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The study on Science teachers' experiences towards implementing Education 5.0: A case study of Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.

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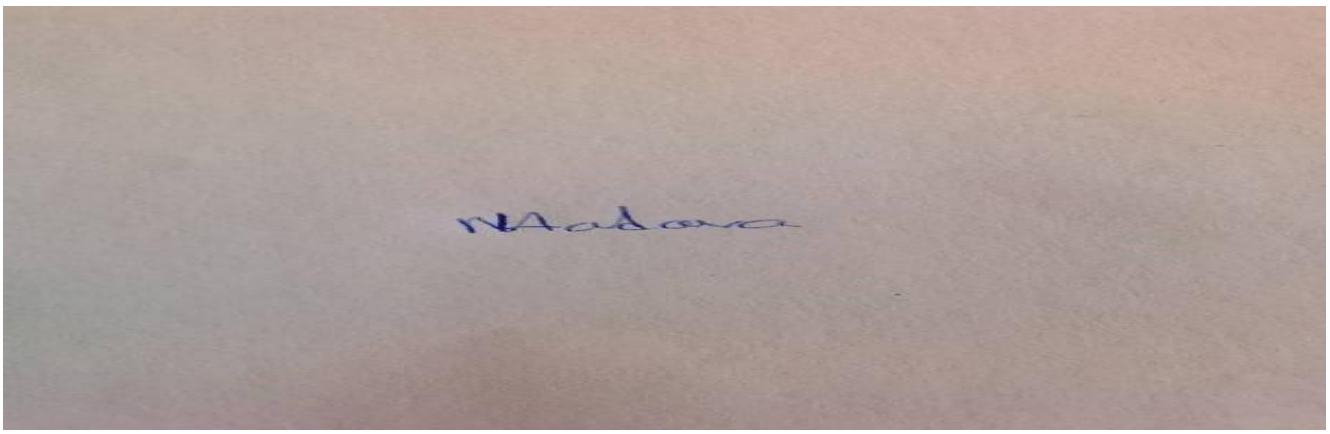
I, **MADAVA LOICE (B193024B)** hereby declare that this dissertation is my investigation and effort except where acknowledgements are made. This is therefore, my original work and was not copied from elsewhere.

Signature..



Supervisor

I, ……., confirm that this dissertation was carried out by this student and submitted for review with my approval.

Signature.....

DEDICATIONS

I dedicate this study to my children and to husband.

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ABSTRACT

This study investigated Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The objectives of the study were to examine the nature of Science teaching at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province with reference to the Education 5.0; to assess the problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province and to recommend ways of reducing problems faced by Science teachers towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The study was a qualitative research which related on interviews and observations for data gathering. A total of 6 teachers, the school administrator (2), the learners (12) from the school constitute the sample.

The study findings show that the implementation of Science teaching in the context of Education 5.0 at the study setting is met with varied views by the educators. The teachers perceived Science education in line with Education 5.0 as useful as possible as evidenced by their positive attitude towards the adoption of education 5.0. It is apparent from study findings that physical infrastructure and financial resources were rated negatively on the school, Gadaga School in UMP district, readiness for the adoption of Science education in line with the Education 5.0. The findings also show that the absence of adequate physical infrastructure and financial resources to support Education 5.0 adoption is contributing to problem in the implementation of Science education because Zimbabwe as a nation is undergoing an economic meltdown. The schools have a duty to prioritise implementation of Science subjects in the study setting in line with the Education 5.0 at secondary school level. The administration by means of the Ministry of Primary and Secondary Schools can contribute in the erection of Science laboratories and related infrastructure with the purpose of smoothening the putting into practice of Science subjects teaching-leaning at secondary school level. It is also recommended that schools can participate in Science subjects staff development programmes in addition to training to encourage educators to implement Science education based on Education 5.0 based on their competence. This will also intensify and perfect the effective Science subject teaching and for learning.

Contents

CHAPTER 1

THE PROBLEM AND ITS SETTING

1.0 Introduction

This study investigated Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. This chapter presents the background of the study, statement of the problem, objectives, significance of the study, delimitations, limitations and definition of key terms used in the study will be given.

1.1 Background of the study

Since the technology and academic institutions have been running in parallel for transformation of the education. Development of modern tools and techniques are also being updated in parallel for the better education standards. Education 5.0 is the next fact in precedence of the previous versions (Mustafa Kamal et al., 2019). All parties involved who could play a role in teaching like teaching staff, students, and administration, define the core of Education 5.0 as learning. In particular, learning is connected to the student or the learner, focused on the learner, demonstrated by the learner and driven by the learner (University of Zimbabwe, 2019). As such, the learner is seen as a whole person of whose values, beliefs, thoughts, knowledge and skills are not seen as separate fundamentals to be nurtured and trained. Dynamic technology surrounds the learner and provides options for the learner's core decisions of what, where, when, how, why and with whom to study (Melluso, 2020). This the basis for taking Education 5.0 policy for Zimbabwe the basis for innovation and industry.

Internationally, the business of curriculum revision is premised on the idea of enhancing relevancy and currency of learning for those in institutions of higher learning (Fullan, 2019). The thrust is to ensure accountability and value for money for the clients and sustainable development for communities. Curriculum reviews are associated with changes in teaching approaches and means of working (Parsons & Beauchamp, 2022). Implied is that curriculum changes have some considerable bearing on the academics' conduct of business and approach to professional work. Hence, if not done properly, radical curriculum changes may lead to

frustration or resistance by academics. However, if curriculum revision is effectively rolled out it may lead to new practices.

Educational 5.0 is a heritage-based philosophy/ doctrine geared towards harnessing local human, material and epistemological resources towards innovation and industrialization of Zimbabwe. Murwira (2020) states that Education 5.0 is centred on the heritage based philosophy in shaping future technology through innovation and industrialisation. In other words, Education 5.0 is based on the view that we shall use our local environment in our teaching and learning. Our education system shall make technology simple and be understood, for concepts can be expressed in any language.

Education 5.0 is a heritage based philosophy in shaping future technology through innovation and industrialisation (Zimbabwe Minister of Higher and Tertiary Education, 2018). According to Zvobgo, (1986) Zimbabwe experienced some reforms in its education system which can be categorized as pre-colonial, colonial and post-colonial education. The post-colonial can be further divided into two; Education 3.0 and Education 5.0. Education 3.0 is the tertiary education that focuses on three pillars namely research, teaching and community service while education 5.0 focuses on five pillars which are research, teaching, community service, innovation and industrialization (Ministry of Higher and Tertiary Education, Science and Technology Development (2018).

However, as of now Zimbabwe can stand a big chance to meet the requirements of the Education 5.0 because most of the schools even in rural areas have access to better communication. State universities, by their nature and character, are better positioned to grasp and decipher the threatening disruptive technologies such as the internet (Maravanyika, 2019). These institutions, by combining critical thinking, creative thinking, innovativeness and an entrepreneurial mindset to the technological know can provide national economy impacting industrial solutions. There are also other presidential programs where schools with electricity are being given some computers and laptops. This is being done to meet the demands of the new curriculum. They can help to deliver the goals of the Education 5.0. According to education 5.0 this is centered on action and outcomes, according to Marwira (2019), will be the future of learning. There are plans to create innovation centres at every state university, proving that student involvement is critical

to the pursuit of quality assurance in generating quality education (Murwira 2019). All these bring solutions to the challenges being encountered by the country.

The indicators to the problem which prompted the research to conduct the study include the face that the students at the rural school failed to be actively involved and engaged in their lessons because of lack of educational resource required for Science teaching-learning. The researcher observed that there a lot of challenges in teaching Science in the study setting which led to convening this study to find solutions to the structural and institutional a problems being faced by both Science teachers and learners. There is need for studies into Science education with reference to the education 5.0 policy in Zimbabwe.

1.2. Statement of the problem

The research was determined to explore the nature of Science teaching at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province with reference to the Education 5.0. The researcher realized that there are the problems faced by Science teachers in implementing Education 5.0 at the school which prompted the research to car out a research to find solutions to the problem. The new education model's thrust is to produce entrepreneurs as opposed to job-seeking graduates. Education 5.0 is a five-mission model of teaching, research, community service, innovation and industrialisation, established to move the nation forward towards an innovation-led and knowledge-driven economy (Museka, 2021). The Science teachers' experiences towards implementing Education 5.0 remains problematic due to a number of structural problem which has prompted the researcher to conduct the current study. The study takes Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province as a case study.

1.3 Research Objectives

The objectives of the study are:

- To examine the nature of Science teaching at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province with reference to the Education 5.0.

- To assess the problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.
- To recommend ways of reducing problems faced by Science teachers towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.

1.4 Main research question

The main research question addressed in the study was

What is the Science teachers' experience towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province**?**

In order to answer the main research question, the following questions were addressed;

- What is the nature of Science teaching at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province with reference to the Education 5.0?
- What are the problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province?
- How can problems faced by Science teachers towards implementing Education 5.0 be reduced at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province?

1.5 Significance of the study

Relatively, a significant number of studies have been convened in line with education policy in the Western countries (Creemers and Kyriakides, 2012). Conversely, for the reason that these researches are principally based on other education policies and not in Zimbabwe, there is need for the present research to centre on the local (Zimbabwean schools) and the teaching and learning of Science education in secondary schools. For this reason, this research possibly will have a say to the obtainable body of knowledge on Science and Education with special

Education 5.0 policy. This supplementary body of knowledge possibly will then be utilised as a foundation for additional prospect research on Science Education in the secondary schools. The following educational stakeholders are set to benefit from the study;

The study may provide assistance to the Faculty of Education both at college or university levels and particularly in teacher training and development by identifying issues of concern and adding knowledge to the appropriate approaches for Science Education in the teaching and learning process. These educational institutions may provide relevant instruction on in-service and pre-service teachers for Science education to improve teachers' competence in Science Education.

