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FACULTY OF EDUCATION

DEPARTMENT OF APPLIED EDUCATION

Factors causing low pass rate in biology at ordinary level in zhombe circuit

BY

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AWARD OF THE BACHELOR OF EDUCATION DEGREE IN GEOGRAPHY**

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The undersigned certify that they have read and recommended to the Midlands State University for acceptance as a dissertation entitled: Factors causing low pass rate in Accounting at Ordinary Level and the effects this could have in teaching and learning in Mberengwa West cluster.

By

Muyambo Tafadzwa

Submitted in partial fulfillment of the Bachelor of Education degree in Geography.

Student:Signature.....Date.....

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Chairperson:.....Signature.....Date.....

External

examiner:.....Signature.....Date.....

DECLARATION

I, Muyambo Tafadzwa declare this research report herein is my own work and has not been copied or lifted from any source without the acknowledgement of the source.

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(Signed)

...../...../.....

(Date)

DEDICATION

This work is dedicated to my husband Andiseni, my mother Mrs J Muyambo, as well as my sister Mrs A Samson as well as my daughter Nokutenda. Without their support and encouragement, this work could not have been accomplished.

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ABSTRACT

The study sought to establish the factors causing low pass rate in Biology in Zhombe circuit. A qualitative research design was used which enabled the researcher to explore human behaviour that cannot be quantified. It also enabled me to understand factors causing low pass rate from a holistic view point because it employs a wide variety of methods in its enquiry. Purposive sampling was used to select heads of departments and biology teachers while stratified random sampling was used to select the students. Data was generated using semi-structured interviews, observations guide, as well as document analysis. The research study has revealed that low pass rate in biology is caused by many factors which include lack of experienced teachers and shortage of resources among other factors. The study recommends in service training of teachers to equip them with effective child centred approaches of teaching and fund raising activities to raise funds that can be used to buy the teaching and learning resources.

CHAPTER 1

RESEARCH PROBLEM

1.1 INTRODUCTION

This chapter outlines the following headings: background of the study, statement of the problem and research questions. Justification, assumptions, delimitations, and limitations of the study are also explained. Definition of terms is also described.

1.2. BACKGROUND OF THE STUDY

A dual education system existed in Zimbabwe during the colonial era. The dual system was meant to create a clear distinction between whites and blacks (Ncube & Tshabalala, 2014). Education was used as a tool to suppress the blacks. It was segregatory in nature. Education for whites was designed to prepare the children for their predetermined status in life that of employer or master while the African child was prepared to become a labourer or servant. After independence in 1980 the Zimbabwean government was committed to make reforms in the education system (Ncube & Tshabalala, 2014). The 1987 Education Act brought many educational reforms. Education was declared a fundamental right. It was regarded as a crucial tool for social and economic transformation. This resulted in an expansion of the education system to great levels. Secondary schools increased from 197 in 1980 to 2312 in 2012 (ZIMSTAT, 2013). Enrolment increased by over 200% across the whole system in the same period. Most of secondary schools were built in rural areas (Chikowore, 2013).

Despite the noble idea of availing secondary education to most of students there was a general outcry about poor performance of pupils from these schools at Ordinary level. There were hues and cries among stakeholders in the education sector about high failure rate in Zimbabwean secondary schools. Biology is one of the subjects in the Zimbabwean curriculum which was being failed at Ordinary level. The growth of Zimbabwean commerce and industry in the post-independence era saw a rise in demand for employees with a firm scientific background. The scientific background is an important function of any organization in the country. Many candidates took up science subjects at ordinary level ('O' Level) however, most of the students failed consequently resulting in a shortfall of professionals taking science oriented careers such as teaching, nursing, medical doctors, engineers among others. This prompted the government of Zimbabwe to launch the Science, Technology, Engineering and Mathematics (STEM) program in a bid to encourage more pupils to take up science subjects at 'O' level. Biology is one of the subjects included in the STEM program. Many pupils wrote Biology examination at 'O' Level in Zhombe circuit however, a few managed to pass the subject with at least a grade C. Most of the pupils failed dismally. This had become a trend observed in most schools in Zhombe circuit. An analysis of 'O' Level examination results for two sampled schools showed that learners performed poorly in Biology. Table 1 below shows the analysis of results for two sampled schools from Zhombe circuit in KweKwe District over a period of five years.

Table 1: Biology ‘O’ Level Results Analysis for School A and B

School	Year	Number of candidates wrote Biology	Number of candidates with grade C or better	School percentage pass rate in Biology
A	2012	30	5	16,6
	2013	28	3	10,7
	2014	35	6	17,1
	2015	20	2	12,5
	2016	24	4	16,6
B	2012	50	4	24,0
	2013	39	12	23,1
	2014	57	9	26,3
	2015	44	15	22,7
	2016	41	10	29,3

From Table 1 it was evident that the performance of students in Biology at ‘O’ Level in Zhombe circuit was relatively low. The average pass rate for school A and B was 14,3 % and 25% respectively. These results were poor considering that some schools were achieving a 100 % pass rate. Since achievement in Biology at ‘O’ Level in Zhombe circuit was consistently low over years this has prompted the researcher to find the factors causing low pass rate in Biology at ‘O’ Level despite researches that had been already conducted by other researchers in different locations.

1.3. STATEMENT OF THE PROBLEM

Students were failing Biology at ‘O’ Level in Zhombe circuit as shown by results in table 1. The problem has been observed as not being limited to a single school. The researcher

therefore sought to find the factors causing low pass rate in Biology at ‘O’ Level in Zhombe circuit of Kwekwe district.

1.4. RESEARCH QUESTIONS

The primary research question of this study was: **What are the factors causing low pass rate in Biology at Ordinary level in Zhombe circuit?** From the primary research question the following sub questions were derived.

1.4.1 Sub questions

1.4.1.1 What are the qualifications and experience of Biology teachers?

1.4.1.2 What resources are available for teaching Biology at ordinary level?

1.4.1.3 What are the attitudes of teachers and students towards Biology?

1.4.1.4 What methods of teaching are used by teachers in teaching Biology at ordinary level?

1.5 JUSTIFICATION OF THE STUDY

Biology is important because it lays the foundation for a wide variety of careers (Finley, 2016). Knowledge of Biology enables one to join many professional careers such as psychologist, environmentalist, teacher, nurse, nutritionist, doctor, ecologist, agronomist, zoologist among others. There are different branches in Biology to choose from and specialize in (Tomasovic, 2014). Biology prepares students for further studies or career in the fields related to lifelong science learners and technology. It also prepares students for entering tertiary courses, vocation related courses or workforce in various fields.

In addition, Biology enables us to understand our bodies (Brown, 2014). Human bodies are complicated to comprehend but by studying Biology one is given credible answers that explain why things happen in a scientific manner (Tomasovic, 2014). For example, at puberty kids experience changes in their physical appearances due to release of hormones. Biology explains why such circumstances happen preventing anyone from thinking that there is something wrong with their own bodies. The branches of Biology have much to tell us about what the human body is made up of, how it works how it is affected by what we eat, the air we breathe and every aspect of the world around us (Tomasovic, 2014).

