that corruption is a stumbling block to the learners' progress and officials who halt the supply of learners' text books to schools should be arrested and prosecuted. The research study revealed that poor discipline is another challenge faced by outsourced Science teachers in the classroom. Ill-disciplined learners enjoy disturbing committed learners in the class through noise making, flirting, acting negatively in a destructive manner that disturb committed learners. Learners' misbehavior could be corrected by imposing work assignment or any punitive labour to them.

The research study found that parental involvement is an important tool to the academic welfare of the learner, but this involvement is very poor in South African communities. Teachers alone cannot fulfill the education task completely. Parents should be encouraged to work and assist the teachers in their difficult tasks and their involvement in the education matters of their children should be improved. Overcrowding and shortage of classrooms also emerged as a big problem in teaching and learning environment. For the schools to attain good passes, stakeholders must establish a conducive atmosphere for Science experimentation. The study further noted that it is not the responsibility of the government alone to build the required school structures, but parents as well should be involved in this endeavor.

The study found that the international policy of rescinding employment of foreign nationals worldwide is a blow to South Africa and the world at large. Outsourced teachers employed in South Africa are obliged to work harder than ever to convince their employers to retain their service. Similarly, the international policy on repealing employment of foreign nationals in South Africa cannot work. The policy cannot be honoured as homebrewed teachers also migrate to industry and other private sectors, thereby creating teacher shortages in schools. The study found that outsourced Science teachers are not happy

with periodical renewal of their teaching contracts. They instead need to be employed permanently. Due to them being bona fide professionals, they remain dedicated and committed to their job despite the uncertainty of their fate as teachers.

The study established that Limpopo is foreigner-friendly as opposed to other provinces with sporadic incidents of xenophobic attacks. In Limpopo, communities embrace foreign nationals and they even vouch to protect them in the wake of senseless xenophobic attacks. Communities should support, protect and offer residences to foreign nationals with scare skills who are employed at their schools to enhance their teaching and output.

5.2.1.4 Research question 4: What model could be created for schools which insourced Science teachers can use to improve their learner academic performance?

The study revealed that teachers should refrain from participating in industrial action and allow teachers' unions to address their concerns to the government without depriving the child of his/her right to learn The study further revealed that insourced teachers just like outsourced Science teachers, should always be teaching in the classroom as this is their main mandate. *Bona fide* insourced teachers should refrain from any means of amassing wealth after school or during the week-ends through extra lessons but opt to teach the learners during prescribed times.

The study established that outsourced Science teachers should organize incentives for the best performing learners which serve as a very strong motivation. They should solicit these incentives from the local business community and individual community tycoons. The best learner performers must be rewarded or incentivized. The model should embrace media lessons which are a very strong weapon for the learner's success. Insourced teachers should expose and encourage their learners to view media lessons in SABC TV channels because they are vital for the learner's success. Insourced teachers should partner with outsourced teachers and other stakeholders. There must be a very strong chemistry between these teachers who should keep on sharing ideas. Insourced teachers should encourage learners to study in groups and take them to the laboratory in

their groups as well. The groups must work together, share ideas and concerns collectively.

Science teachers must understand their learners' backgrounds. This should be fulfilled by visiting their learners' homes to understand the individual learner's situation. A good friendship between teachers and parents is highly regarded and key to the learner's success which insourced teachers should also copy. The involvement of veteran teachers should be incorporated in motivating the learners to do well in their studies. Insourced Science teachers should learn from outsourced teachers who normally involve veterans in motivating their children academically.

The government as an employer should employ South African citizens first and once they fail to secure local teachers, then they may employ foreign nationals. The SASA (ACT 84 of 1996) empowers the SGB to employ teachers and pay them out of the parents' coffers. SGBs in public schools which crave for the services of outsourced teachers may still employ them out of their own coffers.

5.2.2 Summary of the literature review

5.2.2.1 Significance of outsourced Science teachers on learner academic performance

Literature suggests that outsourced teachers immigrate into South Africa for various reasons such as the country's democratic set up including among other things economic prosperity; political stability and a promise of better working conditions and income as highlighted, see (Appleton, 2006b:124).

More than 70% of schools that performed well in Science in all the ten districts of Limpopo Province are manned by outsourced teachers. As corroborated by Inserra & Short (2016:2) professional Science teachers in poor countries migrate to countries with strong currency and work very hard for various reasons such as protecting the status of

education of their native countries as well as their personal integrity, hence produce good results.

Outsourced teachers are disciplined and bear the love of the child right deep at heart and they keep on teaching the learners even after school, on week-ends and holidays. This commitment bears fruits at the end of the year, when their learners pass excellently; (Inserra & Short, 2016:2).

Literature review unearthed in line with Nengovhela (2020:2) that collaborative work approach of outsourced teachers with other stakeholders such as parents, the business community, insourced teachers, school managers and curriculum advisors and departmental officials always bear fruits.

5.2.2.2 Factors that inspire outsourced Science teachers to teach effectively

Literature studies uncovers that the salaries outsourced Science teachers receive in South Africa are comprehensive enough to keep them serving in the country as postulated by Section 9.6 of the South African Council of Educators Act (Act 31 of 2000. Educators Act 31 of 2000 which provides that teachers should accept and comply with the requirements of the Council. Haffajee and Bisseker, (2002: 31) accentuate that fringe benefits as well are a dangling factor which inspire them to teach effectively.

Literature study uncovered that renewal of outsourced Science teachers' contracts in South Africa is one such inspirational factor, (The Grade 12, 2019 Results: 2020: 7-9). The study further hinted that intrinsic motivation is another factor which inspires them to teach effectively, (The Grade 12, 2019 Results: 2020:7-8). Literature study further unveiled in line with The Commission (2004:31) that rationalization of poor performing schools motivates outsourced teachers to teach effectively to rescue the schools from rationalization axe. The study further unearthed as accentuated by Davidson (2018:2) that competitive salaries that they receive in South Africa are another inspirational factor.

Literature study revealed in line with The Grade 12, 2019 Results (2020:7-8) that outsourced teachers are inspired to teach effectively by their mission of success which is part and parcel of their slogan when they leave their motherlands.

As accentuated by Vandeyar and Vandeyar (2014:2) literature study unveiled that the tight security, tranquil and xenophobic incidents-free Limpopo Province is one such factor which entices outsourced teachers to settle here and teach effectively. The fear of losing jobs and non-renewal of teaching contracts is another inspirational factor which compels them to teach meritoriously in fear of losing their jobs, (Vandeyar and Vandeyar 2014:2). Their warm relationship with the parents which enables them to secure Science equipment for conducting experiments without any struggle is one other factor which inspires them to teach effectively, see (The Grade 12, 2019 Results (2020:7-8).

Taking Science learners to the nearby Science centres as well as the local universities where there are advanced resources wherein they can explore experiments with ease is another inspirational factor for outsourced Science teachers (Buys, 2019).

Jointly with parents and other stakeholders, outsourced Science teachers encourage and commit their learners to exchange programmes in which they enjoy new faces and new environment'. These programmes are inspirational to teachers and vital to the learner's welfare as they gather knowledge from new environment with new faces and new set-up (Buys, 2019). Learners exchange programmes serve as a profound inspirational factor for outsourced Science teachers as their learners gain new knowledge from new faces with new approaches.

Participation in Annual National Teachers' Awards is one such factor which inspires outsourced Science teachers to teach effectively. During these awards, the best teachers in various learning areas are awarded some favors. Tsotetsi (2020) holds that Annual National Teachers Awards is a milestone, an inspirational factor which entices outsourced teachers to teach meritoriously to reach the top echelon of teaching profession.

As an inspiring factor, community members offer outsourced Science teachers with shelter and security and support which motivate them to embark on teaching effectively, see (Maluleke 2019:2). One more evident inspiring factor which teachers enjoy is transport at night after evening classes and night studies with learners to their respective homes, (Pienaar 2003:271).

As one more inspiring factor accentuated by Kruger (2002: 43) outsourced teachers are offered the stationery they need ranging from study guides, laptops, network data, printers, Science apparatus, well equipped laboratories by the local business community.

Literature study revealed that outsourced Science teachers are committed to their work and do not vie for extra income routines after school. They stay put at schools even after school every day, teaching the learners as enshrined in Section 9.6 of the South African Council of Educators Act (Act 31 of 2000).

Organizing and exposing the learners to media lessons such as TVs' and radios harnesses them with inspirational effort to teach effectively (Buys 2019) and (Maluleke 2018:2). Another inspiring factor is their effort for visiting their learners' homes unannounced to discuss the learners' progress with parents.

Literature study revealed as postulated by Buys (2019) that taking Science learners to the nearby Science centres as well as the local universities, with advanced resources to explore experiments with ease as an inspirational factor which enhances the learner academic performance.