The study findings will benefit policy makers, the Ministry of Primary and Secondary Education and secondary school administrators by means of providing an apparent depiction on Science Education in the teaching and learning process. The study findings possibly will expose to the MoPSE the nature of Science Education in schools in the study setting. The researcher expects that the study findings will bring up to date information for the Zimbabwe government to cascade approaches for minimising challenges in Science Education in schools.

The study possibly will also act as a revelation to educational administrators and resource allocators in the field of education who might want to assess and evaluate the suitability of Science education techniques for teachers and learners. In the context of school heads, the findings from the current study may be the basis for effective Science education in the teaching-learning process in their corresponding schools.

The classroom practitioners will be knowledgeable concerning solving Science education related challenges. Through the study findings, it is hoped that classroom practitioners may implement Education 5.0 for teaching and learning Science.

Learners will also benefit from the study as they will be exposed current Science teaching content in line with the Education 5.0 which prepares learners for self-sufficient citizens. Through the Education 5.0 policy, the learners can be more creative and innovative as they are engaged in collaborative work utilising better interpersonal relations, empathy, and tolerance of diversity.

The study can be the basis for effecting policy planning in education. In actual fact, the study may inform circular and the hiring of more Science teachers to conduct teaching and learning in times of the Education 5.0 policy.

The study can be the basis for further studies on the teachers' experiences in teaching Science education particularly ensuring that researchers are able to use study findings. Comparisons on findings and context can also be made by other researchers on the teaching and learning of Science education focusing on the Education 5.0 policy.

1.6 Delimitations of the study

The delimitations for the study focus on physical delimitations as well as theoretical scope. These are clarified below;

The study is conducted at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The criterion for the selection of the schools is based on geographical location and the socio-economic background of the catchment areas of this school.

The study focuses on Science teachers' experiences towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Marimba Pfungwe (UMP) district in Mashonaland East province. Of particular importance is the extent to which teachers are guided by the education 5.0 policy in teaching Science at secondary school level. The study based on teachers and school administrators as these actually are involved in Science education in the respective school and classes.

1.7 Limitations of the study

The following were the limitations for the study;

The confinement of this study to a secondary school drawn from secondary schools only was an apparent limitation for the reason that the study findings were generalized to other schools with comparable features.

One limitation for the study is that it was subject to the researcher's decisions due to the use of purposive sampling. The fact that the researcher focused on school administrators as well as teachers can be a critical limitation. To counter this limitation, the researcher observed learners during the teaching and learning process in Science.

Financial challenges were encountered during the conduct of the study. The money was required to meet transport costs, travelling to the study setting, post scripts for marking, visit centres, and buy flash drives, laptop, stationery, printer and getting internet access. Hence, the researcher managed to access a personal loan from the local bank to supplement personal finances.

1.8 Definition of terms

The following terminologies were peculiar to the study;

Ministry of Primary and Secondary Education Science syllabus (2015) defines the term Science as subject in the school curriculum that covers a broad range of concepts, including the study of nature and technology. Maravanyika (2018) defines Science as the learning area covers science activities that pervade the curriculum, including nature (plants, animals, geology), cooking (chemistry), weather (wind, rain), and the environment (air, water, recycling), to name a few. It uses skills such as observing, comparing, predicting, and documenting. For that reason, in this study, Science is as a learning area in the school curriculum which deals with nature and technology.

According to Sullivan, Hays and Bennett (2023) education is the transmission of knowledge, skills, and character traits and manifests in various forms. Lister (2020) states that

the term education can denote the mental states and qualities of educated individuals and the academic field studying educational phenomena. For the study, education is a process which socializes children into society by instilling cultural values and norms, equipping them with the skills necessary to become productive members of society.

Murwira (2020) states that Education 5.0 is the use of new technologies to provide more humanized teaching, with a focus on students' social and emotional development and solutions that improve life in society. Maravanyika (2019) refers that Education 5.0 is a heritage-based philosophy of higher education that encompasses five critical components, namely, teaching and learning, community service, research, innovation, and industrialization. Therefore, Education 5.0 is a five-mission model of teaching, research, community service, innovation and industrialisation, established to move the nation forward towards an innovation-led and knowledge-driven economy.

1.9 Summary

This chapter has made an effort to provide the foundation upon which the problem under study has emerged. The chapter progressed from the introduction, background of the study and the statement of the problem. It has offered the background of the study, the pronouncement of the problem as well as the significance of the study. Definition of the terms peculiar to this study have been provided and the following chapter provides a review of related literature relating to Education 5.0 and Science teaching and learning process.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

The chapter presents the literature related to this study which investigates the Science teachers' experiences towards implementing Education 5.0. The literature review gives the place of the current study in the existing literature related to the science education and the 5.0 education policy apart from presenting the theoretical framework that underpins the current research. The rationale for the literature review is to contextualize the current study into the wide literature of science education.

2.2. Theoretical framework

The study is based on the competence based philosophy. According to Tozzi (2020) a competency-based curriculum focuses less on what learners need to know and more on how learners apply their knowledge, skills and attitudes to the real-world environment. The Competency-Based Philosophy in the curriculum is concerned with developing knowledge, skills and attitudes to prepare the learners for future employment. The learners choose what they want to learn depending on their career choice. Wesselink, Biemans, Gulikers and Mulder (2017) state that competency-based education (CBE) is an educational approach for teaching, learning, and assessment which focuses on outcomes and skills gained by the students. It puts the main focus on the learner and engages them in learning activities. Because of these practical nature and search for competence, thus study on teachers' experiences in teaching Science Education based on the Education 5.0 policy is buttressed on the competence based philosophy.

The definition of programmes "by competencies", the orientation of working to develop competencies, is, at the global level, a significant current trend in the evolution of education systems, which are progressively institutionalizing this approach-with profound consequence on how curricula are written, on how teachers are assessed, and on how students are made to work. According to Baartman, Bastiaens, Kirschner & Van der Vleuten (2016) states that a

competency-based curriculum focuses less on what learners need to know and more on how learners apply their knowledge, skills and attitudes to the real-world environment. As a result, a competency-based curriculum helps learners to develop specific and generic competencies required to either progress in their education or progress into employment. In a competency-based curriculum learners are required to incorporate the elements of a constructively aligned curriculum. In this context, learners in Science education also need to construct knowledge and skills during the teaching-learning process hence the study is based on the competence based philosophy.

Figure 2.1 Competence based philosophy
(Adapted from Moon (2017)

Figure 2.1 above shows the competency-based learning begins by identifying specific competencies or skills, and enables learners to develop mastery of each competency or skill at their own pace, usually working with a mentor. Competence based teaching and learning targets the learning outcomes to come up with competencies in learners.

A competence is the ability to associate a precisely identified class of problems with a determined program for treatment. According to De Bruijn & Leeman (2021) competencies refers to a capacity for effective action in the face of a family of situations, which one manages to master because one has both the necessary knowledge and the ability to mobilize it in a timely manner to identify and solve real problems. It specifies that it is a question of facing a complex situation, of constructing an appropriate response without drawing it from a repertoire of pre-programmed responses. This is also supported by Biemans, Nieuwenhuis, Poell, Mulder & Wesselink (2024) saying competencies are an integrated and functional set of knowledge, know-how (savoir-faire), soft skills (savoir-être) and know-how-to-become which will make it possible, is therefore the third year before high school graduation when faced with a category of situations, to adapt, solve problems and carry out projects.

Competences are acquired over time through the cumulative effect of a competence approach to learning. It should be noted that competences are rarely developed in isolation. They are interconnected and developed simultaneously. According to Cornford (2020) active involvement in learning is critical to the success of the competence based curriculum. Learners need to be engaged in practical, contextualized and complex learning situations through which application of learning is constantly developed. It is therefore essential that teachers always have active teaching and learning techniques in mind when they are planning activities within a lesson. In the Zimbabwean context, the competency-based curriculum is anchored on learner competency mastery, thus, a learner is expected to demonstrate mastery of all required curriculum competencies before graduating to the next level. Simply put, these are the skills that the learners would need for postsecondary success.

This is an approach where teaching and learning is based on discrete skills rather than dwelling on only knowledge or cognitive domain of learning. Learners work on competences through units with specific learning outcomes broken down into knowledge, skills and attitude. According to Delamare Le Deist & Winterton (2019) a competency-based curriculum is a curriculum that emphasizes what learners are expected to do rather than mainly focusing on what they are expected to know. In principle, such a curriculum is learner-centred and adaptive to the

changing needs of students, teachers, and society. In this context, the study into Science teachers' experiences in implementing Education 5.0 is based on the competence based philosophy.

Zimbabwe has experienced some reforms in its education system which can be categorized as pre-colonial, colonial and post-colonial education. The post-colonial can be further divided into two;

Education 3.0 and Education 5.0. The shift from Education 3.0 to Education 5.0 was necessitated by the need to prepare university students for job creation and not to be jobseekers. This would then help to ease the unemployment situation in the country. In order for any change initiative to succeed, there are certain implementation steps to be followed to manage the change reform (Armstrong, 2023). This is the position from which this study into Science Education teachers' experiences in implementing the 5.0 policy is derived from.

Education 5.0 is a futuristic term that aims to integrate advanced ICT technologies into the education system to enhance the learning experience and remove barriers to educating an individual. Thus, one of the fundamental goals of the Education 5.0 is to promote personalized learning, collaboration, and well-being through the use of digital tools such as AI, virtual reality

(VR), and the IoT (Lantada, 2020). Additionally, Education 5.0 focuses on developing 21st-century skills such as critical thinking, creativity, and problem-solving, rather than just rote learning and adds immersive experience in the classrooms using augmented reality and mixed reality applications. Mustafa Kamal, Mohd Adnan, Yusof, Ahmad, and Mohd Kamal (2020) state that the ultimate goal of Education 5.0 is to create a more efficient, effective, and equitable education system that can adapt to the changing needs of society in the fifth industrial revolution. Therefore, exploring Science educators' experiences as they implement Education 5.0 policy in Science education is key at secondary school level.

