MIDLANDS STATE UNIVERSITY

FACULTY OF EDUCATION

DEPARTMENT OF APPLIED EDUCATION

FACTORS WHICH INFLUENCE PERFORMANCE OF BIOLOGY STUDENTS IN GWERU DISTRICT SECONDARY SCHOOLS.

By

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R141879X

A DISSERTATION SUBMITTED TO THE MIDLANDS STATE UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR BACHELOR OF EDUCATION IN BIOLOGY

GWERU

ZIMBABWE

2018

MIDLANDS STATE UNIVERSITY

FACULTY OF EDUCATION

DEPARTMENT OF APPLIED EDUCATION

APPROVAL FORM

The undersigned certify that they have read and recommended to the Midlands State University for acceptance as a dissertation entitled: Factors which influence performance of Biology students in Gweru District Secondary Schools.

_____ _____

Student Date

_____ _____

Supervisor Date

_____ _____

Chairperson Date

DECLARATION

I hereby declare that this study, "*Factors which influence performance of Biology students in Gweru District Secondary Schools*" is a true reflection of my own research, and that this

work, or part thereof has not been submitted for a degree in any other institution of higher learning.

_____ _____

Otilie .O. Shalongo Date

DEDICATION

This work is dedicated to my mother Olivia Moses for her supports, motivation and prayers for my study. This study is dedicated in memory of my late father Martin Shalongo who did not stand a chance to witness and enjoy my success.

Credit should also be given to Mr. David Hashili family for financial support they gave me and motivation. Without your financial support, this study would have fallen through.

I want also to dedicate this project to my sisters, brothers and my cousin Nangolo Elias for their comfort, inspiration, support and courage that they gave me during the production of this work.

ACKNOWLEDGEMENT

I would like to thank the almighty God for his protection, strength and guidance through the course of my study, without his support nothing could have been possible.

I would like to show gratitude at my supervisor for her unwavering support in directing and guiding me throughout the dissertation. She made this dissertation to be successful, I really appreciate her assistance

Credit should also be given to the Ministry of Education for allowing me to conduct my research at selected schools. I also want to thank biology teachers and Head of Department (Science) for their participation in my project and for the information gathered from them.

I would like to express my gratitude to Namibia Students Financial Assistant Fund (NSFAF) for sponsoring my study.

My sincere gratitude also extended to all my family members, friends and colleagues for their contribution towards the success of this project.

ABSTRACT

The purpose of this study was to investigate the factors which influence performance of Biology students in Gweru District Secondary Schools. The study also aimed at finding out strategies which can be used to improve performance of students in Biology. Data was collected from three schools through questionnaires and interviews. A descriptive survey design was used during the study. This study comprised a sample of 15 participants and a total of 3 secondary schools in Gweru Urban District. The study targeted biology teachers and Head of Departments (science). Stratified random sampling was used to select schools; head of sciences department for Biology were purposively sampled. Datas were collected from 11 Biology teachers and 4 heads of department from different schools. Data collected were presented using tables and verbatim. The data was presented and analysed both quantitatively and qualitatively. The findings revealed that 100% of teacher respondents indicated that there are factors which influence the performance of students in Biology. The findings revealed that parents, learner's profiles, physical resources, financial resources, home environment, language as medium of instruction, the lengthily syllabus and use of textbooks, educational resources at home, attitude, lack of datas, transformation process were the major factors that influence student's performance in Biology in Gweru District Secondary Schools. The study further revealed that field work, team work, inquiry approaches, teacher competencies, resources centers and positive attitudes are some of the strategies that can be used to improve performance of students in Biology. The study recommends a special levy for Science should be introduced in schools to raise funds that can be used to purchase laboratory apparatus and ICT equipment necessary for teaching and learning sciences, The Provincial and District Offices should carry out constant and frequent supervision in schools to ensure that teachers implement policies that are in line with the teaching and learning of Biology at all levels especially on the provision of practical work.

The Ministry of Primary and Secondary Education should organize seminars and workshops for Biology teachers.

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ACRONYMS

COSC	Cambridge Overseas Schools Certificate
FGN	Federal Government of *Nigeria*
HOD	Head of Department
ICT	Information Communication Technology
O' Level	Ordinary Level
UCLS	University of Cambridge Local Syndicate
STEM	Science Technology Engineering and Mathematics
TV	Television
SMASSE	Strengthening Mathematics and Science in Secondary Education
SPSS	Statistical Package for Social Sciences
ZIMCEC	Zimbabwe School Examinations Council

CHAPTER 1: THE RESEARCH PROBLEM

1.0 INTRODUCTION

The aim of this study was to get an overview on the factors which affect the performance of students in Biology in Gweru Urban District Secondary Schools. In this chapter, the researcher looked at the background of the study, the statement of the problem and the research questions are also formulated on which the study is based. The researcher also looked at the significance of the study, limitations and delimitations of the study. Lastly the researcher also defined some terms. The chapter ended with a summary.

1.1 BACKGROUND TO THE STUDY

The researcher aim was to research on the factors influencing the performance of students in Biology in Gweru District Secondary Schools. Moreover the researcher also looked at some strategies that can be used to improve the performance of students in biology in the 3 selected schools. This study is a contribution to teacher's skills and, student and head of science departments since they will get an insight on the factors which affects the performance of student in biology as well as some insight on measures that can be used to improve the performance of their learners.

Zimbabwe education system is modelled on the British education system, especially one that followed the colonial model that applied to many of the British colonies. Cambridge, for instance, is a leaving legacy of the colonial type of education that is still practised in some of the former Germany colonies. A recent study (Ambrose 2008) explains that the Cambridge Certificate Examination is set by the University of Cambridge Local Syndicate (UCLS) and functions administratively as a department of the University of Cambridge in the United Kingdom (UK). According to Ambrose (2008) explain the term Biology as a study of living organisms, divided into many specialized fields that cover their morphology, physiology, anatomy, behaviour, origin, and distribution. Biology is a very important subject. It enables one to understand him or her and the surrounding environment. The knowledge acquired in Biology is applied in many fields such as medicine, pharmacy, nursing, dentistry and agriculture. Students' performance in Biology in Gweru District Secondary Schools has been unsatisfactory over many years. Various reasons have been put forward by scholars to explain the cause of the poor performance.

Robler and Doering (2013) state that in New York, the use of ICT and practical work through fieldwork or field trips evolved from too many approaches namely, directed and constructivist instructional methods.

Woolfolk (2013) explain that constructivism emphasise the active role of students in building understanding and making sense of information through discovery, problem solving and many other constructivist methods of learning through interaction with their environment.

Biology has been identified as a STEM subject currently by the government and the Ministry of Education. The Herald, Thursday, 10th November 2016, the Ministry of Education seeks to promote the learning of Science Technology Engineering and Mathematics which are known by the abbreviation STEM. The Ministry has launched multimedia outreach programme to encourage pupils who took the O' level examination in 2015 with Grade C or better in Biology, and other science subjects to take a combination of the STEM subjects at A' level as from 2016. During the teaching and learning of Biology , teachers need to make sure the pupils have grasped the concept being taught thus through the use of teaching aids, fieldtrips and other teaching methods that will enable both teachers and pupils to teach and learn effectively.

1.2 STATEMENT OF THE PROBLEM

While the poor academic performance is a national problem, this study has narrowed its focus to Biology performance at 3 selected high schools in Gweru District Secondary Schools. Given the large coverage of Biology content in this subject and its rigour, there is a notable under-achievement in the subject. As a result, there was a need to investigate what actually are the factors that influences the performance of students in Biology.

1.3 RESEARCH QUESTIONS

The study was guided by the following questions:

1.3.1. What are the factors which influence performance of students in Biology in Gweru District Secondary Schools?

1.3.2. What strategies can be used to improve performance of students in Biology?

1.4 SIGNIFICANCE OF THE STUDY

Biology teacher

The findings from this study would assist Biology teachers in understanding how to teach the subject. The finding from this study might also be helpful to Biology teachers in the evaluation of teaching and learning of Biology thus helping in putting in place the strategies aimed at improving teaching and learning of Biology subject in schools. The findings of this study might also contribute to new knowledge that might help Biology teachers to find solutions to the problem of learners who are not performing well in the subject. Furthermore, teachers might also benefit from this study as the findings may be of value to teaching and learning strategies and teaching and learning resources in implementation of Biology curriculum.

School administrators

They would benefit from suggestions on how to ensure an enabling learning environment for students and teachers to enhance performance in Biology.

Policy formulators

Would gather useful information which would shed light on why the interventions so far implemented not so far yielded required outcome. The study results would benefit policy makers as they would get to know the real insight on the factors which influence the performance of Biology in Gweru District secondary schools as well as the country at large.

The pupils or learners`

Biology is beneficial to learners as it stimulates active learning (active recipients) and learners construct their own knowledge and understanding through discovery as the learning become learner-centred especially in practical works. This would also contribute to improved practical skills that will make it easier for the learners to apply given any examination situation.

The researcher

The researcher would also benefit from the study, since the study is carried out in the partial fulfilment of the studies she is pursuing. The research is part and parcel of the researcher's studies. It would benefit the researcher as one of the stakeholders who faces the challenges in

the teaching and learning of biology. The researcher had acquired relevant skills that would help her with the tasks of planning instruction, preparing education materials and learning experiences for pupils in Biology.

1.5 DELIMITATION OF THE STUDY

The research was carried out during the final year of the researcher that is June2017-June 2018. There are many schools in Gweru Urban District. This study was limited to three high schools. The researcher saved on time and financial resources to be used for the study. These schools can be categorised as government boarding-day high school and government day high schools. For equal representation the researcher selected one school from each group. The sample involved the heads of department (science) and the Biology teachers. These schools were chosen because they offer science subject in this case Biology. These are mixed high school that offer places for both boys and girls.

1.6 LIMITATIONS OF THE STUDY

Some of the limitations of the study are time, cost, official secrecy act, respondent based biases and bureaucracy. These are as outlined in the detailed sections below.

1.6.1 Time

The study was conducted over two semesters only, thereby limiting the time devoted to the research study. The period was limited to such an extent of the research was negatively affected by this factor. To try to curb this limiting factor, the researcher worked closely with the supervisor and responds in time to all advice and comments given. The research study also had greater depth and detailed had it been conducted over a longer period. The limited time therefore negatively affected the validity and reliability of the research. So, the researcher tried by all means to follow the advice and comments of her supervisor to avoid re- writing.

1.6.2. Cost

The research study required a lot of money for stationery, transport from the Midlands State University to the selected school. The production of the actual project required a lot of money. The researcher tried her best by following the supervisor's comments throughout the process to avoid much financial constraints.

1.6.3. Respondent based biases

The reliability of the research study was exaggerated by respondent based biases. Some respondents were not truthful in their responses due to reasons like impressing the researcher and hiding certain information from the researcher. Some respondents responded in a

direction that was socially accepted to protect their schools. To counter this, the researcher used as many as possible research instruments in order to improve the quality of research results.

1.6.4. Bureaucracy

The researcher's freedom of probing for information was delayed by bureaucracy in offices such as those falling under the Ministry of Primary and Secondary Education. Some information took time to be acquired due to the interfering of the concerned organization. Failure to access certain information affected the validity of the research. So, the researcher tried to work on time and maintain good relations with the Ministry. The researcher wrote a letter to the Harare research and development centre to be granted a permission to conduct a research in their region.

1.7 DEFINITION OF TERMS

For the purpose of this study, the following definitions applied to the terms selected as key to the study**.**

Records: Silverman (2010) explains that records reveal what people did and what they value.

Attitude: Generally it is defined as a complex mental state involving beliefs (Hussain, Ali, Khan, Ramzan and Qadeer, 2011).

Financial resources: refers to the capital the school uses to finance both the ongoing and long-term operations (Lunenburg 2010)

Field work: A room used by teachers and pupils for the study of any branch of science for example Biology through experimentation and observation, (Ritchie, and Rigano, 1996).

