



**BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE EDUCATION
DEPARTMENT OF SCIENCE AND MATHEMATICS EDUCATION**

**FACTORS INFLUENCING LEARNER'S PERFORMANCE IN ORDINARY LEVEL
BIOLOGY AT MAGAYA SECONDARY SCHOOL**

BY

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DECLARATION


I Tadyira Munyaradzi, declare that is my original work that has not been submitted for any degree or examination in any other university and that all the sources I have used or quoted here have been indicated and acknowledged.

Signature: *MTADYIRA*

Date: 07.08.24

This research work was undertaken under the supervision of Dr. P. Chikuvadze

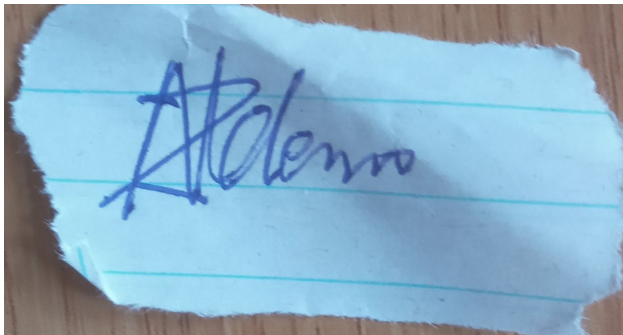
Signed:



Date: 08.08.24

I certify to the best of my knowledge that the required procedure have been followed and the preparation criteria have been met for this dissertation

Signature of the chairman.

A photograph of a small, rectangular piece of white lined paper with a torn left edge. The paper is placed on a wooden surface. In the center of the paper, the name "A. Denno" is written in blue ink in a cursive, handwritten style. The paper has three horizontal blue lines.

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Firstly, I offer my earnest gratitude to the Creator, my Almighty God for guiding me and protecting me throughout the total process of my learning.

My sincere gratitude and appreciation to my supervisor, Dr. P. Chikuvadze for his priceless help and guidance through inspiration and encouragement during all stages of the study.

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DEDICATION

I would like to dedicate this project to my sons Blessing and Bezzel as well as my brother Titus and also to all my friends who encourages me during the time of research..

ABSTRACT

This study sought to explore factors influencing learners' performance in Ordinary Level Biology at the selected school. Data generation, analysis, and discussion were grounded in an interpretivist paradigm and qualitative approach. The researcher used document analysis and interviews in generating data. In this research study, ten learners were conveniently selected and four teachers were purposively selected to form the sample for this study. The generated data were analyzed according to themes derived from the formulated research questions. Findings of the study revealed numerous strategies (i.e., problem-solving, inquiry-based learning, differentiate learning, design-based learning, project-based learning, etc.) were used in preparing learners for Ordinary Level Biology examinations. These strategies were used in such a way that learners are engaged in an interactive manner, thereby enhancing their conceptualisation on key principles and procedures. However, in using these strategies numerous challenges were encountered, large class size, limited resources, etc. From the findings it can be concluded the performance of learners in Ordinary Level Biology examinations was influenced by numerous factors, such as strategies used to prepare them, resources available, class size, etc. Based on the findings it can be recommended that teachers need to be encouraged to diversify the strategies that use in preparing learners for the Ordinary Level Biology examinations.

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CHAPTER 1: PROBLEM AND ITS SETTING

1.1 Introduction

In this chapter, the researcher looked at the background to the study, the statement of the problem and the research questions. The chapter also looks at the significance of the study, delimitation of the study and limitations of the study. Lastly the researcher also defines contextually some selected terms.

1.2 Background to the study

Scientific progress is imperatively needed by every country to ensure its social, economic and technological development in the competitive world today (Tuyishime & Tukahabwa, 2022). The development of science over the years exerted influences and dominated every aspect of human endeavor in such a way that individuals devoid of science literacy find it very difficult to survive in the contemporary society (Chinyere et al., 2014). In this regard, the Commission of Inquiry into Education and Training recommended the transformation of basic to tertiary education into them being capable of preparing learners to be functional in different facets of life (Nziramanga Commission, 1999). Thus, these reforms were geared towards the adoption of STEM with emphasis learner-centered approach to teaching and learning (Ministry of Primary and Secondary Education, 2015).

In this case, Biology as one of the subjects in science education is a prerequisite subject for several fields of learning (Thomas, 2020). The study of Biology also contributes to the search of scientific solutions of several challenges the world is facing today including diseases, drug resistance, pollution, climate change, global warming etc. (Grey,2019). The concepts, topics and processes in Biology are considered to be difficult for secondary school students and this affects their engagement in learning and academic achievement (Çimer, 2012). Thus, there is a need to explore about the learner engagement because it was a very important construct in the teaching and learning process. The authors (Mukandi et al., 2020; Mufanechiya & Mufanechiya, 2020) insisted that learner s engagement is necessary for learning, performance and academic achievement in Biology with specific reference to urban secondary schools.

None of these studies have attempted to explore the factors influencing learners performance in Ordinary Level Biology with specific attention to secondary schools in marginalised communities. Hence, the scarcity of information about the factors influencing learners performance in Ordinary Level Biology examinations in marginalised secondary schools. It was against this background that this study sought to gain insight into the factors that influence learners performance in Ordinary Level Biology examinations.

1.3 Statement of the problem

Biology occupies a unique position in Zimbabwe s secondary school curriculum because of its importance as science of life (Falemu & Akinwumi, 2020). Thus, it calls for the use of a hands-approach to teaching and learning so as to create a fertile ground for learners understanding of theory when it is applied in real life (Jones et al., 2016). In addition, it creates an environment that can influence learners capacity to learn and also provides basis for success in examinations. However, statistics on academic performance of learners at the selected secondary school in Ordinary Level Biology has it that there has been a persistently poor (2017 - 2023).

Table 1.1: Ordinary Level Biology Results Analysis (2017 - 2023)

Year(s)	No. of Candidates who sat for Ordinary Level Biology examinations	No. of candidates who passed Ordinary Level Biology examinations (C or better)	Pass Rate (%)
2017	35	8	22.9
2018	40	11	27.5
2019	42	9	21.4
2020	57	14	24.6
2021	36	9	25
2022	45	13	28.9
2023	52	15	28.8

It is in the context of the above present results analysis that this study sought to gain insight into issue guided by the following main research question: What factors are influencing learners performance in Ordinary Level Biology examinations?

1.4 Research questions

From the above main research question, the following sub-questions were derived:

1. What strategies are used to prepare learners for the Ordinary Level Biology examinations?
2. How are these strategies used to prepare learners for the Ordinary Level Biology examinations?
3. What challenges are encountered when using these strategies in preparing learners for Ordinary Level Biology examinations?

1.5 Significance of the study

The following are expected to benefit from the findings of this study:

1.5.1 Curriculum Developers

The study will provide curriculum developers with essential information on how to enhance teacher professional development programs. They can develop guidelines and resources for teachers, enabling them to adopt best practices that improve learner performance. In addition, the study will help them to appreciate the importance of a learner-centered approach, enabling them to develop a curriculum that caters for diverse learner needs.

1.5.2 Science teachers

The study will provide valuable insights into the effectiveness of teaching methods and instructional strategies. The findings will enable science teachers to identify areas that require improvement, adapt their teaching approaches, and develop more effective lesson plans that cater to diverse learner needs. Through this study, science teachers can adjust their teaching methods to better support learners, ultimately leading to improved learner outcomes.

