

MIDLANDS STATE UNIVERSITY

APPROVAL FORM



The under designed certifies that he has read and recommended to Midlands State University for acceptance a dissertation entitled:Challenges faced in implementing a functional environmental education programme in secondary schools. A case of Mhondoro-Mubaira Cluster, Chegutu District.

SIGNATURE :.....

SUPERVISOR.....

DATE.....

MODULE COORDINATOR.....

DATE.....

EXTERNAL EXAMINER.....

DATE.....

DEDICATION

This project is dedicated to my dear husband Valentine Murengwa, to my lovely son Tawananyasha Kyle and to the general development of education in Zimbabwean schools.

ACKNOWLEDGEMENTS

My profound gratitude goes to my project supervisor Mr Gudyanga for his unwavering support throughout the study. I say to him, your comments helped me to produce this great research project. I would like to thank school heads of various schools in Mhondoro-Mubaira Cluster who gave me the permission to conduct this research in their schools. I am also deeply indebted to all those teachers and pupils who gave up their duties to attend to my interviews. I learnt a lot from their responses. Their cooperation and openness in answering questions provided a friendly atmosphere for conducting this research. The responses significantly improved the quality and clarity of the text.

I am also indebted to my dear husband Valentine for financial support. He has been most important for his continuous moral support and encouragement, which gave me the motivation and energy to conduct this project.

ABSTRACT

The purpose of this study was to establish the challenges faced in implementing a functional environmental education programme in secondary schools. The researcher used a descriptive survey design because it gave a descriptive picture to the data obtained through observations, interviews and questionnaires. The sample consisted of twelve teachers and forty students from schools in Mhondoro-Mubaira Cluster. Questionnaires, interviews and observations were used as data generation tools. Research findings established that the teaching of environmental education was limited in schools due to lack of time, lack of qualified environmental educationists, lack of teaching and learning materials, lack of support, lack of funding and huge class sizes. The results suggest that a lot has to be done to improve environmental education in Mhondoro-Mubaira Cluster. Recommendations were suggested as intervention strategies aimed at eradicating the major challenges that were hindering the implementation of environmental education. Training, making environmental education a core subject, creation of clubs, provision of qualified teachers, sourcing teaching and learning materials from other ministries were some of the ways of improving environmental education in Mhondoro-Mubaira Cluster.

LIST OF TABLES

Table 4.1 Teachers' suggestion on ways of improving environmental education in schools.....	42
---	----

LIST OF FIGURES

Fig i Dialogue, encounter, reflection model.....	13
Fig iiinteracting dimensions of the environment.....	19
Fig iii shows extent of environmental education implementation in schools.....	37
Fig iv shows challenges faced in implementing environmental education.....	39
Fig v shows teacher's perceptions on the importance of integrating environmental education in schools.....	44

Table of Contents

APPROVAL FORM	i
DEDICATION.....	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
LIST OF FIGURES	vi
CHAPTER ONE	1
THE RESEARCH PROBLEM.....	1
1.0 Introduction.....	1
1.1 Background to the study	1
1.2 Statement of the problem.....	5
1.3 Research questions	5
1.4 Significance of the study	6
1.5 Delimitations of the study.....	6
1.6 Limitations of the study.....	7
1.7 Definition of terms	7
Implementation	8
1.8 Assumptions to the study.....	8
1.9 Summary.....	9
CHAPTER TWO	10
REVIEW OF RELATED LITERATURE	10
2.0 Introduction.....	10
2.1 History of environmental education.....	10
2.1.1 The Tbilisi Conference 1977	11
2.2 The main components of environmental education	14
2.3 Methods and techniques of teaching environmental education	16
2.4 Environmental education and its relevance	17
2.4.1 Aspects of the environment	19
2.4.2 Effectiveness of environmental education.....	21
2.4.3 Incorporating environmental education into the curriculum	21
2.5 Barriers perceived by teachers in the teaching of environmental education	22

2.6 Summary.....	24
RESEARCH METHODOLOGY	25
3.0 Introduction.....	25
3.1 Research Design.....	25
3.2 Population.....	27
3.2.1 Sample	27
3.3 Research instruments.....	28
3.3.1 Questionnaires.....	28
3.3.2 Interviews.....	29
3.3.3 Observation.....	30
3.4 Ethical considerations.....	31
3.4.1 Informed consent.....	31
3.4.2 Confidentiality and Anonymity	32
3.4.3 Privacy	32
3.4.4 Protection from harm.....	33
3.7 Summary.....	35
CHAPTER FOUR.....	36
DATA PRESENTATION, ANALYSIS AND DISCUSSION	36
4.0 Introduction.....	36
4.1 Presentation and analysis of findings	36
4.1.1 Research Question No 1: (To what extent is environmental education being implemented in schools?).....	37
4.1.2 Research Question No 2: (What are the challenges being faced in implementing environmental education?)	39
4.1.3 Research Question No 3: (How can environmental education in schools be improved?)	41
4.1.4 Research Question No 4: (What are teachers' perceptions in integrating environmental education into secondary education?)	44
4.2 Discussion and interpretation of findings.....	46
4.2.1 Research Question No 1: (To what extent is environmental education being implemented in schools?).....	46
4.2.2 Research Question No 2: (What are the main challenges being faced in implementing environmental education?)	48
4.2.3 Research Question No 3: (How can environmental education in schools be improved?)	52

4.2.4 Research Question No 4: (What are teachers` perceptions on integrating environmental education into secondary education?)	56
4.3 Summary.....	58
CHAPTER FIVE	59
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	59
5.0 Introduction.....	59
5.1 Summary.....	59
5.2 Conclusions.....	61
5.3 Recommendations	62
APPENDIX 1.....	70
QUESTIONNAIRES FOR PUPILS	70
INSTRUCTIONS.....	70
APPENDIX 2.....	72
QUESTIONNAIRES FOR TEACHERS	72
APPENDIX 3.....	74
INTERVIEW GUIDE	74
APPENDIX 4.....	75
OBSERVATION GUIDE	75
Appendix 5: Letter from the head office	76
Appendix 6: Letter from the provincial office.....	77
Appendix 7: Letter from the college	78

CHAPTER ONE

THE RESEARCH PROBLEM

1.0 Introduction

The main purpose of this research was to investigate the challenges that are being faced in implementing a functional environmental program in schools, indications that pupils have an awareness of the effects of environmental degradation and hindrances to the teaching of environmental education. Therefore, this chapter highlighted the background to the study, statement of the problem, research questions, significance to the study, delimitations, limitations and the summary.

1.1 Background to the study

Land degradation already affects almost every continent. According to Regab and Christel (2002) around eleven million children in the poorest regions of the world are dying due to diseases caused by environmental degradation. Annon (2004) also highlighted that population growth, urbanisation, climate change and desertification put pressure on natural resources which in turn leads to environmental degradation. Environmental degradation is among the major ills that are being faced by many societies. IUCN (1994) confirmed that environmental degradation is a worldwide problem which has drawn the attention of all nations leading to the signing of environmental agreements such as Rio Declaration on sustainable development of 1992 in Riode Jeneiro Brazil, in June 1992. This was a comprehensive plan of action to be considered globally, nationally and locally by the United Nations. Many international organisations such as IUCN and UNEP recognise environmental degradation as one of the major threats facing the planet today.

Mukoni (2013) defines environmental education as a range of educational processes through which we respond to environmental issues in order to foster change in the direction of community life in a healthy environment. It is a response to risks, issues and problems arising from the biophysical, political, economic and social components of the environment. Environmental education is also seen as a form of praxis in which teachers and pupils seek to democratically transform society through reflectively constructing their world and thus developing critical and active citizens who are able to bring about the transition to sustainable development. Therefore, environmental education must empower learners.

Mukoni (2013) also says that the world's first intergovernmental conference on environmental education was held in 1977 and was convened in Tbilisi (USSR). One of the aims environmental education as recommended in the conference was to succeed in making individuals and the community understand the complex nature of the natural and the built environments resulting from the interaction of the biological, physical, social, economic and cultural aspects and acquire the knowledge, values and practical skills to participate in a responsible way in anticipating and solving environmental problems and in management of the quality of the environment. This educational practise calls for transformation of the society. As the international community considers environmental education as a core value in education, there is need to contemplate whether its practice in schools is bringing about the desired transformative social change.

According to Kimaryo (2011) environmental education has been recognised as one of the important tools for conserving the environment through the cultivation of knowledge, skills, values and positive attitudes towards the environment among the people. The need and importance of environmental education has been emphasised through a series of intergovernmental forums and documents from the 1970s as a strategy for addressing the growing trend of environmental problems: The UN Conference on Human Environment in

Stockholm (UN, 1972), the Belgrade Charter (UNESCO, 1976), the Tbilisi Declaration (UNESCO, 1978), the Brandtland Report (WCED, 1987), the Rio Earth Summit (UNCED, 1992) and the Johannesburg Summit (UN, 2002).