Furthermore, Biology enables people to understand the environmentally friendly methods of doing things. In this 21st century human beings have become the primary cause of earth problems relating to the environment such as global warming, pollution and deforestation (Vickers, 2015). Knowledge of Biology helps students understand how humans harm the environment. Humans rely on nature for food, shelter, oxygen, fuel, minerals among other things. When these resources are extracted from nature aggressively it results in many problems like extinction, land degradation and desertification. Biology gives an insight on the best ways to harness the Earth's natural resources in ways that are safe, efficient and do not cause too much damage to nature (Vickers, 2015). It helps people to find balance between taking advantage of resources available in nature while not destroying those same resources for future generations. For instance, people learn that vegetation is important because it produces oxygen for respiration, absorbs carbon dioxide and use it during the process of photosynthesis and that it helps in reducing soil erosion. Knowledge of these facts help learners to understand the need to conserve vegetation. Thus, the need for conservation and sustainable development is learnt in Biology. When pupils learn Biology, they learn to live

responsibly and manage natural resources properly like practicing afforestation, reforestation, and use alternative forms of energy such as solar energy and electricity.

Knowledge of Biology is also crucial for proper nutrition (Tomasovic, 2014). Biology enables students to know which kind of food is good for their health and which type is harmful to their bodies. For instance, they get to know that eating a balanced diet helps in reducing diseases like kwashiorkor, goitre and obesity and food such as sweets and too much fat contributes to tooth decay and heart problems respectively. Thus, Biology enables people to understand the diet they should eat (Lewis, 2016). Such knowledge helps them to make informed decisions on what to eat and what not to eat. This helps to prevent, cure and even eliminate diseases. Diseases like kwashiorkor, goitre and rickets are easily prevented when people study nutritional Biology. By knowing how our body works and what it reacts positively to nutritionists are able to devise the perfect diet for our needs. Biology has led to the development of new and better drugs and vaccines against many human and animal diseases such as measles, malaria, polio among others (Tomasovic, 2016). In short, Biology sheds light on health eating for health living.

Garrett (2014) believes that it is important to study Biology because it builds on pupils' curiosity and develops their questioning, reasoning and problem-solving skills. Biology sharpens the mental skills as well as developing a scientific method of enquiry that can be applied in other disciplines such as physics, chemistry and geography across the curriculum and later in the students' future. In support of this view, Chepkorir (2013) states that Biology develops scientific habits which are transferable to other disciplines, for example, geography, physics and chemistry. From the discussion above, the researcher finds it necessary for students to pass Biology at 'O' Level.

The researcher hoped that the findings of this study fill the gap of knowledge with regards to causes of pupils' poor performance. Secondly this study would come up with possible solutions to the identified causes of pupils' poor performance in Biology at 'O' Level. Furthermore, the findings would help teachers and students to improve performance in Biology.

1.6. ASSUMPTIONS

The following assumptions were made in this study

- 1.6.1** Biology teachers at sampled schools had the same qualifications and experience as other teachers in the district.
- 1.6.2.** Resources available for teaching Biology were the same as in other schools in the district.
- 1.6.3** Learners studying Biology at sampled schools were the same as learners from any other school in the circuit.
- 1.6.3.** Teachers' and students' attitude at sampled schools were the same as teachers' and students' attitude from any school in the circuit.

Therefore, the results of the study were generalized to other schools in the Zhombe circuit.

1.7. DELIMITATIONS

The study was carried out in Zhombe circuit in KweKwe district. The research was restricted to two secondary schools. The participants included the form four students, form four Biology teachers and Biology heads of departments.

1.8. LIMITATIONS

The following are limiting factors encountered when conducting the research

1.8.1 Respondent based bias

The results of the study were affected by respondent based bias. This occurred when some respondents gave false information thereby affecting the validity of the findings. To go around this problem, the researcher sought informed consent from the respondents. This involved the researcher informing the respondents about the purpose of the research before they decided to take part in the research as well as assuring the respondents that their responses would be treated in confidentiality.

1.8.2. Cost

The research was a self-sponsored project hence the researcher faced challenges on finance to effectively conduct the research. Money was needed for stationery, transport to and from the university to consult the supervisor as well as to and from sampled schools in Zhombe circuit. Financial expenses were also incurred when typing and printing the project hence, the researcher had to follow the instructions from the supervisor to avoid much financial constraints and wastage of material resources.

1.8.3. Bureaucracy

The freedom of the researcher in generating data was affected by bureaucracy in offices. Some information was not accessed at the school due to bureaucratic nature of the Ministry

of Primary and Secondary Education. In this regard, the researcher maintained good rapport with staff from sampled schools and the district education office.

1.8.4. Official Secrecy Act

The Official Secrecy Act prohibited the teachers from disclosing information related to their operations at work. This restricted the teachers from divulging information that was of value to this study. In this regard, the researcher conducted the research within the confines of the research ethics.

1.8.5. Time

The researcher was a permanently employed teacher and this study was conducted within one year, thereby limiting time devoted to this research. This adversely affected the researcher in coming up with a detailed study. The research would have been of greater depth and detail had it been conducted over a longer period. The limited time also affected the validity and reliability of the research. However, the researcher worked closely with the supervisor and responded in time to all comments and advice.

1.9.DEFINITION OF TERMS

1.9.1. Factor

A fact or situation that influences the results in Biology at 'O' Level.

1.9.2. Pass rate

The percentage of students who have passed the Biology examination at 'O' Level.

1.9.3. Biology

The natural science that studies living organisms.

1.9.4. Circuit

A group of Secondary School located in the same geographical area. A combination of circuits gives rise to a district.

1.9.5. Ordinary level

A secondary school examination offered upon the completion of four years in secondary education.

1.10 SUMMARY

Poor performance in Biology was observed by the researcher to be persistent over years and had become a wide spread problem. This prompted the researcher to pursue a study to establish the factors causing low pass rate in Biology because Biology is an important subject that lays foundation for a wide variety of careers such as nursing, teaching, agronomist among others. The researcher hoped that the results of the study would come up with possible ways of improving pass rate in Biology. In the quest to carry out the study the researcher encountered many limitations which include shortage of time since the research was carried out in one year and financial constraints among other factors. The next chapter reviews related literature on factors causing low pass rate in Biology.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter seeks to review previous researches done on factors causing low pass rate in Biology at “O” Level as researched locally, regionally and internationally. The literature was reviewed under the following headings: teacher qualification and experience, teaching and learning resources, teachers and pupils’ attitudes and teaching methods.

2.2 TEACHER QUALIFICATION AND EXPERIENCE

Yara (2009) postulates that one important variable that determines the success of pupils in public examinations and educational performance in general is teachers’ qualification, experience and commitment. Shizha and Kariwo (2011) opine that quality of education is impacted by the lack of trained teachers in secondary schools. The economic sanctions and the general downsizing of the Zimbabwean economy in the past few years has led to the exodus of qualified teachers from the teaching field (Shizha & Kariwo, 2011). Some of the teachers available are not competent enough to teach Biology. This makes it difficult for such teachers to give explanations about the required concepts (Omolara & Adebukola, 2015). Biology is a challenging subject which requires only trained teachers to teach it. Agnes (2013) argues that teachers with good professional competence and interpersonal skills are more effective in their teaching. Teacher shortages was more in rural areas than in urban areas due to unfavourable conditions and low compensation.

Performance depends to a large extent on the quality of teachers involved in the education system (Mafa & Tarusikirwa, 2013). In their view, the adaptations that a teacher makes to accommodate pupils of different abilities depend on teacher's attitude, experience and level of training among other factors. Thomas and Ajaobe (2012) argue that if there are no well-trained, qualified and motivated teachers there is no achievement of desired goals. They further explain that teacher's qualification and experience are very significant and positively co-related with student's performance in science. In the same vein, Vundla (2012) says major causes of high failure rate in South African rural secondary schools is shortage of trained teachers. The success of candidates in public examinations and educational performance is determined by the teacher's qualification, experience, commitment and effectiveness (Mujaji, 2012). If the teacher lacks pedagogical skills, expectations and demands the result become disastrous (Ndhlela, 2012).