Language: is not only a tool for communication but it is also a resource for creative thought, a framework for understanding the world, a key to new knowledge, human history and a source of pleasure and inspiration (Kern 2008).

1.8 SUMMARY

This chapter is the introduction to this study. It consisted of the background of the study to which looked on the factors which influence the performance of biology and strategies which can be used to improve the performance in Biology. It further looked at the statement of the problem, which illustrated on the purpose of the study carried. Research questions were also formulated such as to: what are the factors which influence the performance of Biology in Gweru District Secondary Schools? and strategies which can be used to improve the performance in Biology. Limitations of the study are also included in this chapter and this

includes Biology teachers, school admistraters, just to mention the fews. Morever; delimitation of the study had also been looked at such as time, cost, bureaucracy and respondent based biases. And lastly terms were defined and these terms are: records, language, fieldwork, financial resources and attitude.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0 INTRODUCTION

The review of related literature shapes the current research and this helps the researcher to produce findings that have validity and reliability.

2.1 FACTORS WHICH INFLUENCE PERFORMANCE OF STUDENTS IN BIOLOGY.

Attitudes

Attitude is important in understanding human behaviour. To define what exactly an attitude is, many attempts have been made in literature. Generally it is defined as a complex mental state involving beliefs (Hussain, Ali, Khan, Ramzan and Qadeer, 2011).It is an individual's prevailing tendency to respond favourably or unfavourably to an object, person or group of people, institutions or events (Barros and Elia, 1997). Despite the fact that science informs our thoughts and behaviours, many people do not seem to place a high value on science. Studies by Rogers & Ford (1997 shows that the general public (non science majors) do not generally have positive feelings towards science and scientists.

Attitudes determine what each individual will see, hear, think and do. They are rooted in experience and do not become automatic routine conduct. Attitudes can be positive (values) or negative (prejudice). Attitude towards science denotes interest or feeling towards studying science. It is the student’s disposition towards like or dislike in science. Attitude in science means the scientific approach assumed by an individual for solving problems, assessing ideas and making decisions in the sciences (Olatunde, 2009).

Teachers have a decisive role in any educational system and their competencies do not automatically ensure positive attitudes towards the teaching process. To put it simply, teacher attitudes are important because they affect the student. Teacher attitudes play a significant role in shaping the classroom environment which has an impact on a student's self efficacy which in turn influences a student's behaviour. All of these factors which can be loosely categorized as environment, personal factors, and behaviour interact and play off each other in a cyclical way (Woolfolk, 2007).

Papanastasiou (2001) reported that those who have positive attitude toward science tend to perform better in the subject. The affective behaviours in the classroom are strongly related to achievement, and science attitudes are learned (George & Kaplan, 1998). The teacher plays a

significant role during the learning process and can directly or indirectly influence students attitudes toward science which in consequence can influence students' achievement. Teachers are, invariably, role models whose behaviours are easily mimicked by students. What teachers like or dislike, appreciate or disapprove and how they feel about their learning or studies could have a significant effect on their students. By extension, how teachers teach, how they behave and how they interact with students can be more paramount than what they teach (Kwale SMASSE, 2004).

Student beliefs and attitudes have the potential to either facilitate or inhibit learning. Burstein (1992) in a comparative study of factors influencing Mathematics achievement found out that there is a direct link between student's attitudes towards Mathematics and student outcomes. Studies carried out have also shown that the teachers method of teaching mathematics and his personality greatly accounted for the students positive attitude towards Mathematics and that, without interest and personal effort in learning Mathematics by the students, they can hardly perform well in the subject (Olatunde, 2009).

In relation to science subjects, Halladyna and Shanghnessy (1982) concluded that a number of factors have been identified as related to student's attitude. Such factors include; teaching methods, teacher's attitude, influence of parents, gender, age, cognitive styles of pupils, career interest, societal view of science and scientists, social implications of science and achievement. Empirical studies have revealed the influence of methods of instruction on student's attitude towards science. Kema and Dube (1974) worked on the influence of science instruction; the result was that attitude becomes more positive after instruction. Long (1981) also concluded that diagnostic-prescriptive treatment promotes positive attitude. Hough and Peter (1982) further found out that groups of learners who scored significantly high in science achievement test also scored significantly high in attitude test. Gibbons, Kimmel and Oshawa (1997) opined that students attitudes about the value of learning science may be considered as both an input and outcome variable because their attitudes towards the subject can be related to educational achievement in ways that reinforce higher or lower performance. This means that those students who do well in a subject generally have more positive attitudes towards that subject and those who have more positive attitudes towards a subject tend to perform better in the subject (Olatunde, 2009). Akin made (1992), has confirmed that students" attitude toward science are sine qua non for higher achievement in science.

Student's attitude toward the learning of Biology (a science subject) is a factor that has long attracted the attention of researchers. Ojo (1989) and Adesokan (2002) asserted that in spite of realization of the recognition given to Biology among the science subjects, it is evident that students still show negative attitude towards the subject, thereby leading to poor performance and low enrolment. According to Bassey, Umoren and Udida (2008), student's academic performance in Biology is a function of their attitude. Attitude as an affective construct has been described as the basis for both intellectual preparedness and motivation in learning.

Home environment

Research on poor academic performance was conducted on African Americans Saiduddin (2003). The study found that factors influencing biology performance are poverty, cultural differences, unstable homes, drug abuse and teenage pregnancy. African Americans learners are exposed to a similar negative environment at home as learners in South Africa also come from poor family backgrounds. The exposure of the youth to negative role models from an early age contributes not only to poor performance but also to learners dropping out. Hence, research has found that children from intact homes were less likely to repeat a school grade even when socio-economic status was removed statistically. Learners from unstable families are emotionally disturbed and therefore tend to under-perform, Adell (2002). In South Africa, the researcher found that parents who abuse substances could not model the correct behaviour or be of any assistance, let alone motivate their children.

In contrast, it has been found that internationally, poor academic performance is a problem that manifests itself not only in poor communities but also in countries that are classified as developed. The ability to control one's environment is directly related to self-esteem. Since African Americans had little control over their educational environment and perceived their educators expectations of them as low, they often performed poorly. In turn, their underperformances then reinforced their negative self-image. Where such assistance does not occur due to parents being migrant workers, learners struggle to adjust to school requirements while their academic performance is negatively affected; preventing them from achieving required results for university entrance (Wilson & Black, 1978).

Physical resources

For the school to operate as expected there must be enough physical resources enabling the transformation process to occur easily. Physical resources include the equipped science

laboratory and the library. Biology is learned better through involving learners and this is achieved only by letting learners to carry out practicals on their own. In Lesotho, most schools do not have equipped science laboratories and this affects Biology performance negatively. Jackson (2009) supports this by saying that many of the laboratories in some schools are inoperative because of lack of equipment to carry out practical exercises. These include lack of gas, running water, electricity to name just a few. In support of this, Machobane (2000) points out that more schools in Lesotho are talk chalk and they do not have proper resources hence teaching and learning becomes difficult. Therefore, lack of resources such as equipped laboratories contributes to poor performance since Biology is learned better through hands on activities. Words alone are insufficient to explain concepts to learners to capture and retain their attention and interests. Hands on activities facilitate the understanding of science.

Learner profiles

The performance of learners should be investigated in line with their opportunity-to-learn indicators (learner-profiles). Indicators such as attendance of classes would highlight anomalies regarding his or her attendance, which might be regular or irregular and such indicators are early signs that might determine whether learners will perform well academically or not and remedial measures could be implemented before it is too late. Learner-profiles also indicate the positive effects of participation of learners in extra-curricular activities, in Wisconsin where learners involved in extra-curricular activities tend to improve in their performance unlike those who are not participating (Burmaster, 2005). The student profiles include things such as entry behaviour, study time, peer group influence and aspiration. They vary from one individual student to the next. According to Kwale SMASSE (2004) baseline findings, there is a general feeling among students that Mathematics and Sciences (Biology included) are difficult subjects. This feeling was found to be greater in girls than boys. The feelings were found to be due to; socio-cultural attitudes, teacher's attitude or predisposition towards the students, school culture, teaching methodology and performance. This study intends to further this work and determine to what extent the stated issues might be contributing to poor performance in Biology.

Furthermore, learners are seen to play a major role in affecting Biology performance in high schools. They ignore the work assigned to them and they do not show any interest in their school work. Jackson (2009) has the opinion that learners affect performance negatively. He argues: Lack of learners discipline affects performance badly. Some learners are ill

disciplined, uncontrollable, and difficult to work with in class. Such learners deliberately ignore instructions from teachers, leave the class during lessons, come to school late or disappear before school close. Learners' background affects Biology performance too. Learners with poor scores in integrated science at junior level tend to perform badly in Biology as they do not show any kind of motivation. Uzoechi (2009) supports this by saying that learners' knowledge backgrounds in Biology have significant effect on learners' performance. A learner, therefore, with poor background is likely to have poor performance in Biology.

Parents

In order for the school to achieve good results, people involved including parents should work together (Norlin 2009). The major role of parents in education is to pay schools fees on time and to buy books for their children. However, most parents do not play this role as expected. And this affects Biology performance negatively as some learners are expelled from school for fees and come after a longer period of time. Nzelum (2010) explains that parental involvement in children's education has a definite impact on learners' level of academic success. Rouse and Barrow (2006) have observed that economically disadvantaged parents are less able to afford the cost of education of their children and learners do not do their work to their fullest potential because sometimes they are expelled from school for fees. During their absence, the learning and teaching still occur as normal and this affects performance as some learners who would get better grades would not make it to the end of the course.

Language as a medium of instruction

Language is not only a tool for communication but it is also a resource for creative thought, a framework for understanding the world, a key to new knowledge, human history and a source of pleasure and inspiration (Kern 2008). In Zimbabwe, English is used as a medium of instruction for all subjects except in teaching Shona. But it imposes many problems leading to low performance in Biology. Learners fail to understand concepts presented to them in English and in trying to discuss them, this leads to misconceptions hence low performance. They even fail to understand concepts presented to them in Biology textbooks. Seotsanyane (2002) supports this by saying that most learners are not fluent in English and this affects their Biology performance negatively as they cannot express themselves fully when answering the questions.

The lengthily syllabus and use of Biology textbooks

The Biology curriculum is overloaded with facts and the syllabus is very long (Dillion 2008). The other information resource affecting Biology performance is the lengthy syllabus which is difficult to cover. In order to finish the Biology syllabus, teachers thought to have extra lessons during weekends or during winter breaks. Failure to do this result into poor performance as it is difficult to cover the whole syllabus. To add on this, there is a shortage of textbooks for learners. Parents are not doing their responsibilities as expected and indeed this affects Biology performance negatively in Zimbabwe. Text books play a very important role in the learning of Biology since learners have the chance to extend their learning at home. The absence of textbooks affects Biology performance negatively since learners depend on notes alone. The notes themselves are never adequate.

Records

There are various importances for keeping the school records. Silverman (2010) explains that records reveal what people did and what they value. They are used to gain knowledge and insight on behaviour of the people involved. School records tell the history of the school and are useful historical sources (Durosaro 2007). Records further provide the information needed on ex-learners either for institutions or for research purposes.

Financial resources

Financial resources refer to the capital the school uses to finance both the ongoing and long-term operations (Lunenburg 2010). Lack of financial support at any school affects performance negatively. In order for the transformation process to occur as expected, there must be aids facilitating the process of teaching and learning. Learners understand better if teaching aids are used. Most schools that take part in this study do not have the financial support. This affects Biology performance negatively as it is difficult to buy teaching aids. At the situations whereby schools do not have enough grants it is difficult for the schools to hire qualified teachers due to lack of funds. Indeed lack of capital affected Biology performance negatively in Zimbabwe. Jackson (2009) supports this by explaining that words alone are insufficient to explain concepts to learners to capture and retain their attention and interests. Educational resources prevent the blind memorization of words without any association to definite object. Akiri and Nkechi (2009) argue that ineffective teaching is due to conditions

such as lack of recourses facilitating teaching, and this result into negative influence on the student's performance.