Kimaryo (2011) goes on to say that the need for environmental education was realised and emphasised at the United Nations Conference on Human Environment held in Stockholm in 1972. In this conference it was recommended that:

“After consultation and agreement, the organisations of the UN system especially in United Nations Educational Scientific and Cultural Organisation (UNESCO) and the other international agencies concerned should take the necessary steps to establish an international programme in environmental education, interdisciplinary approach in schools and out of schools accomplishing all levels of education.” (UNESCO, 1972: p19).

Like many other countries, Zimbabwe as one of the member states of the conferences on the environment, responded to the global concern about the environment and international declarations by including environmental education in the school curriculum. This was a noble move because Zimbabwe's economy is largely dependent on the environment and natural resources. Problems like drought, floods, poor sanitation, lack of clean and safe water, land degradation due to poor agricultural practices, unsustainable ways of harvesting natural resources like mining, forests and fishing, environmental pollution, loss of biodiversity are threatening the life support system of the environment. These problems are a result of various factors like population pressure, poor agricultural practices and high rate of urbanisation. Therefore, education for awareness, raising and finding solutions for these issues and problems is considered necessary.

Environmental education's purpose is to help learners to develop knowledge, skills, concern and positive attitudes towards the environment. Although environmental education has been

included in the school curriculum, the condition of the environment has not improved. The implementation of environmental education has not been successful. Evidence of environmental degradation in the form of soil erosion, poor waste management, water pollution and many other problems can still be observed in many schools and also the communities around the schools. The school is part of the community, therefore, it is expected that what the pupils learn in school should be reflected in the society. This is not because environmental education is not being taught in schools.

Cohen and Ball, (1990) and Fullan, (1991) state that one of the reasons why environmental education is not being implemented effectively could be that although teachers have been asked to implement the teaching of environmental education in the subjects they teach, they have not been offered support in the form of training in environmental education in terms of content and methods of teaching and learning and also the provision of teaching and learning materials. This support is important because in secondary schools, only Geography, Science and Agriculture teachers have knowledge of environmental education while Shona, History, Maths and English teachers lack that knowledge. So there is need for the training of all teachers so that they can be able to implement environmental education in schools.

Despite the fact that environmental education is integrated in the content of other subjects, teachers do not teach it because they lack the knowledge and skills of teaching of environmental education and few get the opportunity to see how environmental education is taught (Mtaita, 2005). Makundi (2000) supports this argument although she attributes this situation to the approaches and methodologies used in teaching. She points out that the teaching and learning methods used emphasise knowledge and awareness raising only. As such, people can be aware but do not take action.

Spiropoulou et al (2007) argue that the implementation of environmental education has been less effective due to the traditional approaches, inflexible curricula, a lot of content to be learnt and insufficient time for an in-depth approach to the study of environmental matters. Traditional teaching approaches which are based on transmission of knowledge cannot help learners to develop the skills and action competence necessary for taking action on the environment. Learners need to be actively involved in hands on activities in order to develop skills of environmental management.

1.2 Statement of the problem

The problem is that the environment is facing many challenges. Some of the challenges are poor waste management, soil erosion, water pollution, and many others. These problems can be observed in many schools and also the communities around them. The school as part of the community is expected to impart knowledge about environmental management to the pupils and what the pupils learn should be reflected in the society in which they live. Therefore, the aim of this study was to examine the challenges being faced by secondary schools in Zimbabwe in implementing a functional environmental education programme.

1.3 Research questions

1. To what extent is environmental education being implemented in schools?
2. What are the main challenges being faced in implementing environmental education?
3. How can environmental education in schools be improved?
4. What are teachers' perceptions on integrating environmental education into secondary education?

1.4 Significance of the study

This study is of great importance to teachers, pupils and interested stakeholders within and outside the education system. The researcher is a practising teacher and is in a better position to identify problems that are faced by most teachers in implementing environmental education.

After problem identification, the research can help teachers to find effective ways of implementing environmental education. They will be able use better teaching methods and allocate sufficient time to successfully implement environmental education. This will help to bring a change in the attitude and the way people manage the environment and natural resources.

The research findings can also help teacher trainers to empower teachers with enough knowledge and skills so that they can effectively impart knowledge about environmental management to the pupils. This may result in behaviour change among the students about the way they view the environment and these pupils may also pass the knowledge to their parents as well.

1.5 Delimitations of the study

The study was carried out in Mashonaland West Province in Chegutu District in Zimbabwe. The study was a case study of Mhondoro-Mubaira Cluster. This study also involved four schools in Mubaira Cluster. The study covered challenges being faced by the schools in implementing environmental education.

1.6 Limitations of the study

The research project was constrained by finances. The research involved a number of schools which were located far away from each other. It was expensive for the researcher to move from one school to another. Furthermore, time was also another limiting factor. The researcher was a full time teacher. It was difficult for her to leave her daily duties to visit other schools. However, the researcher designed means to overcome these limitations so that the research could be successful.

1.7 Definition of terms

Environmental education

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations and commitments to make informed decisions and take responsible action (UNESCO, Tbilisi Declaration, 1978).

Stapp (1997) defines environmental education as a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems and has the attitudes, motivations, knowledge, commitment and skills to work individually and collectively towards solutions of current problems and the prevention of new ones.

It is aimed at producing a citizen that is knowledgeable concerning the biophysical environment and its associated problems, awareness of how to help solve these problems, and motivated to work towards their solution.

Environmental education focuses on:

- Engaging with citizens of all demographics to:
 - Think critically, ethically and creatively when evaluating environmental issues
 - Make educated judgements about those environmental issues
 - Develop skills and a commitment to act independently and collectively to sustain and enhance the environment, and
 - To enhance their appreciation of the environment, resulting in positive environmental behavioural change (Bamberg and Moeser, 2007).

Therefore environmental education is a process that allows individuals to explore environmental issues, engage in problem solving and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

Implementation

According to oxford dictionary (2015), implementation is a process of putting a decision or plan into effect. In this case it is a process of putting environmental education into effect, especially in Zimbabwe`s secondary schools.

1.8 Assumptions to the study

This research project was grounded on the following assumptions:

1. There are challenges that are hindering successful implementation of environmental education in secondary schools.
2. Time would be made available for the researcher to go to different schools to find out the challenges that are being faced in the implementation of environmental education.

3. All respondents would provide honest answers during the interviews and in answering questionnaires.
4. Resources needed by the researcher in conducting the research would be made available by the school.

1.9 Summary

The foundation of this research has been laid down in this chapter after looking at the statement of the problem and background to the study. Also issues concerning the purpose of the study and the research questions were articulated. Furthermore, the significance of the study and definitions of terms have been looked at in this chapter.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter explores findings by scholars who studied environmental education. The literature reviews the role of environmental education in promoting sustainable development in the world, particularly in Zimbabwe. Literature provides a basis on how environmental education can be implemented in Zimbabwe's schools in an effort to curb environmental problems.

2.1 History of environmental education

According to Bartosh (2003), many authors name the 1960s as the decade when environmental education started to develop in response to the world's growing awareness about environmental problems. He went on to say that others believe that environmental education grew from movements that existed from the beginning of last century such as nature study, conservation and outdoor education (NACD 1998).

According to UNESCO and Tbilisi Declaration (1978) environmental education enhances critical thinking, problem-solving and effective decision-making skills and teaches individuals to weigh various sides of an environmental issue to make informed and responsible decision. Environmental education does not advocate a particular viewpoint or cause of action. Environmental education, sustainable development and sustainable living are concepts that have been socially constructed in an effort to come up with a common understanding of the terms that will lead to a joint effort in dealing with the environmental crisis.

The concept Environmental Education has also evolved over time as the meaning of the term 'environment' has changed. Recently it has also been viewed as a social construct. This means that its meaning is within particular contexts and it changes from time to time. Lupele (2002) observes that one of the earliest definitions of the term is the IUCN definition of 1971, which reads, "Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings".

2.1.1 The Tbilisi Conference 1977

The United Nations convened a conference in Tbilisi, Georgia from 14 to 26 October 1977 with the focus on environmental education. This conference recognised that education made a "crucial contribution" in enabling people to manage the earth and could put forward many approaches for understanding pressing problems, which populations face (UNESCO, 1980:p1). The final report of the Tbilisi Conference further recognise that environmental education should be incorporated into programmes intended for all learners, whatever their age and should stress the social role of educational institutions and the establishment of a new relationship (UNESCO, 1980:p3). An important outcome of the Tbilisi conference was that environmental education should make individuals and communities understand the nature of the natural and built environment. The report further explains that the understanding of the environment will be achieved through interaction of biological, physical, social, economic and cultural aspects. This understanding created a basis to this study, where the focus is on effectiveness of environmental education in addressing environmental degradation issues through public education, awareness and training as well as public social service provision.

In the Zimbabwean context, environmental education includes the varied learning processes that provide opportunities for people to learn knowledge, skills, and attitudes that enable them to act within their community in an environmentally responsible way (Shava, 2003).