The ability of the teacher to teach effectively depends on the teacher's knowledge of the subject and the teachers' effectiveness is inhibited if the teacher is not knowledgeable (Mangwaya, Mangwaya & Tsumele, 2016). This is so because the way students perceive the teachers in terms of their knowledge of the subject matter may significantly affect the students' academic performance (Ncube, 2013). Chirume and Chikasha (2014) opine that content mastery assist the teacher to clearly explain concepts to the students. Such explanations were enhanced when science teachers were exposed to pedagogical content through teacher training. Intelligent and sound teacher with good mastery of his /her subject matter always commands respect and gains students' attention during teaching and learning process.

Samukange (2015) says in some schools there is a mismatch between the subjects' teachers specialized in at college and the subjects they teach. For instance, some teachers teach subjects like Biology and Agriculture, yet they have specialized in food science when they were trained at college. This may be because the subjects of specialization are not offered at the schools where these teachers are stationed. Shumba (2010) is of the view that the subject area qualification is associated with higher student performance in the subject. In this view, a teacher should teach his/her subject area of qualification to achieve better student academic outcome.

A study by Sutton (2011) in the United Kingdom revealed that improving the effectiveness of teachers by training have a major impact on the performance of the country's schools. Chikowore (2013) concurs with the view above and say that the qualification of a teacher is important in ensuring that student achieve better results. This therefore means teachers are by far the biggest human resource that determines performance in schools (Sutton, 2013)

Pupils' performance is affected by the teacher's age, experience and level of professional training (Chikowore, 2013). In this view, it is important that teachers get in service training to ensure that they are kept abreast with current changes in technology and knowledge. As Marave (2011) argues that staff development helps teachers to improve their instructional competencies and their capacity to curriculum delivery and the problem of low pass rate may be minimized. Jobolingo (2012) believes that on-going professional training can help overcome shortcomings that have been part of teachers abreast of new knowledge and practices in the field. In service training enabled teachers to update their knowledge, sharpen their skills and acquire new teaching techniques.

In this study, the researcher sought to determine whether teacher qualification and experience in Zhombe circuit affected the student's performance in Biology at 'O' Level. However, apart from teacher's qualification and experience, availability of teaching and learning resources also affected performance in Biology at 'O' Level as outlined below.

2.3 TEACHING AND LEARNING RESOURCES

Teaching resources are materials that teachers use to deliver lessons such as textbooks, classrooms, board and furniture (Lupahla, 2012). Mapolisa and Tshabalala (2014) define a teaching resource as any tool that helps teachers to teach and students to learn. These materials played an important role in making knowledge accessible to a learner and enhanced understanding of concepts. Teachers were recommended to use a wide variety of stimulating and exciting materials to teach the concepts outlined in the curriculum. Flexibility in teaching materials and the use of multimedia made it possible to reach out to all learning styles.

Awang (2009) says that educational aids and resources increase pupil achievement. Kasembe (2011) opines that in some schools the equipment is too old and obsolete. In a study conducted by Chikwature and Oyedele (2016) found out that availability of resources in most cases co-related positively with pupil performance. In another study by Tshabalala and Ncube (2013) in Nkayi District in Matabeleland North on teacher's perspective on possible causes of poor performance of pupils at 'O' Level found out that low pass rate at 'O' Level was mainly attributed to lack of material resources among other factors. Chikwature and Oyedele (2016) established that most schools do not have laboratories. The lack of adequate resources and materials in Biology is a significant factor contributing to low pass rate. Okafor (2007) cited in Chikwature (2016) states that the quality of teaching media also played an important role

in the effective transfer of knowledge and inculcation of required skills, values and attitudes into the learners. Jobolingo (2012) says successful teaching and learning requires the necessary supporting resources.

Practical experiments are a crucial component in the Biology syllabus (Rudhundu, 2014). Pupils must be engaged in practical work when they learn Biology. This enable students to gain personal experience of science through hands -on activities and to enhance the skills and thinking process associated with practice of Biology. Laboratory work was an effective way to enhance students' motivation and understanding of the subject matter. However, students sometimes do not learn from a practical task the concepts the teacher want them to learn. This is due to lack of the necessary chemicals and apparatus. Hussaini, Foong and Kamar (2015) recommend schools to provide chemicals and apparatus to be used in practical during the teaching and learning of Biology. Mafa and Tarusikirwa (2013) argue that in the absence of adequate apparatus and chemicals the teaching of Biology suffers and adversely affect pass rate. Laboratory work helped students to remember concepts learnt better consequently improving performance.

In a study conducted by Williams (2000) cited in Marave (2011) the results showed that children whose schools lacked classroom materials and had no library were significantly more likely to show low test scores than those whose schools were well equipped. In some situations, the teacher is the only one having a textbook in a class of 40 pupils (Mafa & Tarusikirwa, 2013). This implies that pupils could not study on their own and it also become a challenge to teachers to assign homework. Up to date `textbooks and other materials for use

by the teacher during lesson delivery were important in ensuring effective learning (Mangwaya, Mangwaya & Tsumele, 2016).

Muranda (2012) states that the places in which formal learning occur range from relatively modern and well-equipped buildings to open air gathering places. Students who learnt from open air gatherings were exposed to high risk of disturbances from the environment hence perform poorer than those who learnt in well-equipped classrooms. Mafa and Tarusikirwa (2013) further explain that infrastructure such as classrooms /laboratories, workshops and libraries have become congested, creating uncondusive learning environment, which negatively affect the learning and teaching process. Lack of learning space means that certain activities and demonstration cannot take place, further affecting the pupils understanding of concepts (Mafa & Tarusikirwa, 2013). Mapolisa and Tshabalala (2014) found out that schools which have textbooks, laboratory equipment and other necessary resources perform much better than schools which do not have these resources.

On one hand Timothy (2010) find that the amount of lesson time affected learner performance and ignoring this fact results in less informative accountability systems and lost opportunities for learning outcomes while Nkosana (2010) believes that efficient use of school time has a significant impact on student learning. Marave (2011) points out that the opportunity to learn and the timetable have been shown in many international studies to be critical for educational quality. Nkosana (2010) further explains that many teachers do not get to school on time due to transport problems and some have second jobs which inhibited them from using all the time available for teaching and learning in the classroom. The quality of education in Zimbabwe is compromised by lazy teachers and increased absenteeism

among teachers (Ncube, 2012). Wabuke, Barmao and Jepkorir (2013) believe that proper management of time greatly improves student's performance since time lost cannot be recovered.

Teaching and learning media and resources has great influence on the performance of the pupils (Umameh, 2011). In a study conducted by Hussaini, Foong, and Kamar (2015) on attitudes of secondary school students towards Biology revealed that provisions of adequate teaching aids made students perform better in Biology and therefore recommend that there is need for the provision of adequate teaching aids to improve performance in Biology. There was therefore need to establish whether availability of teaching and learning resources influenced the pass rate of students in Biology at 'O' Level in Zhombe Circuit. However, having discussed the effect of teacher qualification and experience and teaching resources alone would not effectively explain the causes of low pass rate in Biology at 'O' Level without considering the teaching methods employed by the teacher during lesson delivery.

2.4. TEACHING METHODS

A teaching method is a way in which a teacher organizes and manages the teaching-learning situation, presents clear explanations and vivid descriptions, assigns and checks if learning interacts effectively with learners through questions and probes, answers and reactions and praise and criticisms (Schulman,1999 cited in Rudhundu, 2014). Rudhundu (2014) defines a teaching method as a way of facilitating interaction between the teacher and learners to realize set goals. Thus, a teaching method is a systematic plan used when presenting material for instruction.