One other inspiring factor is the issue of accommodation which outsourced Science teachers secure from the communities where they are teaching. This levels the grounds for them to work and serve children efficiently, see (Kruger, 2002: 43).

5.2.2.3 Challenges faced by outsourced Science teachers

Review literature showed that shortage of teaching facilities such as classrooms, overcrowding and shortage of Science laboratories at schools is a mindboggling obstacle that hampers effective teaching and learning of Science, which needs to be addressed as matter of urgency (Ijaiya 1992:1).

Literature review revealed that mud structures and under-tree classrooms, camping under trees as the learners' classrooms, sitting on stones or wooden blocks while learners use their thighs as desks which consequently hamper effective teaching and learning calls forth an urgent stakeholders' attention (Molelekwa, 28 Feb 2013: 4).

The study revealed in line with Cembi (2013:4) that shortage of Science laboratories and equipment for experimentation renders teaching and learning of Science at schools ineffective. Some schools in Limpopo Province are in shocking state with the classrooms in shoddy state without window panes and leaking roofs; with learners standing up and do repair routine as the government is just mum about this malady, (Maluleke, 2018:5) and (Chewe, 2020:2).

Literature studies found that in dealing with problems of poor infrastructure, overcrowding, dilapidating structures (classrooms and walls), mud structures classrooms, leaking roofs, crumbling walls and poor ablution system (learners dying in pit toilets), teachers and parents should stand up and fundraise from the business communities hence secure new classrooms, laboratories and equipment (Chewe, 2020: 2).

Literature review identified shortages of Science text books and science laboratories and equipment as obstacles against effective teaching of Science by outsourced teachers (Chewe, 2014:2).

Literature studies unearthed that the issues shortages and late delivery of text books to schools could be addressed by the Department of Education developing and distributing study guides to learners and implore teachers to conduct lessons during the spring recess using these guides in line with (Limpopo Provincial Government: The Grade 12, 2015 Results, 2016:4-5).

Literature studies heightened that a continuous shift of curriculum from Outcomes Based Education (OBE) to Revised National Curriculum Policy Statement (CAPS) evoked inconsistency and uncertainty of teachers' training and implementation in education fraternity in general. Phasing out of a curriculum and introducing a new one should be treated cautiously by training the teachers beforehand and securing improvisation of text books in advance and not after the introduction of these changes in curriculum, see (The Republic of South Africa, 2013:4).

Review literature established that the shift of curriculum impact on the performance of the learners as they did not have the relevant text books, (Limpopo Provincial Government: The Grade 12, 2014 Results, 2015:10). On this note, it was suggested that the Department of Education as the sole supplier of learning materials in South African public schools, should fortify its tender boards and strongly warn them against corrupt practices of non-delivery of text books to schools, lest they would face prosecution.

Literature study highlights that teachers' strikes aggravate learners' poor performance (Brown, 2009:283). Despite the poor academic results in both primary and secondary schools, South African teachers still engage themselves in industrial actions, protesting against the salaries they receive (Betram, 2007:81)

Review literature further highlights that although the Teachers' Unions and the Department of Education are well informed of the devastating impact of the strike on the learning and teaching culture in schools, and on the motivation and discipline of both teachers and learners, nothing concrete has been done by either party to solve the impasse; see (Brown 2009:283).

Unfortunately there is only one victim when these two bulls lock their horns; ie. the learner. Thus in 2013 and 2014, Grade 12 results plummeted down to 18,58% and 22,36% pass for bachelor passes (Limpopo Provincial Government :The Grade 12, 2014 Results, 2015:5).

It is high time that South Africa has to watch out and extinguish this senseless fire which is consuming and devastating the innocent child. Democratic Alliance and the National Association of Parents in School Governance have to call on government to declare teaching an essential service. The most recent proposal for such a step was tabled in the National Assembly on 6 June 2012 by a Ministerial Review Committee appointed by the Minister of Science and Technology, (Department of Basic Education General Household Survey 2010:24). Unfortunately, this call was unsuccessful.

Literature review established in line Wallace (1999:5) that South Africa and so is Limpopo Province boasts the service of foreign nationals in many professions including teaching. Unfortunately the very same country has developed a malady of senseless xenophobic attacks over foreign nationals. These attacks do not augur well for the future development of the country, see (Hassim, Kupe, and Worby 2008:321) and (Tshitereke, 1999:4).

Immigrant teachers in South Africa have suffered a humiliating spat outside of the classroom, wherein they were called ‘Makwerekwere’ by South Africans fellow black teachers and students. These teachers feel desperate and vulnerable as they have no alternative place to run to (Crush, 2011:104).

Literature highlights that Limpopo Province is no exception to xenophobic attacks as tribal war ensued at Thohoyandou Zimbabwean foreigners and Limpopo locals who vowed to clean the town of Zimbabweans which left one person dead and many injuries (Nengovhela, 2015:3).

In Line with Nengovhela (2015:3) and (Vandeyar (2011:232) literature review reveals that the question of xenophobic attacks could be resolved by stakeholders/community members (learners, teachers, parents and SAPS) working jointly and indoctrinating citizens against attacking fellow human beings with their sin being foreigners).

5.2.2.4 Creation of a model which schools can envisage for insourced Science teachers to improve their learner academic performance as well

Literature highlighted in line with Masitsa (2011:167) that the model to be created would embrace cautioning insourced Science teachers against participating in strikes and advises them to accept what they are given by the employer. The model would further instill the love of the child deep in insourced teachers' heart as enshrined in Section 9.6 of the South African Council of Educators Act (Act 31 of 2000) which provides that teachers should act and comply with the policies and procedures of the Council.

Literature review highlighted that as a model to be created which schools can envisage for insourced teachers to use; Science teachers should organize incentives for the best achieving learners which serve as a motivation for other learners. (Nengovhela 2020:5). Review literature also highlights that progress minded teachers should expose and encourage their learners to view media lessons in SABC TV channels (Philip, 2020). Forging friendship with other stakeholders in line with Maluleke (2019:1) is a strong tool which serves a model for insourced teachers to use.

Literature review also holds that as a model for the schools to envisage, teachers must serve the child for 24/7 hours none stop see (Mmako, 2018:6). Teachers should in consultation with parents fundraise from business sector for stuff such as overhead projectors, laptops, network data, printers, study guides and apparatus.

As a model which schools can envisage for insourced Science teachers to use, these teachers should involve parents in their day-to-day teaching and learning activities. Parents' involvement is a key to the success of their children (Vandeyar, 2011:232) and (SASA 1996: Section 18).

Involvement of veteran teachers could as well serve as a model to be envisaged for other teachers to use because they motivate learners academically and academically open their minds broadly for further studies (Maluleke, 2018:2).

As a model schools can envisage, insourced Science teachers should keep abreast with changes and quickly adapt to these changes in line Sekabate (2018:2) who accentuates that a good teacher should remain well-informed and up-to-date.

In an attempt to create a model schools can envisage for their insourced Science teachers to use, literature review established that insourced teachers should involve motivational speakers to motivate the learners to be future minded and study very hard as corroborated by Maluleke (2018:2) who notes that motivational speakers are think tanks, veterans, reservoirs and repository of knowledge to young aspirant learners who craves for the best future through education. Together with the learners, insourced teachers should visit nearby Science centres for experimentations (Buys, 2019). They should further engage their learners in extra lessons (Maluleke, 2018:2).

Fig 5.1 A model which schools can envisage for insourced Science teachers to improve their learner academic performance as well

5.2.3 Summary of the Empirical Findings

This section presents a summary of empirical findings.

5.2.3.1 Research Question 1: What is the significance of outsourced Science teachers on learner academic performance?

Research question 1 sought to establish the significance of outsourced Science teachers on learner academic performance. To solicit answers for this question, the document analysis approach was used. Documentary analysis which involves literature, magazines, government gazettes, speeches and media revealed that outsourced Science teachers are doing tremendously well in Limpopo. The study established that the majority of Grade 12 best performing schools in Science learning area come from schools manned by outsourced teachers. Schools with Science subjects which are manned by foreign outsourced teachers performed exceptionally well in their 2019 examinations in the Limpopo Province.

The study disclosed that in all ten districts of the Limpopo Province, about 70% of schools that performed well in Science are manned by outsourced teachers. These teachers are, by virtue of being immigrants, self-disciplined, law abiding and dedicated to teach vigorously. They teach learners after school, on week-ends and holidays; thus serving the learners for 24 hours, which calls for attracts best results.

The research study divulged that outsourced Science teachers work collectively with other stakeholders such as parents, school managers, departmental officials and the business community. Collaborative work approach simplifies school burdens for the teachers as they refer problematic conditions to the responsible stakeholders.

5.2.3.2 Research question 2: What are the factors that inspire outsourced Science teachers to teach effectively?

This section presents the findings of the study as derived from the responses of teachers, parents and learners.