1.5.3 Learners

The study is crucial for learners as it aims to identify some of the challenges faced in learning biology and provide solutions to overcome them. By understanding the factors that impact their performance, learners can take ownership of their learning, develop strategies to improve their understanding and retention of biology concepts, and ultimately achieve better grades. The study's findings will also help learners identify their strengths and weaknesses, enabling them to focus their efforts on areas that need improvement.

1.5.4 Bindura University of Science Education

This study contributes to the body of knowledge on science education, a key area of focus for the university. The study's findings will provide valuable insights for the university's science education programmes, informing the development of more effective teaching methods and instructional strategies.

1.5.5 Researcher

The study is significant to me as a researcher as it provides an opportunity to contribute to the body of knowledge on science education, a field I am passionate about. The exploration of the factors that impact learner performance, the researcher can gain a deeper understanding of the complex interplay between teaching methods, learner characteristics, and resource allocation, ultimately informing the development of more effective teaching strategies and interventions.

1.6 Delimitation of the study

This study is delimited geographically to Magaya Secondary School, a single school located in Guruve District Mashonaland Central Province. The study is focuses specifically on ordinary level biology learners and teachers and does not extend to other schools. The school enrolls more than 400 learners and it offers basic education from form 1 up to 4, with about 13 teachers. The study is limited to factors that influence learner performance in Ordinary Level Biology at this school.

1.7 Limitations of the study

The study on factors influencing learner's performance in Ordinary Level Biology at Magaya Secondary School is going to be done on a limited small sample size, which may not be representative of all learners and teachers in the school. Another limitation is the lack of control over extraneous variables, such as learner's prior knowledge and motivation, which may impact the results. Additionally, the study relies on self-reported data from learners and teachers, which may be subject to bias. To address these limitations, future studies could consider a larger sample size and use randomized controlled trials to control for extraneous variables. Additionally, data could be collected through multiple methods, such as observations and assessments, to triangulate the findings. The study could be replicated in other schools to increase generalizability.

Despite these limitations, the study provides valuable insights into the factors influencing learner's performance in Ordinary Level Biology at Magaya Secondary School. The findings highlight the need for teacher training and resource provision, innovative teaching methods, and learner support strategies to improve learner performance. Through addressing the limitations and building on the study's findings, educators and policymakers can work towards improving the teaching and learning of Biology in Zimbabwean schools.

1.8 Definition of key terms

1.8.1 Learners' performance

Refers to the extent to which a student or learner achieves their academic goals and demonstrates their knowledge, skills, and understanding of a subject or curriculum (Malcolm, 2020).

1.8.2 Ordinary Level Biology

Refers to a secondary school level course in biology that is typically taken by students in their final two years of secondary education, usually around 16-18 years old (Black, 2019).

1.8.4 Performance

Refers to the execution or accomplishment of a task, action, or process, often measured against a standard, expectation, or goal Grey, (2019). This involves the demonstration of skills, abilities,

and knowledge to achieve a specific outcome or result. In general, performance is about accomplishing something and being measured or evaluated against a benchmark, which helps identify strengths, weaknesses, and areas for improvement (Ehrens, 2015).

1.9 Chapters layout

Chapter 1: Problem and its setting

This chapter introduces the research problem, providing context and background information. It clearly states the research question, objectives, and significance of the study, as well as delimitations and assumptions. This chapter sets the stage for the entire research project.

Chapter 2: Review of related literature: This chapter reviews existing literature on the factors influencing learner performance in Biology, examining teaching methods, learner-related factors, and resource allocation. It identifies and discusses relevant theoretical and conceptual frameworks, such as constructivist learning theory and the biology education framework. The chapter also highlights the research gap, justifying the need for the current study.

Chapter 3: Research methodology: This chapter outlines the research paradigm, approach, sampling procedure, data collection methods, and data analysis techniques used in the study. It describes the research instruments, participant selection, and ethical considerations.

Chapter 4: Data analysis and discussion: This chapter presents the findings of the study, displaying data through tables, figures, and graphs. It applies appropriate statistical analysis and interprets the results, discussing the findings in relation to the research questions and objectives.

Chapter 5: Summary, recommendations, and conclusion

This final chapter summarizes the key findings from each chapter, restating the research problem and objectives. The chapter will also provide the recommendations.

1.10 Chapter summary

Chapter 1 provides a solid foundation for the research study, clearly introducing the problem and setting the stage for the investigation that follows. Chapter will be on literature related review.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter is going to have an in-depth analysis of the literature related review of factors influencing learners' performance. The literature review in approaches used in Biology teaching and learning activities, the use of different approaches, challenges faced in implementing these approaches, learning methods that can be used to reduce poor performance and eventually a summary will be given.

2.2 Theoretical framework

The theoretical framework for this study is based on the Social Cognitive Theory (SCT) by Albert Bandura (1986), which postulate that learning is a cognitive process influenced by personal, environmental, and behavioral factors. According to SCT, learners' performance is affected by their self-efficacy, motivation, and goal-setting, as well as the support and feedback they receive from teachers and peers. SCT suggests that learners' performance is influenced by their beliefs about their ability to learn Biology, their motivation to learn, and the learning environment provided by teachers (Woolfolk, 2017). Teachers' pedagogical practices, such as using innovative teaching methods and providing feedback, can enhance learners' self-efficacy and motivation, leading to improved performance (Hativa, 2018).

This theoretical framework is relevant to the topic of factors influencing learner's performance in Ordinary Level Biology at Magaya Secondary School. Through understanding the personal, environmental, and behavioral factors that influence learners' performance, teachers and educators can design effective interventions to improve learning outcomes. For instance, teachers can use innovative teaching methods to enhance learners' motivation and self-efficacy, provide feedback and support to learners, and create a conducive learning environment that promotes learner engagement and participation.

2.3 Strategies used in preparing learners for examinations

This section centres on interrogating some of the strategies that are used in facilitating teaching and learning activities.

2.3.1 Project- Based Learning

Project-based learning (PBL) has been widely adopted in teaching Biology across various countries, with studies consistently showing its positive impact on student learning outcomes. In the United States, research has shown that PBL in Biology increases student engagement, motivation, and understanding of complex concepts (Thomas, 2020). Similarly, in Australia, PBL has been found to improve students' critical thinking and problem-solving skills in Biology (Hmelo-Silver, 2004). In Asia PBL has been widely adopted in countries such as Singapore and China, where it has been shown to enhance students' scientific literacy and inquiry skills (Chin & Taylor, 2009).

In Europe, PBL has been found to promote deep learning and understanding of Biology concepts, particularly when combined with technology-enhanced learning tools (De Jong, 2006). In Africa various studies has been undertaken to improve learners' understanding of Biology concepts and their application to real-life situations, particularly in the context of sustainable development (Mumba et al., 2015). The literature suggests that PBL is an effective approach to teaching Biology, with benefits including improved student engagement, motivation, and understanding of complex concepts. However, the effectiveness of PBL can vary depending on factors such as teacher training, resource availability, and cultural context.

2.3.2 Design-Based Learning

Design-based learning (DBL) has been implemented in teaching Biology in various countries, with research highlighting its effectiveness in enhancing student learning outcomes. In the United States, DBL has been found to improve students' critical thinking and problem-solving skills in Biology (Hmelo-Silver, 2004). Similarly, in Australia, DBL has been shown to promote deep learning and understanding of complex Biology concepts (Chin & Taylor, 2009).

In Asia, DBL has been widely adopted in countries such as Singapore and China, where it has been found to enhance students' scientific literacy and inquiry skills in Biology (Chin & Taylor, 2009). In Europe, DBL has been found to promote collaborative learning and improve students' attitudes towards Biology (De Jong, 2006). In Africa, DBL has been used to develop students' problem-solving skills and apply Biology concepts to real-life situations (Mumba et al., 2015).