Skemp (2007) in Chirume and Chikasha (2014) postulates that teachers should carry the major part of the blame when they become more authoritarian and less human in their teaching approaches and promote rote learning. This therefore called for a shift in teaching methodologies from traditional methods that mainly centre on chalk and talk to more interactive and child centred approaches such as debates, group work, and fieldwork projects among others (Kasembe, 2011). Ndhlela (2012) argues that instruction should help students build on prior knowledge to develop attitudes, beliefs and cognitive skills as well as expand their knowledge base. This implies that the teaching methods employed by the teacher should be child centred and this involves giving the learner an opportunity to discover and learn from his/her peers and not solely depend on the teacher. However, Chikowore (2012) states that teaching style in many schools remain traditionally teacher centred and rigid or even authoritarian thereby inhibiting successful learning.

The art of science teaching is an important factor in improving student achievement in school (Chikowore, 2012). Muranda (2012) explains that the English syllabus is child centred and therefore requires the learners to develop skills in speaking the language, reading, comprehending, writing and producing essays on his/her own. Although Muranda talks about English however, the skills of reading, comprehending and writing are also important in teaching and learning of Biology. Pandlu (2012) believes that pupils who cannot read and comprehend are failures not only in English but in other subjects like Biology. Antony (2001) cited in Mangwaya, Mangwaya and Tsumele (2016) emphasizes that active learning and seeking pupils' efforts were some factor leading to a better pass rate. Learner participation gave learners opportunities to verbalize and discuss ideas as they are presented thus giving an opportunity for exposing and correcting confusions and misunderstandings. Therefore, efforts

should be made to direct lesson delivery away from traditional lecture method to more student-centred approaches such as group work, discovery method and field work (Tshabalala & Ncube, 2013).

A research conducted by Mangwaya, Mangwaya and Tsumele (2016) find that learner participation and varying teaching methods are strategies that could be used to improve pupil academic performance. Langat (2015) recommends the use of varied instructional strategies by the teacher which promote discovery and stimulate learner interest. This explains the significant effect of the teaching methods employed by teachers during the teaching and learning process on performance of students. In this study, the research sought to establish the teaching methods being used by Biology teachers in Zhombe circuit and determine whether they affected pupils' performance.

2.5. TEACHERS' AND PUPILS' ATTITUDES

Attitude is a method of disposition, feeling or condition in respect of an individual, object or idea (Khan & Ali, 2012). Hussaini, Foong and Kamar (2015) define attitude as any concept that specified an individual's feelings of like or dislike to anything. Thus, attitude is a mindset of like or dislike of anything. Attitude plays an important role towards the future of science students (Hussaini, Foong & Kamar, 2015). Langat (2015) states that attitude determined the students' ability and willingness to learn the subject, work on variety of assigned tasks and their persistence in the task available. The conceptions students held determined how they approached subject tasks leading them into either passing or failing the subject (Langat, 2015).

A positive attitude towards a subject is an important in improving the students' academic performance. Langat (2015) says students with positive attitude towards a subject become motivated to excel in the subject because they valued it, enjoyed it and were interested in it. He further explains that students with a positive attitude completed all assignments, did extra work, paid attention to the teachers in class, could not miss a lesson and were always prepared for lessons regardless of the presence or absence of the teacher. Salome (2013) argues that student with positive attitude spend more time and energy in the subject thus gaining mastery of the subject resulting in success. Hussaini, Foong, and Kamar (2015) state that most of students enjoyed practical work in Biology and this made them to like Biology. Wabuke, Barmao and Jepkorir (2013) recommend Biology teachers to use methodologies that would promote positive attitude towards Biology by encouraging group discussions, excursions and hands on activities and making the subject interesting. Group discussions cultivated a high level of accountability, participation and students got immediate unambiguous and meaningful feedback (Timothy, 2010).

On the other hand, Awang, Jindal-Shape and Barber (2013) state that students who have negative attitude towards a subject were found to exhibit challenging behaviour including anti-social and off task behaviour. Langat (2015) argues that negative dispositions induced tendencies of fear, anxiety and stress where one resort to other non-productive practices. Avital (2012) discovered that negative attitude minimized concentration and commitment to academic work. Mangwaya, Mangwaya and Tsumele (2016) believe that pupils' negative attitude towards a subject were a stumbling block towards improving the performance of students in the subject. Muranda, Tshabalala, Ncube and Gazimbe (2013) found that where pupils had no reason to be at school, they frequently absented themselves from lessons to do

other things they think will help them in life, like income generating activities. Negative attitude contributed to lack of motivation in learners hence hindering them from performing well (Wabuke, Barmao & Jepkorir, 2013).

Jobolingo (2012) ascertains that a teacher's interest in the subject and the manner of presenting well-structured lessons is a motivating factor to students who in turn respond and participate actively and liked the subject. If the teacher appears not interested in the subject he/she would not be able to foster supporting learning environment (Omolaro & Adebukola, 2015). In addition to that teachers with negative attitudes may not be approachable to student and in general affect students' performance. Omolaro and Adebukola (2015) citing Sprinthal (2007) state that the teachers' negative attitude towards the teaching profession even if they are knowledgeable with sound professional training adversely affected students' performance. Thus, effective teaching and learning can only occur when teachers show interest in the subject they teach.

However, Langat (2015) believes that attitude is not rigid. This implies that the same influences that brought attitude formation could also be used to bring about attitude change. Hussaini, Foong and Kamar (2015) say that it is important for science teachers to ensure that the students had positive attitudes in science subjects. Curzon (1990) cited by Rudhundu (2014) asserts that the idea of using teaching methods as a motivating tool in the teaching of Biology especially constructivist methods developed in learners a sense of worth as well as confidence to undertake a task. Such teaching methods include group work, problem solving, discovery and self-activity. Motivation develops positive attitudes in learners (Rudhundu, 2014). Thus, motivation is an effective learning stimulant that helps to develop and sustain

classroom behaviour conducive to effective learning of Biology consequently improving performance. Positive attitude can also be enhanced by including practical experiments in teaching and learning of Biology. Lewis (2016) believes experiments are an effective way of to enhance students' motivation and extend their knowledge in understanding theories and ideas about natural world. Therefore, teachers should concentrate on gaining positive attitude of pupils to improve the pass rate (Mangwaya, Mangwaya & Tsumele, 2016). Favourable attitudes should be nurtured and enhanced to the benefit of the learners and bring out their best potentials (Langat, 2015). When students build positive attitudes towards the subject they become motivated to excel in the subject because they value it and enjoy it. The idea is teachers should influence positive attitude in learners to enhance the students' performance. In this study, the researcher wanted to establish the attitudes of teachers and students in Zhombe circuit and determined whether their attitude influences performance

2.6 SUMMARY

The chapter discussed factors that relate to pass rate in Biology as researched by other researchers. The factors were discussed under the following themes: teacher qualification and experience, teaching and learning resources, teaching methods and teachers' and pupils' attitude. Some of the key authors consulted include Chikwature and Oyedele (2016) who opines that teaching and learning resources have great influence on the performance of pupils and Mangwaya, Mangwaya and Tsumele (2016) who postulates that pupils' negative attitude towards a subject were a stumbling block towards improving performance. The next chapter will describe the research methodology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research methodology. The description will comprise of research design, population, sample and data generating instruments. Data generation procedures, presentation, analysis and ethical considerations are also discussed.