5.2.3.2.1 Responses of outsourced Science teachers

The following question kick-started the discussion: What are the factors that inspire you to teach effectively to improve learner academic performance?
In response to the research question, teacher-participants' answers included among other things the following:
The study revealed that outsourced teachers are gratified by the salaries they receive as opposed to the weaker currencies in their native lands. Such gratification is struck despite the insourced teachers who register their dissatisfaction through engaging in industrial action. The teachers' training in their native lands prohibits them from participating in industrial action, abandoning the child in the classroom. Although outsourced teachers refrain from participating in strikes, they do so technically in fear of being branded nonconformists and their refrainment gives them the latitude for interacting with their learners.

This research study found that the renewal of teachers' contracts for outsourced teachers is a strong factor which obligates them to teach vigorously as the renewal of their teaching contracts depends on their classroom output. The better the results they yield the better the chances of their contracts being renewed. The participants further established that the contracts of outsourced Science teachers will continue to be renewed because of the shortage Science teachers in South Africa. South African Science teachers also leave teaching to join other industrial sectors.

The study showed that outsourced Science teachers crave for fringe benefits and dream of securing citizenship status, hence secure permanent employment and ultimately enjoy these benefits. These benefits are wide ranging, inclusive of Government Service Pension Fund (GSPF), medical schemes, housing loan scheme, and family responsibility leave. In the absence of all these incentives, outsourced Science teachers still continue to work effectively for the prosperity learners.

The study uncovered that Annual National Teachers' Awards is one factor that inspires outsourced Science teachers to teach effectively. They hunger for their success to be

inscribed in the history of the teaching career in South Africa by being afforded an opportunity to become recipients of the Annual National Teachers Awards. Participation in Annual National Teachers Awards as a milestone, boost the morale of teachers.

5.2.3.2.2 Responses of parents on factors that inspire outsourced Science teachers to teach effectively

The following question kick-started the discussion: "What are the factors that inspire outsourced Science teachers to teach effectively to improve learner academic performance?"

The study established that the partnership between parents and teachers inspires teachers to work effectively. Parents should assist and support teachers in their difficult tasks. They should help to secure funds for the services of the school, these includes among other things, security and transport of learners and teachers who are on study at school. This stance inspires both teachers and learners to work industriously, hence secure better results. Parents do arrange for security with SAPS members, taking turns to monitor teachers and learners as they engage in their work. The research also found that parents should supply schools with the required stationery such as study guides, laptops, network data, printers and Science apparatus hence obtain funding for equipping laboratories from the local business community.

5.2.3.2.3 Responses of learners on factors that inspire outsourced Science teachers to teach efficiently

The following question kick-started the discussion: What are the factors that inspire outsourced Science teachers to teach effectively, hence improve the learner academic performance?

The study established that outsourced teachers are workaholics who offer extra lessons after school, on week-ends and holidays for free. They do this because of their inspiration of passing the learner to the next level excellently. The research study showed that top learners should be rewarded for their best performance with items such as laptops,

dictionary, text books and caps. This kind of a benefit inspires both the learners and teachers to work very hard.

5.2.3.3 Research Question 3: What challenges do outsourced Science teachers encounter to advance learner academic performance?

This section sought to establish the views of outsourced teachers regarding the challenges they encounter to enhance learner academic performance

5.2.3.3.1 Responses of outsourced Science teachers on challenges they face to advance learner performance

The following question initiated the discussion: "What are the challenges do you encounter to advance learner academic performance?"

The study established that schools are facing a daunting challenge of poor resources such as laboratories and equipment. Schools are obligated to perform artificial experiments using any available devices. Science teachers should be innovative to create artificial experiments in the absence of apparatus. The study also revealed that the shortage of text books, especially caused by the newly introduced curriculum, known as Curriculum and Assessment Policy Statements (CAPS). The shifts in the curriculum of the South African Education System are abnormal, viz. from Curriculum 95, OBE (Outcomes-Based Education) and Curriculum Assessment and Policy Statement (CAPS) in less than 16 years. These periodic changes of the curriculum are inconveniencing as far as teaching and learning are concerned. The Provincial Department of Education must ensure teachers access in-service training that familiarizes them with the logistics of the new curriculum. While the Department battles with preparation of textbooks in line with the new curriculum, there must be study guides for learners and teachers' handbooks which would fast track and keep teaching and learning on-going.

5.2.3.3.2 Responses of parents on challenges outsourced Science teachers face in their expedition to advance the learner academic performance

The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter to advance learner academic performance?

Participants indicated that the shortage of textbooks was curtailing teaching and learning at schools. The study established that corruption is a stumbling block to the learners' progress and officials who halt the supply of learners' text books to schools should be arrested and prosecuted. The research study advocated that poor discipline is a challenge faced by outsourced Science teachers in the classrooms. Ill-disciplined learners enjoy disturbing committed learners in the class through noise making, flirting, acting negatively in a destructive manner that disturb committed learners.

The study found that governing bodies should adopt a Code of Conduct for Learners which enjoins teacher behavior that is respectful of learners' rights. School governing bodies should draw up a code of conduct for learners after a full consultation and negotiation with educators, learners and parents. Students should be thoroughly conversant and compliant with established code of conduct. Such compliance is sure to eliminate the problems related to ill-discipline.

5.2.3.3.3 Responses of school managers on challenges outsourced Science teachers encounter

The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter to advance learner academic performance?"

The research study established that parental involvement is an important tool for the academic welfare of the learner, but their involvement is very poor in South African communities. Parents should be deeply involved in the education of their children and they should be true partners with other stakeholders in all educational matters. Parental involvement is very vital for the welfare of their children. Parents should be recognized as equal partners in education. The research study found that overcrowding is a big problem in teaching and learning and for schools to attain good passes, they must establish a

conducive atmosphere so that the teaching Science can be successful. This can only be attained when lessons are delivered in less overcrowded environments or in laboratories which are adequately furnished with Science equipment. The study further established that South African learners are vulnerable to the scorching sun and excruciating cold weather while seated under the trees as their only classrooms.

5.2.3.3.4 Responses of curriculum advisors on challenges outsourced teachers encounter

Individual face-to-face interviews were held with curriculum advisors on challenges encountered by outsourced Science teachers in successful lessons. The following question initiated the discussion: What are the challenges that outsourced Science teachers encounter to hinder their efficiency?

The study found that the international stance of rescinding employment of foreign nationals worldwide is a blow to South Africa and the world at large. Foreign teachers employed in South Africa are obliged to work harder than ever to convince their employers to retain them. These teachers become workaholics and experts in their learning areas and pass almost all the learners to save renewal of their contracts. The study further unearthed that the extension of outsourced teachers' contracts is revisited quarterly (four times a year) and their contracts may be terminated at any stage. This creates a challenge on the part of outsourced Science teachers who are obliged to work extra hard to serve their contracts.

The study established that xenophobic attacks affect the outsourced Science teachers in delivering on their mandate. Limpopo though, is foreigner-friendly as opposed other provinces with sporadic incidents of xenophobic attacks. In Limpopo, communities embrace foreign nationals and they even protect them in the wake of senseless xenophobic attacks. The study established that teaching Science without laboratory and equipment is a conspicuous setback which renders teaching efforts useless. The Department must always strive to attain laboratory and equipment for Science learners. The study showed that the outbreak of Covid-19 affected various spheres of life and

foreign nationals, including outsourced Science teachers got deeply affected as they were associated with the virus due their status as foreigners – a very wrong misconception.

5.2.3.4 Research question 4: What model could be created which schools can envisage for insourced Science teachers to improve their learner academic performance?

This section solicited the views of teachers, school managers, parents and curriculum advisors on the model which can be adopted for science teachers to improve learner academic performance

5.2.3.4.1 Responses of outsourced Science teachers on a model to be created which schools can envisage for insourced Science teachers to use

The following question kick started the discussions: What model would you create which schools can adopt for the insourced Science teachers to improve learner academic performance?"

The study indicated that a model is desired which should urge teachers all teachers, including outsourced teachers to refrain from participating in teachers' strikes but to be ever in touch with their learners. Insourced teachers should always be in a mission to teach and develop the learner. Teachers should act and comply with the policies and procedures of the Council which maintains that bona fide teachers should have the love of the child. It should encourage bona fide Science teachers to totally refrain from any means of amassing wealth after school or during the week-ends and opt to teach the learners on prescribed school days. Engaging in other extra-income routines by teachers deprive the innocent learner of his right to learn, hence suffer the consequences as the sole victim of the situation. Outsourced Science teachers should organize incentives for the best performing learners which serves as a very strong motivation. They solicit should these incentives from the local business community and individual community tycoons.

5.2.3.4.2 Responses of school managers on a model to be created which schools can envisage for insourced Science teachers to use

The following question kick started the discussions: What model would you create which schools can adopt for insourced Science teachers to improve learner academic performance?"