Research has also highlighted the importance of teacher training and implementing effective DBL in Biology education. Teachers' pedagogical practices, such as providing feedback and scaffolding, have been found to significantly impact students' learning outcomes in DBL (Hativa, 2013). Furthermore, DBL has been found to be more effective when integrated with technology, such as simulations and games, to enhance student engagement and motivation in Biology learning (Sawmiller, 2018). The literature suggests that DBL is an effective approach to teaching Biology, with benefits including improved critical thinking, problem-solving, and scientific literacy skills. However, the effectiveness of DBL can vary depending on factors such as teacher training, resource availability, and cultural context.

2.3.3 Lecture method

The lecture way method of teaching is dictatorial where a teacher speaks to students with little or no room for **learners** involvement or participation (Shumba, 2017). Some teachers read from their notes without giving practical examples which is often difficult for students to learn. However, this method is a very effective way of covering a large area (Schunn, 2018). Its main disadvantage is that individual differences are not given due consideration that every student is seen as a student not minding whether they are slow or fast learners (Moradeyo, 2015).

2.3.4 Demonstration

The demonstration teaching method is one of the most used secondary school strategies in the study area. It is a practical way of showing students how things are done (Chaw, 2016). This strategy is good because it is often used as teaching aids to model or mimic reality. For instance, in teaching continents of the world, teachers are expected to bring the world map and a globe to demonstrate where the seven continents of the world; Africa, Antarctica, Asia, Europe, North America, South America, and Oceania (Australia) are located (Sheeba, 2019). This method is also time-consuming but gives results immediately unlike others like brainstorming that require a

teacher s moderation from time to time (Rosa, 2016). The disadvantage of this method is that teachers might dominate a class session (Moradeyo, 2015).

2.3.5 Problem-Based Learning (PBL)

Problem based learning is a teaching method that uses complex real world-based problems as a vehicle to promote student learning of concepts and skills (Mumba et al., 2015). It involves student working in small groups to solve problems and is designed to prepare learners for real world challenges by developing their critical thinking, problem solving, and collaboration skills. Chin and Taylor (2009) says, PBL in a classroom can benefit student learning and preparation for secondary level exams. It also promotes learner engagement with learning and can enhance student preparation for examination (Ozman, 2020). It implies teachers to facilitate an advisory class that meets regularly to support academic progress, teach social emotional skills and strategies, which can be beneficial for examination preparation (Hativa, 2015). When preparing student for biology examination, it is important to make learning a daily routine, repeat study over several shorter periods over different days, and study the material weekly and not just before test (Zindi & Rugaraganda, 2018)

2.3.6 Experimentation

Experimentation is a valuable strategy for preparing learners for examination (Leedy, 2018). By engaging in hands on experiments, students can deepen their understanding of Biology concepts and develop essential scientific skills (Schunn, 2018). Learners are engaged in practical experiments that can help learners to understand complex biological concepts and principles leading to a better preparation for examination (Rubaya & Chademana, 2020). Furthermore, hands on experiments allow students to apply theoretical knowledge to real world scenarios, enhancing their understanding and retention of biological concepts (Ozman, 2022). Through experimentation, students can develop critical thinking and problem-solving skills, which are essential for success in biological examination (Moradeyo, 2015). Understanding experiment design is crucial for conducting effective biology experiments (Zindi & Rugaraganda, 2018).

2.3.7 Discussion

According to Thaw (2020) indicating that engaging in discussion can be a valuable strategy for preparing learners for examination. Participating in discussion allows student to actively engage with the materials, leading to deeper understanding of biological concepts and principle (Murithi and Yoo,2021) has also noted that through discussions students can reinforce their learning by explaining concepts to others and applying their knowledge to practical scenarios, which can be beneficial to examination preparation. Discussions can provide an opportunity for students to reflect on their learning processes, discuss study strategies, and enhance their metacognitive regulation skills, which are essential for effective examination preparation (Cimer, 2020).

2.4 Challenges encountered when using these strategies in preparing learners for examination

This section focuses on articulating some of the challenges that are encountered when preparing learners for examinations.

2.4.1 Lack of resources

Chisi (2020) states that, while other schools had no Biology apparatus, laboratory rooms, they lacked such teaching and learning resources as Biology textbooks, internet services, and apparatus. In reviewing the literature from various countries, it becomes evident that the lack of resources in the field of biology is a pervasive issue with far-reaching implications. Studies from the United States highlight the challenges faced by (Thomas, 2015) proposed that accessing cutting-edge equipment and technology, impacting the quality of scientific research and education. Similarly, research from developing countries such as India and Nigeria underscore the scarcity of basic laboratory supplies, hindering the advancement of biological sciences and the training of future scientist (White, 2015). Furthermore, European literature emphasizes the strain on funding for biological research, resulting in limited opportunities for innovation and progress in this critical field (Homero, 2015). The global perspective on the lack of resources in biology reveals the urgent need for sustainable solutions to ensure equitable access to resources and support the advancement of biological knowledge worldwide (Ozmon, 2022).

2.4.2 Lack of parental support

Harris (2013) attributes the poor performance of secondary pupils to a lack of parental support. There is a correlation between parental support in learners' work activities and the performance of learner (Ngwenya, 2020) Learners with parental support in homework achieved better than those without parental support even if those without parental support had a higher intelligence quotient (Shumba, 2017). According to Haralambos and Holborn (2012), the school should be an extension of the home. There should not be difficulties in learners' transition from home to school (Hwande & Mphofu, 2017)

2.4.3 The use of single method of teaching and learning by teachers

Saiduddin (2018) postulates that it is a convenient scapegoat to pass the blame and responsibility for low academic performance to factors such as socioeconomic status, family, culture, and the learner being less intelligent than others and not paying attention to the teaching and learning processes. Chivore, et al (2018) adds that all learners can learn, and how the school is managed is the most critical factor in determining the quality of education for its learners. Bennell and Ncube (2019) state that the decline in performance in schools has been explained by the quality of education provided. Torfff and Sessions (2015), state that effective teaching is a balanced blend between pedagogical knowledge and content knowledge. However, most teachers have stuck to the traditional methods of lecturing to learners, where the teacher has all the knowledge and learners are just recipient (Madondo, 2018).

2.4.4 Attitudes of learners towards Biology teaching and learning

Veloo and Khalid (2015) claimed that attitude is the intermediary for all types of reactions which can be categorized into three main components namely emotion, cognition, and behavior. Tshibalo (2015) in their study revealed that a positive attitude stimulates students to put more effort and leads to high achievement in that subject while a negative attitude towards a certain subject makes learning more difficult. Godwin and Okoronka (2015) agreed with the assertion that a significant relationship exists between learners' attitude and their corresponding academic performance in Biology teaching and learning.

Avital (2016) asserts that the attitude of learners towards the school and its benefits negatively contributed to their commitment to schoolwork. his kind of negative attitude minimizes concentration and commitment to academic work (Berry, 2018). Burmaster (2019) found that where learners had no reason to be at school, they frequently absented themselves from lessons to do other things they thought would help them in life, like income-generating activities. Mudzokere (2015) adds that hard-working teachers are let down by lazy students. When such hardworking teachers meet the class, they make clear the topics to be covered and the objectives to be achieved.

2.5 Chapter summary

In this chapter the theoretical framework guiding the interrogation of the issue under study was articulated. In addition, gaps to be filled by the study were identified under the following themes: strategies used to prepare learners for examinations and challenges encountered when using these strategies in preparing learners for examinations. In the next chapter will focus on the research methodology.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter articulates the strategy used to generate, analyse and discuss the data with the view to provide answers raised in chapter 1. This is done under the following sub-headings: research paradigm, research approach, methods, sample and sampling procedure, data generation, data analysis procedure, the integrity of the study, and a chapter summary.