3.2 RESEARCH DESIGN

Cohen and Manion (2011) assert that a research design is a plan, structure and strategy of investigation to obtain answers to research questions. Chiromo (2009) defines a research design as the strategy, the plan, the structure of conducting a research study and the design provides an overall framework for data generation. Thus, a research design refers to the methods and procedures employed to conduct the research. The function of the research design is to ensure that the evidence obtained enables the researcher to effectively address the research problem logically and as unambiguously as possible (Leedy et al., 2013). In this study, the researcher used the qualitative research design. Tichapondwa (2013) posits that qualitative research design refers to a systematic process of generating data and logically analyzing it in the form of words. A qualitative research design is therefore any kind of research that produces results not arrived at by means of quantification. Qualitative research design was suitable for this study because it enabled the researcher to obtain an in depth understanding of factors causing low pass rate in Biology at 'O' Level in Zhombe circuit by studying humans in their natural setting (Cresswell, 2013). It also provided the researcher

with a vast range of options and opportunities for exploring diverse issues affecting performance in Biology because it employs a variety of methods in its enquiry such as observations, interviews and document analysis (Lewis, 2015). This enabled the researcher to understand phenomena from a holistic viewpoint to access activities, events and relationships in their whole content. In addition, the approach was suitable because it is grounded in the experiences and voices of research participants. Furthermore, qualitative research design was useful when exploring human behaviour that cannot be quantified. The design also provided flexible ways of generating, analyzing and interpreting data and information (Cohen & Manion, 2011). Qualitative research design allowed for the assessment of validity through crosschecking of sources (triangulation).

3.3 POPULATION AND SAMPLE

Cohen and Manion (2011) define population as a complete set of elements that possess some common characteristics defined by the sample criteria established by the researcher. The population of this study consisted of all form four secondary students studying Biology, four Biology teachers and Biology head of departments in Zhombe circuit. Since it was practically impossible for the researcher to access all the schools in the circuit, the researcher conducted the research on sampled schools. Chiromo (2009) defines a sample as a small group which is thought to be a representative of the large population. Stratified random sample and purposive sampling techniques were used to select the participants of this research. Stratified random sampling will be used to select pupils to participate in the research to ensure equal representation of both sexes hence eliminate gender bias. The researcher first divided the pupils into two groups basing on sex from which five boys and five girls are selected using simple random sampling. Simple random sampling ensured that

everyone in the stratum had an equal chance of being selected hence eliminated not bias. A total of 10 students were selected from each sample school.

Purposive sampling will be used to select teachers that will participate in this research. The main goal of purposive sampling is to focus on Biology teachers only which are best respondents to the research questions and they have experience in teaching the subject. A total of two Biology head of departments and two Biology teachers will be selected from the sampled schools in Zhombe circuit.

3.4 RESEARCH INSTRUMENTS

Chiromo (2009) explains that research instruments are tools used by the researcher to generate data. In this study, the researcher used semi-structured interviews, observations schedule and documents analysis to generate data.

3.4.1 Semi Structured Interview Guide

A semi structured interview is a set of prepared questions which serves as an interview guide (Anderson, 2011). To get information from the key informants on factors causing low pass rates in Biology at 'O' Level, the researcher relied on the use of semi-structured interviews guides. Interviews were conducted to the Biology head of departments, Biology teachers and form four Biology students. The interviews were conducted on a one on one basis.

Semi-structured interviews enabled the researcher to get immediate feedback from participants hence achieved a high response rate (Chiromo, 2009). In addition, interviews were quick to conduct which allowed the interviews to take place within a short time and enabled the researcher to use them on a relatively large sample (Cohen & Manion, 2011). Data generated using semi-structured interviews were easily quantified. The researcher could adjust the sequence of questions and probe further to get clarification and in-depth data when she used semi structured interviews. Furthermore, semi structured interviews captured verbal and nonverbal cues (Creswell, 2009). This was useful in obtaining detailed information about personal feelings, perceptions and opinions. Thus, the researcher got a comprehensive understanding of issues discussed. Interviews also enabled the generation of primary data (Chiromo, 2009).

To ensure validity of the interviews the researcher consulted the respondents on a suitable venue and convenient time for the interview to make sure that the respondents are comfortable to open. The researcher also made appointments with the respondents so that the respondents get ready for the interview. Cohen and Manion (2011) argue that appointments ensures that there is no embarrassment on the part of the interviewer and interviewee

3.4.2 Observation Schedule

Observations were made during lessons and formal discussions. The researcher observed the participants while the people observed were not aware that they are being observed. Participatory observation enabled the researcher to overcome the Hawthorne effect. Chiromo (2009) explains the Hawthorne effect as the tendency by participants to change their

behaviour when they are aware that they are under observation. This technique enabled the researcher to get realistic information of what is happening in the sampled schools on possible factors causing low pass rate in Biology at 'O' Level. It also allowed the researcher to study phenomena in its natural setting. Chiromo (2009) states that data recorded as events occur is more reliable. Participant observation allowed the researcher to get insights into contexts, relationships and behaviours of the phenomena (Matsa, Mutekwa & Marambanyika, 2015).

3.4.3 Document Analysis

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give meaning about an issue being assessed. (Bowen, 2009). This instrument was used because it is an effective and efficient way of generating information. Documents are stable meaning they can be read and reviewed multiple times and remain unchanged by the researcher's influence or research process (Brown, 2009). Data generated from documents provided details that informants have forgotten and contain data that no longer can be observed. Therefore, document analysis was regarded as an eye opener because it allowed the researcher to understand the background history of factors causing low pass rate in Biology in Zhombe circuit. In this study, the researcher analysed the scheme book, progress record books, attendance register, school log book, inventory books and school statistics on pass rate to come up with a comprehensive study.

3.5 DATA GENERATION PROCEDURES

The researchers got a letter of introduction from the chairperson of the Faculty of Education at the Midlands State University. Permission was also sought from the Ministry of Primary and Secondary Education at KweKwe District Education office to visit the sampled schools. Appointments with sampled schools was made over the phone. Interviews were conducted with the Biology teachers, Biology head of departments and form four pupils in Zhombe circuit.

3.6 DATA PRESENTATION

Data presentation refers to the main characteristics of the data set described in an easily understandable manner (Cohen & Manion, 2011). Data generated from interviews, observations as well as document analysis was compiled and presented in form of graphs, charts and tables. The presentation enables one to easily understand the findings of the study. The compilation was done using the Microsoft excel spread sheet.

3.7 DATA ANALYSIS

Data analysis is a process of inspecting, transforming and modelling data with the goal of discovering useful information, suggestions and conclusion (Galeto, 2017). In other words, it is a process of interpreting information generated and make meaning out of it. It involves asking questions about what happened, what is happening and what will happen. Data generated in this study was qualitative in nature hence the researcher used thematic analysis. Braun and Clarke (2015) explain thematic analysis as a method for identifying, analyzing and reporting patterns within data. Thematic data analysis was used because it is one of the common forms of analysis of qualitative data. This approach emphasizes pinpointing,

explaining and recording patterns or themes within data (Braun & Clarke, 2015). It is a means of gaining insight and knowledge from data gathered. It was simple to use because it is clear, uncomplicated and straight forward qualitative study which does not need theoretical details and technical knowledge such as discourse analysis and conversational analysis. It was also flexible in that it was used within different frameworks, to answer quite different types of research questions (Guest & Namey, 2012). This enabled the researcher to get detailed complex description of data. In addition, it suited questions related to peoples' experiences, peoples' views and perceptions (Philips & Pugh, 2011). Thematic analysis allowed the researcher to develop a deeper appreciation of the causes of low pass rate in Biology at 'O' Level in Zhombe circuit. It helped the researcher to move from a broad reading of data towards discovering patterns and framing a specific research question. The results were discussed in a descriptive manner. Results will be discussed referring to reviewed literature. Data generated will be interpreted to establish the possible causes of low pass rate in Biology at Ordinary Level in Zhombe circuit.