2.3. What is the nature of Science teaching focusing on Education 5.0?

The nature of science education is not homogenous world over. Boahin (2018) states that Science Education in London is based on competence based curriculum. This type of learning that focuses on acquisition of skills, abilities, personal traits, capacities, knowledge and values. It

is different from traditional curriculum where learning is based on academic framework where achievement is judged by the ability to recall key points, information imparted or sequences memorised. Competency-based curriculum focuses on what a student knows and can do rather than on how the student learns. It measures learning rather than time. Competency-based curriculum progresses by allowing learners to demonstrate their competencies (Mkonongwa 2019). This means learners have to prove that they mastered the knowledge and skills required for a particular course regardless of how long it takes and they should be able to apply the skills in various life situations. It helps learners prepare for life and work by ensuring that they are equipped with the requisite knowledge, skill and attitude.

In another study, Mulenga (2018) in India reports that Science education is now targeting skills and competencies that learners can develop as they learn. This kind of curriculum is based on the inclusion of active learning; this helps to produce learners who are holistic, creative, innovative, analytical and cooperative in their communities and nation. Bratianu, Hadad and Bejinaru (2020) posit that competence-based curriculum requires a paradigm shift from assessing learning content to assessing learning outcomes. This shows that learners can gain skills from learning Science education informed by the competence based curriculum.

Competency-based curriculum looks at life after school and the outcomes of educational systems, prepares and orients learners for participation in voluntary services leadership (Manokore 2022). Competency-based curriculum fosters lifelong learning in line with the emerging opportunities and challenges of the society. It focuses on what learners are expected to do rather than on what they are expected to know. It is a learner-centred curriculum that is adaptive to the changing needs of students, teachers and society instead of focusing on grades and yearly curriculum schedules (Boahin 2018). The main focus is placed on how competent each student is in the subject by demonstrating mastery. Competency-based curriculum and personalised learning go hand in hand. It prepares children for the next stage of their life and is for all learners including those with learning disabilities. There is need for local studies into Science education teachers' experiences as they teach based on the Education 5.0 policy.

2.4. Which problems faced by Science teachers in implementing Education 5.0?

There are many challenges facing teachers in the implementation of the Education 5.0 Competence Based Curriculum (CBC). This was pointed out by Kenya National University of technology (KNUT) (2019) which established that there was minimal implementation of CBC in schools due to the following challenges; overcrowded classrooms due to extremely high learners' enrolment and lack permanent classrooms which have led institutions to combine some learners of different grades. The report showed that most public schools did not have PP1 and PP2 classrooms forcing learning to be undertaken under a shade or tree. In addition, KNUT reported that majority of CBC learning areas did not have approved books, materials and delayed government distribution of textbooks to school. It was also reported that the assessment rubrics had unclear guidelines hence teachers found it extremely difficult to assess learners' competencies and learning progress. Finally, the report showed that CBC training sessions were inadequate, ineffective and the duration was short and lack of shareholders involvement in CBC roll-out. There is need for Zimbabwean studies into Science educators' experiences as they implement the Education 5.0 policy which is based on CBC.

In Rwanda, Mugabo, Ozawa and Nkundabakura (2021) conducted a case study which explored the relationships between a school's profile and their capacity to implement CBC. Findings from the study indicated that variations in the implementation of CBC between teachers were caused by the differences in their professional development, inadequate training on CBC, inadequate teaching-learning resources and lack of infrastructural capacity of the schools. Based on the findings, the study recommended provision of adequate instructional resources and establishment of strong and regular in-service training programs to help teachers know how to put the new ideas into practice. The report from the reviewed study shows that lack of adequate instructional resources and failure to adequately train teachers can cause challenges in implementing curricula. In this context, conducting studies focusing on Science education teaching learning at secondary school level is useful.

Competency based teaching-learning approaches have gained popularity among stakeholders in the education sector globally. However, studies have demonstrated that many countries which

have implemented the competency based approaches to teaching and learning have experienced a number of challenges which have hampered smooth and effective implementation of the curriculum. For instance, in Ghana, a study was carried out by Acquah, Frimpong and Kwame (2017) who sought to establish the challenges facing the implementation of Competency Based Training Programs (CBT) in training institutions. The study reported that implementation of the Competency based approaches had contributed immensely to the training of highly skilled graduates needed in the industry. Further, the study highlighted that in spite of the realized positive outcomes, the curriculum had not been effectively implemented in some of the training institutions due to inadequate funding of the institutions, lack of infrastructure development and lack of policy guidelines in the institutions. The findings from this study imply that implementation of CBC can be challenged by a number of factors in the schools; however, the findings may not apply in the Zimbabwean context. Therefore, there was need for a study to be conducted in Zimbabwe to unravel the challenges affecting implementation of Science education based on Education 5.0 policy in schools.

In Tanzania, a study by Makunja (2016) investigated challenges facing teachers in implementing the Competency Based Curriculum in Tanzania. The study established that teachers faced a lot of challenges which impended effective implementation of the curriculum in teaching and learning. The study highlighted lack of in-service training of teachers on CBC, lack of sufficient instructional materials, overcrowded classrooms and low ability of children as the major challenges hindering effective implementation of the curriculum in Tanzania. In the light of the findings, the study recommended that teachers should be allowed to participate in developing the curriculum. The study also recommended that the Ministry of Education should devise ways of providing instructional materials which are consistent with the CBC. This implies that training of teachers on how to implement the curriculum, provision of instructional materials and enough classrooms are crucial for effective implementation of Education 5.0 Science education effectively.

In addition, Hipolite (2019) explored the challenges of implementing CBC in public secondary schools in Morogoro Municipality, Tanzania. The study employed a case study design and qualitative research approach whereby data was collected from 36 participants using observations,

interviews and focus group discussions. The study reported that teachers were faced with many challenges which hindered effective implementation of the Curriculum. These included; large number of pupils in classes, lack of adequate materials for teaching-learning and teachers' lack of proper understanding of CBC. The study recommended that the Ministry of Education in Tanzania should provide schools with adequate teaching-learning materials and adequate in-service training to all teachers. Comparable studies focusing on science education are key hence this study focusing on Mashonaland East province.

The desire for effective and learning has become a driving force in the 21st century, hence this study. Teachers need to focus on educational practices that provide all learners with knowledge and skills necessary to contribute to the global society (Chinangure & Chindanya, 2019). It is not possible to determine if certain teaching behaviors are effective without knowing whether or not students learn as an end result of these behaviours. The challenge for the teacher is not only to identify and develop mastery of certain instructional strategies and behaviours accepted as effective practices, but the teacher is also challenged to develop the ability to effectively match these strategies and behaviours, at the appropriate time, to individual students and student groups, in specific teaching situations as these relate to the teacher's desired student learning outcomes (Hunt, Touzel & Wiseman, 2019). Comparable studies are needed to explore situational challenges being encountered by teachers in Mashonaland East as they teach Science informed by the Education 5.0 policy.

The problem of Workload is extensively studied. On average a teacher has ten lessons of 30 minutes each daily, this means a teacher really needs time to prepare for these lessons daily. Presentations calls for the physical presence of the teacher. Presentation is affected by planning, depth of knowledge, clearly defined objectives, sincere liking of students, good health, job satisfaction, a well-modulated manner of speech and willingness to adjust and innovate (Jordan and Whitely, 2017). There is need for local studies justifying the current study on secondary school learners Science education.

Teachers are required by law to keep accurate records of pupils in their charge. These include absence, lateness, social development, health-status and any other developments positive or negative. Progress records, test records, evaluation records and examination results are other records a teacher is supposed to keep. Ngithi (2023) says too much load on a teacher does not allow hands on approach on activities. It is by these reasons that teaching is viewed as full time job and should be attended to fully.

Enrolments of schools affect the distribution of resources to the schools. Most resources are allocated according to the number of learners in the schools. These resources include teaching-learning materials, grants and human resource, the most important resource. Allocation of teachers is done according to ratios (Mudzingwa, 2019). For primary schools ECD A 1:15, ECD B 1:20 and 1:40 for grades 1 to 7 according to Zimbabwe Education Stats. Nation Master. This means in a small school where the school has all grades from ECD A to grade 7, where the average size of a class is 18, it means two or more classes are to be combined. 18 pupils multiplied by 7 classes gives a total of 126 pupils. This number divided by 40, calls for only three teachers in the school including the head. One technical-vocational teacher will be added in the ration 1:100. There is no way a head at such a station can be non-teaching.

2.5. How can challenges faced by Science teachers towards implementing Education 5.0 be solved?

The first step to implementation is to put in place the desired program. This could be done by consultations among the stakeholders which might include; curriculum specialists, teachers, students and representatives from the industry (Ornstein & Hunkins, 2023). In Zimbabwe, Zimbabwe Council for Higher Education (ZIMCHE) has been mandated by the Ministry of Higher and Tertiary Education to implement the Zimbabwe National Qualifications Framework through Statutory Instruments: (SI 132, SI 133, SI 137 and SI 140 of 2018) to increase transparency in the country's education (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018a, p. 7). Programs that are relevant to the country's developmental needs are to be offered and irrelevant programs must be scratched off.

Entrepreneurship, foreign languages and computers are courses that should be offered across all degrees offered by an institution. Furthermore, degree programs should be benchmarked against reputable universities both locally and globally. In the context of secondary school Science education, there is also need for studies to explore ways of solving pedagogical problems for effectiveness.