The study established that school managers are confident that media lessons are a very strong weapon for the learner's success. Once insourced teachers engage their leaners in media lessons, no doubt whatsoever, their results would improve remarkably. Progressive minded teachers should expose and encourage their learners to view media lessons in SABC TV channels because they are vital for the learner's success.

5.2.3.4.3 Responses parents on a model to be created to improve learner academic performance

The following question kick started the discussions: What model would you create which schools can envisage for the insourced Science teachers to improve learner academic performance?

The model to be created should allow insourced Science teachers to work in partnership with outsourced teachers and other stakeholders. There must be a very strong chemistry between these teachers who should keep on sharing ideas. Teachers should love and support each other for the sake of the innocent learner. They should form a united front and work collaboratively to rear the child whose future lies in their hands. The model should encourage learners to study in groups and be taken to the laboratory in their groups. The groups must work together, share ideas and concerns collectively which promotes collective approach to learning. Insourced teachers should follow outsourced teachers' means of securing teaching aids through consultation with parents and fundraising from business sectors for materials such as calculators, overhead projectors, laptops, network data, printers, study guides and apparatus.

5.2.3.4.4 Responses of curriculum advisors on a model to be created which schools can envisage for insourced Science teachers to use

The following question kick started the discussions: What model would you create which schools can adopt to improve their learner academic performance?

The research showed that the model infuse the involvement of veterans in motivating the learners to study hard. Schools which are success-minded involve veteran motivators to give courage to the learners about their future in education. These retired professionals deserve a platform to address learners on educational growth. Schools should give maximum support to teachers in the wake of the international policy on foreign recruitment to leverage student learning.Finally, schools should workshop their insourced homebrewed teachers to emulate the work of outsourced counterparts, hence advance their learner academic performance as well. The model should also allow for periodical contracts which reduce the worries of outsourced teachers regarding their job security so that they expend more time for teaching and learning.

5.3 CONCLUSIONS

The study examined the significance of outsourced Science teachers on learner academic performance. The conclusions outlined below are based on the findings of the study.

5.3.1 Research Question 1: What significance is made by outsourced Science teachers on the learner academic performance?

The majority of Grade 12 best performing schools in Science learning area come from schools manned by outsourced teachers. Immigrant teachers are self-disciplined, law abiding and dedicated to serve the learners. Outsourced Science teachers work collectively with other stakeholders such as parents, school managers, departmental officials and business community. Their collaborative work approach simplifies school burdens for the teachers creating a conducive environment for successful teaching and learning. The Annual National Teachers Award ceremonies encourage hard work from the Science teachers.

5.3.2 Research question 2: What are the factors that inspire outsourced Science teachers to teach effectively?

Outsourced teachers are gratified by the salaries they receive which inspire them to work harder. These teachers do not participate in industrial action to picket for salaries and perks hence do not abandon learners in the classrooms. Insourced teachers do register their dissatisfaction regarding their salaries through engaging in industrial action. The renewal of outsourced teachers' contracts is a strong factor which obligates them to teach enthusiastically. Outsourced Science teachers crave for fringe benefits and they dream of securing citizenship status, which will secure them permanent employment and related benefits. Annual National Teachers' Awards is one factor that inspires outsourced Science teachers to teach effectively. The support from parents inspires teachers to deliver on teaching and this comes through securing funds for the services of the school, such as security and transport of learners and teachers. Parents should arrange and supply the schools with all the required stationery such as laptops, network data, printers, science apparatus and well equipped laboratories. Rewarding teachers and learners that are top performers helps them to put more effort to achieve excellent results.

5.3.3 Research question 3: What are the challenges encountered by outsourced Science teachers?

Poor resources (lack of laboratories and equipment) at schools hamper proficient teaching and learning and renders Science teaching useless. Science teachers should be innovative to create artificial experiments in the absence of apparatus. The frequent change in the curriculum affects availability of resources and a subsequent reduction in the quality of the learner academic performance. These periodic changes of curriculum must access teachers to in-service training that familiarizes them with the logistics of the new curriculum.

Corruption is a stumbling block to the learners' progress as officials halt the supply of learners' text books to schools. Ill-disciplined learners disturb committed learners in the class which impedes the academic performance of learners. Teachers alone cannot fulfill

the education task completely. Parents should be encouraged to work and assist the teachers in the education matters of their children.

Overcrowding is a big problem in teaching and learning environment and this disturbs the establishment of a conducive atmosphere which should prevail in schools for successful academic outcomes. The international policy of rescinding employment of foreign nationals worldwide is a blow to South Africa as it interferes with the smooth engagement of outsourced Science teachers and their subsequent conditions of staying in the country. The incidents of xenophobic attacks on foreign nationals affect the outsourced teachers as well as their performance at schools. The advent of coronavirus militates against the recruitment of foreign nationals, the perceptions about them as well as their expected work outcomes.

5.3.4 Research question 4: What model could be created for schools which insourced Science teachers can use to improve their learner academic performance?

Schools should devise a strategy to ensure that teachers abstain from participating in industrial actions, which impacts negatively on the learners' welfare and progress. Teachers should encourage the learners to study intensively by organizing incentives for the best performing learners which would serve as a strong motivation hence advance the learner academic performance

Understanding the learners' background capacitates teachers to develop prudent approaches and wise answers to individual learners' situational problems. The partnership between insourced, outsourced Science teachers and other stakeholders enhances the academic performance of learners. These stakeholders should form a united front and work collaboratively to advance the learner academic performance. Learners should study in groups and be taken to Science centres laboratories in their respective groups.

Exposing learners to media lessons is a very strong weapon for the learner's academic success. Learners need to view media lessons in SABC TV channels because they are

vital for their academic progress. Increased efforts to fundraise for Science kits and experimentations from the business sector and the communities' elites could serve as a bonus to advance the learner academic performance. A good rapport between teachers and parents is a key to the learner's success. Involving veterans in motivating the learners in their studies is a vital tool to improve the academic performance of learners.

5.4 RECOMMENDATIONS

The study recommends the following:

5.4.1 Research Question 1: What significance is made by outsourced Science teachers on the learner academic performance?

- The Department of education must employ outsourced Science teachers as they are performing exceptionally well in their schools.
- Schools should continue to outsource the services of outsourced Science teachers because they are workaholics, self-disciplined, law abiding and dedicated to serve the learners in schools.
- The Department of Education must encourage the collaborative work approach which embraces working collectively with other stakeholders such as parents, teachers, school managers, curriculum advisors and business community
- SGBs' must inspire outsourced Science teachers to sharpen their desire for participating in Annual National Teachers' Awards.

5.4.2 Research question 2: What are the factors that inspire outsourced Science teachers to teach effectively?

Teachers must be gratified by the salaries they receive hence refrain from participating in any form of industrial action.

- Outsourced teachers should heed a call from their native land which prohibits them to participate in any form of industrial action through picketing for salaries and perks which paves way for their hard work only.

- The outsourced Science teachers' should abstain from participating in industrial action and this should be done technically to being branded 'nonconformists' by their fellow striking colleagues
- The South African government should renew outsourced Science teachers' contracts as a strong factor that obligates them to teach enthusiastically.
- Outsourced teachers should work diligently and keep on advancing the learners' academic performance. Once they serve the country for five years and above they would be entitled to permanent citizenship, hence secure permanent teaching posts and eligibility for fringe benefits.
- Annual National Teachers Awards ceremony should be held yearly as a milestone, a dangling carrot to teachers which boost the teaching morale strongly. The award ceremony is an opportunity which inscribes their teaching history on top echelon of teaching profession.
- Parents should continue to assist and support teachers in school work as partners and this may inspire outsourced Science teachers to work effectively.
- The government should provide schools with adequate resources such as study guides, laptops, network accessing data, printers, science apparatus and well equipped laboratories.
- Offering extra lessons after school, on week-ends and holidays for free make outsourced Science teachers to champion their goals and mission, hence achieve their passion for teaching for winning only.

5.4.3 Research question 3: What are the challenges encountered by outsourced Science teachers and how do they deal with them?

- Outsourced Science teachers should make arrangements with the local Science centers and universities (well furnished with Science resources) to take their learners to these facilities for experimentation.
- Science teachers who do not have apparatus and kits should be innovative to create artificial experiment using any available material at hand to mitigate teaching of Science without apparatus.