Transformation process

Teaching, at its simplest, is a form of interaction a particular form of exchange of knowledge, skills and understanding (Brenner, 2004). Effective teaching comes from the knowledge of the relationship between classroom process measured through observation of systems and student outcomes, most notably gains in standardized achievement test. However, some principles on effective teaching are rooted in logic of instructional design, for example, instructional methods (Corno and Snow, 1986).

The way Biology is taught and assessed could be regarded as one of the factors affecting Biology performance. Biology is taught differently in different schools due to lack of teaching aids. The teaching style plays a very important role in the academic success of learners. Lack of knowledge about the teaching style affects academic performance of learners negatively said Ayaoye (2010). In teaching Biology, teachers used discovery, group discussion, demonstration, lecturing, research and demonstration. They explained that they could not use experimentation due to lack of equipped laboratories at their schools and indeed that affected Biology negatively as learners were not exposed to practicals. Lecturing according to Wood (2009) is a traditional method that failed the majority of learners who view Biology as a collection of disconnected facts with little relevance to their lives. This method of teaching contributes a lot in low performance in Biology as teachers have the full responsibility in presenting facts and principles while learners are regarded as empty vessels without ideas (Thomas 2013). As for other methods mentioned above, except for lecturing, learners contributes in learning as they are involved in the process instructional quality in schools. This may translate to poor academic performance, attitude and values.

If students are to learn science, we must give them respect for observation rather than the pronouncement of textbooks (Garson, 1988). This is more so important after the findings of Kwale SMASSE (2004), project baseline studies which found that most science teachers enter into the activity of teaching armed only with textbooks. There are some features about science (Biology) that have implication on how it should be taught (Fisher, 2003). Science is about constructing meaning out of knowledge. It is not a simple matter of a teacher ascertaining whether or not a student has understood a concept (Winn, 1993) because the

construction of knowledge comes about through the need to assimilate, translate and accommodate knowledge into our schema of existing ideas.

According to Khatete (1995), constructivism brings about the desired outcome of conceptual change by creating a conflict between the student's naive ideas and the accepted scientific ideas. It is the role of the teacher to establish the students ideas in a given concept area then introduce analogies of accepted scientific concepts so that the student can compare their own conceptions with the biologically accepted concepts. This may lead to a better understanding of the scientific concepts hence greater achievement in sciences- in this case Biology.

2.2 STRATEGIES WHICH CAN BE USED TO IMPROVE PERFORMANCE OF STUDENT IN BIOLOGY.

A study of 44 schools in 13 districts in the United States, Canada, and Australia by the Centre on Education Governance, found that schools that implemented school-based budgeting and focused on actively restructuring curriculum and instruction were able to improve learner performance. The schools also had to have meaningful authority over the budget, personnel, and curriculum. However, where school-based-budgeting failed it was found that school-based budgeting was viewed as an end in itself rather than a way to focus on improving teaching and learning (Wohlstetter (1995) cited by Stiefel et al. (2001).

Field work

Fieldwork is one of the effective methods of teaching Biology at all levels. Fieldwork involves the learning of Biology outside the classroom when treating some topics such as pollution, ecology and other topics. It involves out-of classroom activities, including practical work in the school premises. This is the field whereby science becomes alive and where acting locally becomes thinking globally. During fieldwork, young people have the opportunity to have hands on experience outside the classroom, and this enables them to recall easily the activities they have done during fieldwork. Baker, Slingsby and Tilling (2002) argue that, every little Biology from school, it is often the fieldwork aspect that is first recalled. It seems that we all remember what we saw and what we did more. They further indicated that in the field of education whereby there is a mixture of teaching and learning approaches including hands on and differentiated learning, which characterize much outdoor teaching, fieldwork does help the need of the whole class. Fieldwork in the teaching of Biology is found to be very advantageous to both learners and teachers in various ways.

Therefore, if employed in the teaching of Biology in Zimbabwe one would expect better results in the future.

The inquiry approach

The other approach that can yield good results if employed in the teaching of Biology in Zimbabwe is the inquiry approach. It deals with the understanding of the nature of science. It requires the constant asking of questions about how and why things happen the way they do. Scientific inquiry is crucial for defining the characteristics of scientifically literate persons (Ogunmade 2005). Understanding of the nature of scientific inquiry is an important goal of science education as it enables teachers to be creative and enrich learners' abilities in understanding science concepts and processes.

The inquiry learning takes the form of investigation or practical work amongst learners. It involves learners investigating, asking authentic questions and constructing reasonable explanations for the questions formulated through an inquiry approach in science teaching and learning so that they understand the world around them and become scientifically literate. Also scientific instruction in Biology enables learners to formulate their own questions, devise ways to answer questions through data collection, analyze and determine the reliability of the knowledge acquired. Ogunmade (2005) further indicates that through inquiry-oriented teaching, teachers could help learners to build their interest in the materials and activities. It can encourage their thinking and discussion for a variety of investigatory paths which fits the lesson content and learners' intellectual level with everyday social application problems.

Edelson, Gordin and Pea (1999) further argue that participation in inquiry can provide learners with the opportunity to achieve three interrelated learning objectives: the development of general inquiry abilities, the acquisition of specific investigation skills and the understanding of science concepts and principles. As a result, inquiry learning was called for by many governments and curriculum developers. The Lesotho Junior Certificate curriculum also encourages the use of this approach. Therefore, it is through this approach and others involving learners that can change Biology performance in Zimbabwe as well. In Nigeria, the inquiry approach has been recognized as a crucial teaching strategy for improving student learning of science (FGN 1998). The National Policy on Education (FGN) (1998) affirmed that the teaching of Biology in schools should be guided by discovery and inquiry approaches. However, studies indicate that inquiry teaching and learning approaches are rarely practical in science classrooms because of lack of resources for effective practical work, among other factors (Ajewole 1994).

Over the years, research in science education has compared inquiry-based and traditional teaching and learning approaches in science (Bell et al. 2003). A typical example is that of Lott (1995). Lott (1995) conducted an analysis of 39 studies involving exposing and inquiry-oriented approaches in science and found that teachers who encouraged inquiry approaches in their teaching have learners who perform better than those taught used traditional approaches when higher-level cognitive processes were emphasized, but perform equally well on low-level cognitive processes. Thus the inquiry-based approach helps to develop a high level of cognitive skills in learners and improves learning outcomes among learners. If Biology teachers in Zimbabwe could use inquiry approach in their teaching, learners would understand concepts much better.

Ogumbowale (2001) points out that the broad scope of the science curriculum and emphasis on quantity of content coverage are the major constraints on inquiry approaches in science teaching and learning in Nigerian schools. However, the literature suggests that when teachers teach less content, they teach it better by introducing ideas in a variety of ways and thus encourage learning (Wenning 1997). For this study, science inquiry could be referred to as an approach in which teachers create an enabling environment for students' curiosity and engage them in scientific investigations to solve problems that satisfy their ideas about the natural world. Through engaging learners in inquiry method their understanding of science could be facilitated. As a result, they could be able to interpret questions correctly even in the examination. .

Teamwork

According to Fearon (2008) team work is described as an instructional situation where two or more teachers possessing complementary teaching skills cooperatively plan and implement the instruction for a single group of learners using flexible scheduling and grouping techniques to meet the particular needs of learners. In order to improve Biology performance teachers thought of teamwork and development of school clusters whereby teachers could work together to solve problems they experienced at their various schools. Teamwork involves teachers planning together for a certain group of learners and helping one another in presenting some topics. Yates (2000) explains that if the transformation process fails to go as planned due to failure of the teacher to present the content, teachers opt for team teaching.

Team teaching enables the transformation process to occur at ease because teachers help one another. A school cluster is a group of schools working together to achieve a common goal. It involves teachers from different schools working together and encouraging one another to find ways of improving their teaching and skills for better learning (Nwagbo, 2008). Through teamwork and development of school clusters Biology performance could change to the better as teachers would work together to achieve the common goal.

Teachers should work as a team at schools even during cluster meetings in order to find solutions for the existing problems. A cluster is formed by the neighbouring schools working together to achieve a common goal in education which is to produce better results. During cluster meetings, teachers are free to tell their problems pertaining to the teaching and learning of Biology at their schools. And it is in these meetings where problems experienced by Biology teachers get solved.

Resource centres

Biology performance could also be improved through the development of resource centres. Resource centres would help a lot as they could provide help and material resources aiding the process of teaching and learning. Through the development of the resource centres, schools can rent apparatus, charts and even to buy chemicals at small quantities. Biology teachers also thought of giving learners more work and had remedial lessons so as to finish the long syllabus. Methods of teaching Biology at present did not produce better results and these prompted teachers to devise methods of teaching so that a lot of work would be done by the learners instead of them. However, due to lack of equipped laboratories teachers proposed improvisation. Ndirangu (2003) explains that improvisation is the act of creating something in the absence of the ideal tool as a result of lack of funds not having access to the resources needed to perform an experiment.

According to Ralenala (2003) thousands of schools still have poor physical infrastructure and many are dilapidated, dangerous, and unfit for human habitation. There is often no water on site or sanitation thus such conditions do not only restrict the teaching and learning activities of the school but also threaten the health of learners and educators as well. This could influence absenteeism of both learners and educators. Problems encountered regarding the academic performance of high school learners in the whole of South Africa, also apply to Limpopo Province. There is a strong relationship between learner performance and the quality of the facilities available to learners. Several schools do not have laboratories and the

situation simply means that learners learn science by rote learning and some of them even complete their high school education without ever having seen a beaker (Ralenala, 1993). Ralenala quoted an article in the Sunday Times of 27 July 2003, titled: Are we making progress? where Potenza points out that only 27% of the schools in the country have libraries. Gweru District Secondary Schools are examples of such schools where facilities are not available. For example, both schools do not have laboratories; administrative blocks and at one of schools, only the Head masters have an office.

Positive attitude

Despite the fact that science informs our thoughts and behaviours, many people do not seems to place a high value on science. Studies show that the general public (non science majors) do not generally have positive feelings towards science and scientists (Rogers and Ford 1997). A positive attitude towards science may improve students' academic performance not only in science classes, but also in other subjects as well. It is therefore in the interests of the society, and the responsibility of educators, to improve student's attitude towards science and to prepare students to live in a highly technological society. The future of our society will be determined by citizens who are able to understand and help shape the complex influences of science and technology on our world (Ungar, 2010). If the students change their attitude towards science subjects, the performance in their results will definitely improve since they will dedicate more time towards learning the science subjects.

Teachers' competency

The impact of the teachers on performance in any subject is very high. The teachers are the facilitators who are to impact the theories and concepts into the students. The teacher is the major manpower saddled with the responsibility of imparting the concepts considered fundamental to technology through the teaching of these basic concepts in the secondary schools. This was why (Adeniyi, 1993) noted in his study that a country's manpower development depends on the quantity of her well qualified teachers.

Teachers play an important role in determining the climate of their classroom (Trowbridge, 2004). According to Kwale SMASSE (2004), teachers are the most important agents that can influence change in student's attitude towards Biology and Sciences. They are in contact with the students most of the time. Through such contacts, they communicate their view point and expectations to students and the students are likely to faithfully believe them. A study by

Fuller (1985) on factors influencing performance indicates that about 80% of studies confirm that in-servicing of teachers is positively correlated to achievement and 70% of the studies revealed a positive correlation between years of tertiary education and teacher training to achievement. In the discussion about student's performance, teachers are especially likely targets of criticism. They would be better effective, it is charged, if they were better educated (Stevenson, and Stigler, 1992). He further asserts that standards set the course, assessment provide the benchmarks, but it is the teaching that must be improved to push us along the path to success. Might this also be the remedy for Biology in Gweru district secondary schools and the country at large? The answer would be yes.