These definitions bring in the idea of process. The term 'process', entails an unending or ongoing series of activities. Environmental Education processes are thus those activities or interactions in which educators involve and engage learners, which provide opportunities for learners to find and share environmental information. The learner is involved in the process of knowledge creation and takes responsibility in doing something about the knew-found knowledge. In this case, Environmental Education is seen as a response to risks, issues and problems arising from the biophysical, social, economic and political components of the environment. Environmental learning processes are centred on an issue or a problem, which is identified. The educator then provides opportunities for learners to:

- Explore the environment, possibly through field trips or environmental audits;
- Find and share information for instance through libraries and the Internet;
- Report on the information and actions suggested concerning the information through discussions;
- Take action through project work in their work places.

Active learning in environmental education becomes collaborative teamwork, which entails dialogue. This dialogue is both intra-subjective and inter-subjective. That is, a debate takes place within the individual as he/she interacts with the former and latter knowledge to form a new understanding. Inter-subjective dialogue entails debate between and among individuals in an effort to co-create understanding and meaning of reality. Dialogue also incorporates

reflexivity. Reflexivity brings in the notion of critically thinking so as to remove narrow mindedness and social absolutes. The dialogue is dynamic and is an on-going process of meaning making that is never ending.

Active learning involves talking (dialogue), touching (encounter) and thinking (reflection). This is shown in the diagram below as depicted by O'Donoghue (1998).

Dialogue, encounter, reflection model

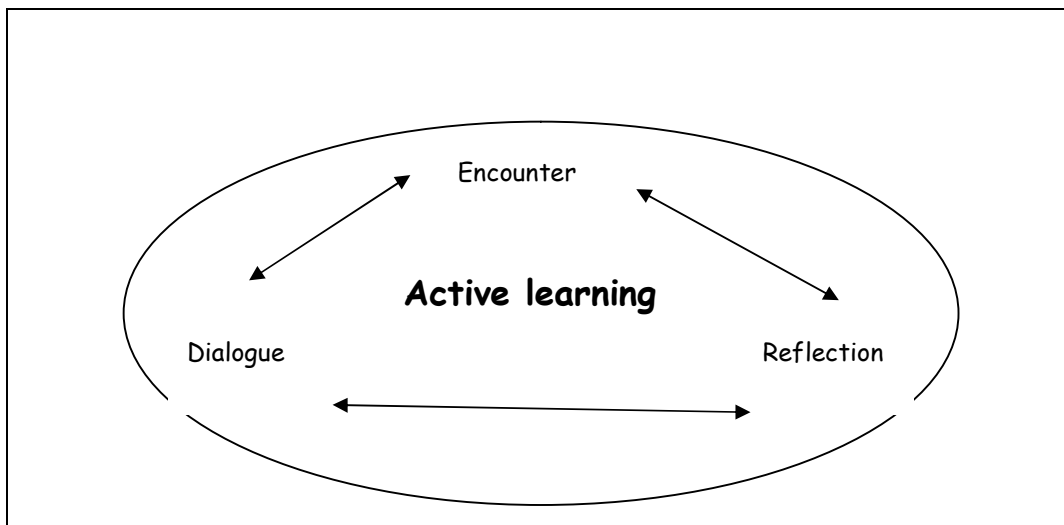


Fig i Dialogue, encounter, reflection model

Adopted from O'Donoghue (1998:p218)

This broader understanding of the term environmental education should not be taken as a given or final but as evolving from the past to give meaning to the present and pointing to the future. The importance of environmental education was endorsed at the 1977 (IEEP) conference in Tbilisi. Since then, environmental education has been adopted as a life-long process that builds on the capacity of learners to work individually as well as corporately to understand and act on environmental issues. In Zimbabwe the national goal of Environmental Education according to the National Environmental Policy (2003) is to make sustainable development a national priority, to take a pro-active role in environmental issues and to

respond to environmental challenges facing Zimbabwe at the personal, local, national, regional and global levels through education and communication processes.

2.2 The main components of environmental education

Studies by Annon (2004) confirmed that environmental education is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems and has the attitude, motivation, knowledge, commitment and skills to work individually and collectively towards solutions of current problems and prevention of new ones.

The earth summit, Agenda 21, incorporates a full chapter (chapter, 36) on education, training and public awareness. This carries forward the message of the Brunt land commission that education can give people the environmental and ethical awareness, values and attitudes, skills and behaviour.

Awareness is a component of environmental education that helps individuals and social groups to acquire sensitivity to the environment and its allied problems. The knowledge is another component that seeks to help individuals and social groups to gain a variety of experiences with the total environment and to acquire basic understanding of the environment, its associated problems and humanity's critical responsible presence and role in it. Grey (2003) also noted that attitude helps people to acquire social values, strong feelings and concern for the environment and the motivation for effectively participating in its protection and improvement. The skills to help individuals and social groups to attain the relevant skills for working towards the solutions of environmental problems and to foster a dialogue between different groups can be facilitated by environmental education.

Finally, part of the education process is aimed at achieving the role of integrated participation that help individuals and social groups to develop a sense of responsibility and urgency

regarding environmental problems so as to endure appropriate action to help solve these problems and avoid future environmental challenges (City of Cape Town, 2002).

2.2.1 Agenda 21 and Environmental education and Training

The Stockholm conference focused on the close link between humans and the environment, and emphasized the need to protect and improve the environment for the present and future generations (Lotz, 2004). Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their utmost potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. While basic education provides the basis for environmental and developmental education, the latter needs to be incorporated as an essential part of learning.

According to the Economic Commission for Africa (2004), both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development education for effective public participation in decision-making. To be effective in environment and development, education should deal with the dynamics of both the physical, biological and socio-economic environment as well as human development, and should be integrated in all disciplines and employ formal and non-formal methods as effective means of communication.

2.3 Methods and techniques of teaching environmental education

Environmental education has been defined and redefined over the last twenty-five years. Definitional issues are inherent in a field this broad and encompassing. It is generally agreed that environmental education is a process that creates awareness and understanding of the relationship between humans and their many environments, that is, natural, man-made, cultural and technological. Environmental education is concerned with knowledge, values and attitudes and has responsible environmental behaviour. From this movement, a different emphasis began to emerge, one of awareness of human complicity in environmental decline and the involvement of public values that stressed the quality of the human experience and hence of the human environment (NEEAC, 1996).

According to Grunewald (2004) in trying to educate people about environmental challenges, it is necessary to adopt non formal education especially for the adults. This will however, include activities offered by organizations other than schools; such organizations include extension services or women's organizations. On the same note, David (2009) also highlighted that informal or intervention type of education is also necessary especially for rural communities. This type of education is credited on the basis that it is not delivered through organized groups such as radio, television programmes or community mobilization campaigns but it is done using project that will motivate people to learn. However this method has been noted to be effective on adults. Environmental education is also used broadly to include all efforts used to educate the public and other audiences, including print material like pamphlets, fliers etc. related discipline also include outdoor education, community service projects, field trips and experiential education.

Environmental Management Agency (EMA) (2008), noted that it is crucial to include awareness campaigns, environmental projects like water harvesting, tree nurseries, nutrition

gardens and gully reclamation programmes in local communities in order to get the attention from farmers and other members of the community. This has proved to be an important measure to effectively educate the community members about environmental issues especially the adults.

2.4 Environmental education and its relevance

In order to respond to global environmental crisis, environmental education is a very important tool. Environmental issues and concerns are rapidly increasing globally. According to UNESCO (1980) environmental education should not respond to a momentary concern but should be an essential component of the effort taken by individual countries to give greater social effectiveness to education and to make it a factor in national development. The report goes on to urge countries that this effort can only be attained fully if the means required to develop environmental education are explicitly provided for in educational policies and general planning. This means that environmental education should become an essential and permanent component of the education process.

UNESCO (1980) points out that the media plays a greater role in creating public awareness of environmental problems. However, however media has its limitations. According to UNESCO (1980), the media mainly places emphasis on the superficial and anecdotal aspects of the questions and mainly informs those who are already informed.

According to UNESCO (1980) environmental education is an answer to our environmental problems. However, it needs every individual to fully participate and not just mere awareness by the people. People need to be given a chance to ask questions and to be given further clarification on environmental matters that they may understand. Hence Zimbabwe needs an organised system through which the values of environmental education can be imparted in

people and allow them to seek clarification to enable them to adopt a new approach and acquire new knowledge (UNESCO, 1980).

As observed by Nordstrom (2008) and UNESCO (1978), environmental education helps individuals to become more knowledgeable about their environmental behaviour and skills so that they can improve the quality of the environment.

Munowenyu (1999) says that environmental education is a broad term which covers all aspects of education whose aims are to develop in students a greater awareness of the total environment and caring attitude about the environment. The International Union for the Conservation of Nature and Natural Resources (IUCN) in Palmer and Neal (1994) say environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self formulation of code of behaviour about issues concerning environmental quality.