- Teachers and learners maximize the use study guides developed and distributed by the Provincial Department of Education
- The shortage of text books could be mitigated by organizing campaigns (jointly with parents) to different capable community members and the local business sector to fundraise for the learners' text books, as well as the teachers' handbooks and study guides
- These periodic changes of curriculum must access teachers to in-service training that familiarizes them with the logistics of the new curriculum.
- The government needs to take a zero-tolerance stance against corrupt officials who hold hostage the supply of text books to schools. Officials and community members involved in corrupt practices should be tried and prosecuted and upon conviction be given harsher sentences.
- Ill-disciplined learners who enjoy disturbing committed learners in the class through noise making, flirting, acting negatively in a destructive manner that disturb committed learners must be corrected by imposing work assignment or any punitive measures.
- As an effort to curb ill-discipline, good behavior should be rewarded as well by potential donors from business sector through handing out ribbons, T-shirts, baseball caps and tote bags to recompense well behaving learners and reinforce good behaviour hence improve the learner academic performance.
- Parents should be deeply involved in the education of their children and they should be true partners with other stakeholders in all educational matters..
- Parents must be trained and work together with educators and other stakeholders to establish a thorough welfare of the child and a symbiotic relationship between parents and educators must be forged.
- Outsourced Science teachers should ascertain that their learners are taught in small groups, (especially during experimentation times) prolonging their teaching time to the afternoon study time which makes their teaching and learning a success.
- Both the government and parents should be involved in building schools' structures. They should form partnership with other stakeholders to secure funds to erect structures and alleviate problems of overcrowding.

- Both national and international donors should be consulted by SGBs and the National Department of Education to fundraise for larger projects such as classrooms while international magnate donors should be consulted and be rallied around to secure donations for bigger structures such as road bridges and blown out classrooms.
- The international policy on repealing employment of foreign national in South Africa cannot be honored as the teachers' shortage cannot be closed while homebrew teachers migrate to industry and other public sectors. This leaves the employer with no choice but to keep on renewing foreign teachers' contracts, who in turn serve industriously to please their master.
- Communities should embrace foreign nationals and vow to support and protect them in the wake of senseless xenophobic attacks.
- Communities should be work-shopped and be instilled on the importance of foreign nationals in their localities. They should ascertain that these teachers are safe. Communities and police forums should ensure the safety of foreign nationals in all South African provinces; hence they will stay and work peacefully and productively in this country

5.4.4 Research question 4: What model could be created which schools can envisage for insourced teachers to use?

- Insourced Science teachers should refrain from participating in teachers' strikes. Teachers should act and comply with the policies and procedures of the Council which maintains that bona fide teachers should have the love of the child at heart
- Science teachers should refrain from extra-income routines hence focus on the learner's development and look after the learner's welfare throughout the whole year.
- Outsourced Science teachers should organize incentives for the best performing learners which serves as a very strong motivation. These incentives may come from the local business community and individual community tycoons.
- The insourced Science teachers should understand their learners' backgrounds. This should be done by visiting their learners' homes to understand the individual learner's situation.
- Insourced teachers should partner outsourced teachers and other stakeholders. There must be a very strong chemistry between these teachers who should keep on sharing ideas.
- Insourced teachers should expose and encourage their learners to view media lessons in SABC TV channels because they are vital for the learner's success.
- Parents should be invited to fundraising meetings and divulge to them the need for Science apparatus and kits for experimentation wherein some parents donate funds for this endeavor.
- Schools should involve veteran teachers in motivating the learners in their studies. These retiree professionals are very happy to be afforded a platform to address the learners on their future in education.

5.5 SUGGESTIONS FOR FURTHER STUDY

The study on the significance of outsourced Science teachers on learner academic performance generates some opportunities for further study in this field. A research may be launched in the same field making use of either qualitative or quantitative research

designs. The involvement of learners, parents, teachers, school managers and curriculum advisors in this study may also receive attention as this would solicit some information regarding their perceptions and the nature of their contribution in the teaching and learning of Science at schools.

5.6 LIMITATIONS OF THE STUDY

The study on significance of outsourced Science teachers on learner academic performance involved schools and circuit offices from eight out of ten districts of the Limpopo Province. Both rural and urban schools were from the Limpopo Province and are sparsely distributed. Geographical set up of the schools and circuit offices made it difficult for the researcher to move from one school to another and from one circuit to another respectively; in the quest for data collection. Challenges arose during the process of data collection from schools where and when the learners were busy with their programmes. It was binding for the researcher to wait for convenient times to secure participants' views. On certain occasions, the researcher had to rearrange for another day to conduct interviews and drove back home.

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APPENDICES, TABLES AND GRAPHS

APPENDIX A: LETTER TO REQUEST PERMISSION TO CONDUCT A RESEARCH

TO: THE SUPERITENDENT GENERAL OF LIMPOPO PROVINCE (DEPARTMENT OF EDUCAION)

Enq: MAN Nesane Cell: 072 902 4036 MAN Nesane (8400609)

P.O. Box 194
MUNGOMANI, 0992
13 March 2019
Cell: 072 902 4036

The Head of Department (HOD)
Limpopo Provincial Department of Education
P/Bag 9489
Polokwane, 0700

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT RESEARCH WITHIN THE 10 DISTRICTS OF LIMPOPO PROVINCE

This letter serves to requests for an approval to conduct a research for a DEd thesis (Education Management) at schools in the area of your jurisdiction under the University of Venda. 'The topic of the study is '**The significance of outsourced Science teachers on learner academic performance'.**

Data collection will involve recording as well, through interviews and questionnaires. A consent form will be sought from the subjects. Parents' letter of consent shall be sought for learners below 16.

I wish to highlight that as part of the research ethics, the research respondents will participate freely, willingly and voluntarily. Personal information of the respondents shall be kept confidentially, and their anonymity will be assured.

Your positive response to this application will be appreciated. Yours in studies

MAN Nesane (Student) MANesan. ----------

Dr. LP Ramabulana (Supervisor

……..

Dr. SJM Kaheru (Co-Supervisor)

APPENDIX B: PROVINCIAL DEPARTMENT OF EDUCATION APPROVAL MEMO

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

Ref: 2/2/2 Enq: Mabogo MG Tel No: 015 290 9365 E-mail:MabogoMG@edu.limpopo.gov.za

Nesane MAN
P O Box 194
Mungomani
0992

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

1. The above bears reference.

The Department wishes to inform you that your request to conduct research has been approved. Topic of the research proposal: **"THE SIGNIFICANCE OF OUTSOURCED SCIENCE TEACHERS ON LEARNER ACADEMIC PERFORMANCE: AN EDUCATIONAL MANAGEMENT PERSPECTIVE."**

2. The following conditions should be considered:

3.1 The research should not have any financial implications for Limpopo Department of Education.

3.2 Arrangements should be made with the Circuit Office and the schools concerned.

3.3 The conduct of research should not in anyhow disrupt the academic programs at the schools.

3.4 The research should not be conducted during the time of Examinations especially the fourth term.

3.5 During the study, applicable research ethics should be adhered to; in particular the principle of voluntary participation (the people involved should be respected).

3.6 Upon completion of research study, the researcher shall share the final product of the research with the Department.

REQUEST FOR PERMISSION TO CONDUCT RESEARCH: NESANE MAN

CONFIDENTIAL

Cnr. 113 Biccard & 24 Excelsior Street, POLOKWANE, 0700, Private Bag X9489, POLOKWANE, 0700
Tel: 015 290 7600, Fax: 015 297 6920/4220/4494

The heartland of southern Africa - development is about people!

4 Furthermore, you are expected to produce this letter at Schools/ Offices where you intend conducting your research as an evidence that you are permitted to conduct the research.

5 The department appreciates the contribution that you wish to make and wishes you success in your investigation.

Best wishes.

Ms NB Mutheiwana
Head of Department

Date

REQUEST FOR PERMISSION TO CONDUCT RESEARCH: NESANE MAN

APPENDIX C: INFORMED CONSENT

In terms of the ethical requirements of the University of Venda, you are heartily invited to complete this form as an indication of your permission to participate in this research study freely and voluntarily.

I, **…….. (Participant)** hereby confirm that I have been fully informed about the purpose, procedures and activities of the study. The rights and risks of subjects' participation have also been fully explained to me. I was given the full opportunity to ask any questions regarding my participation and I understand that participants can withdraw themselves from the study at any stage and time without tendering any reason whatsoever.

I therefore do hereby **give /do not give** (delete which case is not applicable) my consent to voluntarily partake in the study as outlined.

…… **(Surname and Initials of the participant**)

…… ……

Participant's signature **Date**

.

MANesan.

Nesane MA (student)

……

Dr. LP Ramabulana (Supervisor)

……..

Dr. SJM Kaheru (Co-Supervisor)

APPENDIX D: RESEARCH INSTRUMENT 1: INTERVIEW

RESEARCH TOOL: INTERVIEW

SECTION A: BIOGRAPHICAL INFORMATION

I am Mr. Nesane MAN who is currently registered for Doctor of Education (D.Ed.) at the University of Venda for Science and Technology. I humbly request you to participate in this interview session as part and parcel of my research studies. Your honest and truthful response will be highly appreciated. All the information that you provide will be treated confidentially and will only be used for the purpose of this research study. This interview session should not take more than ten (10) minutes to complete**.**

Kindly complete the interview questions below by answering questions in the space provided

1. Your gender: male ------- female --------
2. Your status at school: learner…… parent ….. outsourced teacher…… school manager……
3. Your participation in school issues: seldom ----- often ----- frequent ------
4. Your age: 17-30 years ------ 31-40 years ------ 41-55 years ----- 56 years above ---

SECTION B: INTERVIEWS

Individual face-to-face interview schedule with outsourced Science teachers, principals and parents focus group interview with learners, on factors that inspire them to teach effectively (Research question 2)

Interview questions

Question 1

What are the most prominent factors that inspire outsourced Science teachers to teach effectively, hence improve the learner academic performance?