3.2 Research paradigm

A research paradigm is a fundamental set of beliefs, assumptions, and principles that guide the way a researcher approaches and conducts their investigation (Kaushik & Walsh, 2019). It serves as a philosophical framework that informs the researcher's worldview, methodological choices, and the interpretation of findings. One widely recognized research paradigm is the interpretivist paradigm. The interpretivist paradigm is rooted in the belief that social reality is constructed through the subjective experiences and perceptions of individuals (Creswell, 2013). This paradigm emphasizes the importance of understanding the context-specific meanings that people attach to their actions, behaviors, and interaction (Pascale, 2017). The interpretivist paradigm allowed the researcher to delve into the nuanced and context-specific factors that may underlie poor performance, such as learners' learning experiences, teachers' instructional practices, and the broader educational environment. The interpretivist paradigm supports a flexible and emergent research design, allowing the researcher to adapt the study as new insights and understandings emerge during the data collection and analysis process (Poni, 2016).

3.3 Research approach

According to Leedy (2018), the research approach is a plan that describes how, when, and where data is to be collected and analysed. The study is guided by the qualitative approach in generating and analyzing data with the view to comprehending factors influencing learners' performance in Biology examinations. The qualitative approach provided the researcher with the platform to capture and interpret the phenomenon from the participants' perspective (Leedy & Ormond, 2005). In support of this view, Creswell (2007) advances the qualitative approach as a

methodical way that can be used to describe participants' experiences stressing the uniqueness of each situation to give meaning. According to Lincoln (2020), qualitative research enables the researcher to understand the issue under study from its natural settings, attempting to make sense of or interpret, phenomena in terms of the meanings of the study. Thus, the qualitative approach, in this case, was used to generate data, later to be analysed with the view to provide answers to questions raised in chapter one. Hence, it ensures that the authentic voice of the participants was well represented because they are inductive and flexible (Shank, 2002).

3.4 Sample and sampling procedures

Banerjee and Chaudhury (2010) refer to the target population as the defined population from which the sample is to be properly selected by the researcher. According to Danzel and Lincoln (2011), the target population entails a set of elements with common characteristics that are of interest to the researcher defined by the sampling criteria. A sample in turn can be defined as a subset of the target population chosen to participate in the study (Fraenkel & Wallen, 2003). Mack (2018) defines a sample as the selected group of objects from the target population whose input is considered by the researcher.

According to Cohen and Manion (2010), sampling entails collecting, analyzing, and interpreting research data from a selected representative of the target population. In this study, purposive sampling was used because of resource constraints thus the researcher decided to find people who could and were willing to provide the needed information from their knowledge and experience (Tongco, 2007). Purposive sampling, also known as judgment sampling, involves the deliberate selection of participants due to the qualities the participant possesses (Etikan, 2016). Hence the sample for the study comprised 10 learners and four teachers who were purposively sampled to be the source of the needed answers to answer research questions raised in chapter one. The four teachers for the past four years at the school hence the researcher considered the four most informed with regards to the topic under study.

3.5 Methods

In this study, the researcher regards data as a raw form of words, and or facts that need to be processed. For this study data was generated through the following:

3.5.1 Document analysis

Document analysis is a type of qualitative research in which documents are reviewed by a researcher to assess an appraisal theme (Rukuni, 2015). It is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning to an assessment topic (Leary, 2014). The researcher consulted several documents which include learners enrolment records, policy circulars, teachers record books, and many others. Document analysis was chosen because it provides a clear picture of issues under study without bias.

3.5.2 Interview

According to Leedy (2018), a structured interview is a fixed format interview in which all questions are prepared beforehand and are put in the same order for each interviewee. This means that the structured interviews are conducted with a well-designed form that has already been established. Forms are filled with researchers and not respondents. Interviews are important because they provide answers to research question. It shall be guided by the following themes: strategies are used to prepare learners for the Ordinary Level Biology examinations, use of these strategies in preparing learners for the Ordinary Level Biology examinations and challenges are encountered when using these strategies in preparing learners for Ordinary Level Biology examinations.

3.6 Data generation procedure

According to Bells (2000), the data generation procedure refers to the steps one can take when gathering data from the selected participants. Thus, this section talks of that stage of research when the researcher seeks entry into the field up to exit. In this regard, the researcher armed with an introductory letter from Bindura University Faculty of Science Education applied for permission to conduct a study at Magaya Secondary School. Thus, the researcher ensured that all necessary paperwork is submitted in line with the Ministry of Primary and Secondary Education regulations to enter the selected school. With the permission granted the researcher ensured that all the needed groundwork is completed before meeting participants. The researcher made it

clear to the participants that the objective of the exercise as well as that privacy and confidentiality were guaranteed. Accordingly, participants were also informed that they were free to provide information without hesitation. Thereafter, the researcher asked participants to agree on a suitable time and venue within the stipulated time frame.

3.7 Data analysis

Data analysis entails organizing, accounting for, and making sense of the data from the participant's perspective, taking note of themes, patterns, categories, and regularities (Matuku & Makonye, 2016). Data analysis entails reducing accumulated data to a manageable size creating summaries, identifying patterns, and applying statistical techniques (Stevens, 2021). The data generated through personal interviews were analysed according to themes derived from the research questions in chapter one. Thus, the researcher searched for trends and patterns that can be used to provide answers to the issue under investigation (Yin, 2003). After data retrieval, the researcher summarised key points from participants and checked for commonalities and inconsistencies in the data to ensure credibility and dependability. The researcher identified themes after judiciously going through descriptive responses to each question to come up with broad themes. Data on each theme was presented in the form of short quotations from participants followed by the analysis. The researcher was able to analyse data generated according to emerging themes.

3.8 Trustworthiness of the study

According to Rule and John (2011), trustworthiness is providing a multidimensional comprehension of the issues relating to exploring factors influencing learners' performance in Biology. The researcher used personal interviews to extract valuable information on exploring factors influencing learners' performance in Biology at Magaya Secondary School. To minimise the issue of bias, trustworthiness was rooted in considering whether the findings answer the sub-research questions and ultimately the main research questions by reflecting on the credibility of the original data shared by the participants. For this reason, trustworthiness was assumed to be achieved through a thorough narration and interpretations of data from the chosen source (Stake, 2005). In this setting, there is a need to trim down the influence of bias in data analysis and elucidation (Gunawan, 2015). This brought to light convergence within data, which makes it

possible to robustly look at a study from perspectives centred on the integrity of the findings (Yin, 2006).

3.9 Ethical considerations

According to Delvin (2016), ethical considerations are norms or standards for conduct that distinguish between right and wrong. Leedy (2018) defines ethics as a branch of philosophy relating to the rightness or wrongness of certain actions, and the badness or goodness of the motives and ends of such actions. This means that ethical considerations help to guide the researcher so that he or she sticks to standards and avoids giving false information. May (2011) states examples of ethical considerations such as confidentiality consent of respondents, authenticity, anonymity, and privacy. The subject has the right to have some of the information they provide being kept private (Omoro & Nato, 2015). As a researcher, it is necessary to avoid unnecessary questions. The contents and the findings during and after the study should not be disseminated to everyone but those involved in the study only that is, the researcher and the supervisor as some issues may be sensitive (Madondo, 2018). Participants should be identified by numbers, and letters not by their names. Participants have the right to their identities not to be highlighted in the research (Zindi, 2018).