Therefore environmental education is aimed at imparting environmentally related education to individuals and change is expected to be seen in these individuals as appreciation.

In order to fully comprehend environmental education, one has to first understand what the environment is. Chenje, Sola and Paleczny (1998) define environment as components of the earth, including air, land and water, all layers of the atmosphere, organic and inorganic matter and living organisms.

According to O'Donoughe and Russo (2004) environment is the totality of all things that surround men, which can be classified into social, economic and political aspects. This means that the term environment encompasses all living and non-living organisms that surround men, as well as the natural and manmade features.

2.4.1 Aspects of the environment

Interacting dimensions of the environment.

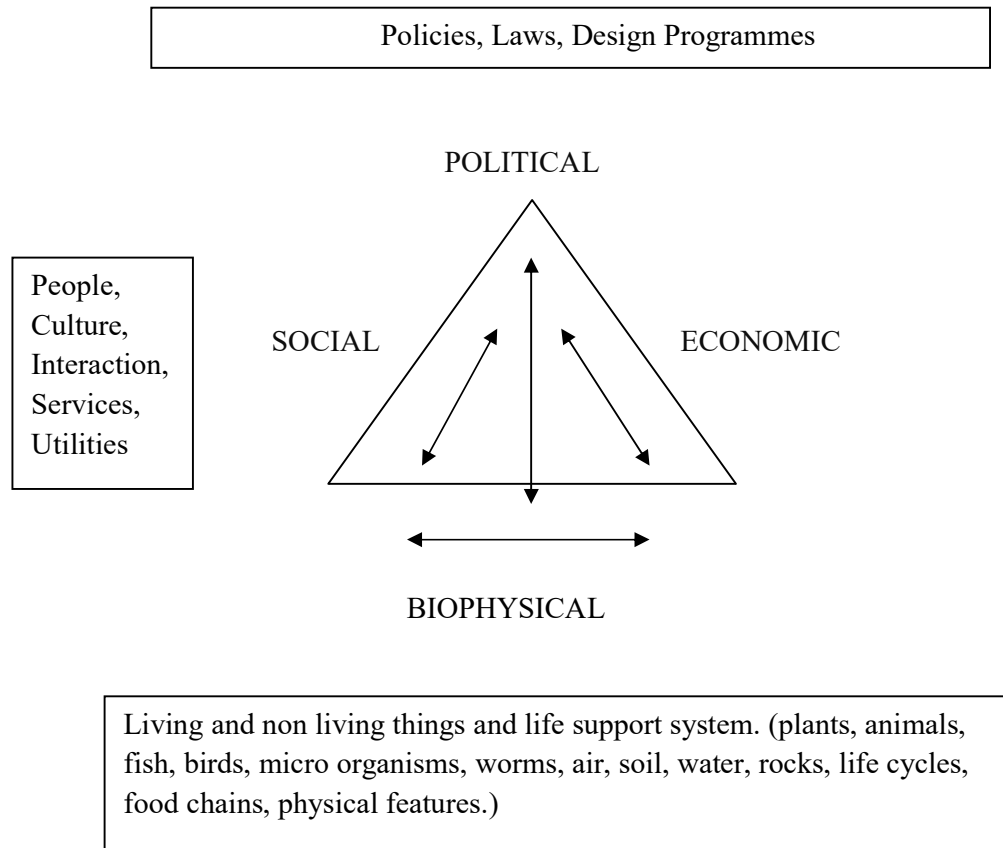


Fig iiInteracting dimensions of the environment.

Adapted from O`Donoghue and Russo (2004:p337)

The diagram shows the interrelationship of the different dimensions of the environment. The biophysical dimension includes living and non-living things and the natural systems of the environment. It is the sustaining base of life support systems and also the base for the economic, social and political dimensions. The social dimension refers to people living together as part of the environment. People have a capital of established but changing cultural practices, social services and social systems that shape and sustain the way they live

together. The economic dimension is the system within which there are different production sectors, and jobs exist to enable individuals to get money to pay for the resources and services which they need. Economic activities have an impact on the environment, and in turn the environment can affect economic activities. For example, economic growth may mean environmental degradation and resource depletion, which in turn can retard economic development. The political dimension refers to the condition that enables us to contribute to and influence the policies and decisions that shape access to resources, the economy and how people live together (O'Donoghue & Russo, 2004).

In order to sustain the environment, people have to develop knowledge, skills and positive attitudes on how to interact with the environment in a sustainable manner. It is important therefore for children to know the environment in its totality so that they can value it, because one cannot value something that one does not know. Knowledge about the environment and skills on how to live in the environment sustainably can be acquired through education which is referred to as environmental education. Through environmental education learners will be able to know their environment just as the way they know reading, writing and arithmetic which are referred to as the 3Rs. A lot of effort is made to help learners know the 3Rs, so in a similar manner we should help them to know their environment and how to relate to it.

Scholars of the environment like Fien (1993), Gough (1992), Tilbury (1995), Palmer (1998) and Palmer and Neal (1994) have suggested that, if environmental education is to be accepted as meaningful education, it needs to include three dimensions, which are education about, in or through and for the environment. This classification of environmental education was Lucas' (1979) attempt to categorize the different meanings which have been given to the term environmental education. This implies that environmental education has to assume the role of helping the individual develop knowledge about his/her environment, which he/she can

get through interacting with the environment, and finally he/she can use the knowledge and skills to conserve or take care of the environment.

2.4.2 Effectiveness of environmental education

UNEP's work in environmental education and training has contributed to general awareness about the environment and fostered environmental education in States around the world. The environmental education and training programme has developed environmental education guidelines and strategies as well as educational materials, curriculum prototypes, modules, posters and audiovisual aids and promoted their local adaptation. Lotz (2000) trained key educational personnel to serve as a multiplier effect for fostering the development of environmental education.

2.4.3 Incorporating environmental education into the curriculum

UNESCO (1980) observed that one major challenge in the implementation of environmental education is that there is no universal model for incorporating environmental education in the curriculum. A universal model on implementing environmental education is needed, as it can be used as a guide in countries with different socio-economic factors. Therefore each country can establish the goals of environmental education so as to create suitable strategies to meet the needs for a particular country. The strategies for the integration of environmental education into formal education should consider the various components of the educational process like the objectives, content, methods, teaching, materials, training personnel, research and evaluative activities (UNESCO, 1980).

According to the above quotation, there is need for teaching materials and training of personnel for the successful implementation of environmental education. Therefore schools have to secure teaching resources for environmental education so that its implementation can be successful.

Another important factor in the implementation of environmental education is that there must be coordination among different stakeholders that are responsible for its implementation. This is supported by UNESCO (1980:p38) which states;

“.....if the various measures relating to environmental education are to be better interconnected and more effective machinery for coordination between institutions involved in the framing and implementation of environmental policies, in which education can and does play an important part, must be established or strengthened.”

If environmental education is incorporated into the school curriculum, students will learn about the environment, develop skills to solve environmental issues, acquire attitudes of care and concern for the environment. This will help them to adopt behaviours and practices which protects the environment. Eventually they will be able to sustainably manage the environment. Therefore, it is important for environmental education to be incorporated into the school curriculum.

2.5 Barriers perceived by teachers in the teaching of environmental education

Environmental education in many countries, for example in Germany, is integrated into different subjects across the curriculum (Böhn, 1997). But in practice, teachers integrate it mostly into biology and geography (Pulkkinen,2006), because these subjects have content which is mostly related to the environment. The differences between what theorists refer to as environmental education and what actually takes place in schools is a situation which is referred to as the “rhetoric-reality gap” and has been widely discussed (Grace & Sharp,2000; Lee, 1993; Palmer, 1998; Walker, 1997; Wolff, 2006).

While integration increases the opportunity for action, studies on the teaching of environmental education have shown that the implementation of environmental education in schools makes teachers encounter various barriers. The notion of barriers here refers to the

things which create problems for teachers, making them unable to teach environmental education as planned in the curriculum. For example, it was found that the barriers which teachers face in the teaching of environmental education are lack of time, funds, teaching and learning materials and knowledge (Pulkkinen, 2006).

In addition, the kind of barriers perceived by teachers in secondary schools in teaching environmental education are lack of knowledge, lack of lesson time, lack of teaching and learning materials and the issue of the safety of learners when the teacher wants to take them out to provide them with field experience, especially when there are many children in the class (Chi-chung Ko & Chi-kin Lee, 2003). These barriers seem to be common among teachers in different parts of the world. Various studies have identified barriers in the implementation of environmental education in schools as a result of lack of time, lack of resources, lack of school support and lack of knowledge and motivation among teachers (Ballantyne, 1999; Lee, 2000; Tomlin & Froud, 1994).

Similar barriers were reported in Tanzania in a study by Lindhe (1999), where teachers revealed that in teaching environmental education they face barriers like large class size, which is an obstacle in using active teaching methods. Other barriers included lack of teaching and learning materials, and lack of environmental knowledge on the part of the teacher. All these barriers can be said to be based on the teachers' own practical theories of education which are believed to shape their pedagogical decision-making.