Participant's response:

Question 2

How do outsourced Science teachers motivate their learners to advance their academic performance with these factors?

Participant's response:

SECTION C

APPENDIX C: RESEARCH INSTRUMENT: INDIVIDUAL FACE TO FACE INTERVIW AND FOCUS GROUP INTERVIEW

Individual face-to-face interview schedule with outsourced Science teachers, principals and parents and focus group interview with learners on learners' related challenges faced by outsourced Science teachers when executing their duty which when solved can accelerate their academic performance (Research question 3).

Interview questions:

Question 3:

What are the learners' related challenges that outsourced Science teachers face in the course of their duty executions which affect their academic performance?

Participant's response:

Question 4

How do these learner-related challenges affect the learner academic performance?

Participant's response:

Question 5

What means can be employed to alleviate the learner related challenges hence uplift their academic performance?

Participant's response:

SECTION E

RESEARCH INSTRUMENT: INDIVIDUAL FACE-TO-FACE INTERVIEW AND FOCUS GROUP INTERVIEW

Individual face-to-face interview schedule with outsourced Science teachers, principals and parents and focus group interview with learners on challenges **outsourced Science teachers** face in the classroom which when solved could accelerate the learner academic performance (Research question 3).

Interview questions;

Question 6

What are the most prominent challenges that outsourced Science teachers face in the classroom which when alleviated could improve the learner academic performance?

Participant's response:

Question 7

How could the challenges that outsourced Science teachers face be solved hence alleviate the learner academic performance?

Participant's response:

SECTION E

APPENDIX D: RESEARCH INSTRUMENT: INDIVIDUAL FACE TO FACE INTERVIW AND FOCUS GROUP INTERVIEW

Individual face-to-face interview schedule with outsourced Science teachers, principals and parents, teachers, school managers and curriculum advisors on the model to be created which schools can envisage for insourced teachers to use as well (Research question 4).

Interview questions

Question 8

What model do would you create which schools can envisage for insourced Science teachers to use as well, hence improve their learner academic performance?

Participant's response:

Question 9

How would you alleviate the challenges faced by outsourced Science teachers, hence improve the learner academic performance?

Participant's response:

Question 10

What specifically do outsourced Science teachers do differently from insourced teachers to advance the learner academic performance?

Participant's response:

Question 11

What can insourced teachers do to advance their learner-academic performance as well?

Participant's response:

Question 12

What are the learners' related challenges that you face in the course of their duty execution which affects your academic performance?

Participant's response:

Question 13

What means can be employed to alleviate the learner related challenges hence uplift the learner academic performance?

Participant's response:

Question 14

How do you involve other stakeholders to address challenges faced by outsourced Science teachers hence improve the learner academic performance?

Participant's response:

Question 15

What are the other stakeholders other than the Provincial Department of Education who help to address the school's financial challenges to advance the learner academic performance?

Participant's response:

APPENDIX E: TRANSCRIPTIONS

The respondents of this study comprised learners, parents, outsourced teachers, school managers and curriculum advisors as follows: 12000 Grade 12 learners, 40 parents, 80 outsourced Science teachers with degrees and professional teachers' Diplomas and some with Honors degrees and 40 school managers with honors, masters and PHD degrees all from 40 different schools as well as 16 curriculum advisors from 8 districts (2 from each one of the selected districts) with qualifications ranging from honors to PHD degrees.

PARTICIPANTS' VIEWS ON THE SIGNIFICANCE OF OUTSOURCED SCIENCE TEACHERS ON LEARNER ACADEMIC PERFORMANCE

The data collected from the interview sessions conducted with learners, parents, outsourced Sciences teachers, school managers and curriculum advisors were analyzed and presented.

Research question 1

What are the factors that inspire outsourced Science teachers to teach effectively, hence advance the learner academic performance?

Outsourced Science teachers' responses:

i) **South African teachers' salaries**

T1: *Outsourced teachers' salaries in South Africa are by far above what they get in their native lands. We are inundated with calls for the strikes which have become a fashion item in this country. South African teachers do not care for the learners' future, but they care for themselves and their pockets. Anyway through the training we received in our native countries abandoning the child in the classroom is a taboo and a*

punishable offence. We thus technically refrain from participating in any form of industrial action. We feel gratified by receiving the department's offer.

***T2**: insourced teachers may engage in strike as their right to do so. We however do not have any tangible reason to engage in strike as we are contractually employed and we do not have any privilege for teaching benefits. Besides, we cannot afford to abandon the child for picketing for whatever reason.*

***T3**: The issue of teachers' salaries is a worrying factor for many South African homebrew teachers; with foreign teachers the opposite is the case. We hardly participate in salary protest marches because South African rand value is by far higher than the value of our currency. We feel more gratified by what we get here in here in South Africa which is far better than what we would be receiving in our native countries. Anyway, we boast that we are here in South Africa for the learners and not for money. We have the love of the child right deep at heart and thus we execute our job irrespective of the nature of the salaries we get. We are thus duty bound to work hard and produce the best results*

***T4**: We hear people saying that the value of South African rand is weakening day-by-day. Teachers protest marches for demanding appropriate salaries in any country are justifiable. With us as foreign nationals, the opposite is the case because we are not kin to striking. We do not abandon learners in the classrooms for picketing.*

ii) Contracts renewal

***T5**: We came a long way from our motherland, and we are contractually employed, hence the renewal of our teaching contracts depends on the output and we are bound to work very hard to get our contracts renewed periodically.*

***T6:** The problem of international policy rescinding employment of foreign nationals in countries other than their birth countries is a thorn in the flesh. Anyway, as long as South Africa does not have enough teachers, we are still going to secure some teaching space.*

***T7** Contract renewal is totally dependent on our work performance, you perform poorly you get axed; hence we are obligated work harder than ever. I cannot allow a situation*

wherein I go back home without any achievement. I am thus duty-bound to work very hard hence secure a contract renewal.

***T8**: We toil industriously to avoid being axed. I am not ready to axed whatsoever, thus I work harder than ever to convince my employer so that he recommends for my contract renewal.*

iii) Fringe benefits

***T9:** We, although working on contractual capacity, dream of acquiring the benefits which insourced teachers enjoy. These are perks ranging from Government Service Pension Fund (GSPF) scheme membership, housing subsidy, car allowance, medical schemes, annual bonus and annual vacation leave, study leave to family responsibility leave. These perks do not exclude service bonus, housing loan scheme, housing subsidy scheme, car subsidy, special leave, study leave, and family responsibility leave. In the absence of all these incentives, outsourced Science teachers still continue to work effectively for the prosperity of the learner. They bank and trust on the employer that something will be done by the government to qualify them with the benefits.*

***T10**: I would first secure permanent citizenship status before I consider thinking of perks.*

***T11:** As outsourced teachers, we are contented with the salaries we receive because they are by far higher than what we used to get in their native countries but getting perks would motivate us to be more productive. We still remain adamant to teach effectively as we feel satisfied by salaries we get.*

***T12:** The salaries that we would be receiving in our native land are by far lesser than what we are getting here in South Africa. Although we do not believe in industrial action, receiving perks would be a bonus to us and this would encourage us for further productivity. The salaries that we get are good enough and obligate us to teach effectively and productively.*

iv) Annual National Teachers' Awards

***T21**: We feel challenged when we see our fellow Science colleagues and many other teachers participating in Annual National Teachers' Awards while we only sit and watch. This gala opportunity is open for every teacher irrespective of gender, colour and nationality. We want our success to be written down in the history of teaching profession in South Africa by being afforded an opportunity to become recipients of the Annual National Teachers Awards.*

***T22**: I crave to ascend the podium and receive an award on a full public view. This could be a milestone, a gala moment not to forget in life time.*

***T23**: We feel encouraged as outsourced Science teachers to produce excellent results so that we secure an opportunity to participate in Annual National Teachers' Awards wherein the best teachers in various learning areas are awarded some favors.*

***T24**: Yes, hard work will afford me an opportunity to participate in Annual National Teachers' Awards*

***T25**: Participation in Annual National Teachers' Awards is a strong factor which inspires us to teach effectively. During these awards, the best teachers in various learning areas are awarded some favors and they become recognized nationally and globally.*

***T26**: Participation in Annual national Teachers Awards is a bonus to any ambitious teacher who dreams of escalating the heights above.*

Parents' responses:

i) Improvisation of needs

***P1**: As SGB, we ensure that we support these teachers and improvise all their needs including transporting them from schools with their learners at night to their respective homes after night studies. This endeavor advances the learner academic performance.*

***P2:** We are education minded parents who loves the learners and their prosperity so dearly. We thus ensure that both the learners and teachers' needs are made available to advance the learner academic performance. We ensure that the*

learners have got transport to take them from their respective homes in the evening to school and back.