As if responding to issues raised by Stevenson and Stigler, (1992) Kwale SMASSE (2004) in their baseline study's findings suggests that when professional approach is embraced in teaching and learning process, the use of indirect verbal behaviour, for instance, acceptance of student's feelings, praises or encouragement is enhanced, may be associated with a more positive attitude towards learning and higher achievement by students. Gachathi Report (1976) intimates that no matter how education is viewed, the role and the quality of teachers must be given the most critical consideration.

Kwale SMASSE (2004) found that some science (Biology) teachers subjected learners to traditional telling or the narration marathon which leads to ineffective learning of knowledge, skills and concepts required in Biology as a practical subject. They therefore suggest that it be made imperative for Biology as well as other subjects to be handled by teachers who are technically qualified. Stigler and Hiebert (1999) proposed that teaching is the next frontier in the continuing struggle to improve schooling. Teacher's qualification goes with their effectiveness in the classroom. They play an important role in teaching and influence the student's acquisition of knowledge, skills and concepts.

According to Comber and Keeves (1973) teaching experience does not necessarily cause higher achievement in science, but knowledgeable teachers are less likely to pass on misconceptions, are more confident in imparting information, use less time for preparation and are able to present a wider range of examples and analogies which helps the students to comprehend concepts more easily.

According to Tsuma (1998), science educators should ensure that learners get involved in the teaching and learning process always. This is due to the fact that the study of Biology is a process of acquiring and generating knowledge and thought process based on accurate

observation, thorough investigation, experimentation, logic, proof, explanation and validation. Gregg (1968) summed up the study of Biology as a direct result of one or more careful and unbiased experimental observation. Therefore every teacher has the task of creating teaching or learning environment that culminates into a rapport for meaningful and in-depth understanding of principles and concepts (Kwale SMASSE, 2006). This would enhance student's attitude to Biology.

In-service training courses are necessary since teachers who attend them get to know the changes in the curriculum as far as the subject matter and teaching techniques are concerned (Beck and Earl, 2002).

Teacher's attitude and motivation play a pivotal role in the teaching and learning process. Educationists and employers know that it is essential to motivate learners and employees so that they can work hard to produce good results in whatever they do (Kithinji ,2007 as cited in Twoli, Maundu, Muindi, Kiio, and Kithinji, 2007). According to Kwale SMASSE District INSET-2004, although Science and Biology teachers may have positive attitude, they are beset with problems that frustrate their efforts to teach effectively and efficiently.

2.3 SUMMARY

In this chapter, the researcher managed to review related literature that is in the line with the research topic. The researcher used research questions to guide her in the selection of literature and to make it more relevant to the research topic under study. The next chapter describes the methodology that will be used to carry out the study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 INTRODUCTION.

This chapter outlined the research methodology employed in this study. With the help of different authorities, the chapter defined the descriptive survey design. It outlined the research design and the research instruments used for data collection of this study. It also explained the data collection, presentation and analysis procedures followed. The chapter also looked at the advantages and disadvantages of the research instruments which were used to collect data. The chapter describes the population of the study and the sampling techniques used in identifying representative group.

3.1 RESEARCH DESIGN

A research design is explained as a strategy of how researchers plan to conduct the research in order to address the research questions. It is essentially a plan aimed at enabling answers to be obtained from the research questions MacMillan & Schumacher (2009). The research design can either be qualitative, quantitative or mixture of the two. Bogdan (1992) defined a research design as the researcher's plan of how to proceed with the research. This entails that the research design is the outline of intended steps and procedures to be followed by the researcher in collecting data or in carrying out the research. Chiromo (2009) sees research design as a process through which the researcher attempts to achieve systematically and with support of data the answers to questions, the solution to a problem or a great understanding of a phenomenon the design is used since it will enabled the researcher collect data across the sampled population using the same instruments at the same time. This suggests that the research design can be viewed as the device for enhancing the research's internal and external validity. This means that it is a plan that gave detail on how the study was carried out. Among the types of research designs this study adopted descriptive survey.

3.1.1 Descriptive Survey Design

The study used a descriptive survey design. Gay (1992) sees a descriptive survey as a process of collecting data in order to answer questions concerning the current status of the subject. Orodho (2009) stated that a survey is a method of collecting information by interviewing or administering questionnaires to a sample of individuals. It is the most frequently used method for collecting information about people's attitudes, opinions, habits or any of the variety of social issues related to education .The design was used since it enabled the researcher collect data across the sampled population using the same instruments at the same time. The survey design also enabled the researcher obtain information concerning the factors affecting poor performance in biology and the solution to the problem. Descriptive technique gives a vivid

descriptive account of the factors identified and how they contribute to achievement in Biology, Robson (2002); Mugenda & Mugenda (2003). It is also designed to show the relationship between the factors and performance and attempts to advance an explanation for factors influencing performance in Biology based on the data to be collected.

3.2 POPULATION, SAMPLE AND SAMPLING PROCEDURES

Chiromo (2009), a population refers to all individuals, units, objects or events that will be considered in a research. The population of this study comprised of 3 high school in Gweru Urban District. The targeted sample consisted of 4 head of department (science) and 11 Biology teachers. They are the targeted sample because since the primary objective of the study is to investigate the factors that influence the performance in Biology, the stated authorities gave or provide prerequisite knowledge and information for the question under study. Teacher's views were paramount importance in this study since they faced problems in the teaching of Biology.

Chiromo (2009) defined a sample as a smaller group or subset of the population selected from the population. The sampling is done as it is not always possible or practical to study the whole population due to factors of expenses, time and accessibility. Therefore, the researchers collected information from a smaller group of a population which is known as representative group. This means that the characteristics of the sample represent the characteristics of the population fairly and accurately. Therefore, the information obtained from a representative sample can be generalised to the population from which it was taken. The population of this study comprises of 3 high schools offering Ordinary Level and high level Biology. Informants consisted of 11 biology teachers, 4 Heads of Department (science).

The stratified random sampling was used. This is because stratified sampling enabled the researcher to collect data from different categories of schools. Therefore, stratified random sampling ensures that all groups are represented in the sample in the same proportions as they are in the population.The researcher put schools in strata and use simple random sampling to select a representative school from each stratum. Thus, each category was represented in the sample.

Purposive sampling was used to select teachers, Heads of department. This sampling was useful where it is necessary to include a very small number of units in the sample. The reason for using purposive technique was that these respondents are the only one with the

information needed on factors affecting poor performance of Biology in Gweru district secondary schools.

3.3. THE RESEARCH INSTRUMENTS

Two research instruments was used and is the one played the main key role in guiding the researcher into choosing a combination of questionnaires and interviews methods that are considered sufficient in addressing the research problem in a satisfactory manner. The reason for was to facilitate a strong line of inquiry by which more than one instrument provides more measures of the same phenomenon.

3.3.1 QUESTIONNAIRES

Questionnaires were used to collect datas from teachers of biology. According to Kombo and Tromp (2006) explain questionnaire as an instrument that contains questions aimed at obtaining specific information on a variety of topics. Chiromo (2009) stated that a questionnaire is the most commonly used data gathering instrument. It is that form of inquiry which contains a systematically compiled and organized series of questions that are sent to the population sample. A questionnaire is chosen because it could be presented to each respondent in exactly the same way to minimize the role and influence of the interviewer. In addition, results obtained by a questionnaire could easily be objectively compared**.**Furthremore questionnaires are preferred since they are not time consuming and are easy to administer to a large population. They also simplified the task of categorizing, tabulating and summarizing reactions or responses from the respondents. Questionnaires contained both open ended items and closed ended ones (likert type items).

The apparent ease of preparing and using a questionnaire tends to make it appealing to the beginners in research. But poorly constructed questionnaires suffer from errors with the result that the reaction to questionnaires is often unfavourable and response is low which affects the basis for generalization. This implies that questionnaires need to be properly constructed to provide relevant information. This reduced the rate of bias thereby giving close to truthful answers the researcher used for comparison.

3.3.2 FACE TO FACE INTERVIEWS

Interview was used to collect datas from head of science department. “The purpose of interviewing, then, is to allow us to enter into the other person’s perspective said Patton (2009). The researcher used unstructured and structured interviews. Through the interview,

participants were given an opportunity to express their views at length and in greater detail regarding questions being asked such as, 'what are factors are which influence performance in Biology? The interviews further provide in-depth information pertaining to the participants' experience.

Through interviews, the researcher, too, had the opportunity to respond immediately to what the participants said by tailoring subsequent questions with regard to the information the participant had provided. Interviews are also preferred because when participants did not give enough information as expected, the researcher probed them as a means of follow-up. It promote interviewees to elucidate further if necessary or to encourage the interviewee to consider the questions further, and even ask for explanations in some areas when the need arose said ,Turner(2010).

Probing can be described as a way for the interviewer to explore new paths which were not initially considered or the way the researcher stimulate participants to produce more information without putting herself or himself in. Probing is important for this study because when participants did not answer questions satisfactorily, the researcher probed them. To add on that, when some questions are not clear, the researcher clarified them hence answering was easier. Furthermore, it gives participants the opportunity to respond in their own words rather than forcing them to choose from fixed responses. Qualitative interview is described as an interactive conversation between an interviewer and the participant on questions related to the research study said, Merriam (2009). The major aim is to get detailed information in the form of narratives or stories of people's experiences, and shared knowledge. Detailed descriptive data was obtained by asking people questions, making follow –ups or probing so as to get adequate responses as expected. The limitations of interviews are that, they are minimised by carrying out these interviews as complements to questionnaires).

3.4 DATA COLLECTION PROCEDURES

The researcher obtained a letter of permission to conduct research from the Midlands State University by Faculty of education and the Ministry of Education through the director's education office. Permission was granted by the school heads and heads of science department. Upon obtained the consent, the study was undertaken in two phases: Phase one involved the researcher visited participating schools in order to be introduced, familiarized, and seek respondents" permission involved in the study.

In phase two, the researcher administered the questionnaires to the Biology teachers. The researcher assured the respondents of the confidentiality of the given information. The researcher equally interviewed the head of science department.

3.5 ETHICAL CONSIDERATIONS

Ethics refers to well based standards of right and wrong that prescribe what humans thought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues (Velasquez, Andre, Shanks, and Meyer, 2008). Ethical consideration for this study included communicating the aims of the investigation to the respondents, established rapport with the respondents and was honest at all times. The researcher took necessary precautions for the confidentiality of both the data and the respondents (Cohen and Manion, 1994). Therefore, in this study the participants were not allowed to write their names on the questionnaires and interview guides during the research in order to ensure anonymity.

3.6 VALIDITY AND RELIABILLITY

Reliability of data is the degree to which an assessment tool produces stable and constant results. The idea behind reliability is that any significant results must be more than a one off finding and be inherently repeatable. Other researchers must be able to perform exactly the same experiment under the same conditions and generate the same results (Moskal et al, 2000). While reliability is necessary, it alone is not sufficient .For a study or a test to be reliable it also needs to be valid (Moskal et al, 2000). Validity of data refers to how well a test measures what it is purported to measure. Validity encompasses the entire experimental concept and establishes whether the results obtained meet all the requirements of the scientific research method. To test the reliability and validity of the data, the same questionnaires were used to all three selected schools, outside the research area. The HODs were given interview guides and teachers were given the questionnaires and the results were compared to ensure that the results are replicable if applied elsewhere. This is in order to ensure that there is consistency with the results if a similar methodology is used elsewhere.

3.7. DATA PRESENTATION AND ANALYSIS PLAN

After the data collection, data analysis was carried out to show how each variable contributed to performance in Biology. The data from the study was analysed qualitatively using percentage and frequency. The analysed data was then presented in the form of tables. Conclusions and recommendation was done based on both qualitative and quantitative data.