Promotion of lecturers should be uniform across staff in Higher and Tertiary Education institutions in Zimbabwe. The academic promotion grades are from junior lecturer to lecturer, to senior lecturer, to associate professor, and finally professor (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018a). Setting criteria for promotion would help curb favoritism and promotes fair rewards to workers there by enhancing job satisfaction (Naqvi, Malik, & Mahmood, 2023). Fairness in promotion procedures would therefore aid in equitably rewarding those who have excelled in their academic/professional ladder. In this context, rewards for hardworking Science education teachers at secondary school teachers can be an alternative but still comparable studies to recommend approaches are useful.

Physical infrastructures are capital investments which require huge financial input (Jones, Sutcliffe, Bragg & Harris, 2016). The government alone cannot manage to finance the construction of innovation hubs, university towns and cities and make provisions for aid from other partners. The Doctrine for the Modernization and Industrialization of Zimbabwe through Education, Science and Technology Development to achieve Vision 2030 states that Public, Private Partnerships (PPPs) are to be formed by engaging investors with the capacity to develop state of the art infrastructure for Higher and Tertiary Education institutions. These are expected to form Build Operate and Transfer (BOT), and Build Own Operate and Transfer (BOOT) arrangements with the institutions of Higher and Tertiary Education. University towns and cities are also to be established by the government as a way of providing conducive learning and nurturing environment for the students. There is therefore, need for comparable studies focusing on Mashonaland East province top recommend pedagogical approaches for Science Education and implementing the Education 5.0 policy effectively.

Pedagogical needs of lecturers and students such as interactive boards, projectors, computers and internet availability need funding (Jones, Sutcliffe, Bragg, & Harris, 2016). These funds generally come from tuition fees paid by the students. A provision for student loans for payment of tuition is being made by the government through the Higher and Tertiary Educational Loan Support Facility (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018a). This will lighten the student/parent or guardian burden on payments of fees. Both local and international financial institutions need to be involved in offering this facility. Similar studies focusing on Science educators' experiences in implementing Education 5.0 policy in Mashonaland East province are pertinent.

2.6 Summary

This chapter presented a review of literature relating to the experiences of Science Education teachers in implementing Education 5.0 policy. The chapter also provides the main theoretical framework underpinning the study which is the competence based philosophy. There are various problems faced by educators in teaching Science as they implement the Education 5.0 education policy. The upcoming chapter provides the methodologies adopted in the study.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter discussed the methods, processes and stages involved in order to meet the set objectives of this research. It deliberates on the research design, research approach, population of the enquiry, sample size in addition to sampling procedures. It also deals with the subject of research instruments, data collection procedures and data analysis for the study on Science teachers' experiences towards implementing Education 5.0 on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.

3.1 Research approach

According to Cohen and M,anion (2018) a research approach is the procedure selected by the researcher to collect, analyze, and interpret data. Creswell (2015) describes a research approach as the plans and procedures for research that spans the steps from broad assumptions to detailed methods of data collection, analysis and interpretation. There are three approaches to research: quantitative, qualitative, and mixed methods. This study was a qualitative research.

The reasons for using qualitative research were that qualitative research methods are valuable in providing rich descriptions of complex phenomena; tracking unique or unexpected events; illuminating the experience and interpretation of events by actors with widely differing stakes and roles; giving voice to those whose views are rarely heard. Cohen and Manion (2018) state that issues in qualitative research can be examined in detail and in depth. Interviews are not restricted to specific questions and can be guided/redirected by the researcher in real time. The research framework and direction can be quickly revised as new information emerges.

3.2. Research Design

Coming up with a research design is an indispensable part in research since the design informs the researcher on the appropriateness of the research methods adopted and adapted by the researcher. According to Rukwaru (2015) a research design is an overall strategy that is used in collecting data, presentation, and analysis. It is a systematic plan to study a scientific problem.

McMillian and Schumacher (2010) concur and say that a research design refers to the plan and structure of the investigation used to obtain evidence to answer research questions. Therefore, a research design is that comprehensive skeleton of how an inquiry comes about comprising approaches for collection, instruments employed and the envisioned means for analysing data collected.

The study largely uses a case study. According to Cohen and Manion (2019) the qualitative approach helps the educational researcher to obtain an in-depth data both within and outside the school. It emphasizes on obtaining insider view instead of outsider view of situations and events. For this reason, this study was qualitative because it attempted to obtain a detailed insider view of what is obtaining on the ground at the selected school at Gadaga Secondary School. It gives a detailed analysis of the views and explanations of the respondents on the topic.

The study was primarily a case study. Yin (2019) states that a case study is an experimental investigation that scrutinizes a topical phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. Creswell (2019) posits that case study research encompasses the study of an issue explored through one or more cases within a restricted system that is a setting or a context. The case study for this study is a selected secondary school in Uzumba Maramba Pfungwe District in Zimbabwe.

3.3 Population

A population is generally a large collection of individuals or objects that is the main focus of a scientific query (Lester, 2016). It is for the benefit of the population that research is done. A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics or traits. However, due to large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time consuming. This is the reason why researchers rely on sampling (Williams, 2013). The target population in this study comprised learners and their teachers at the selected school in Uzumba Maramba Pfungwe district. The selected school is drawn from Uzumba Maramba Pfungwe district which is a rural setting. In educational research, the population is usually made of

students, teachers and administrators. The population is 420 learners, 10 teachers and 2 school administrators

3.4. Sample

Schulze (2022) defines sample as an element that is, a smaller group of target population which is selected for inclusion in a study. Booyse (2022) defines that it is impractical to mount a survey that includes the entire population, hence the sample is drawn that is representative, in that those included in the sample display the same characteristics as that of a target population.

A total of 6 teachers, the school administrator (2), the learners (12) from the school constitute the sample. Recognising that the population of teachers and pupils that interact was small, purposive availability sampling was employed in this study (Willians, 2023). Purposive sampling implies the researcher subjectively determining the type of sample to be enlisted in a study (Creswell 2018). For the sampling purpose, what the researcher had in mind was to enlist learners doing Science subjects and teachers who teach them at the respective school in Uzumba Maramba Pfungwe district. On these bases, the learners doing Science subjects and their teachers were picked from the selected school.

3.5 Sampling techniques

The researcher used purposive sampling for the selection of participants for the study. Creswell (2018) defines sampling as the comprehensive a process for choosing participants for the study. Chiromo (2019) states that sampling is selecting part of a population for a research study. Therefore, sampling refers to the process of choosing a number of individuals to participate in a study.

In the context of purposive sampling, frequently (but by no means exclusively) a feature of qualitative research, researchers handpick the cases to be included in the sample on the basis of their judgement of their typicality or possession of the particular characteristics being sought. In this way, they build up a sample that is satisfactory to their specific needs. As its name suggests, the sample has been chosen for a specific purpose. For example, in this case, a group of learners doing Science subjects at the school from For 1 to Form 4 were selected as the research sample

to investigate the teachers' views in teaching these Science subjects in the context of the Education 50 policy..

The choice of school administrators remained purposive sampling. Creswell (2018) delineates purposive sampling as picking out respondents constructed on their acquaintance or expertise, features, locus of authority inside an organisation or attributes. Chiromo (2019) states that purposive sampling refers to the method of choosing members from a population to represent the group in a study. For that reason, purposive sampling selects contributors by means of the academic's freedom of choice with the intention that participants fit the compulsory criterion. A total of two (2) school administrators from the study setting were selected using the purposive sampling technique because they also deal with learners with physical and motor disabilities from the selected school. The Deputy Head and Head from the selected schools were selected to participate. The following table shows the sample for the study;
Heading

Table 3.1 Sample for the study

Group of Participants	**Number of Participants**
School Administrators	2
Teachers	6
Learners	12
Total	20

3.6. Research instruments for data collection

The word research methods is synonymous with research Mugenda and Mugenda (2019) saying a research instrument is a tool used to collect, measure, and analyze data related to your subject. Cohen and Manion (2018) states that research instruments can be tests, surveys, scales, questionnaires, or even checklists. This study uses the questionnaires for teachers and the interview methods for school administrators. Observations were meant for the teaching and learning process to observe learners and teachers during Science based subject lessons. The questionnaire items and design are arrived at after an extensive review of literature on the problem content focusing on the topic of the study.

Interview guides will be used for the school administrators from the selected school. These included the School Head and the Deputy Head. Baron (2019) defines an interview as a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular situation. Interviews are designed to explore a general area of research and their main goal is to deeply explore the respondent's point of view, feelings and perspectives (Wilson and McLean, 2019). Interviewees are reinvigorated to talk without restrictions concerning events, behaviour in addition to beliefs with respect to the research area.

An interview guides was prepared and used to collect in-depth qualitative data from school administrators on the views of teachers on implementing Science education in light with Education 5.0 in Uzumba Maramba Pfungwe district. As appropriately debated by Lindlof and Taylor (2020), the gain of a semi- structured interview allows for new questions to be brought up during the interview as a result of what the interviewee says. Baron (2019) bounces a number of rewards for interviewing which include the capability of the interviewer to sense non-verbal feedback. Interviews are regarded as effective in terms of providing more detailed information and that they may provide a more relaxed atmosphere in which to collect information.

Advantages

- ✓ The main advantage for using interviews for this study was based on the face to face basis in which these were conducted with the school administrators.
- ✓ There was a great opportunity for finding true data compared to questionnaires.
- ✓ Moreover, the researcher enjoyed greater control over the interview enabling the interviewees to remain focused as supported by Baron (2019).
- ✓ The researcher was also able to create a pleasant atmosphere for the participants.

Disadvantages

The disadvantages of using the interview method such as high costs and requiring much time were reduced or solved through the researchers' utilisation of the times teachers were at their free times at the school. In terms of time, synchronised time was used for each interview session.