P3: *We assist these teachers to alleviate their work by securing all the required stationery/tools they need ranging from study guides, laptops, printers, science apparatus, well equipped laboratory, we secure all these from the local business community, which improve the learner academic performance".*

P4: *We do not have problems with securing the learners needs ranging from study guides to a well-equipped laboratory. We garner all these from our own local business community who deeply feel for these learners.*

Learners' responses:

i) Extra lessons as well as incentives for the learners

LG1: *These teachers are workaholics who offer extra-lessons after school, on week-ends and holidays. Unlike many local teachers, outsourced teachers do this without demanding a cent from the schools' coffer.*

LG2: *Outsourced teachers offer extra lessons after school, on week-ends and holidays for free. They do this because of their inspiration of passing the learner to the next level excellently.*

LG3: *Outsourced teachers are very exceptional to us. They are very courageous to all their learners. Once learners perform outstandingly in his learning area, he organizes incentives for them.*

LG4: *It is prudent for outsourced Science teachers to organize incentives for their best performing learners. This offer encourages inactive learners to work hard to receive the incentive as well.*

Research question 2a

What are the challenges which outsourced Science teachers encounter and how do they deal with them?

Outsourced Science teachers' responses:

i) Poor resources, (shortage of laboratories and Science equipment)

T32: *Limpopo schools had for long been facing a big challenge of poor resources such as laboratories and equipment. These schools find a short-term solution hence they to strike a short-term solution by arranging with the District Science Centres and local universities to use their facilities by accommodating their Grade 12 Science learners at least twice a month to conduct experiments there.*

T33: *On the question of shortage of laboratory and equipment, outsourced Science teachers strike a short-term solution by arranging with the local Science centres and local universities to accommodate their Grade 12 Science learners to use their facilities.*

T34*: Yes, our schools indeed experience a dire shortage of Science equipment. This problem cannot be solved overnight. We as Science teachers with deep knowledge of learning area's content, devise some means of performing artificial experiments using any available devices.*

T35: *On the shortage of equipment Science teachers should be innovative enough to perform artificial experiments using any available tool.*

ii) Shortage of text books*:*

T37: *Textbook shortage and late delivery of these text books have been a thorn in the hearts of education-minded citizens. There has been an outcry of non-delivery of text books to schools especially now after the introduction of a new curriculum, known as Curriculum and Assessment Policy Statements (CAPS). Teachers and learners are now vulnerable to use any document in the absence of new text books in line with the new curriculum. Teachers and learners may use study guides developed and distributed by the Department of education.*

T8: *Text books shortage prompted the Department of Education to developed and distributed study guides for terms 1 and 2, and also requested teachers to conduct lessons during the spring recess using these guides. All these moves were taken to advance the learner academic performance.*

iii) A shift of curriculum

T39: *A shift of curriculum is another challenge which draws back teaching and learning. Although the curriculum should be dynamic, curriculum changes in South Africa has become abnormal. Within a very short space of time (two decades) the country has seen curriculum shifting more than three times, viz. Curriculum 95, OBE Outcomes-based Education) and Curriculum Assessment and Policy Statement CAPS) this change of curriculum affects teaching and learning severely. Teachers have to be trained to adjust with the new curriculum. This is a time-consuming effort as the learners have to be trained as well. This endeavor deeply affects teaching and learning and so is the smooth teaching of Science. We sit down even before going for training and scrutinize the new curriculum and possess it. With us the training is just but a formality because we would be mastering the new curriculum.*

T40: *Curriculum shift is too taxing on the side of the learner development. While teachers are getting trained learners are left on their own at schools. The issue of using study guides from the Department of Education as well photocopied text books is inconveniencing as these are mere papers which easily get fade and lost.*

Research Question 2b): What are the challenges encountered by outsourced Science teachers and how do they deal with them?

Parents' responses:

i) **Shortage of text books**

P16: *This province had for years suffered severe effect of text books shortage. It is the onus of the Provincial Department of Education to improvise text books for learners as well as the teachers' handbooks, but they are unable to fulfill their obligation. As parents, we are forced to organize campaigns including different stakeholders such as community members and local business sector to fundraise for the learners' text books, as well as the teachers' handbooks and study guides and photocopying previous question papers and memoranda for the learners.*

***P17**: The question of text books shortage might be solved by a joint venture of all the stakeholders in education staging a fundraising campaign to the business sector as well as the middle-class citizens in the community. The campaign should strive to secure learners' text books, teachers' handbooks, study guides and photocopying previous question papers and memoranda for the learners which lead to the improvement of the learners' academic performance. P18: Business sector and community members should be consulted in an effort to fundraise for textbooks shortages. The campaign should embrace local businesses including towns and farms and surrounding villages.*

ii) Corruption

***P22:** Our country is inundated with outcry of corruption and this seems to be falling in deaf ears. Corruption is not limited to private sector only but highly prevalent in government departments such as education. Corruption is a stumbling block to the learners' progress. Unfortunately, in a country which is full of corruption and maladministration of the provincial departments some learners' text books are supplied very late while some books are bought and just stored in the administration offices without delivering them to the respective schools for no apparent reason". The poor learner is a no issue to corrupt citizens. This hampers and stalls progress and success of learners at schools without these needed materials.*

***P23:** Arresting corrupt officials who halt the supply of learners' text books to schools is a key to eradicate this delinquency. Corrupt official involved in non-delivery of text books to schools be arrested, prosecuted and upon conviction be given a corrective sentence.*

***P24:** Education management/stakeholders should do everything at their disposal to address corrupt practices in schools by teachers and government officials who halt the supply of text books to schools deliberately.*

***P24:** It is high time that the government stands up to take a zero-tolerance stance against corrupt people and protect the victim by imposing longer sentences on the perpetrators.*

P28: *The government should exercise zero tolerance stance by arresting, sentencing after conviction corrupt officials and expel them from their posts, lest corruption in this country shall not stop.*

iii) Poor discipline

P29: *Poor discipline is another drawback faced by outsourced Science teachers in the classrooms. Some learners just enjoy disturbing committed learners in the class through acting negatively in a destructive manner. Learners' misbehavior could be corrected by among other things imposing work assignment or any punitive labour to them.*

P30: *Poor discipline is equivalent to poor results at school. Schools with poor discipline do not produce better results. Some learners just enjoy disturbing the welfare of committed learners in the class. Teachers should however exercise their professional mandate as teachers for calling the learner to order; they may use the learners' code of conduct which enshrines all offences and their disciplinary measures.*

P31: *Schools should formulate and adopt a code of conduct for the learners which prescribe behavior that is respectful towards learners' rights. This code of conduct must establish an environment which is disciplined and purposeful as well as facilitating effective teaching and learning in schools hence advance the learner academic performance.*

P32: *The schools must formulate a learners' code of conduct which aims at establishing an environment which is disciplined and purposeful as well as to facilitate effective teaching and learning in schools.*

P33: *Poor discipline as a challenge could not only be corrected by punishing bad behaviour alone, good behaviour should be rewarded as well". Outsourced Science teachers reward good behaviour as well which motivate learners to behave well at schoolboy handing out to well behaved learners, stuff such ribbons, T-shirts, baseball caps and tote bags to recompense well behaving learners*

P34: *Ill-discipline by could be addressed rewarding good behavior through handing out ribbons, T-shirts, baseball caps and tote bags to recompense well behaving. This*

reward dangles for the poor disciplined learners to behave themselves well hence be afforded the rewards as well.

P35: *Poor discipline is an evident challenge in many schools which could be curbed by the presence of Learners Code of Conduct. We emphasise the need for the active application for a Learners' Code of Conduct in schools. P36: For schools to curb poor discipline, the SGB should adopt a Learners' Code of Conduct relating to learners which enjoins teacher behaviour that is respectful of learners' rights.*

P37*: School governing bodies should draw up a code of conduct for learners after a full consultation and negotiation with educators, learners and parents; and all students should be thoroughly conversant and compliant with. Such compliance is sure to eliminate the problems related to ill-discipline.*

Research Question 3a: What model can schools create for schools to envisage which insourced Science teachers can use?