These theories include what the teachers believe about schooling, knowledge, teaching students and learning (Stevenson, 2007). Also, the low levels of implementation are accounted for by lack of adequate pre-service and in-service teacher training in environmental education (Cutter-Mackenzie & Smith, 2001; Fien & Cocoran, 1996; Tilbury, 1992; UNESCO/UNEP, 1990). This results in lack of competence on the part of the teacher.

As a result, environmental education has not been practiced widely in schools (Dillon & Teamey, 2002; Gough, 1997; Hart, 1993) because it is complex and demanding, intellectually and emotionally. This is due to the fact that the goals of environmental education according to international policies and the existing purposes and structures and practices of schooling do not meet the needs of the teachers. The role of the school is social reproduction, where the dominant curriculum and teaching practices are those of transmitting compartmentalised knowledge. Therefore, the conditions needed to support environmental education are rarely found in schools (Stevenson, 2007).

Another barrier in the implementation of environmental education is globalization (Stevenson, 2007). With the coming of globalization, many governments have reoriented education to focus on the preparation of workers to compete in the new global knowledge-based economy. This has resulted in curriculum centralization, with more emphasis on subjects like mathematics, science and technology, and also reliance on examinations to measure student performance. As a consequence, subjects which are outside the emphasised subjects are marginalised. Also with globalisation, the purpose of schooling and processes of teaching and learning are changed to fit the new focus. Therefore, the aim of environmental education as stipulated in policy statements will not be realised under such conditions of schooling.

2.6 Summary

This chapter reviewed literature relating to challenges that are being faced by schools in implementing environmental education. It also looked at the concept of environmental education and how best it can be used to sustainably manage the environment.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discussed the research design that was used in the study. The chapter also focused on the population, the sample, sampling procedures, research instruments, data collection procedures and data analysis procedures. This chapter describes materials and methods which were used to collect data on environmental education awareness in secondary schools in Chegutu district, Mhondoro- Mubaira Cluster.

3.1 Research Design

Kerlinger in Bhattacharyya (2003) defines a research design as a plan, structure and strategy of investigation conceived so as to obtain answers to research questions. Pathmanathan in Marvasti (2004) asserts that a research design is a method to guide investigation in the process of collecting, analysing and interpreting observations. Therefore, a research design is the whole process involving choosing a sample, research instruments, data collection plan and procedures and data analysis procedure. These involved the plan, structure and strategy of investigation that was used in answering the research questions.

In this project, the researcher used the descriptive survey design. According to Chiromo (2009) descriptive survey is a method of research which describes (hence descriptive) what we see. Chiromo (2009:p29) goes on to say, “descriptive survey means describing what you are seeing over and beyond the horizon.” The descriptive survey design best gives a descriptive picture to the data obtained through observations, interviews and questionnaires. Data obtained from the interviews was purely descriptive. In the interviews and questionnaires, the teachers described the challenges they face in trying to implement environmental education. Therefore, the research design becomes a blue print for collecting, measuring and analysing data.

A case study was used as part of the research design. Gould (2001) states that case studies are methods of research that often rely on observation and document analysis. Goode and Halt cited by O'leary (2004:p116) says "a case study is a way of organising social data to preserve the unitary character of the social object being studied." In this research, four schools in Mhondoro-Mubaira Cluster were chosen as a case study where the researcher analysed the problems being faced in the implementation of environmental education. Thus the case study was a vital method to establish the problems in implementing environmental education as well as finding solutions to the problems.

A case study was useful in providing insight into a problem. In this project the case study provided answers to why environmental education is not being successfully implemented. A case study probes deeply and analyses interactions between factors that explain the present situation where teachers are failing to implement environmental education in schools. A case study was used because it delves deeper, thus allows an in-depth exploration, examining intricacies and attempts to be holistic. Therefore, the case study of Mhondoro-Mubaira Cluster explored deeper into the problems faced in implementing environmental education in secondary schools. Failure to implement environmental education will result in land degradation.

The case study also enabled the researcher to describe in detail the relationship between failure to implement environmental education and environmental degradation. The researcher carried an in-depth analysis of the challenges. Questionnaires and interviews were administered to the pupils and teachers. The questions were related to the challenges that are faced in implementing environmental education and they were commenting and giving reasons for the unsuccessful implementation of environmental education. Ways of improving environmental education were suggested.

3.2 Population

According to Chiromo (2009:p16) “population refers to all the individual units of events that will be considered in a research project.” Gould (2001) defines a population as any group of individuals that has one or more characteristics in common that are of interest to the researcher. In other words, a population refers to all members of the group the researcher is interested in. In this case, the population comprised offourty pupils and teachers from the four schools in the Mhondoro-Mubaira Cluster.

3.2.1 Sample

Chiromo (2009:p16) defines a sample as, “a smaller group or subset of the population selected from the population.” Gould (2001) says a sample is a group of subjects chosen from a large population with the aim of collecting information of the population as a whole. In this case, the researcher worked with ten pupils from each of the four schools selected to make a total of forty pupils. Three teachers were also selected from each of the schools to make a total of twelve teachers who had knowledge about environmental issues.

In selecting pupils and teachers to participate in this research the researcher used the purposive sampling technique. Cohen, Manion and Marrison (2011:p156) points out that, “ in purposive sampling, often but by no means exclusively a feature of quantitative 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.” Chiromo (2009:p18) also says that “purposive samplinginvolves researchers handpicking the cases to be included in the sample.” This sampling technique does not allow other members of the entire population to give their opinion on the subject concerned but better results are likely to be obtained. This is because the researcher got information from informants purported to be

rich in the much needed information. Since everyone was not included, the smaller numbers of the sample were used to make generalisations about the entire population.

3.3 Research instruments

Research instruments are methods used for data collection. In this research, questionnaires, interviews and observations were used to collect data. The researcher used these instruments because they complement each other and can triangulate during data analysis making the data collected from the field valid.

3.3.1 Questionnaires

According to Cohen, Manion and Morrison (2011) a questionnaire is a set of carefully constructed questions designed to provide systematic information which can be closed or open ended questions. Closed questions are aimed at guiding respondents, making it easier to answer. In this respect, it became easy to analyse and interpret responses as they fell in a limited or confined area. Open ended questions allowed respondents to explain themselves fully as they did not confine respondents to a given set of possible answers. The respondents answered a series of questions by filling in their responses. Questionnaires were administered to both teachers and pupils. The researcher found the questionnaire method more appealing and crucial in investigating challenges faced by secondary schools in implementing environmental education because it saves time especially in areas which are not accessible. The respondents answered questions without the physical influence of the researcher. However, questionnaires tend to leave room for explanations to respondents especially on questions they may not understand. In such cases interviews were used.

Cohen, Manion and Morrison (2011) say that the disadvantages of questionnaires are that the researcher will not be there to address any queries or problems that respondents may have and they omit items or give up rather than to try to contact the researcher. They may also

wrongly interpret and consequently answer questions inaccurately. Problems usually arise when respondents answer questions in a way they like a situation to be, rather than the actual situation on the ground. To mitigate this, the researcher encouraged the participants to give their honest opinion. To cover up for the weaknesses of the questionnaires the researcher used interviews to clarify issues that were not clear on questionnaires.

3.3.2 Interviews

According to O'leary (2004) an interview is a method of data collection that involves the researcher asking respondents basically open ended questions. The interviews were separately administered to the teachers and the pupils. Teachers were chosen because they are the ones who often face challenges in teaching environmental education. The other reason why they were chosen is that they were in a position to provide the information the researcher was looking for. The interview further explored reasons why environmental education is not being implemented successfully in secondary schools. Open ended questions were used because they allowed respondents to clearly explain their points without restrictions. They also allowed the researcher to elicit more information pertaining to challenges that are being faced by secondary schools in implementing environmental education. Chiromo (2009) adds that an interview involves the collection of data through direct verbal interaction between the respondent and the researcher. For this research the interview was used because it brings to the fold normal channels of communication between the researcher and the interviewee of which questionnaires and closed questions cannot do. Furthermore, interviews are best methods that can be used to obtain qualitative information from a limited number of respondents. For this case, it allowed qualitative information to be obtained from both teachers and pupils. The interviewees' comments, gestures voice tone and reactions helped in the structuring of questions setting of the interview tone as well as the general flow of the interview.

The interview was unstructured. It was unstructured, so that it became conversational. It allowed the researcher to adjust questions as the research unfolded. It gave room for the researcher to explain the questions and even probe for more information from the interviewee, which could not be done by questionnaires. Valuable information on challenges of implementing environmental education could be obtained from the interviews.

3.3.3 Observation

According to Chiromo (2009) observation seeks to ascertain what people think and do by watching them in action as they express themselves in various situations and activities. Cohen, Manion and Morrison say that observation is more than just looking. It is looking systematically at people, events, behaviours, settings, artefacts and routines. In this way the researcher could not rely on second hand accounts but looked directly at what was taking place.