Observations form a significant category of data collection method for researchers. Observation is a strategy for gathering information about a social interaction or a phenomenon in qualitative studies (Nachmias and Nachmias, 2019). This is usually done by developing interaction with members of a group or living in the situation which is being studied. A significant gain for observing in research lies of observing what persons in point of fact do or give or take, and not what they indicate doing (Cohen and Manion, 2019). People are not always willing to write their true views on a questionnaire or tell a stranger what they really think at interview. This fact among others, have prompted the researcher to select and employ participant observation so as to bring forth data concerning the views of teachers on teaching-learning Science education in the Education 5.0 era in UMP district in Zimbabwe.

Observations are conducted in tangible life state of affairs, sanctioning researcher's access to the setting in addition to meaning surrounding what people say and do. There are numerous situations in the area of education and related disciplines, where approaching people for interview or questionnaire completion is implausible to bring about an optimistic response, nonetheless where observations could produce cherished insights on an issue (Best and Kahn, 2016). In this context, the researcher employed the observation with the purpose of ensuing participants cannot intentionally or otherwise left out moderately indispensable detail on Science education teaching-learning, these were recorded by means of this supplementary strategy, t observation, which was descriptively recorded by the researcher from observation. This was done by firstly developing a close interaction with teachers and the learners in Science subject teaching-learning.

An observation checklist was used in the three schools and some lessons were observed. The participant observation is the process enabling a researcher to learn about the activities of the people under study in the natural setting through observing and participating in those activities (Kawulich, 2015). The lesson observations were aimed at having a true picture of the situation in the classroom and obtain data that could not be obtained through questionnaires and interviews. The data gathered through observation will also contribute to the topic and is presented in the upcoming chapter.

3.7 Procedure for data collection

The study took place in a selected school in UMP district. Permission for convening the research will be sourced from the school head teachers to perform the research. The investigator was then introduced to heads of department by the head teacher and then to class teachers responsible for Science education. Learners were engaged in Science education lessons and some lessons were observed to indicate the use of the observation method. The observation technique was included with the intention of understanding the level of readiness among teachers to teach Science education in light with Education 5.0 policy, resources at their disposal and teaching methods, as well as the learners' participation and comprehension in lessons. The process was a prospect to examine what was happening in class, that is the teaching and learning process.

This permitted the investigator to crease data on the physical, human interactional settings and program of teaching and learning. Similarly, open ended question was used and this helped the researcher to gain insight into the respondents' reasons for those opinions. The open-ended questioning was a way to explore participants' comments. The participants were more willing to express their opinions. The process created an atmosphere of sharing and discussion.

3.8. Data Analysis

Data analysis is easier said that it can be done involving quite a number of skills and time. Conjecture Corporation (2014) defines data analysis as, a practice in which raw data is ordered and organized so that useful information can be extracted from it. The process of organizing and thinking about data is key to understanding what the data does and does not contain.

There are a variety of ways in which people can approach data analysis, and it is easy to manipulate data during the analysis phase to push certain conclusions or agendas. The researcher collected both qualitative data from the respondents. From the interviews and class observations, the researcher was able to sieve out questions that had categorical data and this was analysed using the thematic approach The main thrusts of the analysis were to generate descriptive statistics. Relationships and recurrences in terms of responses obtained from the participants were assigned labels for analysis.

For qualitative data, interviews and observations was analysed in terms of the recurring responses and observations. This involved listening to the interviews and carrying out the observations to get a sense of the whole, delineating units of general and relevant meaning, eliminating redundancies, clustering units of relevant meaning and identifying and contextualizing themes from the latter. Briefly, transcripts were segmented into paragraphs, and each paragraph examined in-depth to generate categories. Themes from recurring responses and similar observation were crafted by the researcher for analysis.

3.9. Ethical Considerations

Resnik (2011) defines ethics as rules for distinguishing between right and wrong. There are several reasons why it is important to adhere to ethical norms in research. Since the research often involves a great deal of cooperation and coordination among teachers and learners with hearing impairment, ethical standards promote the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness.

Confidentiality was observed and maintained by not requesting for identities of the respondents and by ensuring that the information they provided had no direct connection to them. Permission was obtained from the school head during the study before the research was conducted. The assurance of security of respondents for participating in the research was also made.

Before administering the questionnaire, the researcher clearly explained the purpose of the study to the participants. There were no coercive tactics used. The participants will be asked to take part in the study on voluntary basis and their confidentiality will be assured.

A significant standard in research ethical practices that the researcher adhered to throughout the study is informed consent. Informed consent is the major ethical issue in conducting scientific research. According to Akaranga and Ongong'a (2013) informed consent means that a person knowingly, voluntarily and intelligently, and in a clear and manifest way, gives his consent. The researcher sought the consent of the participants well before the participants provided their relevant input to the researcher. Informed consent is one of the means by which a patient's right to autonomy is protected. The ethical practice is useful because it seeks to prevent assaults on the integrity of the patient and protect personal liberty and veracity.

The researcher considered privacy into educators' perceptions teaching-learning Science education in light wit Education 5.0 in UMP district. This may involve invading the privacy of the participants in order to elicit information or to obtain data from the participants. Cohen, Manion & Morrison (2013) state that privacy is the lack of restrictions an individual has to decide on the time, extent, and general circumstances under which private information will be disclosed or suspended from others. Braun and Clarke (2006) believe that an invasion of privacy of respondents occurs when confidential information like beliefs, attitudes, opinions and records, is shared with others, without the participant's knowledge or consent. The researcher made sure not to invade in the participants' privacy in any way.

The researcher observed the research principle of anonymity. Anonymity mentions privacy for all the research participants (Creswell, 2018). The principle accentuates that the enhancement of self-determination (self-governance) of others and refrains from interfering with free choice and

strives to protect vulnerable persons as much as conceivable. The researcher made sure that the anonymity of participants was guaranteed throughout the conduct of the study into the views of teachers on Science teaching-learning in light with Education 5.0 policy at the selected school in UMP district.

The researcher abided by research ethics known as protection of harm of beneficence. According to Creswell (2018) the concept of beneficence refers to the 'Do no harm' philosophy and attempts to maximize benefits for the research project while minimizing risks to the research subjects. According to Horner (2013:268) the aim of beneficence, "is to benefit others and balance good results over potential harm." The researcher ensured the protection of the participants throughout the conduct of the study.

The researcher also ensured that the participants had opportunities for voluntary withdrawal from the study. According to Cohen and Manion (2013) voluntary withdrawal of contributors is the assurance that participants have for voluntary provisions of research data plus withholding such information. The researcher clearly explained to the participants this research ethic so that the participants would not be forced to provide research data.

The researcher also adhered to confidentiality as a research consideration. The Concise Oxford Dictionary defines confidentiality as: 'spoken or written in confidence; charged with secrets' while anonymity is defined as: 'of unknown name, of unknown authorship'. In the ethics literature, confidentiality is commonly viewed as of the same kind to the principle of privacy (Nkapa, 2019). This principle is integral to our societal beliefs that individuals matter and that individuals have the right for their affairs to be private, although as Creswell (2018) notes, in our information-led society upholding this right is far from straightforward. The researcher made sure that the participants' give confidential information which is kept confidential by the researcher.

Similarly, the researcher ensured that confidentiality of data which can be seen to include maintaining confidentiality of data/records: ensuring the separation of data from identifiable individuals and storing the code linking data to individuals securely. The principle also include

ensuring those who have access to the data maintain confidentiality (for example. the research team, the person who transcribes the data) i.e. not deliberating issues ascending from an individual interview with others in ways that might identify an individual. The concept also includes not disclosing what an individual has said in an interview as well as anonymising individuals**.**

3.10. Summary

The section above described the research design that was employed, target population, sample size, sampling procedures, instruments used to collect data, data collection procedures, data analysis and ethical issues that were considered in the study. The study into implementation of Science education in the context of Education 5.0 policy at a selected school in UMP district was conducted from questionnaires from teachers and interviews with school administrators. The next chapter presents research findings.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.1 Introduction

This chapter focused on data presentation, analysis and discussion of the data connected to the study on Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The data accessible in this chapter originated from the procedures of mixed research methodology in generating data. The generated data responded to the research questions of the study. This chapter builds on the paradigms and techniques discussed in Chapter 3.

4.2. Data presentation, interpretation and analysis from interviews

The study findings show that the implementation of Science teaching in the context of Education 5.0 at the study setting is met with varied views by the educators. The following was said by one of the teachers;

T1: *I perceive Science education in line with Education 5.0 as useful as possible as evidenced by their positive attitude towards the adoption of education 5.0.*

Therefore, it can be interpreted that the educators' attitude towards the adoption of Education 5.0 for Science education and their perceived usefulness of the reform was positive meaning that they viewed the change to be necessary and useful. This could be because some of these educators were youthful and studies show that young people are generally pro to change than old ones (Paul, & Stegbauer, 2020). Education 5.0 has an element of innovation which the young people are more interested in than the aged ones.

Physical infrastructure and financial resources were rated negatively on the school, Gadaga School in UMP district, readiness for the adoption of Science education in line with the Education 5.0. The absence of adequate physical infrastructure and financial resources to support

Education 5.0 adoption is expected since Zimbabwe as a nation is undergoing an economic meltdown.

A1:*Educators perceived that Education 5.0 had relative advantages over Education 3.0.*

This is in line with Chimbi (2020) who reports that capital investments need huge financial resources which could not be availed with limited resources available for implementing change which negative affects sense making in teaching-learning.