School managers' responses:

i) Poor parental involvement

SM1: *We as school managers have realized that parents are not motivated to participate or involve themselves in the welfare of their children at schools. Parental involvement is very poor in our communities. Ironically the presence of these foreign outsourced teachers delivers a different taste to parents. These teachers are very unique, they walk straight to their learners' parents' homes to report their learners' progress and encourage them to support their children in any academic effort and needs. Sometimes they deliver their children at their respective homes from night study at schools. What a blessing they are! They encourage parents to get deeply involved in education of their children and with this kind of support and love we are now deeply involved in education of their children. This act evokes a great motivation for our kids to study very hard hence secure the best results ever. On this note, subjects responded:*

SM2 *Parental involvement is very vital for the welfare of their children. Parents should be recognizes as equal partners in education. The involvement of parents as equal partners in education of their children by outsourced Science teachers advances the learner academic performance hence escalates their output to the top echelon of Grade 12 results.*

SM3: *Parents could be willing to involve themselves in the education of their children, but they do not know how. It is the responsibility of both the government and teachers to familiarize parents with and actively involve them in the school activities of their children. Teachers alone cannot fulfill the education task completely. Parents should be encouraged to work and assist the teachers in their difficult tasks and their involvement in the education matters of their children should be improved.*

SM4: *Parents should work and assist the teachers in their difficult tasks and their involvement in the education matters of their children should be improved. The Department of Education and the private sector must empower parents with appropriate training.*

SM5: *Strong partnership with parents should be forged at schools as it benefits the school largely. Teachers and parents must be trained and work together to establish a thorough education of the child. Parents must be involved in the education of their children; a symbiotic relationship between parents and educators must be forged.*

SM6: *Teachers must be assisted and supported in their most challenging and difficult task by enlisting parents as partners in education. Parents and teachers should pose as one entity to the learner.*

ii) Overcrowding

SM7: *Overcrowded classrooms are very detrimental to the success of the child. In many schools in this province, learners are packed in the classrooms like a stack of grass. This does not augur well for the success of the learner. Learners in overcrowded classrooms hardly concentrate on the lessons but instead they*

engaged in petty stuff such quarreling, stealing and playing. It is ironic for the Department of Education to blame teachers for poor passes in an overcrowded situation. Outsourced Science teachers fold up their arms and request stakeholders to help them fundraising from the local business community to secure funds to erect structures hence alleviate overcrowding.

SM8: *In an overcrowded classroom, outsourced Science teachers ascertain that their learners are taught in small groups, (especially during experimentation times) prolonging their teaching time to the afternoon study time which makes their teaching and learning a success, and this is how they secure good passes.*

SM9: *One unnerving challenge faced by outsourced teachers is overcrowding. Teaching Science in an overcrowded atmosphere cannot be achievable. Science learners need adequate space and proper laboratory and equipment to perform practical teaching genuinely. This is not the case in many South African schools and so is in Limpopo where some lessons are still held under the trees. Outsourced Science teachers divide their learners in small groups when performing experiments.*

SM10: *To alleviate overcrowding outsourced Science teachers advise stakeholders to fundraise from business community hence secure funds to erect structures and alleviate overcrowding.*

iii) Poor Resources and infrastructure

SM11: *It is pathetic that in this Forth Industrial Revolution Era there is still a child in the new South Africa who wakes up in the morning and walk to school where innocent learner would be greeted by a soil floor under tree classroom. The poor child would suffer humiliation of the dust, scorching sun and excruciating cold. This happens in the wake of the country's immeasurable wealth. Anyway stakeholders cannot just sit and watch, they have to stand up and roll up their sleeves and fundraise for the betterment of their children's education. Proper structures have to come to place and children be taught conveniently.* *SM12: It is high time that the government, parents and business sector should stand up and ensure that classrooms are erected as a matter of urgency. On this note, responded had these*

to answer: SM13: Government should go all out to international magnates have much to secure donors to rescue their schools' situations. Outsourced Science teachers advise stakeholders to go all out to as far as overseas to convince donors to build bigger structures such as Oprah Winfrey who changed the dilapidated structure in Vele Secondary School into state of art school.

SM14: *The parents as well should stand up and fundraise from the local donors and convince them to fund larger projects such as school halls, equipped laboratory and administration block.*

SM15: *South African scholars suffer a severe blow, especially when they wake up early in the morning and faced with a daunting challenge of heading to school on foot where they have to cross the rivers without any bridge infrastructure. Some learners had lost their lives during torrential rains in an effort to cross rivers pursuing education to schools. Parents are forced to escort their children to help them cross the rivers, Poor African learners are compelled to walk to schools and arrive late, weary, wet, dusty and sweaty.*

SM16: *Learners predicament could not be limited to the washed away bridges only but to be extended to the blown-up roofs of the school structures. This harsh situation confuses the learners as well as the teachers who just stand vulnerably in the school premises, not knowing what to do.*

SM17: *Stakeholders should work hand-in-hand and collaboratively to secure resources which compel teachers to stay put at schools teaching the learners. This obligates teachers to teach effectively as they are ever at schools with the learners.*

SM18: *Parents should improvise resources for their learners at schools which enhance teachers to teach effectively and committedly. Well resources and apt equipment obligates teachers to stay put at school with learners.*

Research Question 3b: What model would you create which schools can envisage for insourced teachers to improve their learner academic performance as well?

Curriculum advisors' responses:

i) Periodical renewal of contracts

CM1: *All foreign nationals are contractually employed, and their contract should be renewed periodically. Unfortunately, the position now is different as employment of foreign educators has been rescinded, not only in South Africa but worldwide.*

CM2: *The international policy on withdrawal of employing foreign nationals in other countries has severely affected teaching and learning, especially in scare skills learning areas such as Physical Science. Wow! These people have been doing well in our schools and we do not know how to replace them because South African homebrew Science teachers migrate to industry and other private sectors in pursuit of greener pastures.*

CM3: *Periodical renewal of outsourced teachers does not augur well insofar as the learner's welfare is concerned. We do not expect a bull rejoicing when confronted with an abattoir and on the same breadth we cannot expect a teacher to perform well knowing fully well that his contract is on the verge of expiry. Nonetheless these outsourced teachers, through their guts and dedication coupled with a sense of professionalism, ignore all the demerits and focus on prospering the learner, hence teach effectively and achieve greatly at the end. Indeed, they are professional teachers who preserve the love of the child right deep at heart.*

CM4*: A prominent challenge of outsourced Science teachers is their employment stoppage in public schools and endorsement of their employment in private schools. In public schools' renewal of their teaching contracts is done periodically and this depends on their output which obligates them to work harder than ever in fear of losing their beloved jobs.*

ii) Xenophobic attacks

CM5: *This province is foreigner-friendly as opposed other provinces where there are sporadic incidents of xenophobic attacks. Communities embrace us a warm*

welcoming as their children's mentors. All community members ranging from parents to learners are very friendly to us and they even vouch to protect us in the wake of senseless xenophobic attacks.

CM6: *We love foreign national teachers as they man scare skills subjects such as Science and Maths. The community is obliged to offer them residence and security right on their arrival.*

CM7: *Community should care for and love outsourced teachers as they do to their children. We workshop parents and learners to embrace foreign teachers. These teachers are a bonus and God-given answer to our lovely children's future. For them to teach effectively, we first give them shelters and security as a priority'.*

iv) Lack of laboratory and Science apparatus

CM8*: Shortage of laboratory and equipment is another setback against securing a sound success by learners in Science. We always take the Department to task on these aspects. Due to mountains of responsibilities, the government alone cannot satisfy every school's needs, but gradually they will be there. The department is gradually striving to attain laboratory and equipment for Science learners; provisionally, artificial experimentation could be the solution, and this is what outsourced Science teachers could be using.*

CM9: *A major challenge faced by our school is the lack of laboratory and Science apparatus. Teaching Science without laboratory and Science apparatus is just but walking with learners in a dark tunnel. To alleviate this malady, we agree with our teachers and parents to take the learners to the nearby well-equipped nearby Science centres as well as universities to perform experiments.*

CM10: *Jointly with parents and other stakeholders, outsourced Science teachers encourage and commit their learners to exchange programmes in which they enjoy new faces and new environment.*

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Editing and Proofreading Report

24 March 2020

This letter serves to confirm that I, Dr I. Ndlovu of the English Department, University of Venda, have proofread and edited a PhD thesis titled “The effect of outsourced Science teachers on learner academic performance: An educational management perspective.” by Nesane Mmbengwa Alfred Nesane, a research thesis to be submitted in fulfilment of the requirement for the degree of Doctor of Education in the School of Education in the Department of Education Management at the University of Venda.

I carefully read through the proposal, focusing on proofreading and minor editorial issues. The recommended suggestions are clearly highlighted and can either be accepted or rejected using the Microsoft Track Changes Function.

Yours Sincerely

Dr Isaac Ndlovu, PhD
Lecturer: English Department
University of Venda
Private Bag X5050
Thohoyandou 0950
South Africa
Tel.: +27 15 962 8305
Fax: +27 15 962 4749
E-mail: isaac.ndlovu@univen.ac.za