3.10 Chapter summary

This chapter focused on the research process and the kinds of tools and procedures used to conduct the research data. The researcher used a qualitative approach to describe variables and examine the relationship among variables. Document analysis and interviews were the researcher's instruments to obtain information on analysing factors influencing learners' performance in Ordinary Level Biology. The researcher also looked at subtopics such as sample and sampling procedures, data collection procedures, data analysis, and presentation procedures, integrity of the study, and a chapter summary. Up next is chapter 4 which is going to show data analysis, presentation and discussion.

CHAPTER 4: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the data collected through semi-structured interviews and documentary analysis with teachers and learners, as well as observations of biology lessons, are analyzed and discussed in this chapter. The presentation of data is organized around the themes that emerged from the data, including strategies used by teachers in preparing learners for ordinary level biology examination, the integration of demonstration and experimentation in teaching and challenges encountered in teaching and learning biology as well as possible solutions to the highlighted challenges.

4.2 Characteristics of the participants

Analysis of generated data was performed using the thematic approach in which data was categorized according to sub-questions. This section focuses on the demographic characteristics of the participants, that is, the Ordinary Level Biology learners and teachers.

Table 4.1 Demographic characteristics of the selected teachers (n=4)

Attributes		(n)	(%)
Sex	Females	1	25
	Males	3	75
Professional Qualification(s)	Diploma in Education	2	50
	Degree in Education	2	50
	Master s in Education	0	0
Teaching Experience (Years)	0 5	1	25
	6 14	2	50
	15 20	1	25

The researcher noted that among the four teachers, one was a female (25%), and three were males (75%). The researcher also noted that two teacher (50%) had a diploma in education, two teachers (50%) have a degree in education and no one had a Masters degree in Education (0%). Furthermore, teaching experience ranged from (0 - 5) years (25%), (6 - 14) years (50%), and (15 - 20) years (25%). This makes the sample to be comprised of a diverse source of information for the study. In the table below the characteristics of the selected learners are presented.

Table 4.2 Demographic characteristics of the Ordinary Level learners (n = 10)

Attributes		(n)	(%)
Sex	Females	5	50
	Males	5	50
Age Range (Years)	13 - 15	1	10
	16 - 18	8	80
	Above 18	1	10
Form	4	10	100

The researcher noted that among the 10 learners, five were females (50%), and five were males (50%). Additionally, one learner was between the age range 13 - 15 years (10%), eight learners were between (16 - 18) years (80%) and only one learner was above 18 years (10%). All the learners were form four Biology students. The sample comprise of purposively selected 10 Ordinary Level Biology learners with ages ranging from 13 - 18 years at the school.

4.3 Strategies used to prepare learners for Ordinary Level Biology examinations

From the findings, the respondents argues that role play is one of the strategies used to prepare Biology learners for Ordinary Level examinations. One respondent noted:

Role play helps learners to visualize and internalize complex processes, making them easier to understand and remember (Teacher 1)

Another participant added that:

Through role play learners can take on different roles and perspectives, promoting critical thinking and problem-solving skills (Teacher 3)

The data findings on role play concur with scholars who emphasize its pivotal role in enhancing learner engagement and understanding of complex Biology concepts. Participants' testimonies, such as role play helps learners to visualize and internalize complex processes, making them easier to understand and remember. Through role play, learners can take on different roles and perspectives, promoting critical thinking and problem-solving skills," resonate with the views of scholars like Vygotsky (2018), who argued that role play facilitates cognitive development and learning. Similarly, Dewey (2018) emphasized the importance of experiential learning, which role play embodies, in promoting deep understanding and application of knowledge. Respondents' experiences also align with the findings of Hmelo-Silver (2016), who noted that role play enhances learner engagement, motivation, and understanding of complex concepts. A participant remarked that:

Group discussions encourage learners to share their ideas and insights, fostering a sense of community and teamwork (Teacher 3)

Another participant noted that:

Group discussions help me to understand better, sometimes my classmate can explain what I understand than teacher (Learner 4)

The data findings reveal that group discussion plays a pivotal role in preparing learners for Ordinary Level Biology examinations. Respondents highlighted the effectiveness of discussion in enhancing learner engagement, understanding, and application of complex Biology concepts, which are essential for success in examinations. Scholars like Black and Wiliam (2019) concur with these findings, emphasizing the importance of formative assessment and interactive learning strategies like group discussion in preparing learners for high-stakes examinations. The data supports the views of scholars like Mwamwenda (2015), who noted that group activities help learners to develop critical thinking and problem-solving skills, which are critical for success in Biology examinations.

Participants' experiences also align with the findings of Ogunniyi (2017), who highlighted the role of interactive learning strategies like role play in enhancing learner motivation and engagement, leading to improved examination performance. Furthermore, the data concurs with scholars like Bandura (2017), who emphasized the importance of self-efficacy and confidence in learner performance. Participants' experiences demonstrate that group discussion helps learners

to develop a sense of self-efficacy and confidence, which is critical for success in examinations.

A participant stated, that:

Revising past exam papers helps learners to familiarize themselves with the exam format and question types, reducing anxiety and building confidence (Teacher 2)

Another participant noted that:

Past examination papers provide us with an opportunity to practice and apply the knowledge, identifying areas for improvement and reinforcement (Learner 6)

The data findings reveal that revising past exam papers plays a pivotal role in preparing learners for Ordinary Level Biology examinations. Respondents highlighted the effectiveness of past papers in familiarizing learners with the exam format, question types, and content, which enhances their confidence and performance. Mwamwenda (2015) concur with these findings, emphasizing the importance of using past exam papers as a revision strategy to improve learner performance in high-stakes examinations. Moreover, the data supports the views of scholars like Ogunniyi (2017), who noted that revising past exam papers helps learners to identify areas of strength and weakness, allowing for targeted revision and improved performance. Participants' experiences also align with the findings of Black and Wiliam (2019), who highlighted the role of formative assessment and feedback in enhancing learner performance, which revising past exam papers provides. A participant noted that:

Experiments allow learners to explore and discover scientific concepts firsthand, making learning more enjoyable and interactive (Teacher 3)

In addition, it was highlighted:

Experiments help learners to develop practical skills and techniques, preparing them for real-world applications and scenarios (Teacher 1)

Another participant had this to say:

What I do with my hands I never forget and I understand widely, concept done practically than theoretically. Therefore, my biology teacher should include practical activities and hands on for me to understand better (Learner 7)

The data findings reveal that conducting experiments based on past exam papers plays a pivotal role in preparing learners for Ordinary Level Biology examinations. Participants highlighted the effectiveness of experiments in helping learners to understand and apply complex Biology

concepts, which are critical for success in examinations. Hofstein and Lunetta (2014) concur with these findings, emphasizing the importance of practical work and experiments in enhancing learner understanding and retention of scientific concepts. Moreover, the data supports the views of scholars like Abrahams (2019), who noted that experiments based on past exam papers help learners to develop practical skills and techniques, which are essential for success in Biology examinations. Participants' experiences also align with the findings of Taber (2018), who highlighted the role of experiments in promoting learner engagement, motivation, and understanding of scientific concepts.