The educators, however, viewed Education 5.0 adoption to be of relative advantage although there were neutral responses on its simplicity. One of the educators stated that

T2: *We are actually teaching Science as expected and the learners have since embraced the need for continuous Learning Activity (CALA) which is part of the updated curriculum."*

Since Education 5.0 is a new curriculum reform which is at its implementation stage, it is understandable that educators were not sure if Education 5.0 was simple to implement or not. New programmes come with their different conditions that might be also new to the implementers such that making a judgment on the program's complexity or simplicity would need some time for the users to interact with it.

In terms of implementation of Science education in line with Education 5.0, responses further revealed that;

T3*: There is no adequate physical infrastructure and financial resources to support Science education commensurate with the Education 5.0. With the increase in Science learning areas, it is expected that state funding on school infrastructure is not adequate.*

In terms of teacher readiness in the implementation of Science education in line with Education 5.0 policy, individual educators who participated showed that respondents were somewhat ready for Education 5.0 adoption or implementation. Since all of the educators under this study are

academically qualified for their jobs (science education-diplomas and degrees) and a good number of them are young, this factor could explain why they are somewhat ready for Education 5.0 adoption. This is supported by Bandura (2010) and Schwarzer (2014) who state that self-efficacy leads to high readiness for change adoption because of an individual's belief in their ability. The qualified personnel have the courage to tackle the challenges that come with a change in curriculum more than the unqualified staff. This result is also supported by the Technology Acceptance Model which states that the individual's attitude and their perceived usefulness of the new technology has an effect on its adoption (Davis, 2019).

The participants indicated that they are implementing the Science education learning areas in line with Education 5.0 as evidenced by the standardization and High-Stakes Testing. One of the School administrators said;

A2: *Education 5.0 is often hindered by a heavy reliance on standardized testing and a narrow focus on academic achievement. Education 5.0 often fails to cater to diverse learning styles, interests, and abilities. This approach hampers the potential of students who may excel in unconventional ways or require personalized attention to thrive.*

From the above findings, it is clear that in as much as educators are implementing Science education in line with Education5.0; the policy-approach limits students' ability to develop critical thinking, creativity, and problem solving skills. Moreover, it perpetuates a competitive environment that can lead to stress and anxiety among students. These findings are in line with (Alharbi, 2023) who reports that the teacher-centric approach is reflected in the Education 5.0. The Education 5.0 tends to adopt a teacher-centric approach, where the teacher is the sole authority and knowledge provider. This limits students' autonomy, creativity, and critical thinking skills, which are crucial for the rapidly changing world. The lack of student engagement and active participation in the learning process hinders their ability to develop a deep understanding and apply knowledge effectively. One of the very important roles of the teacher to

be open always as a learner because learning is a continuous and life-long process, this will add values to the teachers personality and will help the students to learn better from the teacher.

T1:*There is no funding which is reliable. These funds generally come from tuition fees paid by the students-parents. A provision for learner funding for payment of tuition is being made by the government through the BEAM programme. This will lighten the student/parent or guardian burden on payments of fees. Both local and international financial institutions need to be involved in offering this facility.*

T 2: *There is no Science laboratory at the school. This key Science infrastructure makes it difficult to teach Science subjects and is a key challenge at the study setting.*

The participants indicated that there is a general lack of educational resources needed for Science teaching. Among other resources and factors such as organizational culture and organizational structure, availability of resources is important when implementing changes. The teachers had the following to say concerning lack of educational resources;

T4: *Generally, availability of resources has a positive influence on readiness for adoption. If the needed resources for adoption are not made available, implementation becomes a problem.*

From the study, it was noted that educational resources needed for Science education are not available in the study setting. The infrastructural and financial resources are the ones the researcher concentrated on since they are listed among the steps set by the Ministry of Primary and Secondary Education to achieve Education 5.0. These findings are in line with Karp & Fletcher (2024) who report that educational change is reliant upon availability of educational resources. In the context of Science education in the schools, educational resources negatively affect curriculum implementation.

As demonstrated from the study, 4 out of 6 (67%) teachers agreed that some teachers lack experience on implementation of Science education in line with the Education 5.0 policy. As a resultant, the majority felt it compromises the quality of delivering or explaining concepts while others had varying opinions. The following was said by the school administrators;

A1*: Some of our teachers have not been trained to implement the new-updated curriculum for Science education. In as much as they have attended some training on Science education, the updated curriculum in line with Education 5.0 require subsequent in-service training to build on the teachers' skills.*

A2 B: *There is not service training on teaching Science subjects as required. There is need for further teacher training for familiarization.*

Observing that quality entails education in line with the demands of both the local and international market and standards of expertise expected from graduates, students found some teachers' lack of skill or experience disturbing. This is because it directly affects their skills set and marketability particularly in the international spectrum. These findings complement Aarons, Hurlburt & Horwitz (2021) who report the need for in-service training to improve teacher skills in content delivery. There is thus need for subsequent Science education teachers' in-service training.

This research question solicited for problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The participants were enquired to give the most challenges encountered. Diverse challenges were given nonetheless they were similar challenges. The gathered challenges revealed as shown below;

A1: *Prohibited to use mobile gadgets for Science education research*

A2: *Fear of change amongst teachers*

T1: *Lack of in-service training for Science education*

T2: *Lack of educational media and technology for Science teaching*

T3: *Lack of Science laboratories*

T4: *Lack of time*

From the findings above, it is shown that there are problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The challenges exposed likewise encompassed the lack of time as well as the lack of educational media and technology (EMT) needed for Science teaching-learning.

When asked about the problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province, one of the teacher interviewees said:

T4: *The few teachers who use ICT tools and gadgets in Science teaching and learning at secondary school level complain because of poor internet connectivity, electricity power problems as well as secondary school level learners not owning the compulsory ICT tools and gadgets. It also appeared from the study that some teachers have ICT gadgets, yet they cannot use these gadgets for Science teaching and learning purposes because of technophobia.*

The researcher observed that the secondary level students as well as the teachers have internet connectivity challenges as the researcher failed to get connected to the school internet although having the guest user name as well as the password. It is also perceptible from the study findings

that some teachers fail in using a laptop, tablets or smart phones effectively for Science teaching-learning. Apart from sending tasks for Science on Whats app, voice calls and short message services, nothing else was done using ICT tools

These findings are in line with Anderson (2019) who reported that ICT use is problematic when it comes to laptops being used for gaming and not for teaching and learning. These findings complement Skenazy (2019) and Cobcroft (2016) who say that the major challenge associated with the use of mobile leaning in Science is lack of connectivity and wrong use of ICT respectively. These challenges hinder the progress of Science teaching-learning in line with the requirement of the Education 5.0 policy in Zimbabwe and thus the findings of this research concur with these authors.

Limited access and inclusivity was also reported as a major challenge in implementing Science Education in line with Education 5.0 policy. Despite efforts to improve access to education, Education 5.0 still faces challenges in reaching marginalized communities, remote areas, and individuals with disabilities. This limitation exacerbates existing societal inequalities and hinders the holistic development of individuals. Moreover, it was reported by one of the teachers that; Science education in lie with Education 5.0 lack of real-world application. This is because the Education 5.0 primarily focuses on theoretical knowledge, neglecting the practical skills necessary for success in the real world. Students often struggle to bridge the gap between classroom learning and practical application, leading to a lack of readiness for the workforce.

The other research question asked for what can be done to solve or reduce the problems faced by Science teachers towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. Recommendations specified by those who took part were fundamentally solutions to the problems highlighted above. The responses-recommendations proffered are shown:

T1: *Training of teachers and learners on how implement Science education in line with Education 5.0 policy*

T2: *Training of teachers and learners on how implement Science education in line with Education 5.0 policy*

T3: *Give teachers enough time for Science teaching-learning*

T4: *Allow secondary school level students to use mobile phones in schools for Science education research*

The findings above displays that the teacher in-service training is key in effective implementation of Science education in lien with the Education 5.0 policy. It is also shown that giving teachers enough time for Science education is a strategy for reducing challenges in Science education. It is also shown that allowing students to use mobile phones for Science education research at secondary school level is key to widen Science teaching-learning.

The teacher interviewees were asked on how Science education in line with Education 5.0 at secondary school level can be improved and he said:

T5:*Secondary school level students should be given the ICT gadgets for use in Science lessons. I think as a school, it is essential to consider buying a generator for power back up. There is also need for increasing the school's internet speed to enable easy and quicker internet exploration by the students. Teacher training in insofar as Science education in lie with Education 5.0policy is concerned, there is need for additional staff development.*

Additional substantial proposals included the introduction of Science subjects as a compulsory subject for all students at the school. There were also recommendations for having computer laboratories as well as Science laboratories. Interviewees also proposed fast internet purchases, generators to back up power, buying ICT gadgets for secondary school level along with Science education in-service staff training. The findings of this research agree with Hungler (2020) who says that if teacher capacity is improved, Science education can be successfully adopted and

implemented. Thus these suggestions can be considered relevant to this research context. The findings of the research together with literature are relevant.

4.4 Observation Data

The research data was gathered from Combined Science lessons observed at Gadaga Secondary School. The observations made were recorded based on the observation guide that was prepared well before fieldwork.

Observation Guide: Combined Science lesson for Form Two class

Observer Information

- Observer's name: Madava Loice

- Teacher's Name: Tr A

- School: Gadaga Secondary School

- Level: Form 2

- Date of Observation: 01 December 2024

Pre-Observation Notes

The teacher observed had at total of five years' experience in teaching Combined Science and holds a Diploma in Education from Belvedere Teachers College specialized in General Science.

The lesson was conducted in a classroom because there is no laboratory at the school

The lesson objectives were SMART i.e they were clearly stated, measurable and achievable.

Lesson Information:

- Topic: **CELLS AND LEVEL OF ORGANISATIONS**

-Key Concept: SPECIALISED CELLS

-Sub Concept: Different types of cells carry out specific functions and when all cells combine their functions, they can share out the processes of life.