3.8 SUMMARY

This chapter outlined the process of data collection for the purposes of identifying the factors which influence performance of biology in Gweru District Secondary school. The processes included are: research methodology, population and sampling procedure, instruments for data collection, ethical consideration and data presentation and analysis.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 INTRODUCTION

The chapter presents an analysis of the data collected from a sample of 3 secondary schools, 11 Biology teachers, and 4 Head masters of the sampled schools in Gweru Urban District. In this chapter the data collected are presented, analyzed and discussed. The data are presented in form of tables and verbatim. The chapter produces data on the findings of the demographical data of the respondents. Coding was used to isolate any comment relating to key terms or themes. The chapter aimed at answering the following research questions:

a) What are the factors which influence performance of Biology students in Gweru district secondary schools?
b) What strategies can be used to improve performance of students in Biology?

Only data that provided answers to the two main research questions was presented and discussed.

4.1 DATA PRESENTATION, ANALYSIS AND DISCUSSION

A total of 15 respondents were targeted by the study (constituting, 11Biology teachers and 4 sciences (HODs). The researcher got a response rate of 100%. This section presents the demographic information of the respondents such as gender is presented in the table below.

Table 4.1. Distribution of the Respondents by Gender (N=15)

	Teachers		**HODs**	
Gender	Frequency	Percentage (%)	Frequency	**Percentage (%)**
Male	6	55	2	**50**
Female	5	45.5	2	**50**
Total	**11**	**100**	**4**	**100**

Key: N= sample size

Table 4.1 shows that 45.5% of the teacher respondents were females while (55%) were male. On the other hand, 50% of the HOD respondents were males while 50% were females. General conclusion was that most of the teachers who teach Biology are males and HODs have equal representative of both male and female. An attempt was also made to identify the

factors which influence performance of students of Biology students in Gweru district secondary schools. Table 4.2 below gives the factors which influence performance of Biology students in named schools. The table is only giving the results collected from teachers through questioners.

4:2 THEME1: FACTORS WHICH INFLUENCE PERFORMANCE OF STUDENTS IN BIOLOGY.

Table 4.2 Teachers responses on the factors which influence the performance of Biology (N=11)

Factors	**TRUE**	**%**	**FALSE**	**%**
a) Learners from unstable home environment are emotionally disturbed and therefore perform badly.	**11**	**100**	**0**	**0**
b) Attitude is important in understanding human behaviors.	**11**	**100**	**0**	**0**
c) Lack of resources such as laboratories contributes to poor performance in Biology.	**10**	**90.9**	**1**	**9.09**
d) Schools achieve good results when parents are involved and work together with school.	**11**	**100**	**0**	**0**
e) Lack of financial support at any school affects performance negatively.	**11**	**100**	**11**	**0**
f) Datas can be used to gain knowledge and insight on behaviours of people involved.	**11**	**100**	**0**	**0**

From table 4.2 it can be noticed that from all the teachers questioned 100% had strongly agreed that learners from unstable environment are emotionally disturbed and therefore perform badly. 0% were against that is false which means no one disagreed.

Furthermore it was noted that attitude is one of the factor which influence Biology performance of students in the three named schools.100% of teacher had supported the statement saying that is true while 0% was recorded as the statement being false which mean no teachers disagreed.

Again on the table given, it can also be observed that from 90.9% teachers questioned, teachers were in favour of the motion that lack of resources such as lack of laboratories contributes to poor performance in Biology regarding the statement as true and only 9.09% of teachers supported that is false about the statement.

Moreover, 100% of teachers also indicated that is true that parents enable schools to achieve good results when parents are involved and work together with school and 0% recorded in favour being false. It was also recorded for same as that lack of financial support at any school affects performance negatively. Lastly, it can also observe that records was also one of the factors influencing performance of Biology students. It can be seen with a 100% of teachers that supported by saying true to the statement. 0% was recorded for the statement being false.

Teachers were also given chance to specify some other strategies which can influence performance of Biology students and their results were noted like as below:

- *Resources at home*
- *Subject content*
- *Learners behaviors*
- *Language used in the teaching of Biology*
- *Environment*
- *Educational resources at home such as TV*
- *Religion*
- *Learners behavior*
- *Language used during teaching and learning*
- *Teaching method*
- *Learners background*
- *Parents influence*
- *Learners background*
- *Ignorant towards science subject*
- *Transformation process*

4:2.1 RESPONSES COLLECTED FROM TEACHERS THROUGH INTERVIEWS.

Attitude

From the information collected it had shown that student` attitudes towards biology shows that most students do not have positive attitude towards Biology. This shows that only few students have positive attitude towards the subject biology. This might be because these students don`t know the significance of learning biology.

One respondent said that: attitude can affect student performance in Biology badly or in a good way. Most learners doing Biology they have a negative attitude toward the subject and these cause them to hate the subject and therefore failure as well. Only few have positive attitude toward the subject and they perform well.

Attitude could be positive, negative or neutral. Any concept that specifies an individual's feeling of likeness or dislike to anything is termed his or her attitude towards that item (Khan and Ali, 2012). Kim and Song (2009) conducted a study in which they differentiated accepted instruments for a disposition towards science under either, inalienable (related straightforwardly to students) and outward (related with social viewpoint). They found innate attitudes towards science, such as 'school science will be easy', impacted students' investment as well as applied seeing. Conversely, findings students' extraneous attitudes towards science, such as science offers better openings for work for the future (Sharpe, 2012

Home environment

It was found out that most of HODs agreed that home background affects performance of learners in Biology and other subjects whereas few disagreed with the statement that background affects performance of learners in Biology and other subjects. The findings of the study therefore showed that many HODs have positive mind that home background is a factor which influence the performance in Biology. Home background can include things such as family, behaviors and cultures. If you combine these things one or the other can be an influence in the child performance in the subject.

One of the respondents emphasized that some learners they do not perform very well because they are affected emotionally back from home example those from home were by their parents are abusive or drug users. Some learners they are orphan and they do not have people to take care of them at home and no one can control them

Physical resources

It was also noted that most of HODs disagreed that enough resources such as equipped laboratories contribute to poor performance in Biology**.** The findings of the study therefore showed that many HODs have positive mind that physical resources such as laboratories are needed in the teaching and learning in Biology but not contributing to poor performance rather improve it. Biology normally needs more practical's works rather than theory teaching. If there are no laboratories, where is the practical going to take place except for field experiment? Laboratory is a room where practical was supposed to take place where you can find all the instruments and all the chemicals for carrying out experiments.

One respondent said that: our learners they lack knowledge on Biology because of lack of laboratory room where practical can take place. Most of the lessons are just theoretical because no praticals are carried out because there is no laboratory in our school.

Another indicated said that: there is no science library at our schools and this limits our learners to get more information on the subject.

Parents

It was also find out that many HODs strongly agreed that involvement of parents in school contributes to the good performance of learners in Biology. In order for the school to achieve good results, people involved including parents should work together (Norlin 2009). The major role of parents in education is to pay schools fees on time and to buy books for their children. However, most parents do not play this role as expected. And this affects Biology performance negatively as some learners are expelled from school for fees and come after a longer period of time**.** Nzelum (2010) explains that parental involvement in children's education has a definite impact on learners' level of academic success. Rouse and Barrow (2006) have observed that economically disadvantaged parents are less able to afford the cost of education of their children and learners do not do their work to their fullest potential because sometimes they are expelled from school for fees. During their absence, the learning and teaching still occur as normal and this affects performance as some learners who would get better grades would not make it to the end of the course.

One of the respond said that parents have a bigger role to play in the child education, what a child bring at school is normally from parents example behaviours.

The respondent further said that there are some parents who did not raise their children well and they tend to be rude to their teachers.

4.2.2 THEME1 DISCUSSION

The school is an example of an open system composed of sub-systems that work together to achieve desired goals (Norlin 2009). One of the major goals of the school is to produce good results. However, if parts of the system (school), the inputs, transformation process and the environment do not work in harmony with one another, the goals set cannot be achieved (good results). The sub-systems turn to be other factors which affect performance if they do not function as expected. This means that the inputs, transformation process, and management affect the outputs (performance) differently, either positively or negatively. Positive feedback means that there were no deficiencies in the system while negative feedback implies that there were deficiencies that ought to be corrected. Deficiencies can be the transformation process or the inputs or both which in turn will have an effect on the schools future outputs (Lunenburg 2010).

Learner profiles

In order for the school to produce desired outcomes, people involved should work hand in hand. However, this is not the case as at 3 schools were research was carried. Learners too contributed in various ways to the level of performance in Biology. One of the respondent said, ‘some students do not attend Biology lessons as expected and it is very difficult for me to work with such students. They come to class when they fell like coming’.

Jackson (2009) also indicates that learners affect performance negatively as they deliberately ignore instructions from teachers, leave classes while lessons are still in progress, come to school late or disappear before school closes and they miss a lot of content presented in their absence. The correspondent further disclosed that learners contributed to the failure rate in Biology at school as they did not do the work assigned to them most of the time. He said, ‘they wait so that they can be pushed to read. Unless this is done they will not do the work on their own’. This indicates that learners as inputs into the system did not work in harmony with their teachers. And of course this affected performance negatively. The respondent further explained that poor performance in Biology due to admission standards into Senior Secondary at form 4. He explained that sometimes most learners who were admitted into the school lacked the basics or had not done science at junior level at all. That affected Biology

performance as it was difficult for them to understand the subject. At the end they performed badly. He added that learners performed badly in Biology because they could not answer questions as expected. They always wrote almost everything they knew about a certain concept, not answering what had been asked.

Physical resources (Biology laboratory and library)

Lack of physical resources at researched school had affected Biology negatively. As a result, teachers did not teach Biology to their fullest potentials. These included the absence of an equipped Biology laboratory and an equipped library.

Biology is demanding and it is taught best by involving learners. The lack of an equipped laboratory at these schools made the provision of education difficult. Tobin (1990) asserts that hands- on activities facilitate the understanding between the relationships among the variables studied. At these schools, learners were not exposed to investigations which equipped them for a practical paper due to lack of Biology laboratory. Instead some experiments involving simple apparatus were only taught by demonstration. Jackson (2009) argues that many of the laboratories are inoperative because of lack of equipment to carry out practical exercises. These include: "lack of gas, running water, electricity to name a few. The respondent explained: lack of laboratory at our school hinders teaching and learning and most students fail because they are not involved in carrying out experiments due to lack of laboratory equipment."

Machobane (2000) points out that more are talk- chalk and they do not have proper resources hence teaching and learning becomes difficult. Therefore, the unavailability of resources such as equipped laboratories contributes to poor performance since Biology is learned better through hands-on activities. Words alone are insufficient to explain concepts to learners to capture and retain their attention and interest. Tobin (1990) argues that laboratory activities appear as a way of allowing students to learn with understanding and, at the same time, engage in a process of constructing knowledge by doing science.

One of the respondents pointed out that in some topics where demonstrations were done, some students performed better during tests and internal examinations and one assumed that they would do better if there is equipped laboratory.

Indeed lack of laboratory affected performance in Biology negatively at researched schools. Laboratory work is an important medium for enhancing attitudes, stimulating interest and enjoyment, and motivating learners to learn science (Tobin 1990). Learners recall easily

things they have seen with their own eyes. In agreement with respondents, whenever possible teachers should demonstrate to enhance the teaching and understanding of Biology.

Moreover, there was no equipped library at these schools. At one of the school, the present library did not meet the demands of Biology learners. The respondent said, “there are little Biology books in the library and there are not of standard as they do not provide information required by the syllabuses.”

Biology requires the use of various standard Biology textbooks to enhance the understanding of learners. Therefore, for the fact that the library had irrelevant Biology textbooks it meant that the performance of Biology at these high schools would be negatively affected, especially when learners could not extent their reading by using library books. And indeed they only depended on notes from teachers which were, too, not enough for Biology.