Observation was used to verify findings from interviews. Observation was necessary especially when dealing with sensitive issues, where pupils seemed to protect their teachers when responding to questionnaires and interviews. Observation consolidated or disputed what respondents had said in interviews or questionnaires.

There are two types of observation; the overt observation and the covert observation. Cohen, Manion and Morrison (2011:p471) state that “in overt research the subjects know that they are being observed, in covert research they do not.” In this research project, the researcher used the covert method of observation to gather data. Covert was used to increase the validity since people observed could change their behaviour once they knew that they are under observation. According to Cohen, Manion and Morrison (2011:p471) “covert research can also be justified on the grounds that it overcomes problems of reactivity, in particular if the researcher believes that individuals will change their natural behaviour if they know that they

were being observed.” In this case, the researcher adopted the covert research as it eliminated influencing participants’ behaviour. This method avoided a situation whereby people changed their behaviour when they realised that they were being observed.

Chiromo (2009) explains that covert observation helps the researcher to correct or redress some of the grey areas which could not have been addressed during questionnaires or interviews. This method, therefore, helped the researcher to see what happens on the actual ground. For example, at a school where environmental education is being implemented there was evidence of afforestation, litter picking or gully filling. If there was no evidence of environmental education, the researcher tried to find out the reasons behind and proposed some solutions to the problems.

3.4 Ethical considerations

In this research, the researcher was guided by codes of conduct known as ethics. Ethics refer to a standard and behaviour expected of a group as described in the group’s code of professional conduct. Pera and Van Tander (1996) cited in Chiromo (2009:p10).

In carrying out this research the researcher, treated humans as subjects and not objects, hence ethical considerations such as informed consent, protection from harm, confidentiality and privacy were observed.

3.4.1 Informed consent

Chiromo (2009) suggests that subjects must be informed about the research before they decide to take part in the research. They must be informed about the purpose of the research and the procedures to be followed during the research. During the data collection phase, before administering questionnaires and interviews, the researcher made the participants fully aware of the procedures. The researcher also worked hand in hand with the school heads and

informed them about the purpose of the research and also explained to the teachers responsible.

However, according to Chiromo (2009) subjects are completely free to decline or withdraw their consent and discontinue participation in the study anytime. Participants were not coerced to participate. In order to make sure that no one was forced to participate, the researcher gave them a time frame of a week for participants to make informed decisions and this helped them not to feel coerced by school authorities.

3.4.2 Confidentiality and Anonymity

Chiromo (2009) says confidentiality implies that the respondents or subjects should be assured that their responses would be treated in the strictest of confidence. In regards to interviews and questionnaires the researcher protected participants through the provision that they did not write their names in questionnaires so that they remained anonymous.

Cohen, Manion and Morrison (2011) say that the essence of anonymity is that information provided by participants should in no way reveal their identity. In this research participants were assured that anonymity would be observed by not disclosing their names in both questionnaires and interviews. Therefore anonymity implied that participants did not mention their names on questionnaires and during interviews.

3.4.3 Privacy

According to Chiromo (2009) human subjects have the right to privacy, the right to choose the extent to which and manner in which they will share or withhold information about their behaviour attitudes or opinions. In other words no pressure was exerted on the respondents for them to give information. No information was gathered with respondents under duress. No one was forced to share information if they were not willing to do so.

3.4.4 Protection from harm

According to Bodgam and Biklen (2007) subjects must be protected from physical, emotional and spiritual harm or from any potential harm of any nature. They add that subjects should not be exposed to risks that are greater than gains they might derive. Therefore, in this research participants were protected from harm or danger if ever there were dangers inherent in participating in the research. The subjects were protected so that the information collected would not embarrass or harm them. The researcher will make sure that specific information about individuals was not discussed with anyone as they could use it for personal gains.

3.5 Data collection procedures

To begin with, the researcher sought permission from the responsible authorities. The researcher used an introductory letter from the university to seek permission. In this research the responsible authorities comprised of the Ministry of Education head officers, provincial officers, district education officers and school heads. The researcher also conducted a pilot study to ascertain the reliability and validity of the instruments. The pilot study was carried out at the school where the researcher is practising. This helped the researcher to polish up the instruments and get them ready for use in the field.

The researcher personally distributed the questionnaires to teachers, school heads and pupils. The questionnaires were completed within four days. The researcher collected the questionnaire from responsible teachers. Arrangements for interview were communicated through school heads and responsible teachers as well as pupils on the day of questionnaire collection. The researcher designed an interview guide and carried out interviews in the respective schools. Group interviews were conducted to pupils because they were quicker than individual interviews. This saved time.

The interview guide comprised semi-structured questions. The interview responses were recorded on an interview schedule for analysis purposes. Direct quotations were also recorded. Interviews for the teachers were done separately during the weekends and at the teachers' homes where a relaxed atmosphere was provided. The teachers were free to air their views regarding environmental education and their responses helped to determine the challenges hindering environmental education.

The researcher also carried out some observations by visiting the schools chosen for the study. The researcher utilised sports time in schools. This provided a chance to carry out observations without anyone knowing her intentions. The responses from questionnaires, interviews and observations were compared to validate the data.

3.6 Data analysis procedures

Data analysis is a body of methods aimed at describing facts, detect patterns and develop some explanation and finally test the hypothesis. (Cohen, Manion and Morrison 2011) in this study data gathered was presented and analysed qualitatively. Issues raised during the research were analysed.

Information gathered using various methods was analysed by checking for areas of agreement and highlighting areas of disagreement. This was done to improve the validity of the data collected from each of the methods used.

Data collected from questionnaires, interviews and observations was analysed concurrently. Research questions formed a basis of analysis as well as issues which were raised by participants pertaining to environmental issues.

3.7Summary

Chapter three described the steps the researcher followed during the data collection process.

The chapter consists of the research design, research instruments, data collection plan and procedures. It also looked at the population, sampling procedures as well as data analysis procedures.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents results of research findings in the context of the research problem, research questions as well as research objectives. Data analysis and discussion is presented in this chapter.

4.1 Presentation and analysis of findings

The researcher gave twelve questionnaires to six male teachers and six female teachers. A total of forty students received questionnaires, thus twenty males and twenty females. This was done to make the findings gender balanced.

Four group interviews were carried out, each school having a group of ten participants. Out of the selected participants, five were boys and five were girls. The researcher also interviewed three teachers from each school. Geography, Science and Agriculture teachers were also interviewed since they are the ones who spearhead Environmental Education because raising awareness on environmental issues is part of their subjects.

The researcher also carried out observations in schools concerned. She was observing levels of land degradation, land pollution, mitigation measures to curb land degradation, water and land pollution, reforestation and afforestation measures and also measures of reclaiming gullies.

4.1.1 Research Question No1: (To what extent is environmental education being implemented in schools?)

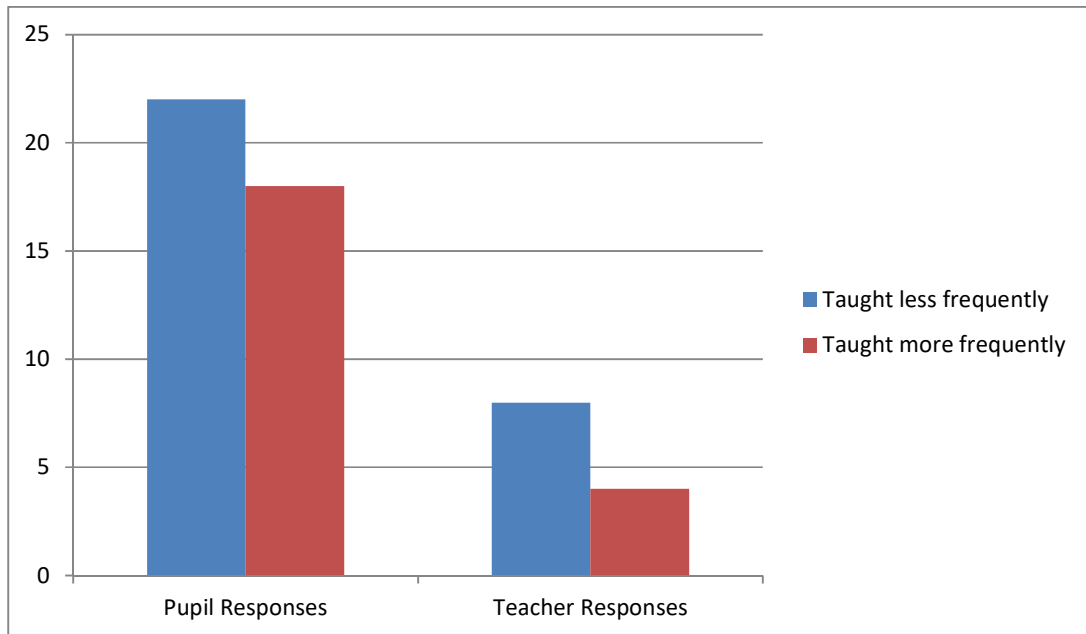


Fig iii: Shows extent of environmental education implementation in schools.