3.8 DATA MANAGEMENT

Isaac (2015) defines data management as the organization, preservation and sharing of data generated and used in a research project. Galeto (2015) explains data management as an administrative process that involves acquiring validity, storing, protecting and processing required data to ensure the accessibility, reliability and timeliness of data for its users. In this study, the researcher managed data generated through backing it in flash discs and an external hard drive. This have helped the researcher to manage the data effectively.

3.9 ETHICAL CONSIDERATIONS

Ethical considerations are principles that guide and govern the researcher in carrying out a study (Chiromo, 2009). In this study, the researcher has observed and upheld the following research ethics.

3.9.1 Informed Consent

The researcher has sought permission from the respondents to carry out the research with them. The researcher also informed the participants verbally that their participation in the study is voluntary and that they have a right to withdraw from the research anytime they feel so. This ensured that the participants are participating voluntarily. Louise, Day and Gill (2017) ascertain that the research should as far as possible be based on participants volunteered informed consent. The objectives of the study were also explained. The participants were told why they have been chosen to take part in the study and how the results of the study will be used (Chiromo, 2009). Videos and recordings were taken when the participants agreed with the researcher. This was to ensure that no information is withheld from the participants and that they take part in the research willingly (Chiromo,2009). By so doing the research respected participants' autonomy and freedom.

3.9.2 Confidentiality

The researcher upheld the participant's right to confidentiality, privacy and sensitive issues. The researcher assured the participants that their responses will be treated in the most confidential way (Chiromo, 2009). No external people had access to the information provided by the participants. Cohen and Manion (2011) ascertains that unless the participants have confidence in the systems designed to protect their privacy and in the people to whom

personal information is entrusted, they will face a difficult choice either to provide inaccurate or incomplete data, thus compromising the validity of the research. Information generated was not made accessible to anyone who is not related to this study.

3.9.3 Anonymity

Real participant's identity was not revealed in any part of the research. The researcher used pseudo names or codes where participants' identity was required (Chiromo, 2009). This ensured that the participants remain anonymous and feel free to open without fear of being victimized

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3.9.4 Deception

Deception occurs when the researcher provides false or incomplete information to participants for the purposes of misleading the subjects (Chiromo, 2009). In this study, the researcher informed the participants the purpose of the study so that they are aware of what the study seeks to achieve. The purpose of the study was explained verbally in vernacular to students so that they understand and decide to take part in the research voluntarily. Identity of the researcher was revealed to the participants so that they develop trust in the researcher (Cohen & Manion, 2009).

3.9.5 Protection from harm

Chiromo (2009) asserts that participants should be protected from physical, social, emotional and spiritual harm. The researcher considered all possible consequences of the research and balance the risks with proportionate benefit (Burns & Groove, 2008). To protect the participants from harm the researcher did not force or coerce participants to get information from them. In the case of students, the researcher sought permission from parents to conduct the study with them since they are minors.

3.10 SUMMARY

The chapter has described the research methodology used in the study. The research study adopted a qualitative research design which enabled the researcher to get an in depth understanding of factors causing low pass rate at ordinary level. The target population were all heads of departments, Biology teachers and students in all secondary schools in Zhombe circuit. Purposive sampling was used to select schools, heads of departments and Biology teachers while stratified sampling was used to select students. The sample was made up of two heads of departments, two Biology teachers and twenty students from two secondary schools. Data was generated using semi-structured interviews, observations and document analysis. The data generated was presented thematically, analysed and discussed. The next chapter considers presentation, analysis and discussion of the research findings.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 INTRODUCTION

This chapter presents the findings of the study based on data generated from teachers, head of departments and students. Data is presented and discussed under the following themes: teacher qualification and experience, teaching resources, teaching methods and teachers' and pupils' attitude.

Table 4.1 Biographic data

Category	Students	Teachers	Head of departments
Sex	10 males and 10 females	1 male and 1 female	2 males
Age	16 years -3 males 2 females 17 years -4 males and 6 females 18 years -3 males and 2 females 19 years -1 male and 1 female	37 years – male 27 years -female	49 years 34 years
Qualification		Diploma in education for both	Certification in education Diploma in education
Experience		3 years- male 3 years -female	25 years 10 years

Table 4.1 shows that both teachers and students were gender balanced however there was no gender balance on heads of departments. It is also evident that the students were young

therefore need guidance. Both Biology teachers are mature enough to guide pupils and both heads of departments are mature enough to supervise the teachers.

4.2 QUALIFICATION OF BIOLOGY TEACHERS

Both teachers (100%) when they were interviewed indicated that they were qualified to teach Biology. When the researcher interviewed the heads of departments they confirmed what had been said by the teachers. The information in the teachers' files supported what the teachers had said. In this study an experienced teacher is someone who has taught for more than four years. Both Biology teachers (100%) indicated that they were inexperienced when they were interviewed. Data generated from head of departments during interviews confirmed what has been said by the teachers. When the researcher analysed the teachers' files the information in the files also confirmed what the teachers had said.

In this study although the Biology teachers are qualified they contribute to low pass rate in Biology because they are inexperienced. Thomas and Ajaobe (2012) argues that if the teachers are not qualified and experienced there is no achievement of desire goals. They believe that teachers' qualification and experience are very significant and positively correlated with students' performance in Biology. This implies teacher qualification and experience work hand in hand in improving students' performance. The longer the working experience of a teacher the more are the chances that pupils will benefit. This is so because teacher's experience shapes the way he/she approaches the subject. Experienced teachers use tried and tested strategies to address learners' challenges hence have a high possibility of raising pass rate (Mangwaya, Mangwaya & Tsumele, 2016). Therefore, experience is a contributing factor towards low pass rate in Biology.

4.3 TEACHING AND LEARNING RESOURCES

At school A all pupils (100%) when interviewed indicated that there was no science laboratory in their school. The Biology teacher from the same school confirmed what the pupils had said during an interview. One teacher said:

There is no laboratory in the school and all experiments take place in the classroom

the head of department confirmed what the pupils had said when he was interviewed. When the researcher visited school A she observed a Biology lesson and experiments being conducted in the classroom.

When the researcher interviewed students at school B, all students (100%) indicated that there was a science laboratory. Data generated through an interview of the Biology teacher at school B concurred with what the pupils had said. One teacher said:

Whenever I want to do experiments I call students into the laboratory provided the chemicals are available.

The same notion was confirmed by the head of department during an interview. The researcher witnessed a lesson being executed in the laboratory at school B. In terms of chemicals and apparatus all students (100%) from both schools indicated that there were few chemicals and apparatus available in their schools. This was supported by both teachers (100%) during interviews. The teacher from school A said:

We don't do all experiments in the syllabus mainly because some chemicals to use are not available.

The heads of departments also said the same thing when they were interviewed. An analysis of the inventory books by the researcher at school A and B confirmed what had been said by the pupils and teachers. On textbooks all pupils (100%) from school A and B specified that they do not have enough textbooks to use. One student from school B bluntly said:

There are no textbooks for us students, textbooks are only used by teacher during Biology lessons.

The Biology teachers confirmed what had been said by pupils when they were interviewed. One teacher (school B) said:

I am forced to dictate all notes during the lesson because the textbooks are very few.

This was also supported by the heads of departments when they were interviewed. An analysis of the inventory book showed that at school A eighteen pupils shared one textbook while fifteen students shared one textbook at school B. The researcher also noted that the pupils had no textbooks to use during the lesson that she observed.