Language as a medium of Instructions

Language is not only a tool for communication but it is also a resource for creative thought, a framework for understanding the world, a key to new knowledge, human history and a source of pleasure and inspiration (Kern 2008).

English is the language of power worldwide, and it is the main language of communication, learning, teaching, and assessment in Zimbabwe schools. It carries most of the world’s written knowledge and it is the second or foreign language to the majority of the learners in Zimbabwe. Setoi (1999) indicates that the language policy in Zimbabwe prescribes English as a medium of instruction in schools. The policy does not make provision for any special support or preparation to assist learners in meeting the challenges that English, as a second language and medium of instruction presents to COSC learners. Accordingly, English has been designated as a medium of instruction in all educational establishments however acquiring English literacy is a challenging task facing learners in these schools.

English as a medium of instruction in schools were researched was carried plays a vital role in affecting Biology performance negatively. Most learners fail because they do not have enough English. When trying to explain concepts in Shona or Ndebele, that leads to misconceptions. In addition, failure can also be attributed to the level of content or the type and standard of questions asked.

One of the correspondents had noted that being unable to understand English prevents them to understand examination questions as they refuse to speak English at school.

The respondent further explained that as a way of improving performance the management tried to punish them in order to speak English. However, all the strategies employed failed as learners refused to obey the orders. Indeed that led to the low performance shown in Biology at school. Learners did not answer questions as expected due to poor of English, and that came out clearly during tests and internal examinations. For teaching and learning to occur as expected the mode of communication should be easier to everybody. The inadequacies English which learners had at the school affected performance negatively as some learners struggled with the language rather than content presented.

Parents

In order for the school to achieve good results, people involved including parents should work together (Norlin 2009). The major role of parents in education is to pay schools fees on time and to buy books for their children. However, most parents do not play this role as expected. This affects Biology performance negatively as some learners are expelled from school for fees and come after a longer period of time. Nzelum (2010) explains that parental involvement in children's education has a definite impact on learners' level of academic success.

Parents according to the system theory are regarded as external inputs. They have influence in the learning process so that achievement can be good. Parental involvement in children's education has a definite impact on the children's level of academic success (Nzelum 2010). Parents do affect learners' academic performance either positively or negatively. The major role played by parents in education is to pay fees on time and buy books, assisting in the learning of their children. Failure to do their roles in time affects performance negatively.

Barrow and Rouse (2006) observe that economically disadvantaged parents are less able to afford the cost of education of their children and learners do not do their work to their fullest potential because sometimes they are expelled from school due to unpaid fees. In their absence the learning and teaching continue and this affects performance. Even the most capable learners' fall short of achieving what was within their reach.

At one of the school were research was carried, some parents did not pay school fees on time and that resulted in learners missing some concepts treated in their absence. The respondent

said that parents do not pay schools fees on time and this result into low performance as learners are expelled for fees and they come back after some time.

The lengthily syllabus and use of biology textbooks

The other cause of low performance in Biology at this researched school was the failure to finish the syllabus. Biology syllabus is long, and in order to complete it, teachers and learners should sacrifice and have extra lessons beyond the school time. This helps a great deal because teachers would be able to cover the content which would otherwise not be easy to cover. Cimer (2011) argues that Biology curriculum is broad and in order to let learners to perform better it would be of advantage to reduce the content of the Biology curriculum. This may increase the quality of learning. He further explains that the biological level of organization and the abstract level of concepts makes learning Biology difficult. Zeidan (2010) is of the opinion that Biology performance is affected negatively by the broad curriculum laden with concepts. He asserts that overloaded biological curriculum, the abstract and interdisciplinary nature of Biology, and difficulties with the textbooks are the other factors preventing students from learning Biology effectively.

The respondent indicated that the Biology syllabus is broad and sometimes questions were asked on parts of the syllabus not treated. And this resulted in failure as most learners would leave questions not attempted

Records (datas)

There are various advantages of keeping records at school. Silverman (2010) explains that records reveal what people did and what they value. They are used to gain knowledge and insight on the behaviours of people involved. Schools records tell the history of the school and are useful historical sources (Durosaro 2007). Records further provide the information needed on ex-students either for institutions or for the research purposes.

The researcher was not provided with the question papers for the tests and the marks obtained. However, the respondent indicated that he used testing as a way of assessing learners. But there was no proof indicating that learners had been tested. That raised some doubts about whether learners at these schools had ever been tested. Lack of records on learners assessment could be paired with low performance as one may conclude that learners were never given tests at these schools in order to see whether they understood content

presented to them. This implied that the teachers they did not done what they were supposed to do as an input into the system. System theory indicates that if any part of the system does not work in harmony with other parts, the whole system is affected and set goals would not be met (Kyoshaba 2009). In the case low performance in Biology was indeed caused by poor assessment.

Financial resources

Financial resources refer to the capital the school uses to finance both the ongoing and long-term operations (Lunenburg 2010). Lack of financial support at any school affects performance negatively. In order for the transformation process to occur as expected there must be aids facilitating the process of teaching and learning. Learners understand better if teaching aids are used. Jackson (2009) supports this by explaining that words alone are insufficient to explain concepts to learners to capture and retain their attention and interests. Educational resources prevent the blind memorization of words without any association to definite object. Chilisa (1997) states that educational resources boost the morale of both the teacher and the learner. They also inspire both the spirit of teaching and learning.

The respondent indicated that "it is even impossible sometimes to run some simple investigations in the laboratory as my school does not have enough funds and most learners are orphans. This prevented me from carry out simple investigations to facilitate the understanding of the learners".

The respondent further explained that due to lack of money their library was empty of relevant Biology textbooks. The available text books were of low standard, and of course, it was difficult for learners to carry out mini researches due to lack of textbooks. Akiri and Nkechi (2009) support this by saying that ineffective teaching is due to conditions such as lack of recourses facilitating teaching and these result into negative influence on the instructional quality in schools which may translate to poor academic performance, attitude and values.

The interview conducted disclosed that sometimes Biology was taught by unqualified teachers due to lack of money to hire qualified teachers. This is also considered as another factor affecting performance in Biology at these schools. Biology is a rigorous syllabus and it has to be taught by qualified teachers, if not, performance would remain very poor. The respondent disclosed that sometimes it is difficult to get qualified teachers and Biology was not taught for the whole session. That led to the management hiring unqualified

teachers.Printy (2008) is of the opinion that when educators are unqualified, the aim and purposes of the curriculum will not be fulfilled because such educators lack skills to address and implement the curriculum as desired. Unqualified teachers are not even aware that there are various methods to use when teaching it. As a result, they experience many problems in delivering the content and that leads to poor performance.

Transformation process and assessments

Assessment is a basic tool in teaching and learning. Assessment of learners is defined as a participatory, interactive process that provides data or information one needs on learners' learning and on teaching (Banta and Palomba 1999). The purpose of assessment is to improve learning, inform teaching, help learners to achieve the highest standards they can and provide meaningful reports on learners' achievements. Methods used by teachers to assess learners' performance in Biology can affect performance negatively or positively. The most common methods of assessing learners at one of the school use question and answer method and tests.

- **Question and Answer Method**

In the teaching and learning of Biology one of the respondent said used question and answer method in assessing learners. He explained that he uses questions and answer method at the beginning of the lesson, during the lesson and at the end of the lesson. "I use it in order to find out if students had understood concepts presented to them or not". He explained that this method was advantageous as he was able to see whether learners were still on the right tract or not.

- **Tests**

There are different types of tests used in assessing Biology. These include weekly tests, topic test, and practical test. Amongst these, the respondent explained that they frequently used topic tests in order to reflect on learners' performance. He administered tests to learners at the end of every topic. He explained that it was indeed important to give learners topic tests because they reflected whether learners had understood the topic or not. Should they perform badly in the topic test; he was in the position to find the remedy for the existing problem before moving to the next topic by re-teaching parts of test where they had not scored well. This type of assessment is very important as it recalls school science knowledge, the content knowledge learned at schools.

Home environment

The home environment was found to be of no assistance to learners due to the parent's low level of education and that made it impossible for learners to achieve the standards required at school for them to pass with results that allow university entrance.

- **Lack of parental support**

The importance of parents' role in the education of the child determines the achievement and Success of children at school. The family background is the major factor in determining the Academic performance of learners because unstable families contribute towards poor performance (Adell, 2002). One the respondent said that some parents are illiterate thus why they fail even to help their kids with homework. Some they give kids to do house chores more often than giving them time to study.

4.3 THEME2: STRATEGIES WHICH CAN BE USED TO IMPROVE STUDENTS PERFORMANCE IN BIOLOGY.

Table 4.3 Teachers response on the strategies which can be used to improve Biology performance (N=11)

Strategies	**YES**	**%**	**NO**	**%**
a) Fieldwork is one of the effective methods of teaching Biology at all levels.	**11**	**100**	**0**	**0**
b) Field work is where science becomes alive and where acting locally becomes thinking globally.	**11**	**100**	**0**	**0**
(c)Inquiry approach does not enable teachers to be creative and enrich learner's abilities in understanding science concepts and processes.	**2**	**18.18**	**9**	**81.82**
(d) Inquiry approach involves learners investigating, asking authentic questions and constructing reasonable explanation for the question formulated.	**11**	**100**	**0**	**0**
e) Teamwork does not enable the	**2**	**18.18**	**9**	**81.82**

transformation process to occur at ease because teachers help one another.				
f) Through teamwork, teacher's would work together to achieve the common goal.	**11**	**100**	**0**	**0**

Table 4.5 shows strategies to improve performance in Biology from the findings of the study. 100% of teachers agreed that fieldwork is one of the effective methods of teaching Biology at all levels and another 100% were also noted that field work is where science becomes alive and where acting locally becomes thinking globally. This can be strongly supported by the researcher observation when she visited the schools where at one school she found learners outside doing some observation on the grasses which is one of example of field work.0% was recorded that no one disagreed(said no) about such a strategy.

Furthermore it can also be observed that inquiry approach was also another strategy given .It can be observed that only 18.18% of teachers agreed (said yes) that inquiry approach does not enable teachers to be creative and enrich learner's abilities in understanding science concepts and processes and 81.82% disagreed(said no). From the observation it shows that 100% of teachers had strongly supported that inquiry approach involves learners investigating, asking authentic questions and constructing reasonable explanation for the question formulated.0% was recorded in favour of the strategy being not relevant which means no one disagreed (said no) about the strategy.

Lastly team work was the last strategy given. It can be observed from the table that 18.18 % of teachers agreed (said yes) that teamwork does not enable the transformation process to occur at ease because teachers help one another and through teamwork, teacher would work together to achieve a common goal and 81.82% of them disagreed about the strategy. 100% of teachers supported by saying yes with team work teacher work together to achieve a common goal which means no one were against the strategy. Team work is important because is very difficult to work on isolation, at least if one do not know the way, the other one might know.

Furthermore teachers were also asked to specify some of the strategies which can be used to improve performance of students in Biology. Strategies were given and listed as below:

- *Improve teaching method*
- *Construction of resources centers*
- *Creating of science club*
- *Teachers need to use leaner cantered approach in teaching Biology*
- *Reduce content of science subjects*
- *Encourage people to research on Biology*
- *Positive attitude towards Biology*
- *The need of qualified teachers to teach Biology*
- *More practical work rather than theory teaching*

4:3.1 RESPONSES COLLECTED FROM HODS THROUGH INTERVIEWS.

Teachers were also given opportunities to answer on the strategies which can be used to improve Biology performance. Views from respondents as collected from teachers through interviews.

Team work

According to Fearon (2008) team work is described as an instructional situation where two or more teachers possessing complementary teaching skills cooperatively plan and implement the instruction for a single group of learners using flexible scheduling and grouping techniques to meet the particular needs of learners.

One respondent said that; in order to improve Biology performance teachers thought of teamwork and development of school clusters whereby teachers could work together to solve problems they experienced at their various schools.