Out of forty students who responded, twenty two (55%) of them, proclaimed that they did not have any knowledge about environmental education. They added that their teachers taught about environmental issues less frequently. When asked one girl's response was:

I do not know much about the environment since we are not usually taught about it. The little time we get to learn about environmental conservation is when we are in geography lessons and the content will not entirely be about the environment.

They also strongly disagreed that schools were taking an active part in propagating environmental education. The students also highlighted that they were not having functional environmental clubs at their schools. When asked about environmental clubs, some students said:

At our school we do not have an environmental club.

We used to have an environmental club at our school but now it is no longer functional.

However, eighteen (45%) students said that environmental education was conducted more frequently at school. One student's response was:

We have a club at our school and we planted trees and filled some gullies around our school.

Out of the twelve teachers who responded, eight (66.6%) of them said that they are facing many challenges in trying to teach environmental education, as a result they are not frequently teaching students about the environment. One of the teachers said:

I am finding it very difficult to teach environmental education. I do not have the expertise and the resources to use, so sometimes I end up failing to conduct the lessons.

The other remaining four (33.3%) teachers said that they are teaching environmental education in their schools even though they are facing some challenges.

More so, the researcher observed deforestation, gullies, soil erosion, litter around school yards and water pollution. Evidence of functional environmental clubs was observed in two out of the four schools.

4.1.2 Research Question No 2: (What are the challenges being faced in implementing environmental education?)

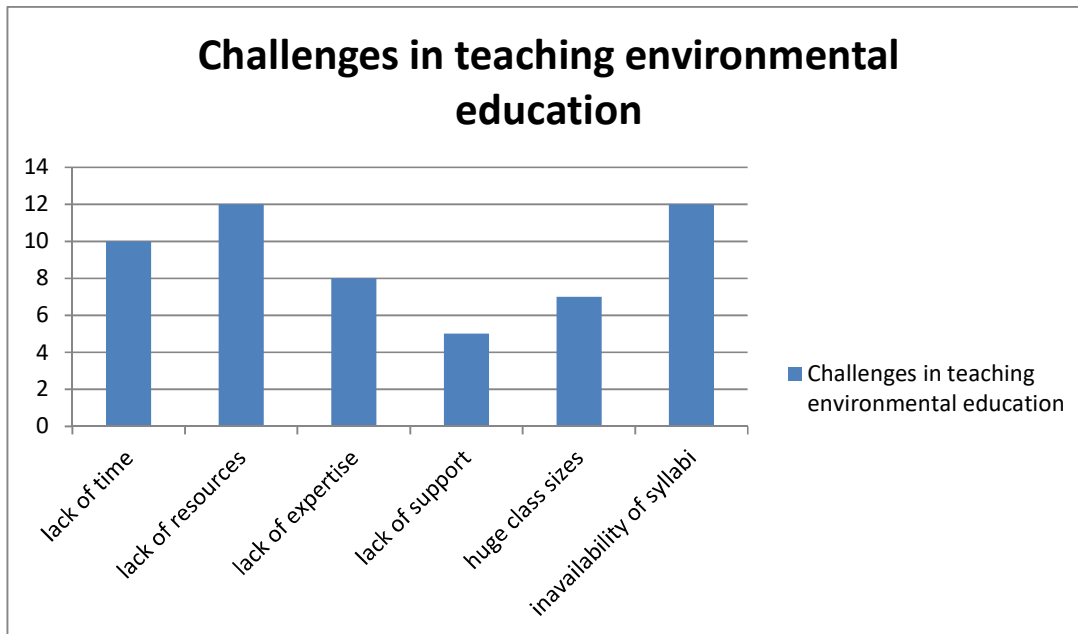


Fig iv shows challenges faced in implementing environmental education.

All the teachers proclaimed that they are facing challenges in implementing environmental education.

Amongst the respondents, ten (83.3%) teachers cited lack adequate time as their major challenge. For example one of the teachers` response was:

My challenge is that our teaching periods are only thirty five minutes and this period is too short for me to conduct field work. Before I organise and assign pupils with tasks, the period is already over and another teacher is already waiting for the next lesson to begin.

This shows that time allocated for the subject is not enough for a successful implementation. Environmental education involves learning by doing activities outside the classroom and

need more time. Some teachers also complained that the subject was not even on the school timetable.

All (100%) teachers pointed out that lack of teaching and learning resources are some of the challenges they are currently facing. Another teacher said:

We are facing a challenge of lack of teaching materials and funds to buy the materials. My whole class only has two textbooks to share and this is not enough. Sometimes I end up writing on the chalkboard. The school can not afford to buy tree seedlings or carrying out field trips.

Sometimes pupils bring tools from home but sometimes their parents do not allow them for fear that the tools may get lost. This makes teaching to be very difficult.

The above quotation shows that teachers are failing to successfully implement environmental education due to lack of funds and materials to use for teaching and reclamation purposes.

Eight (66.7%) teachers said they lacked knowledge about issues that concern the environment. For example, Mr M said:

I do not have the expertise to teach environmental education. I did not study the subject at college so it is difficult for me to include it when I am teaching.

This shows that some teachers are failing to teach environmental education because they do not have the knowledge.

Seven (58.3%) teachers also complained of overstretched teaching loads and large class sizes as this made it difficult for them to carry out field trips. For example one respondent said:

My timetable is overloaded and I do not have time to spearhead environmental clubs.

Another teacher said:

I teach more than 70 pupils in my class and it is difficult to control them when they go out. They become so noisy to the extent of not concentrating in the lesson.

The responses point out that teachers are finding it difficult to implement environmental education because since the subject requires a lot of outdoor activities, controlling the students becomes difficult and their safety may be compromised. As a result some teachers avoid it and they end up teaching theory only.

Five (41.7%) teachers cited lack of cooperation from fellow members of staff as a hindrance to successful implementation.

When asking for help some teachers say they do not know or say that they have no time. The school administration is also not making things easy for us, they always say that they have no money to purchase seedlings and other materials that are needed.

This makes the teaching of environmental education to be difficult because no one seems to be offering any support for it to carry on.

Twelve (100%) teachers pointed out that teaching guides (syllabi) were not available to provide guidance in the teaching of environmental education, this makes it difficult for them to implement environmental education.

4.1.3 Research Question No 3: (How can environmental education in schools be improved?)

Table 4.1 shows teacher`s suggestions on ways of improving environmental education in schools.

Suggested ways	No of teachers who gave the suggestion
Training	12
Provision of teaching and learning materials	10
Provision of teaching guidelines or syllabi	12
Environmental clubs	9
Cooperation	5
Environmental education to be an independent subject	8

All the teacher participants cited that training of teachers is necessary for environmental education to be successful. They said there is need for training of in the form of staff development programs and workshops to empower teachers with environmental knowledge.

For example another teacher said:

We need more seminars, workshops or staff development programs so that we know what we are expected to teach.

The teachers expressed the need for developing their knowledge, for example, one of the responses was:

Teachers can have pre-service training at colleges and when they are deployed to schools they can train those who are already in the service. This will help teachers to develop their knowledge.

Nine (75%) teachers suggested that environmental clubs could increase awareness to the pupils. Mr S said:

We need to have environmental clubs that are led by skilled resource teachers in schools. This will help students get time that is specifically meant for environmental education only. Club members will gain environmental knowledge and pass it on to others.

Five (41.7%) teachers also cited that teachers need to cooperate with each other in implementing environmental education. Sharing of ideas is very necessary because it would also transfer knowledge to those facing challenges. One of the respondents said:

As teachers we need to help each other in times of need. We can even practise team teaching when one of us feels that he or she can not explain certain concepts. This will mostly benefit the students. The school must set aside funds for environmental education so that implementation can be possible.

Seven (58.3%) teachers also suggested that inclusion of environmental education in the school timetable would solve the problem of lack of time thus, the need for it to be integrated into the school curriculum. Provision of teaching and learning materials is another way of improving environmental education which was suggested by ten (83.3%) teachers. One teacher's comment was:

The Ministry of Education must provide schools with teaching and learning materials. Teachers can also develop their own books instead of waiting for the school to provide textbooks.

All teacher respondents suggested that schools are supposed to provide the syllabi as well as textbooks or teachers could take the initiative to write small booklets for the pupils. Eight (66.7%) teachers suggested that teaching environmental education as an independent subject is another way of improving the implementation of environmental education.

4.1.4 Research Question No 4: (What are teachers’ perceptions in integrating environmental education into secondary education?)