Lack of adequate resources and materials is a significant factor contributing to low pass rate in Biology. This is supported by Awang (2009) who says educational aids and resources increase pupil achievement while Jobolingo (2012) ascertains that successful teaching and learning requires the necessary supporting resources. Mafa and Tarusikirwa (2013) argue that in the absence of adequate apparatus and chemicals the teaching of Biology suffers and adversely affect pass rate. Chikwature and Oyedele (2016) found that the availability of textbooks in most cases correlated positively with pupil performance. On one hand Mangwaya, Mangwaya and Tsumele (2016) state that the use of textbooks by teachers and students during lessons is very important in ensuring effective learning while Mapolisa and Tshabalala (2014) find that schools which have textbooks perform much better than schools

which do not have. This means that low pass rate in Biology is caused by shortage of resources such as chemicals for experiments and textbooks among other resources. Therefore, lack of resources contributes to low pass rate in Biology.

4.4 TEACHING METHODS

All the twenty pupils (100%) from school A and B indicated that their teachers use teacher centred approaches when conducting lessons. One student (school B) said:

The teacher talks and writes on the chalkboard until we are tired of listening and writing.

Another student said:

We do group work once per week and that is when the teacher brings apparatus and chemicals for us to do experiments.

Both Biology teachers (100%) confirmed what had been said by pupils when they were interviewed. This was also supported by the heads of departments when they were interviewed. One head of department (school B) said:

The Biology teacher usually uses the lecture method when conducting their lessons.

At both schools the researcher observed the teachers dishing out information while students listened and wrote notes. An analysis of the schemes of work by the researcher confirmed what had been said above by the pupils. This implies teachers from both schools used teacher centred approaches that did not promote student participation. Chikowore (2012) believes that if the teaching style remains teacher centred and authoritarian it inhibits successful learning. Poyla (2011) asserts that one of the most important factors improving performance

is students' active involvement in the teaching and learning. Mangwaya, Mangwaya and Tsumele (2016) emphasise that active learning is a factor leading to a better pass rate as learners can verbalise and discuss ideas as they are presented thus, giving an opportunity for exposing and correcting confusions and misunderstandings. This therefore calls for a shift from the traditional methods that mainly centre on chalk and talk to more interactive and child centred approaches such as debates, field work, group work and demonstrations. Therefore, teacher centred approaches contribute to low pass rate in Biology.

4.5 TEACHERS' AND PUPILS' ATTITUDES

At school A four out of ten students (40%) indicated that they have a positive attitude while six out of ten students (60%) indicated that they have a negative attitude towards Biology when they were interviewed. One student said:

I don't like Biology because it is a challenging subject.

Another student said:

I like Biology because I want to become a doctor when I grow up.

The Biology teacher indicated that most students do not like Biology during an interview.

The teacher said:

Most of the pupils do not like Biology because they believe it is a challenging subject.

The head of department at the same school concurred with what had been said by the teacher.

The researcher noted a lot of gaps in the record book indicating exercises that were not written. In the pupils' exercise books, the researcher observed that most of the pupils do not

write corrections. During lesson delivery the researcher observed most of the pupils displayed a negative attitude towards Biology. An analysis of the attendance register showed that 3-4 pupils were absent almost every day. All the pupils who were interviewed about their teachers' attitude indicated that it was negative. However, contrary to what had been said by the pupils the Biology teacher at school A said she has a positive attitude towards Biology. The head of department confirming what had been said by the students said:

The teacher lacks commitment to work because she is not punctual for lessons and gives less written work.

During lesson observation the researcher noted that the teacher was not punctual for the lesson was not able to motivate the learners. When the researcher observed the record of marks and the pupils' exercise books they all confirmed what had been said by the head of department. The researcher also noted that the schemes of work were not up to date. At school B seven out of ten students (70%) indicated that they liked Biology while the remainder (30%) disliked the subject. The Biology teacher at school B concurred with what the pupils had indicated. When the head of department was interviewed he also supported the indications made by the students. An analysis of the pupils' exercise books showed that most of the pupils wrote corrections and the researcher noted few gaps in the record of marks. In the lesson observed by the researcher most of the pupils displayed a positive attitude. Eight out ten (80%) students indicated that the teacher had a positive attitude while two out ten students (20%) indicated that the teacher had a negative attitude. The Biology teacher at school B indicated that confirmed what had been said by most of the students. The head of department complemented what was said by the teacher.

Positive attitude in both learners and the teacher towards Biology is an important factor in improving the students' academic performance. Jobolingo (2012) ascertains that teachers'

interest in the subject is a motivating factor for students who in turn respond and participate actively and like the subject. Langat (2015) believes students with positive attitude towards Biology are motivated to excel in the subject because they value it, enjoy it and are interested in it. On the other hand, a teacher who display negative attitude is not able to motivate the students to like the subject. This implies in this study students taught by the teacher with a negative attitude are likely to dislike the subject hence fail the subject. Students with positive attitude complete all assignments, pay attention to the teachers in class and could not miss a lesson as a result pass the subject. Therefore, teachers' and pupils' negative attitude contribute to low pass rate in Biology.

4.6 SUMMARY

This research study has revealed that low pass rate in Biology is caused by many factors which include lack of experienced teachers, teacher centred methodologies and teachers' and pupil's negative attitudes. The next chapter will focus on the summary, conclusions and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter summarises the research study. It outlines the conclusions drawn related to factors causing low pass rate in Biology at ordinary level in Zhombe circuit. Recommendations are also given.

5.2 SUMMARY

The researcher has observed poor performance in Biology to be persistent over years and had become a widespread problem. This motivated the researcher to carry out the study to establish the factors causing low pass rate in Biology. The study is significant because Biology lays a foundation for a wide variety of careers such as nursing, teaching and agronomist among others and it gives an insight on the best ways to harness the earth's natural resources in ways that are safe, efficient and do not cause too much damage to nature. The researcher hoped that the results of the study would improve pass rate in Biology. When carrying out the study the researcher encountered many limitations which include shortage of time since the study was carried out within one year and financial constraints to type and print the project as well as transport to and from the university to consult the supervisor.

The literature was reviewed under the following headings: teacher qualification and experience, teaching resources, teaching methods and teachers' and pupils' attitude in relation to the research questions. Some of the key authors consulted include Chikwature and Oyedele (2016) who opine that lack of adequate resources and materials is a significant factor contributing to low pass rate and Mangwaya, Mangwaya and Tsumele (2016) who postulate

that pupils' negative attitude towards a subject were a stumbling block towards improving performance.

The study adopted a qualitative research design which enabled the researcher to understand the factors causing low pass rate from a holistic view point because it employs a variety of methods in its enquiry. The target population were all the form four students, Biology teachers and head of departments in all secondary schools in Zhombe circuit. Purposive sampling was used to select schools, Biology teachers and head of departments while stratified random sampling was used to select students. The sample was made up of two heads of department, two Biology teachers and twenty students from two secondary schools. Data was generated using semi-structured interviews, observation guides as well as document analysis. The data generated was presented thematically, analysed and discussed.

5.3 CONCLUSIONS

The study established four factors that cause low pass rate in Biology which include the following:

5.3.1 The study revealed that lack of experienced teachers is one of the factors that cause low pass rate in Biology.

5.3.2 Data generated from the study showed that lack of teaching and learning resources is also, a significant factor that causes low pass rate in Biology.

5.3.3 The study has also established that the use of teacher centred approaches contributes to low pass rate in Biology.

5.3.4 Teachers' and pupils' attitude were also found as an important factor that cause low pass rate in Biology.

5.4 RECOMMENDATIONS

The study makes the following recommendations:

- 5.4.1** school based development programmes should be done to equip teachers with recent and effective ways of teaching Biology.
- 5.4.2** School authorities should mobilise funds through fundraising activities to supplement the purchase of teaching and learning resources such as textbooks, chemicals and apparatus.
- 5.4.3** Teachers should use learner centred approaches like group work, discovery learning debates and field work when conducting lessons.
- 5.4.4** School authorities should organise career guidance programmes for students to develop positive attitudes to pursue Biology.
- 5.4.5** The research recommends that an extensive similar study be done in Kwekwe district to have a comprehensive report on factors causing low pass rate in Biology in the whole district.