Resources centre

From the teachers interviewed, most of them indicated that development of resources centres will improve the performance in Biology and other science subjects and few had disagreed. Resources center can be Biology library where Biology students will have access for more information. A resources center can be also Biology laboratories.

One respondent indicated that “our school face challenges when doing practical’s because of lack resources such as apparatus; learners share one apparatus like at our school we have only one microscope”.

Inquiry approach

From the teachers interviewed indicated that most of them strongly agreed that enquiry approach is an important goal of science education as it enables teachers to be creative and enrich learners in understanding science concepts and process.

One respondent indicated that the inquiry learning takes the form of investigation or practical work amongst learners. It involves learners investigating, asking authentic questions and constructing reasonable explanations for the questions formulated through an inquiry approach in science teaching and learning so that they understand the world around them and become scientifically literate.

Ogunmade (2005) further indicates that through inquiry-oriented teaching, teachers could help learners to build their interest in the materials and activities. It can encourage their thinking and discussion for a variety of investigatory paths which fits the lesson content and learners' intellectual level with everyday social application problems.

Teachers were also asked to specify some other strategies which can be used to improve performance in Biology and it was noted as follow:

- *Building of resources centers*
- *practical work*

4.3.2 THEME2 DISCUSSIONS

System theory regards schools as open systems with people working in a co-ordinated behaviour to achieved set goals. Negative feedback in system theory implies that there are discrepancies in the parts of the system. It can be used to correct deficiencies in the transformation process or in the inputs or in both, which in turn will have an effect on the schools future output (Lunenberg 2010).

Development of resource centre

In order to improve Biology performance these 3 selected schools, one of the respondent proposed that the development of Biology or science resource centers. A resource centre is defined as any central location where information and assistance are available. They are established to serve as places where teachers' needs and challenges are discussed, examined, and planned for, while deficiencies are aired and discussed and ways of correcting practices are discussed (Mbambo 2009). Respondent explained that resource centres will help a lot as schools can rent apparatus, charts, and buy chemicals in small quantities because most schools do not have science laboratories.

Development of science resource centres in Zimbabwe can help a great deal in improving Biology performance since resource centres are to aid and assist people. They provide opportunities for learning by providing knowledge, help and material resources. They also serve as a meeting place for like-minded individuals, making them important social centres. They further provide training or classes to help to find answers to questions in the form of reference materials. They also provide teachers with access to the widest range of up-to-date printed and audio-visual educational resource materials such as like production of teaching and learning aids of all kinds (Brain 2009)**.** Scientifically literate assistants will suggest the easiest ways of carrying out some biological experiments at the resource centres if teachers had problems relating to certain investigations. Through the development of resource centres in, one may expect a positive change in Biology as the problems of teaching materials could be minimized.

Team work

Learning can be described as an interactive process and a product of a learner and teacher activity within the classroom. If teaching and learning fails to go as planned due to the failure of the teacher to present the content, teachers opt for team teaching. Respondent said that Biology performance can be improved by asking other teachers to treat some concepts which are difficult for them to teach and this will help students a lot because they can understand the concepts better when presented by another teacher. The subject teacher can also learn together with the students. This is called team teaching.

Fall (2006) defines team teaching as a process in which two or more teachers plan together for a single group of learners in order to achieve instructional needs of learners. Through the use of team teaching, Biology performance can improve for the better because teachers would be working as a team in treating concepts which are presenting the greatest challenge. Sharing of knowledge is indeed important in the teaching and learning process. If teachers work together as system theory indicates, performance in Biology would improve while at the same time failure to do that can bring negative feedback.

Positive attitude

The findings of this study compared to other previous studies done in different areas of the world, it is evident that students attitude towards sciences contributes a lot to their success or

failure. There are marked differences in the students interests in science subjects (Siwel and Kizito, 2012). Some of the students have a feeling that the science subjects are tough for them hence they shy away and do not select them. In this study, the responses showed that students' negative attitude towards science subjects really affects their performance. They feel that those who take sciences are doomed to fail. Students need to have a positive attitude and this will make them change the perception towards science subjects which will eventually lead to them liking the subjects, devote some extra time for revision and discussions hence better results.

Teachers competency

Teachers are by far the biggest resource in schools (Sutton, 2011), improving the teachers effectiveness would have a major impact on the schools performance hence increasing the attainment of children across the education system. This is similar to the results of this study where the researcher found that the students fail science subjects due to lack of competent science teachers. A teacher is the most important factor within schools that policy makers can directly affect to improve students' achievement.

The inquiry approach

The other approach that can yield good results if employed in the teaching of Biology in the 3 named schools is the inquiry approach. It deals with the understanding of the nature of science. It requires the constant asking of questions about how and why things happen the way they do. Scientific inquiry is crucial for defining the characteristics of scientifically literate persons (Ogunmade 2005). And the understanding of the nature of scientific inquiry is an important goal of science education as it enables teachers to be creative and enrich learners' abilities in understanding science concepts and processes.

The inquiry learning takes the form of investigation or practical work amongst learners. It involves learners investigating, asking authentic questions and constructing reasonable explanations for the questions formulated through an inquiry approach in science teaching and learning so that they understand the world around them and become scientifically literate. Also scientific instruction in Biology enables learners to formulate their own questions, devise ways to answer questions through data collection, analyze and determine the reliability of the knowledge acquired. Ogunmade (2005) further indicates that through inquiry-oriented teaching, teachers could help learners to build their interest in the materials and activities

Field work

Fieldwork is one of the effective methods of teaching Biology at all levels. Fieldwork involves the learning of Biology outside the classroom when treating some topics such as pollution, ecology and other topics. It involves out-of classroom activities, including practical work in the school premises. This is the field whereby science becomes alive and where acting locally becomes thinking globally. During fieldwork, young people have the opportunity to have 'hands on' experience outside the classroom, and this enables them to recall easily the activities they have done during fieldwork. Baker, Slingsby and Tilling (2002) argue that, 'Every little Biology from school, it is often the fieldwork aspect that is first recalled. It seems that we all remember what we saw and what we did more'. In the study contacted, it shows that learners do not go for fieldwork due to lack of money for the trip, said one respondent.

4.4 SUMMARY

This chapter has focused on the presentation and analysis of data collected by using interviews and questionnaire. The data were collected from Biology teachers and heads of departments. The data was presented in tables and analyzed qualitatively. The findings were discussed as per research question. The summary, conclusions and recommendations of the study are discussed in the next chapter.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This last chapter of the dissertation focuses on the summary of each chapter. It also discusses the results obtained in this study and provides conclusions derived from the research problem, aim of the study and the research assumptions. Recommendations for school management, parents and teachers are also provided as well as and recommendations for further research. The purpose of the study was to investigate the factors which influence performance of Biology students in Gweru district secondary schools. This chapter will present a summary of the whole study. It will also outline conclusions that were drawn from the research findings. Finally, recommendations are suggested based on the research findings and conclusions.

5.1 SUMMARY OF CHAPTERS

The purpose of the study was to investigate the factors which influence performance of Biology students in Gweru district secondary schools. It sought to find answer to the following research questions:

1. What are the factors which influence performance of Biology students in Gweru district secondary schools?

2. What strategies can be used to improve performance of Biology students?

The study adopted the descriptive survey method. Therefore, the study was qualitative and quantitative in nature. The population of the study consisted of 3 secondary schools in Gweru district, offering Biology at O' Level and High Level. Three schools were selected using stratified random sampling to ensure that all groups are represented in the sample in the same proportions as they are in the population since, Gweru district schools can be categorized as government boarding and day, government day and mission schools. A sample consisted of 11 Biology teachers that were chosen purposively as well as 4 science HODs.The questionnaires and interviews were used as research instrument to collect data from the respondents. Both closed and open-ended questions were used in the questionnaire. The researcher administered the questionnaire to the Biology teachers. The interview guides was constructed to gather information from the science HODs. Descriptive statistics including tables were used to present the collected data, the data were analyzed quantitatively and qualitatively, and the findings were discussed.

The study also revealed that inadequate teaching and learning resources such apparatus, laboratories and textbooks, attitude, home environment, physical resources, educational

resources at home, learner's profile, parents, language use in the teaching and learning of Biology, Biology content, lack of data's, financial resources, and transformation process were major factors influencing performance of Biology in Gweru district secondary schools. The study further discovered that positive attitude, field work, team work, teacher's competency, inquiry approach and development of resources centers are some of the strategies that can be used to improve performance of Biology students.

The researcher faced some challenges during the completion of this study. This includes limited time, this was a limiting factor since the study was carried out in partial fulfilment for the degree she is persuading and at the same time she was busy with other school works such as studying for final examination. The other constriction was in many cases the school administrators such as school heads were busy leading to the rescheduling for data collection.To do away this constraint the researcher presents the permission letter from the head-quarter office to convince the administrator.

5.2 CONCLUSIONS

5.2.1 Factors which influence performance of Biology students in Gweru District Secondary Schools.

- Performance of Biology is also affected by attitude from learners, where by some learners leave classroom before the end of the lesson, some they do not have respects for their teachers.
- Performance can be also affected by financial resources, examples money for buying textbooks and all other sort of teaching media needed to use during the transformation process.
- The content and lengthy of Biology can also negatively affects performance in Biology.
- Learners profiles and learners background can also affects students performance
- Schools lacked teaching and learning resources in science including Biology such as laboratories, chemicals and laboratory apparatus for carrying practical work and effective teaching and learning in Biology. Pupils are therefore, failing Biology practical examination because the use of resources (laboratory materials) positively correlates with the pupil's performance.
- Schools in Gweru district lacked qualified educator in Biology to facilitate quality education and hence improved learner's comprehension and performances.

5.2.2 Strategies which can be used to improve performance of students in Biology

From the findings of the study, it can be concluded that inquiry approach, deployment of qualified Biology teachers, provision of adequate teaching resources, team work, development of resources centers and positive attitudes and field work are some of the strategies that can be used to improve performance Biology students.

5.3 RECOMMENDATIONS.

Based on the finding, the following recommendations were made:

- For the fact that biology is a practical oriented subject, the government should help in equipping biology laboratories in all schools, so as to make the teaching of biology more comprehensive. The teachers should try to improvise, those equipment that are difficult to get and should not wait for the government to provide everything.
- Science teachers including Biology teachers should be encouraged to use learner-centered approaches such discovery learning, problem-solving, hands-on activity and fieldtrips to foster positive attitude of pupils toward learning and promote creativity in learners.

- A special levy for science should be introduced in schools to raise funds that can be used to purchase laboratory apparatus, books and ICT equipment necessary for teaching and learning sciences.
- The provincial and district offices should carry out constant and frequent supervision visits to schools to ensure that teachers implement policies that are in line with the teaching and learning of Biology at O' Level and High level especially on the provision of practical work.
- Ministry of Education should organize seminars and workshops at least twice a year for Biology teachers to up-date their knowledge.

REFERENCES

Akiri, A & Nkechi, M. (2009) '*Teachers effectiveness and students academic performance in public secondary schools in Delta State Nigeria*,' Stu. Hom Comm, Sci, vol. 3, no. 2, pp. 107-113, viewed on 5 May 2012, http://www.Krepublisher.com/02/Journals/S-HCS/HC.

Ajewole, G. A (1994) '*Effects of guided-discovery and exposition instructional methods on the attitude of students to Biology*,' Journal of Research in Science, vol. 28, no. 5, pp. 401-409.

Ambrose, D. (2008) Cambridge Overseas School Certificate: A survey of 40 years of Lesotho. *Results and Comparative High School Performance for the years 2003 -2007,* NUL: House of Publication.

Ayaoye, M .I. (2010,) *A practical approach to effective teaching of the nervous system using CUE CARDS.* A paper presented at STAN Biology panel workshop at Model Girls Secondary Rumeme, Port-Harcourt, state River. 13th-17 April 201Lunenburg, FC 2010, 'Schools as open systems', Journal of Schooling, 1(1): 1-5.