This concurs with scholars like Osborne (2019), who emphasized the importance of scientific literacy and practical skills in preparing learners for success in Biology examinations. Respondents' experiences demonstrate that conducting experiments based on past exam papers helps learners to develop scientific literacy and practical skills, which are critical for success in examinations. Overall, the data findings and scholars' views highlight the pivotal role of experiments based on past exam papers in preparing learners for Ordinary Level Biology examinations. A participant remarked that:

Presentations encourage learners to research, organize, and present information, developing their communication and public speaking skills (Teacher 1)

Another participant noted that:

Presentations provide us learners with an opportunity to share t knowledge, ideas and insights, help us to develop confidence to speak in front of others as well as promoting peer-to-peer learning and feedback (Learner 8)

The data findings reveal that presenting past exam questions plays a pivotal role in preparing learners for Ordinary Level Biology examinations. Respondents highlighted the effectiveness of presentations in enhancing learner understanding and retention of complex Biology concepts, as well as developing communication and public speaking skills. Scholars like Hmelo-Silver (2014); Mayer (2019) concur with these findings, emphasizing the importance of multimedia presentations in enhancing learner engagement and understanding of scientific concepts. A participant stated that:

Demonstrations help learners to visualize and understand complex processes, making them easier to grasp and remember (Teacher 2)

Another participant added that:

Demonstrations provide learners with a clear and concise explanation of scientific concepts, clarifying misconceptions and reinforcing understanding (Teacher 4)

In this section, strategies from the study findings were represented qualitatively and analysed from teachers and learners selected in the study. The qualitative analysis of the study on factors influencing learner performance in Ordinary Level Biology. One of the participants noted that:

I use my mobile phone to search for information and share it with my learners. It's a convenient way to access resources and engage them in learning (Teacher 1)

In support, a participant stated that:

I play videos and tutorials on my laptop to supplement the textbook material. It helps learners visualize complex concepts and retain information better (Teacher 3)

The above contributions suggested that mobile phones can be a valuable tool in the classroom, providing learners with access to a wealth of information and resources. Interactive teaching methods were also identified as an effective strategy for enhancing learner performance. This highlights the importance of using a variety of teaching methods to engage learners and promote understanding. Furthermore, the use of videos and internet can also facilitate personalized learning, as students will access resources at their own pace and review material as needed.

According to a study by Dziuban et al (2018), personalized learning would lead to improved student outcomes, including increased academic achievement and student satisfaction. Therefore, the study's findings concur with the existing literature that highlights the importance of using videos and internet in teaching and learning. The leveraging on these technologies, teachers would create engaging and effective learning experiences that improve learner performance. In the same vein, another participant indicated that:

I encourage learners to use their phones to research and present topics in groups. It develops their critical thinking and presentation skills (Teacher 2)

In addition, a participant indicated that:

I like it when our teacher uses videos and animations to explain concepts. It makes learning more fun and engaging (Learner 1)

In support, one of the participants noted that:

I use my mobile phone to search for information and share it with my peers. In addition, the we use my laptop to play videos and tutorials (Learner 3)

This suggested that giving learners the autonomy to take ownership of their learning can lead to improved performance and skills development. This highlights the importance of using teaching methods that cater to different learning styles and preferences. From the findings suggest that technology integration, interactive teaching methods, and learner-centered approaches are essential factors in enhancing learner performance in Ordinary Level Biology. The finding of this study concurs with Koehler and Mishra (2019) who postulated that technology integration is a key factor in enhancing learner performance.

In addition, Picciano (2019) noted that the effective integration of technology can lead to improved learner outcomes and increased engagement. From the participants, it was noted that technology integration is a valuable tool in the classroom, providing learners with access to a wealth of information and resources. The strategies used in Biology examinations, including role plays, experiments, presentations, and use of exam papers, have been found to be effective in preparing learners for ordinary level biology examinations. However, according to respondents, some strategies stand out as more effective than others.

4.4 Using strategies to prepare learners for the Ordinary Level Biology examinations

This section centres on articulating how some of the identified strategies are used in preparing learners for Ordinary Level Biology examinations. In line with this, one of the participants noted that:

We use presentations with videos and internet resources to make learning more engaging and interactive. This helps learners to visualize complex biological concepts and retain information better (Teacher 3)

In the same vein, a participant indicated that:

I use online resources such as educational videos and animations to supplement my teaching. This helps learners to understand difficult concepts and prepares them well for the Ordinary Level Biology examinations (Teacher 2)

Further to this, one of the participants indicated that:

We also use group discussions and debates to prepare learners for the examinations. This helps them to develop critical thinking and problem-solving skills, which are essential for success in Biology (Teacher 4)

From the participants' contributions, it can be acknowledged that teachers are using a variety of strategies to prepare learners for the ordinary level biology examinations, including the use of technology, group discussions, and debates. Data analysis reveals that teachers are using various strategies to prepare learners for the Ordinary Level Biology examinations, including presentations with the use of videos and internet resources. The participants highlighted that:

Videos help learners to understand complex biological processes and concepts, making it easier for them to answer questions in the examinations (Teacher 5)

In support, a participant noted that:

The use of videos and online resources has improved learner engagement and motivation in Biology classes. Learners are now more interested in learning and are better prepared for the examinations (Teacher 1)

From the analyzed findings, it can be noted that teachers are utilizing various strategies to prepare learners for the Ordinary Level Biology examinations, including the use of technology and group discussions. According to Hamed et al (2017), the use of videos in teaching Biology can enhance students' understanding and retention of complex concepts. This finding is supported by the data, which shows that teachers are utilizing videos to supplement their teaching and engage learners. In this regard, one of the participants noted that:

Videos help learners to visualize complex biological processes, making it easier for them to understand and remember (Teacher 2)

In addition, a participant indicated that:

The use of videos and online resources has also helped learners to develop research skills, which are essential for success in Biology (Teacher 4)

The data indicates that teachers are also experiments using internet resources to prepare learners for the examinations. Al-Mamun et al (2018) concurs that the use of internet resources can improve students' performance in Biology by providing them with access to a wealth of information and learning materials. This is evident in the data, which shows that teachers are

using online resources to provide learners with additional support and practice. The use of these strategies is also supported by literature related to examination preparation. According to Khan (2015), the use of multimedia resources, including videos and internet, can help to increase student engagement, motivation, and understanding of subject matter. One of the participants noted that:

Learning through videos stimulates my attention and improve the retention of concept learnt. Videos promote learning more interactive thereby promoting learner centered approaches such as group work (Learner 1)

Furthermore, the data revealed that teachers are also using demonstrations and experiments personalized learning approaches to prepare learners for the examinations. Dziuban et al (2018) notes that personalized learning can lead to improved student outcomes, including increased academic achievement and student satisfaction. This is supported by the data, which shows that teachers are using various strategies to tailor their teaching to meet the needs of individual learners. A participant highlighted that:

I can learn through demonstrations in biology concepts in a class. I will practice on my own time in order to achieve in my goals of passing the biology examination (Learner 3)

The data analysis reveals that teachers are using a range of strategies to prepare learners for the Ordinary Level Biology examinations, including the use of videos, internet resources, and personalized learning approaches. These findings are supported by existing literature, which highlights the importance of using multimedia resources and personalized learning to promote student engagement, motivation, and understanding. The aforementioned strategies, including role play, revising past exam papers, conducting experiments, and presentations, are effectively employed by teachers to prepare learners for ordinary level biology examinations. According to respondents, these strategies enhance learner engagement, understanding, and retention of complex Biology concepts. For instance, one respondent noted:

Role play helps learners to visualize and internalize complex processes, making them easier to understand and remember (Teacher 1)

From the findings, these strategies are deemed effective and accurate by scholars, who emphasize their importance in promoting learner-centered approaches and developing critical thinking and problem-solving skills. In support, one of the participants noted that:

I give learners questions in groups of five to make presentations based on past examination questions and these help learners to develop critical thinking and problem-solving skills, which are essential for success in Biology examinations (Teacher 2)

Learners also find these activities useful, as they promote active learning and participation. A participant remarked that:

Either after teacher demonstration or explanation, we conduct experiments based on past examination papers, this helps us to understand and apply complex biology concepts, making us more confident in our ability to answer exam questions (Learner 4)