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APPENDIX 1

 **MIDLANDS STATE UNIVERSITY**

P. BAG 9055 Telephone: (263) 54 60404/60337/60667/60450
Gweru Fax: (263) 54 60233/60311
Zimbabwe

**FACULTY OF EDUCATION
DEPARTMENT OF APPLIED EDUCATION**

9 October 2017

TO WHOM IT MAY CONCERN

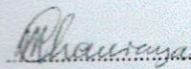
The bearer..... MUYAMBO TAFADZWA is a B.Ed/
MED/PGDE student at this University. She / he has to undertake research on the title:
FACTORS CAUSING LOW PASS RATE AT ORDINARY IN BIOLOGY A 'O' LEVEL
LEVEL IN ZHOMBE CIRCUIT


He/she is required to present a Research Project in partial fulfilment of the degree programme.

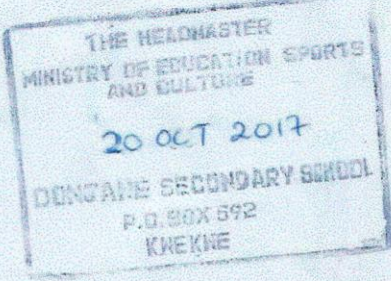
In this regard, the university kindly requests both your institution and personnel's assistance in this student's research endeavours.

Your co-operation and assistance is greatly appreciated.

Thank you


Dr. M. Chauraya
(Chairperson -Applied Education)


MIDLANDS STATE UNIVERSITY
FACULTY OF EDUCATION
DEPARTMENT OF APPLIED EDUCATION
11 OCT 2017
PRIVATE BAG 9055 GWERU
ZIMBABWE TELEFAX 054-260416/7


THE HEADMASTER
MINISTRY OF EDUCATION SPORTS
AND CULTURE
20 OCT 2017
DUNGARE SECONDARY SCHOOL
P.O. BOX 592
KWEKWE

APPENDIX 2

LETTER FROM THE MINISTRY

All communications should be addressed
Telephone: 799914 and 705153
Telegraphic address: "EDUCATION"
Fax: 791923



Reference: C/426/3 Midlands
Ministry of Primary and Secondary Education
P.O Box CY 121
Causeway
Harare

02 October 2017

Muyambo Tafadzwa
Donjane Secondary School
P. O. Box 592
Kwekwe

**RE: PERMISSION TO CARRY OUT RESEARCH IN MIDLANDS PROVINCE:
KWEKWE DISTRICT: ZHOMBE CIRCUIT.**

Reference is made to your application to carry out a research at the above mentioned schools in Midlands Province on the research title:

**"FACTORS CAUSING LOW PASS RATE AT ORDINARY LEVEL IN ZHOMBE CIRCUIT:
KWEKWE DISTRICT: MIDLANDS PROVINCE."**

Permission is hereby granted. However, you are required to liaise with the Provincial Education Director Midlands Province, who is responsible for the schools which you want to involve in your research. You should ensure that your research work does not disrupt the normal operations of the school. You are required to seek consent of the parents/guardians of all learners who will be involved in the research.

You are required to provide a copy of your presentation and a report of what transpired to the Secretary for Primary and Secondary Education.

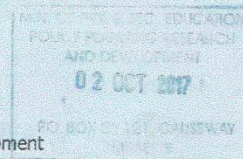
A handwritten signature in blue ink, appearing to read 'E. Chinyowa'.

E Chinyowa

Acting Director: Policy Planning, Research and Development

For: **SECRETARY FOR PRIMARY AND SECONDARY EDUCATION**

cc: PED – Midlands Province



APPENDIX 3

INTERVIEW GUIDE FOR HEAD OF DEPARTMENTS

My name is Tafadzwa Muyambo a student at Midlands State University studying Bachelor of Education degree in geography. I am carrying out a research on factors causing low pass rate in biology at ordinary level in Zhombe circuit. The research is done in partial fulfilment of the requirements of the programme being studied. You are therefore requested to respond the following questions in honesty. Your responses will be treated in confidentiality and will be used in this study only.

1. What is your qualification and experience in teaching?
2. What resources are available in the school that are used in teaching biology?
3. Which methods does the biology teacher use when teaching?
4. What is the attitude of the biology teacher towards biology?
5. What is the attitude of pupils towards biology?

APPENDIX 4

INTERVIEW GUIDE FOR TEACHERS

My name is Tafadzwa Muyambo a student at Midlands State University studying Bachelor of Education degree in geography. I am carrying out a research on the factors causing low pass rate in Biology at ordinary level in Zhombe circuit. The research is being done in partial fulfilment of the requirements of the programme being studied. You are therefore kindly requested to answer the following questions in honesty. Your responses will be treated in confidentiality and they will be used in this study only.

1 What is your teaching qualification and experience?

2 What resources are available in the school that you use in teaching Biology?

3 What methods do you use in teaching Biology?

4 What is your attitude towards Biology?

5 What is the attitude of pupils towards Biology?

APPENDIX 5

INTERVIEW GUIDE FOR LEARNERS

My name is Tafadzwa Muyambo a student at Midlands State University studying Bachelor of Education degree in geography. I am carrying out a research on factors causing low pass rate in Biology in Zhombe circuit. The research is being done in partial fulfilment of the requirements of the programme being studied. You are therefore requested to answer the following questions in honesty. Your responses will be treated in confidentiality and they will be only used in this study.

- 1. What resources are available in the school that you use in learning Biology?**
- 2. What is your teachers attitude towards Biology?**
- 3. What is your attitude towards Biology?**
- 4. What methods are used by the teacher in teaching Biology?**

APPENDIX 6

LESSON OBSERVATION GUIDE

OBSERVATION GUIDE

My name is Tafadzwa Muyambo a student at Midlands State University studying Bachelor of Education degree in Geography. I am carrying out a research on factors causing low pass rate in biology at ordinary level in Zhombe circuit. The study is being done in partial fulfilment of the requirements of the programme being studied. May you kindly allow me to observe your lesson.

Date.....

School.....

Class.....

Time.....

Topic.....

Teaching and learning resources used

Attitude of the teacher

Attitude of the pupils

Teaching methods used

Punctuality of the teacher and pupils

APPENDIX 7

DOCUMENT ANALYSIS GUIDE

DOCUMENT ANALYSIS

Date.....

Time.....

School.....

Class.....

Teachers' file

Teachers' qualification and experience

Schemes of work

Teaching aids planned

Reference textbooks used

Teaching methods used

Inventory book

Textbooks available

Apparatus and chemicals in store

Furniture available

Record of marks

Passrate of pupils

Attendance register

Attendance of pupils

School log book

Teacher's attendance

APPENDIX 8

Factors causing low plagiarism
Zhombe Circuit.

Biology at Ordinary Level in

ORIGINALITY REPORT			
13%	6%	1%	11%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	Submitted to Midlands State University Student Paper		7%
2	Submitted to Kenyatta University Student Paper		1%
3	www.issr-journals.org Internet Source		1%
4	gjournals.org Internet Source		1%
5	www.eajournals.org Internet Source		1%
6	Submitted to Fiji National University Student Paper		1%
7	www.kimpraswil.go.id Internet Source		1%
<p>Exclude quotes <input type="checkbox"/> On <input type="checkbox"/> Exclude matches <input type="checkbox"/> < 1%</p>			