Baker, S, Slinngby, D & Tilling, S (2002), *teaching Biology outside the classroom.* Is it leading to extinction? A report on Biology fieldwork in the 14 to 14 curriculum, viewed 23 March 2012, http://www.nutfieildfoundation.org/sites/defult/files.

Beck & Earl, M. (2002). *Key issues in secondary education. Continuum*: New York: MPG Book LTD, Cornwall.

Bell, R.A, Blair, L.M, Crowford, B.A & Lederman, N.G (2003). '*Just do it? Impact of science apprenticeship program on high school students understanding of the nature of science and scientific inquiry*,' *Journal of Research in Science Teaching,* vol. 40, no. 5, pp. 487-509.

Brain, E. (2009). *Libraries and learning resource centres,* Architectural Press, Oxford, UK.

Banta, T.W, & Palomba, C.A. (1999) *Assessment essentials, planning, implementing, and improving assessment in high education,* Jossey-Bass, San Francisco.

Cimer, A. (2011) '*What makes Biology learning difficult and effective: student views,' Educational Research and review,* vol. 7, no. 3, pp. 61-67.

Chilisa, B. (1997) *'Teaching patterns in effective and ineffective schools: the cultural context of teaching*,' Mosenedi Journal of the Botswana Educational Research Association, vol. 2, no. 2, pp. 105-127.

Comber, L.C & Keeves, P.J (1993). *Science education in the nineteenth century:* An empirical study. IEA studies. Stockholm, Aimqvist & Wiksell.

Dillion, J. (2008), *A review of the research on practical work in school science,* retrieved on 23-08-2013 from *http://www.scoreeducation.prg/media/67/review-of-researchpdf.*

Durosaro, D.C. (2007). *Management of school records: the crafts of education management,* Durasaro & Liorin, Indemic print media.

Eamon, M.K. (2005). '*Social demographic school neighbourhood and parenting influences on academic achievement of Latino young adolescents*,' Journal of Youth and Adolescence, vol. 43, no. 2, pp. 163-175.

Edelson, D.C, Gordin, D.N & Pea, D.R (1999). *Addressing the challenges of inquiry based learning through technology and curriculum design*. Journal of the learning sciences, vol.8, pp. 391- 450.

Fall .A. (2006) '*News letter, team teaching, benefits and challenges*,' Stanford University, vol. 16, no. 1, pp. 1-3.

Federal Government of Nigeria (FNG) (1998). *National Policy on Education*, 3rd edn, NERDC, Lagos.

Fearon, K. (2008). *A Team Teaching Approach to ESL: Evaluative Case Study,* MA Thesis, University of Union, NJ.

Fuller, R. (1985). *Raising school quality in developing countries* .what investment boosts learning?

Gachathi, P. (1976). *Report of the National Committee on Educational Objectives*. Republic of Kenya. Nairobi: Government Printer

Gregg, D.E. (1968). *Principles of Chemistry*. London: Routledge.

Jackson, M M. (2009), *An investigation into the factors contributing to the poor performance of grade 12 (COSC) learners in Lesotho*, Master's Thesis, University of Zululand

Kern, R, (2008*), 'Making connections through texts in language teaching',* Journal of Education Research, 41(3):367-387.

Kwale SMASSE panel (2004). *Gender issues in Mathematics and Science education*. A paper presented in cycle 1 of Kwale district INSET- 2004.

Kwale SMASSE panel (2006). Effective *communication skills for classroom interaction*. A paper presented in cycle 3 of Kwale district INSET- 2006.

Kyoshaba. M. (2009). Factors affecting academic performance of undergraduate students at Uganda Christian University, MED Thesis, University of Makerere.

Lott, A.E. (1995). *Science teaching and the development of thinking, Elmont*. Elmont, CA: Wadswort publishing company

Lunenburg, F.C.(2010)'*Schools as open system*,' Schooling, vol. 1, no. 1, pp. 1-5.

Norlin, J.M. (2010) *Human behavior and the social environment: schools system theory,* Allyn & Bacon, Upper Saddle River, NJ.

Nwagbo, C.R.(2008) *Practical approach to effective teaching of local and major biotic communities (biomes) to secondary students for sustainable development science teacher association in Nigeria (STAN) Biology panel series 2000.*

Machobane, L.B.(2000). *Policy politics and Development, recent history of education policy and development in Lesotho*, viewed 7 April 2012, *http://www.education.dov.ls*

McMillan, J.H & Schumacher, S. (2009). *Research in education: Evidence-based inquiry*, 7th edn, Pearson Education, Inc, Biston.

Nwagbo, C (2008) '*Science Technology and Mathematics Curriculum Development: focus on problems and prospects of Biology curriculum delivery*,' paper presented at the 49th annual conference proceedings of science teacher association of Nigeria, August 2008, viewed 18 July 2013, http://www.globalacademicgroup.com/.../nigeria%20Journal%20of%20reseacher.

Ndirangu, M. (2003). *Science teaching alive, Improvisation in science teaching, retrieved on* 17-08-2013 from www.ehow.com/infor8169958-practices-science-improvisation-school.html

Nzelum, V.N & Okafor, C.U (2010). 'Impact of global economic meltdown on science education, the way forward,' *paper presented at the 51 st annual conference proceedings of*

science teacher association of Nigeria, viewed 18 July 2013, **http://www.classify.0ck.org/...classifyi**ng Demo Science Teacher Association.

Ogumbowale, N.B. (2001). '*Inhibiting factors in the effective teaching of Biology in secondary schools-implications for teachers*,' Journal of Sandwich Education Review, vol. 2, no. 1, pp. 18-24.

Ogunmade, T.O. (2005). '*The status of standard of performance in the public examination, Ibadan,' paper presented at the WAES symposium on raising the standard of performance in public examination*, University of Ibadan, April 2-5 1992, viewed 24 June 2013, https://.google.co.za/#q-ogunmade+2005%.

Seotsanyane, M. (2000). *Radical pedagogy*, retrieved on 23-02-2013 from http://www.kipedia.org/wiki/english.

Silverman, D. (2010) *Qualitative research: theory, methods and practice*, 2ndedn, Sage Publications, London.

Setoi, M. (1999) *Impact of second language education on Cambridge Overseas School Certificate*, University of Wisconsin, Wisconsin.

Stevenson, W.A. & Stigler, W.J. (1992). *The learning gap. Why our schools are failing and what we learn from Japanese and Chinese Education*. New York: Touchstone Books.

Stigler, W.J. & Hiebert, J. (1999). *The teaching gap. Best ideas from the world's teachers for improving education in the classroom*. New York: The Free Press.

Thomas, N.O. (20013), '*The effect of teacher preparation on students' academic achievement in SS2 Biology practicals*, Journal of education and practice, 4(8):1-14.

Tobin, K.G. (1990) '*Research on science laboratory activities, in pursuit of better questions and answering to improve learning,'* School science and Mathematics, vol. 90, pp. 403-418.

Trowbridge, W.N. (2004). *Teaching secondary science: Strategies for developing scientific literacy.* 8th Ed. New Jersey: Prentice Hall.

Tsuma O.G.K. (1998). *Science education in the African context*. Nairobi: Jomo Kenyatta Foundation.

Twoli, N. Maundu, J. Muindi, D. Kiio, M & Kithinji, C. (2007). *Instructional methods in education: A course book for general teaching methods*. Nairobi: Kenya Institute of Education.

Uzoechi, B.C. (2009) *Techniques for preserving biological specimen for effective conduct of practical Biology*, STAN Biology panel series, Nwagbo CR, Nzewi UM and Ajewole (eds) Nukka.

Zeidan, A. (2010) '*The relationship between grade 11 Palestine attitude towards Biology and their perceptions of Biology learning environment*,' Int. J. Sci, Maths. Educ, vol. 8, no. 1 pp. 783-800.

Wenning, C.J. (1997) *A multiple case study of novice and expect problem solving in kinematics*, Illinois section: Godfray.

Wood, W.B. (2009), *Innovations in Teaching Undergraduate Biology and why we need them*, Master's Thesis, University of Colorado.

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APPENDIX A: QUESTIONNARES FOR BIOLOGY TEACHERS

My name is Otilie Oshoveli Shalongo, with a registration number R141879X .I am a final year student at Midlands State University studying for a Bachelor of Education Honours Degree in Biology. I am currently doing a research on: Factors which influence performance of biology students in Gweru District area secondary schools.

To make this research a success, I kindly request your assistance with data by responding to questions in this questioner. The data will be used for academic purposes only. All information provided will remain confidential and will only be reported as group data with no identifying information. All data will be kept in a safe location and only those directly involved with the research will have access to them. After the research is done, the questionnaires will be destroyed. For the safety, NO NAMES will be included in this document. Lastly i would like to thank you for taking your time. Please read this document carefully and feel free to ask any question you might have

.**Instructions to the questions: please tick**.

1. Sex **Female** ☐

Male ☐

2. Factors which influence performance of students in Biology.

State whether the following statements about the factors in the table are true or false. Please tick in the correct column.

Factors	**Statements**	**True**	**False**
a) Home environment	**Learners from unstable home environment are emotionally disturbed and therefore perform badly.**		
b) Attitude	**Attitude is important in understanding human beahavious.**		
c) Physical	**Lack of resources such as laboratories contributes**		

resources	**to poor performance in Biology.**		
d) Parents	**Schools achieve good results when parents are involved and work together with school.**		
e) Financial resources	**Lack of financial support at any school affects performance negatively.**		
f) Lack of datas	**Datas can be used to gain knowledge and insight on behaviuors of the people involved.**		

3. State and explain some other factors which influence performance of Biology.

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4. Strategies which can be used to improve performance of students in Biology.

4.1 State whether the following statements are correct by saying yes or no. Please tick in the correct column.

Strategies	**Statements**	**YES**	**NO**
Field work in the teaching of Biology	**(a)Fieldwork is one of the effective methods of teaching Biology at all levels.**		
	(b)Field work is where science becomes alive and where acting locally becomes thinking globally.		
Inquiry approach	**(c)Inquiry approach does not enable teachers to be creative and enrich learner's abilities in understanding science concepts and processes.**		

	(d) Inquiry approach involves learners investigating, asking authentic questions and constructing reasonable explanation for the question formulated.		
Team work	**(e) Teamwork does not enable the transformation process to occur at ease because teachers help one another.**		
	(f) Through teamwork, teacher would work together to achieve the common goal.		

5. State and explain some other strategies which can be used to improve the performance of students in Biology.

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APPENDIX A: INTERVIEW GUIDE FOR HEAD OF SCIENCE DEPARTMENT

My name is Otilie Shalongo, with a student registered number R141879X. I am a final year student at Midlands State University studying for a Bachelor of Education Honours Degree in Biology. I am currently doing a research on: Factors that influence performance of biology students in Gweru District area secondary schools.

To make this research a success, I kindly request your assistance with data by responding to questions in this interview guide document. The data will be used for academic purposes only. All information provided will remain confidential and will only be reported as group data with no identifying information. All data will be kept in a safe location and only those directly involved with the research will have access to them. After the research is done, the document will be destroyed. For the safety, NO NAMES will be included in this document. Lastly I would like to thank you for taking your time. Please read this document carefully and feel free to ask any question you might have.

1. Sex **Female** ☐

Male ☐

2. Factors which influence the performance of students in Biology.

State whether you agree or disagree about the following statements.

2.1 Most people they do not have positive attitude towards science subjects.

2.2. Home background affects performance of learners in Biology and other subjects.

2.3. Enough resources such as equipped laboratories contribute to poor performance in Biology.

2.4 Learners who have access to electronic resources such as TV, computer and books are at an advantage of performing well compare to those who do not have.

2.5. Involvement of parents in school contributes to the good performance of learners in Biology.