Therefore, these strategies make learners learn by providing an interactive and immersive learning experience. As Mayer (2019) emphasized that multimedia presentations, such as those used in presenting past exam questions, can enhance learner engagement and understanding of scientific concepts. In the same vein a participant indicated that:

Revising past examination papers as a class helps us to familiarize ourselves with the exam format and question types, reducing anxiety and building confidence (Learner 7)

Another participant exclaimed that:

The role plays and experiments we did in class in groups of five or ten really helped me to understand the complex Biology concepts. I was able to visualize and internalize the processes, making them easier to remember (Learner 1)

Another participant also noted that:

I loved presenting past examination questions to my peers. It helped me to develop my critical thinking and problem-solving skills, and I felt more confident in my ability to answer exam questions (Learner 2)

In addition, it was noted that:

I've seen a significant improvement in my students' understanding and retention of biology concepts since we started using role plays and experiments. They're more engaged and motivated to learn in groups than individual (Teacher 1)

Another participant added by saying that:

Using past examination papers as a revision strategy has been incredibly effective. My students are more confident and familiar with the exam format and question types (Teacher 2)

The findings have shown that interactive and immersive learning experiences, such as role plays and experiments, are more effective in promoting learner engagement and understanding than

traditional teaching methods. Hmelo-Silver (2014) highlighted that use of presentations and peer-to-peer learning has been found to enhance learner motivation and self-confidence, leading to improved examination performance. Revising past exam papers by learners as a class is an effective revision strategy, as it allows learners to identify areas of strength and weakness, and targets revision efforts accordingly (Mwamwenda, 2015). The findings suggest that role plays and experiments are the most effective strategies in preparing learners for Ordinary Level Biology examinations. Both strategies provide learners with a hands-on and interactive learning experience, promoting deeper understanding and retention of complex Biology concepts. However, role plays have an added advantage of enhancing learner engagement and motivation, making them a slightly more effective strategy. In the interview it was revealed that:

The use of role play promotes learners' understanding of Biology concepts easier as they are actively involved through interactive learning (Teacher 4)

Presentations promote learner engagement and understanding, while use of exam papers helps learners to familiarize themselves with the examination format and question types. However, these strategies lack the interactive and immersive nature of role plays and experiments, making them less effective. In this case, a participant noted that:

The uses of past examination papers are less effective because learners need some teaching aids which motivate their eager to learn (Teacher 5)

In support, a participant highlighted that:

Past examination papers only promote memorization of concept whereby learners prepared for them to meet the examination rather than knowing Biology concepts (Teacher 4)

Comparing the findings, it is clear that role plays and experiments have a significant impact on learner engagement, motivation, and understanding. These strategies promote active learning, critical thinking, and problem-solving skills, which are essential for success in Biology examinations. In contrast, presentations and use of exam papers are more passive strategies, relying on learners to absorb information without actively engaging with the material. In addition, one participant noted that:

Role plays and the use of demonstrations are more effective than use of exam papers which promote rote learning (Teacher 3)

Based on the findings, the best strategy for preparing learners for Ordinary Level Biology examinations is a combination of role plays, group discussion and experiments. This approach provides learners with a comprehensive and interactive learning experience, promoting deeper understanding, critical thinking, and problem-solving skills. By incorporating role plays, group activity and experiments into their teaching practice; teachers can create an engaging and effective learning environment that prepares learners for success in biology examinations.

4.5 Challenges are encountered when preparing learners for Ordinary Level Biology examinations

From the findings on challenges encountered when preparing learners for ordinary level biology examination. In this sense a participant highlighted that:

The biggest challenge I face is the lack of resources, especially textbooks and laboratory equipment. It's hard to teach biology without these resources (Teacher 1)

The findings highlight the importance of resources in teaching and learning. The lack of resources would hinder the effective teaching and learning of biology, making it challenging for teachers to prepare learners for examinations. One of the participants indicated that:

We learn in a large class size, which makes it difficult to provide individualized attention to learners. Some learners get left behind, and it's hard to ensure they understand the material (Learner 2)

From the above findings, the findings of this study concur with scholars who argue that large classes and lack of resources are significant challenges faced by teachers when preparing learners for Ordinary Level Biology examinations. According to Mwamwenda (2015), large class sizes would lead to a lack of student engagement and motivation, making it difficult for teachers to provide individualized attention to learners. This is consistent with the findings of this study, which show that teachers struggle to manage large classes and provide individualized attention to learners.

The lack of resources is a major challenge faced by teachers, as noted by Ogunniyi (2017), the lack of resources would hinder the effective teaching and learning of Biology. This study's findings support this assertion, as teachers reported struggling to access resources, including textbooks and laboratory equipment. As noted in the literature review, the lack of resources

would lead to a lack of student engagement and motivation, ultimately affecting their performance in examinations (Bandura, 2017). In this case one participant noted that:

Large classes did not allow the teacher to answer all the questions asked by the learners during the lesson. Most of the time our teacher would choose teacher centered than learner centered (Learner 3)

Moreover, the findings of this study align with the literature review, which highlights the importance of resources and individualized attention in teaching and learning. According to Black and Wiliam (2019), assessment and evaluation are critical components of teaching and learning, and require adequate resources and individualized attention to be effective. This study's findings support this assertion, as teachers reported struggling to develop effective assessment strategies due to the lack of resources and large class sizes. The findings of this study concur with scholars who argue that large classes and lack of resources are significant challenges faced by teachers when preparing learners for Ordinary Level Biology examinations. Addressing these challenges is critical to promoting effective teaching and learning, and ultimately improving learner performance in examinations. In response one of the participants noted that:

Learners lack motivation and engagement, especially in Biology. They find it difficult to understand and relate to the subject matter (Teacher 3)

The findings highlight the challenge of learner motivation and engagement in Biology teaching and learning. Teachers may struggle to make the subject matter relevant and interesting to learners, leading to a lack of motivation and engagement. A participant noted that:

Assessment and evaluation are challenging, especially in large classes of Biology. It's hard to develop effective assessment strategies that accurately measure learner understanding (Teacher 4)

Another participant also indicated that:

Because of large size of our class, our teacher takes too long to mark our books and give feedback to us (Learner 10)

From the above findings, it was noted that lack of engagement and motivation, and lack of assessment and evaluation on resources are significant challenges faced by teachers when preparing learners for Ordinary Level Biology examinations. According to Bandura (2017), learner motivation and engagement are critical factors in determining academic achievement. This is consistent with the findings of this study, which show that teachers struggle to motivate

and engage learners, particularly in the context of Biology. In support, Black and William (2019), "assessment and evaluation are critical components of teaching and learning, and require adequate resources to be effective. These findings support this assertion, as teachers reported struggling to develop effective assessment strategies due to the lack of resources. As noted in the literature review, the lack of assessment and evaluation can lead to a lack of student engagement and motivation, ultimately affecting their performance in examinations (Mwamwenda, 2015).

The findings of this study align with the literature review, which highlights the importance of learner engagement and motivation, and assessment and evaluation in Biology teaching and learning. According to Ogunniyi (2017), the lack of engagement and motivation can hinder the effective teaching and learning of Biology. These findings support this assertion, as teachers reported struggling to engage and motivate learners, particularly in the context of Biology. The findings of this study concur with scholars who argue that lack of engagement and motivation, and lack of assessment and evaluation on resources are significant challenges faced by teachers when preparing learners for Ordinary Level Biology examinations. The study's findings support the literature review, which highlights the importance of learner engagement and motivation, and assessment and evaluation in teaching and learning.