- Duration: 30 minutes

- Number of Students: 20

Observation Categories:

1. Lesson Planning and Preparation

I). Was the lesson plan clear and concise?

- The teacher had a clear and concise lesson plan.

II). Were the learning objectives clearly stated?

- Objectives of the lesson were clearly stated.

III). Were the necessary materials and equipment available?

- Some of the necessary materials and equipment were available.

2. Teacher's Instructional Strategies

I). Did the teacher use a variety of instructional strategies (e.g. demonstrations, discussions, hands-on activities)?

- The teacher used a variety of instructional strategies, including demonstrations, discussions and hands-on activities.

II). Were the instructions clear and concise?

- Instructions given were clear and concise.

III). Did the teacher provide opportunities for student questioning and feedback?

- The teacher provided the opportunities for questioning and feedback from students.

3. Student Engagement and Participation

I). Were the students actively engaged in the practical activity?

- The students were actively engaged in the experiment.

II). Did the students work collaboratively in groups?

- The students worked collaboratively in groups.

III). Were the students able to ask questions and seek help when needed?

- Some of the students were able to ask questions and eek help when needed.

4. Safety and Laboratory Management

I). Were the students aware of the safety protocols and procedures?

- The teacher ensured that the students followed the safety protocols and procedures.

II). Was the class and classroom well-organized and managed?

Though there was no laboratory, the classroom was well organized and managed

III). Were the necessary safety equipment and materials available?

- safety equipment were not available but some materials needed were available.

5. Assessment and Feedback

I). Did the teacher assess student understanding during the practical activity?

- The teacher assessed student understanding during the lesson.

II). Was feedback provided to students during the lesson?

- The teacher provided feedback to the students.

III). Were the assessment criteria clear and transparent?

- The assessment were clear and transparent.

Overall Comments:

The classroom practitioner exhibited sophisticated lesson planning and preparation skills with improvised educational media and technology (EMT); materials and equipment. The lessons observed showed that the educator provided clear as well as concise instructions for the learners to execute during the lessons. The learners were actively engaged in the class activities and worked together in group activities. The classroom practitioners as observed provided chances

for learners to pose questions during lessons. The educator was clear in giving responses and feedback which shown that the lessons were better off.

However, it was observed that there were a number of problems hindering effective teaching learning of Science lessons in line with the major requirement of the competence based curriculum in tandem with the Education 5.0 policy. There were no available gadgets for use u=in the Science lessons such as mobile gadgets for Science education research and the educators registered fear of change to adopt the competence based curriculum in line with Education 5.0. In as much as the educator improvised EMT, there was still the lack of educational media and technology for Science teaching such as the lack of Science laboratories. It was also observed that the lessons were taught-learnt hurriedly showing a lack of time as the next lessons were to be taught. These findings complement findings from interviews which showed a number of challenges being faced in implementing the Science lessons in line with the Education 5.0 policy in school.

4.5 Summary

The chapter above revealed data collected and was presented based on research questions set in the introductory chapter. The tables, pie charts and graphs have been the basis for data presentation. Qualitative explanations were based on themes- interpretations- that emanating from collected data. Study findings show a considerable number of educators are effectively implementing Science education in line with the Education 5.0 policy at secondary school level. The subsequent chapter provides the conclusion and recommendations for additional research.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

This chapter is a prologue for this study on Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The validation for this chapter is exclusively to recapitulate the research, draw some conclusions in addition to giving recommendations constructed on to the findings of this research. The chapter progresses from the summary, conclusions to recommendations. The resulting section signposts the summary to enquiry findings.

5.1. Summary

The study was a case study into the study on Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The study grew out of the need for exploring the implementation of Science education-learning areas in a rural setting in the light of Education 5.0 policy. The study was first and foremost steered in a selected school in UMP where Science laboratory is unavailable.

The enquiry objectives were to;

- To examine the nature of Science teaching at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province with reference to the Education 5.0.
- To assess the problems faced by Science teachers in implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.
- To recommend ways of reducing problems faced by Science teachers towards implementing Education 5.0 at Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.

This research was projected to benefit the Zimbabwean government, Zimbabwean secondary schools in addition to the Ministry of Primary and Secondary schools along with other concerned stakeholders. The study was limited to one secondary school and to the Science education in the light of Education 5.0.

The researcher explained the beginning of the study, prescribing the location of the school, the class and the level of the learners from the study was conducted in Chapter 1. In this chapter, the researcher also pronounced the problem, set the research questions and emphasised the rationale for the research. The problem that was studied centred on Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. The study was pegged to benefit the learners; facilitators and the researcher were also stated in this chapter. Introductory chapter also unpacked the terms that are particular to the study as well as spell out the limitations.

Chapter two of this study reviewed literature related to the Science education in the context of Education 5.0 in order to give the research some focus. Literature review established a knowledge gap and to situate the present study into the broader context of what has already been studied on the Science education and Education 5.0 policy in education. The chapter, focused on authorities' views on the Science teaching-learning to the secondary school learners in general. The knowledge gap helped establish the locus of the recent study in the already prevailing body of literature relating to Science education in line with Education 5.0.

In Chapter three in this exploration, the researcher emphasized the research methodologies implemented in gathering the essential data concerning study on Science teachers' experiences towards implementing Education 5.0 focusing on Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province. A case study was used with the qualitative research while questionnaires, interviews and observations were used to collect data. The sample of participants for the study included a total of 6 teachers, the school administrator (2), the learners (12) from the school. A total of two (2) school administrators from

the study setting were selected using the purposive sampling technique because they also deal with learners doing Science subjects. In Chapter 3, the researcher also described the research design and the methods, which were implemented by the researcher in picking the research participants along with data collection. This section in the study also explained the research methods adopted for this research instruments used. The summary of the conducted data collection procedures was also highlighted in the same chapter. The researcher recompensed specific responsiveness to research ethics for instance privacy, confidentiality in addition to the protection from causing detriment the members contributing.

Chapter four made accessible the data analysed it other than giving a detailed discussion. Chapter 4 was basically about the data presentation connecting to the data that was collected from the contributors which was presented in the form of tables, pie charts not counting graphs. In this chapter, the researcher underlined the results acquired from the participants. The researcher construed the data presented in addition to scrutinizing the data. The data which was presented on tables, pie charts and graphs was provided herewith.

5.2. Findings and Conclusions

The study findings show that the implementation of Science teaching in the context of Education 5.0 at the study setting is met with varied views by the educators. The teachers perceived Science education in line with Education 5.0 as useful as possible as evidenced by their positive attitude towards the adoption of education 5.0. Therefore, it can be interpreted that the educators' attitude towards the adoption of Education 5.0 for Science education and their perceived usefulness of the reform was positive meaning that they viewed the change to be necessary and useful.

It is apparent from study findings that physical infrastructure and financial resources were rated negatively on the school, Gadaga School in UMP district, readiness for the adoption of Science education in line with the Education 5.0. The findings also show that the absence of adequate physical infrastructure and financial resources to support Education 5.0 adoption is contributing

to problem in the implementation of Science education because Zimbabwe as a nation is undergoing an economic meltdown.

It is perceptible from those findings that the implementation of Science education in line with Edcation 5.0 reveals that there are no adequate physical infrastructure and financial resources to support Science education commensurate with the Education 5.0. With the increase in Science learning areas, it was reported that state funding on school infrastructure is not adequate. Moreover, teacher readiness in the implementation of Science education in line with Education 5.0 policy, individual educators showed somewhat ready for Education 5.0 adoption or implementation. Educators under this study were academically qualified for their jobs (science education-diplomas and degrees) and a good number of them are young, this factor could explain why they are somewhat ready for Education 5.0 adoption.

The study findings show that implementing the Science education learning areas in line with Education 5.0 is evidenced by the standardization and High-Stakes Testing. It was reported that Education 5.0 is often hindered by a heavy reliance on standardized testing and a narrow focus on academic achievement. Education 5.0 often fails to cater to diverse learning styles, interests, and abilities. This approach hampers the potential of students who may excel in unconventional ways or require personalized attention to thrive. Moreover, the implementation of Science education in line with Education 5.0 tends to adopt a teacher-centric approach, where the teacher is the sole authority and knowledge provider. This limits students' autonomy, creativity, and critical thinking skills, which are crucial for the rapidly changing world. The lack of student engagement and active participation in the learning process hinders their ability to develop a deep understanding and apply knowledge effectively.

The study findings show that there is rampant lack of financial infrastructure to effectively teach Science subjects at the study setting. The participants maintained that the pedagogical needs of teachers and students such as interactive boards, projectors, computers and internet availability need funding and are not available in the school. The following was said by the participants;

The study findings show that there is no funding which is reliable. These funds were reported to be obtained from tuition fees paid by the students-parents. A provision for learner funding for payment of tuition is being made by the government through the BEAM programme. This will lighten the student/parent or guardian burden on payments of fees. Both local and international financial institutions need to be involved in offering this facility. Moreover, study findings show that there is no Science laboratory at the school. This key Science infrastructure makes it difficult to teach Science subjects and is a key challenge at the study setting.

The study findings show that there is a general lack of educational resources needed for Science teaching. Among other resources and factors such as organizational culture and organizational structure, availability of resources is important when implementing changes. It was also reported that the availability of resources has a positive influence on readiness for adoption. If the needed resources for adoption are not made available, implementation becomes a problem. Moreover, study finding show that limited access and inclusivity was also reported as a major challenge in implementing Science Education in line with Education 5.0 policy. Despite efforts to improve access to education, Education 5.0 still faces challenges in reaching marginalized communities, remote areas, and individuals with disabilities. This limitation exacerbates existing societal inequalities and hinders the holistic development of individuals.