4.6 Chapter summary

This chapter analyzed and discussed the data generated through document analysis and personal interviews. The findings addressed the research questions raised in chapter 1. The next chapter will provide a summary of the study, general conclusion, and recommendations.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter data was presented, analysed and discussed. In this chapter the project is summarised, conclusion drawn and recommendations advanced.

5.2 Summary of the project

Chapter 1 introduced the problem and its setting through the discussion of the following: background to the study, statement of the problem, research questions, significance of the study, delimitation of the study, limitations of the study and definition of key terms. Chapter 2 focused on the gap to be filled by the study. This chapter was centred on the lens that guided the study (theoretical framework). The review of relevant literature was according to the following themes: strategies are used to prepare learners for examinations and challenges encountered when using these strategies in preparing learners for examinations. Chapter 3 outlined the methodology used to generate, analyse and discuss data with the view to provide answers to the questions crafted in chapter 1. The methodology was guided by the following themes: research paradigm, research approach, sample and sampling procedure, methods, data generation procedure, data analysis, trustworthiness of the study and ethical issues. Chapter 4 presented, analysed and discussed the data. The following were the major findings:

- Various strategies (design-based learning, project-based learning, differentiated learning, etc.) were used in preparing learners for Ordinary Level Biology examinations at the selected school.
- The identified strategies were used in an interactive format that enables learners to actively participate in Ordinary Level Biology teaching and learning activities, in preparation for the examinations.
- However, numerous challenges were faced when using these strategies in preparing learners for the Ordinary Level Biology examinations.

5.3 Conclusion

From the findings it was revealed that numerous strategies were used in preparing learners for the Ordinary Level Biology examinations. These strategies created an interactive environment that enabled learners to be actively involved in Ordinary Level Biology teaching and learning activities. However, various challenges were encountered when these strategies were used in preparing learners in Ordinary Level Biology examinations. From these findings it can be concluded that learners' preparation for the Ordinary Level Biology examinations was influenced by various factors.

5.4 Recommendations

The study advances the following recommendations:

- Provide teachers with training and development programs to improve their subject matter knowledge and pedagogical skills, and confidence in teaching Biology.
- Provide learners with additional support mechanisms, such as extra tutoring, mentoring, and academic support programs, to help them better understand Biology concepts.

5.5 Areas for further study

Further study is needed to explore the impact of specific resource shortages on learner outcomes in Ordinary Level Biology examinations. The research could investigate the effectiveness of targeted professional development programs for teachers in addressing the challenges identified in this study. Furthermore, a longitudinal study could be conducted to examine the long-term effects of resource shortages and teacher training on learner achievement. A comparative study could be undertaken to compare the challenges faced by teachers in urban and rural areas, and to identify best practices for addressing these challenges. The further research could explore the role of technology in enhancing teacher training and learner engagement in Biology education, particularly in resource-constrained settings.

5.6 Chapter summary

Chapter 5 provides a comprehensive summary of the study, reiterating the research problem, objectives, and methodology. The chapter succinctly summarizes the key findings from Chapters

2-4, highlighting the challenges faced by teachers in preparing learners for Ordinary Level Biology examinations, including resource shortages, large class sizes, and inadequate assessment strategies. The conclusion emphasizes the need for support and resources to enhance teacher training and learner engagement, and recommends providing adequate resources, targeted professional development, effective assessment strategies, and considering technology integration. The chapter also identifies areas for further study, including investigating specific resource shortages, evaluating professional development programs, and exploring technology's role in Biology education. Through summarizing the study's key aspects and providing recommendations and directions for future research, Chapter 5 offers a concise and informative conclusion to the research.

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APPENDICES

Appendix 1: Approval letter

SAMED

 BINDURA UNIVERSITY OF SCIENCE EDUCATION

P Bag 1020
BINDURA
ZIMBABWE
Tel: 0271 7531 ext 1038
Fax: 261 71 7616

Date: 28/04/24

TO WHOM IT MAY CONCERN

NAME: TADYIRA MUNJARADZI REGISTRATION NUMBER: B1026606 PART: 2:2

PROGRAMME: B.Ed. Hons Degree in Biology

This memo serves to confirm that the above is a bona fide student at Bindura University of Science Education in the Faculty of Science Education.

The student has to undertake research and thereafter present a Research Project in partial fulfillment of the B.Ed Hons Degree in Biology programme. The research topic is:

Factors influencing learners performance in ordinary level biology at Magaya secondary school.

In this regard, the department kindly requests your permission to allow the student to carry out his/her research in your institutions.

Your co-operation and assistance is greatly appreciated.

Thank you

9/05/2024

THE DEPUTY HEAD
MAGAYA SEC SCHOOL
2013
DATE 15/5/24
CELL 0774255473

Z Ndema (Dr.)
CHAIRPERSON - SAMED

HEAD OF IN...
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Appendix 2: Approval letter



SAMED

BINDURA UNIVERSITY OF SCIENCE EDUCATION

P. Bag 1020
BINDURA
ZIMBABWE
Tel: 0271 7531 ext 1038
Fax: 761 71 7616

Date: 28/04/24

TO WHOM IT MAY CONCERN

NAME: TADYIRA MUNJARADZI
PROGRAMME: B.ED. Hons Degree in Biology
REGISTRATION NUMBER: B1026606
PART: 2:2

This memo serves to confirm that the above is a bona fide student at Bindura University of Science Education in the Faculty of Science Education.
The student has to undertake research and thereafter present a Research Project in partial fulfillment of the B.ED. Hons Degree in Biology programme. The research topic is:

Factors influencing learner's performance in ordinary level biology at Magaya secondary school.

In this regard, the department kindly requests your permission to allow the student to carry out his/her research in your institutions.
Your co-operation and assistance is greatly appreciated.

Thank you

Z Ndoro (Dr.)
CHAIRPERSON - SAMED

9 APR 2024

THE DEPUTY HEAD
MAGAYA SEC SCHOOL
DATE 15/5/24
CELL 077 4255473

Appendix 3: Interview questions for teachers

I would like to thank you for agreeing to be interviewed. This research focuses particularly on factors influencing learner s performance at ordinary level biology. I hope you will assist by making contributions to the research under investigation. I m going to ask you few questions that need to be elaborated therefore feel free to ask any questions and to suggest your own views. In case you don t need to answer a question, it s your right, we can skip it. This interviews its privacy and confidential. The researcher will not publish your name or school, so feel free. So we can start.

1. Briefly tell me something about yourself that is your age, teaching experience and professional qualifications.
2. How are you prepared to facilitate ordinary level biology teaching and learning under the guidance of new curriculum framework?
3. How are you teaching learners in preparation for their summative and formative evaluation?
4. What approaches are you using to prepare students for Ordinary Level Biology examination?
5. What challenges are you facing in teaching as well as in preparing learners for Ordinary Level Biology examinations?
6. Thank you for participating in this interview.

Appendix 4: Interview guide for selected learners

These questions are designed in order to gain an insight on the factors influencing learner s performance on Ordinary Level Biology Examination. You are requested to play part and contribute your thoughts as they are important in this research. The information you shall give will not be published but to be used on this research only. I m going to give you five minutes to think about factors influencing learner s performance in Ordinary Level Biology.

1. May you please tell me about yourself, your age and class?
2. What is your general performance in Ordinary Level Biology?
3. What activities are you experience in preparation for Ordinary Level Biology examinations?
4. How these activities make you learn and understand delivered concepts by the teacher?
5. What challenges do you encounter in Ordinary Level Biology teaching and learning in preparing for the examinations?
6. Thank you for taking part in this interview, your contribution and time is so appreciated.