5.3. Recommendations

The subsequent approvals originated from the study conclusions. The recommendations proffered are as follows:

- The schools have a duty to prioritise implementation of Science subjects in the study setting in line with the Education 5.0 at secondary school level.

- The administration by means of the Ministry of Primary and Secondary Schools can contribute in the erection of Science laboratories and related infrastructure with the purpose of smoothening the putting into practice of Science subjects teaching-leaning at secondary school level.

- The schools can permit students to carry their individual ICT devices to school for the mobile learning targeting Science subjects' research. The educators will then be given roles of monitoring the correct use of ICT mobiles tools to ensure that these are utilized for intended purpose.
- Schools can participate in Science subjects staff development programmes in addition to training to encourage educators to implement Science education based on Education 5.0 based on their competence. This will also intensify and perfect the effective Science subject teaching and for learning.

- The Government of Zimbabwe should electrify rural schools so that electrical power should always be available when needed for Science subjects in the teaching-learning processes.

- The administration to make available Science laboratories at secondary school level to enhance Science teaching and learning processes.

- The nation's Ministry of Primary and Secondary Education can also make known to stakeholders ICT becoming a necessary learning area taken by any registered school leaner in Zimbabwean schools.

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APPENDIX A: INTERVIEW GUIDE FOR SCHOOL ADMINISTRATORS

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

DEPARTMENT OF SCIENCE AND MATHEMATICS

Dear Respondents

I am a student from the Bindura University of Science Education undertaking a study on **The study on Science teachers' experiences towards implementing Education 5.0: A case study of Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) district in Mashonaland East province.T**his interview is aimed at soliciting information, to gain more information on teaching Science education in line with implementation of Education 5.0 policy. You are therefore, kindly requested to respond to the questions posed by the researcher. All information provided will be treated with confidentiality and will be used only for the purposes of this study. There is no need for you to write your name. Your co-operation will be greatly appreciated.

Questions

1. For how long have you been the school head at the school?
2. Can you briefly explain the Education 5.0 policy in Zimbabwe?
3. What are teachers' successes in the teaching-learning of Science Education in line with Education 5.0?

4. What are teachers' challenges in the teaching-learning of Science education in line with implementing Education 5.0 at Gadaga School in UMP in Zimbabwe?
5. How can the teaching-learning of Science Education based on Education 5.0 policy at secondary school be improved?

Thank **you.**

APPENDIX B: OBSERVATION GUIDE

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

DEPARTMENT OF SCIENCE AND MATHEMATICS

SERIAL	OBSERVATION POINT	COMMENTS
01	Teaching-learning resources/materials for Science teaching and learning in line with Education 5.0	
02	Nature and suitability of teaching-learning to cater for all learners in Science lessons	
03	Comment on the nature of interaction in Science lessons based on Education 5.0; i. Learner-learner interaction ii. Teacher-learner interaction	
04	Evidence of catering for learners in Science lessons	

5	Use of resources, technology and space for learning skills in Science Education in line with Education 5.0	
05	Other critical observable aspects in relation to teaching and learning of Science Education based on Education 5.0	

APPENDIX C: PERMISSION TO CARY OUT RESEARCH

Gadaga Secondary School
P.O. Box 397
Murewa

27 November 2024

The District Schools Inspector
Uzumba Maramba Pfungwe District
Mashonaland East Province
Ministry of Primary and Secondary Education
P.O. Box 351
Marondera

Dear Sir / Madam

RE : **REQUEST FOR PERMISSION TO CARRY OUT RESEARCH AT GADAGA SECONDARY SCHOOL IN UMP DISTRICT , MASHONALAND EAST PROVINCE for LOICE MADAVA B193024B**

The above matter reference matters. My name is Loice Madava ,a student at Bindura Univesity of Science Education . I do hereby request for permission to carry out a research in Uzumba Maramba Pfungwe District in Mashonaland East Province at Gadaga Secondary School . My research topic is The study on teachers' experiences towards implementing Education 5.0 : A case study of Gadaga Secondary School in Uzumba Maramba Pfungwe (UMP) District in Mashonaland East Province .

Thank you ,

Loice Madava

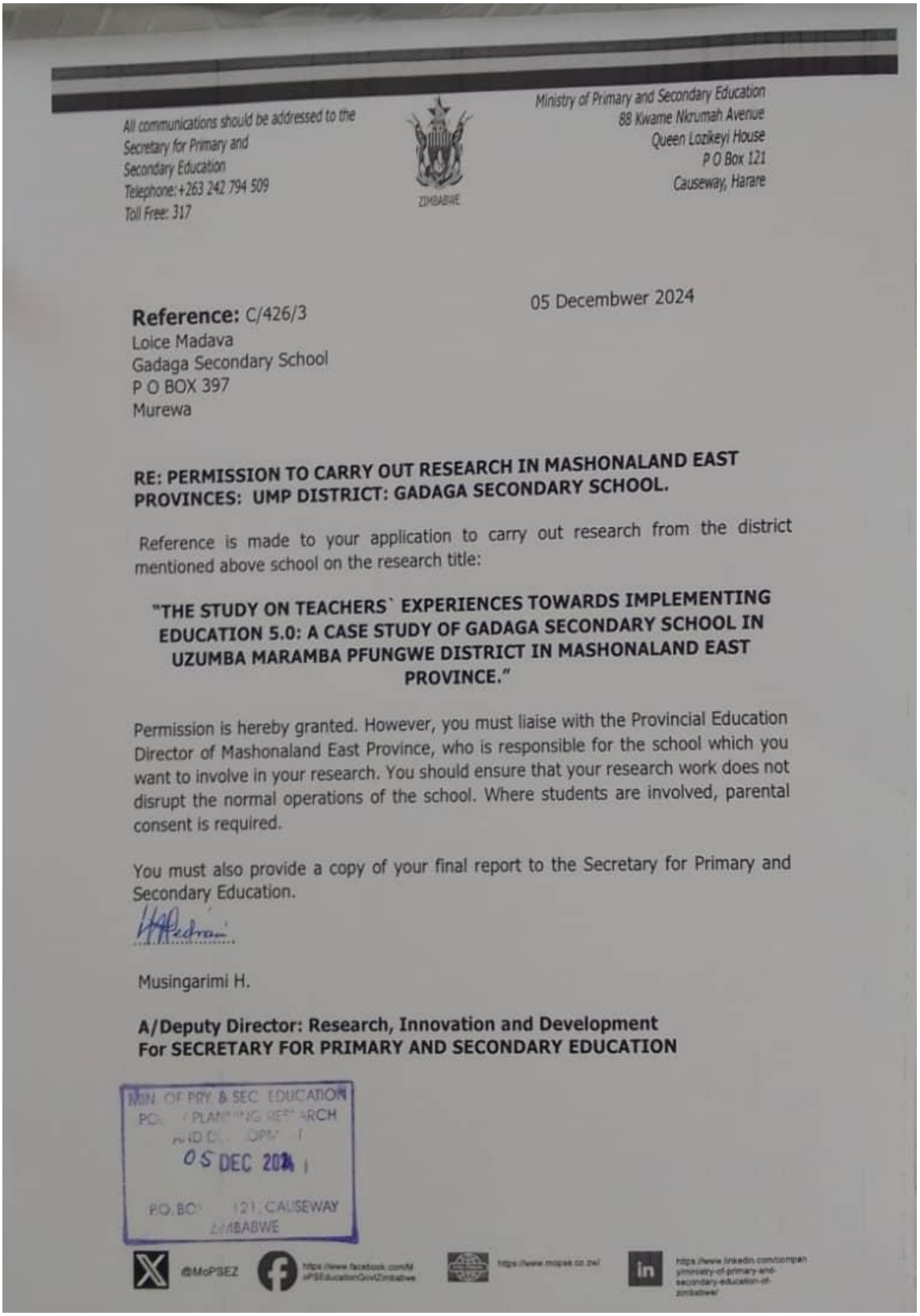
Madava....

Ec SW15385M

THE HEAD
GADAGA SECONDARY SCHOOL
MAY 2024
P.O. BOX 397
MUREWA

THE SCHOOLS INSPECTOR
MINISTRY OF PRY & SEC EDUCATION
06 DEC 2024
UMP DISTRICT
P.O. BOX 030, MUTAWATAWA

APPENDIX D: AUTHORITY TO CONDUCT RESEARCH



All communications should be addressed to the Secretary for Primary and Secondary Education
Telephone: +263 242 794 509
Toll Free: 317

ZIMBABWE

Ministry of Primary and Secondary Education
88 Kwame Nkrumah Avenue
Queen Lozikeyi House
P O Box 121
Causeway, Harare

05 Decembwer 2024

Reference: C/426/3
Loice Madava
Gadaga Secondary School
P O BOX 397
Murewa

RE: PERMISSION TO CARRY OUT RESEARCH IN MASHONALAND EAST PROVINCES: UMP DISTRICT: GADAGA SECONDARY SCHOOL.

Reference is made to your application to carry out research from the district mentioned above school on the research title:

"THE STUDY ON TEACHERS` EXPERIENCES TOWARDS IMPLEMENTING EDUCATION 5.0: A CASE STUDY OF GADAGA SECONDARY SCHOOL IN UZUMBA MARAMBA PFUNGWE DISTRICT IN MASHONALAND EAST PROVINCE."

Permission is hereby granted. However, you must liaise with the Provincial Education Director of Mashonaland East Province, who is responsible for the school which you want to involve in your research. You should ensure that your research work does not disrupt the normal operations of the school. Where students are involved, parental consent is required.

You must also provide a copy of your final report to the Secretary for Primary and Secondary Education.

Musingarimi H.

A/Deputy Director: Research, Innovation and Development
For SECRETARY FOR PRIMARY AND SECONDARY EDUCATION

MIN OF PRY & SEC EDUCATION
05 DEC 2024
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