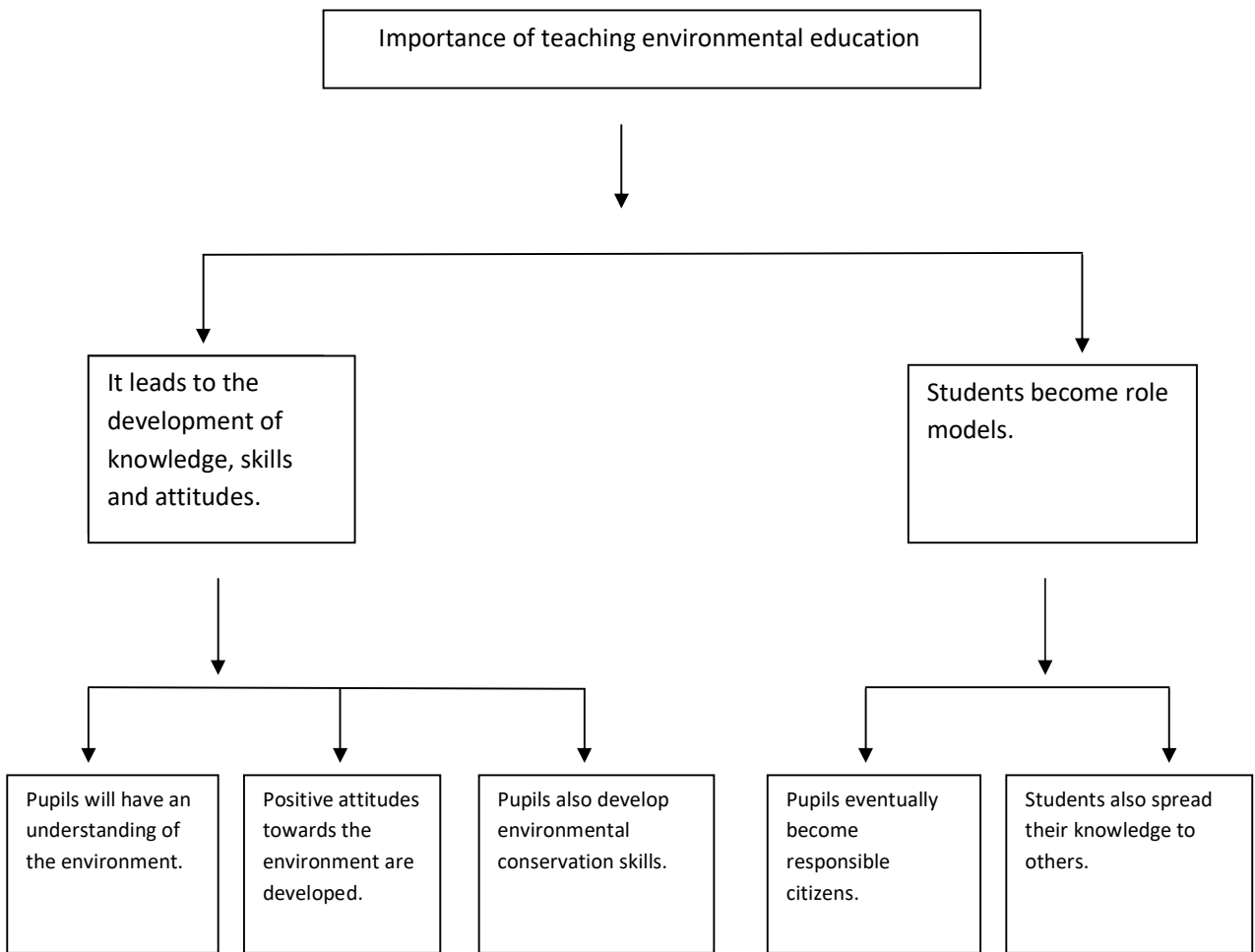


Fig v shows teachers’ perceptions on the importance of integrating environmental education in schools

All the respondents considered environmental education as important hence, the need to be taught in schools. From their responses, two categories were identified. These were role models and development of knowledge, skills and attitude. Five sub categories were also identified from the two categories as shown above. These were: understanding the environment, positive attitude, environmental conservation skills, dissemination of knowledge and responsible citizen.

The majority of the teachers think that teaching students about the environment would make them acquire environmental knowledge, develop skills in environmental management and eventually have a positive attitude towards the environment. For example, one teacher's response was:

It is important to teach students about the environment because it helps them to understand the environment. These children are going to be leaders of their families in the future and will engage in many income generating projects like farming. When they get equipped with environmental knowledge, they will develop positive attitudes and they will make decisions that do not destroy the environment.

A positive attitude may lead to an improvement in problem solving skills. As a result pupils may practice environmental conservation at individual and collective levels and eventually become responsible citizens. They also added that students may become role models and also disseminate their knowledge to others. This was expressed by one teacher who said:

Students who are educated will set good examples in their communities and others will follow their footsteps. They will take what they have been taught at school back home.

4.2 Discussion and interpretation of findings

4.2.1 Research Question No 1: (To what extent is environmental education being implemented in schools?)

Environmental degradation has been affecting many societies over the past years and environmental education was adopted as a way of solving environmental problems. The researcher therefore carried out a study to determine the extent to which environmental education is being implemented in Mhondoro-Mubaira Cluster.

The researcher found out that in Mhondoro-Mubaira Cluster, the teaching of environmental education is not being fully implemented. The researcher observed that out of the four selected schools, only two have fully functional environmental clubs. This means that in the other two schools pupils are not receiving enough knowledge about environmental management. One teacher's response was,

“I don't see any need for an environmental club since in Geography I teach about some aspects of the environment.”

This response shows that pupils are not receiving adequate information about the environment. Most of the times, geography, agriculture or science teachers will be rushing to finish their subject syllabi and end up neglecting to teach pupils about environmental management. In addition, a lesson has only thirty minutes and this makes it difficult for outdoor activities to be carried out. As a result pupils gain theoretical knowledge which they can not apply practically. Therefore, the students cannot contribute meaningfully to environmental conservation. Pajares (1996) in Mukoni (2013) noted that meaningful contribution by students can motivate them to apply their education and bring about personal behavioural changes as students develop a sense of self efficacy. This study reveals that very little is done by schools to develop this sense of self efficacy.

From observations and interviews the researcher established that pupils' attitude towards the environment do not prove that they had any knowledge about environmental education. Mr X of a certain school said:

"I am really concerned about pupils' attitude towards the environment because they are actually agents of soil erosion. They are creating pathways everywhere and they are not using designated pathways."

In addition, another teacher also said:

These pupils are always throwing litter all over the school yard.

These responses show that pupils are not receiving environmental education and that they are not aware of ways of conserving the environment. UNESCO and Tbilisi Declaration (1978) cited that environmental education enhances critical thinking, problem solving and effective decision making skills and teaches individuals to make informed and responsible decisions about the environment. Therefore, effective environmental education can make the students change their bad attitude toward the environment and start practising sustainable environmental management.

The researcher also observed that, land degradation in the form of deforestation, soil erosion, land and water pollution is common in Mhondoro-Mubaira Cluster. This shows that environmental education has not been effectively. Pupils have not changed their attitude towards the environment due to lack of knowledge. According to Grey (2003), environmental education should be there to change pupils' attitudes towards the environment and motivate them to effectively participate in its protection and improvement. This means that without education, pupils' attitude towards the environment will not change.

The researcher also established that very little is being done to sustain the environment. Activities such as land reclamation, afforestation and litter picking are very minimal among

schools in Mhondoro-Mubaira Cluster. This proves that environmental education is not being done to the maximum capacity in schools. According to EMA (2008) it is crucial to include environmental projects like water harvesting, tree nurseries and gully reclamation programmes to get the attention of the students. This measure can effectively educate students about environmental issues.

In conclusion, environmental education implementation is still minimal in Mhondoro-Mubaira. Pupils need to be taught about it so that they can improve their environmental management skills. This can only be possible pupils work together to spearhead environmental education.

The researcher recommended that all the schools in the class should have an environmental education club to educate the pupils about the environment. This would help pupils to acquire knowledge and skills of conservation like gully filling, litter picking and afforestation, and to show an appreciation of their environment.

4.2.2 Research Question No 2: (What are the main challenges being faced in implementing environmental education?)

During the research study, the researcher established that the implementation of environmental education in Mhondoro-Mubaira Cluster is not very effective. The researcher therefore gathered data on the challenges that are being faced by teachers and schools in implementing environmental education.

About eighty five percent of the respondents have challenges in implementing environmental education. Interviews and questionnaires revealed that most teachers failed to implement environmental education because time allocated for environmental education is not enough. Because of lack of time they could not marry theory with practice through activities such as field trips and excursions. Field trips could disrupt timetabled lessons.

Mr Z of a certain school clarified this when he said:

In my school environmental education is not timetabled. I only teach it as part of geography.

Lessons only have thirty minutes and this time is not enough to do outdoor activities.

Mr Ruva (not real name) of a certain school said:

I only teach about the environment in certain science topics.

This shows that in most schools in the Cluster there is no specific time set aside specifically for environmental education. It is only done as part of Geography and Science. These findings are in agreement with Pulkkinen (2006) who observed that teachers integrate environmental education mostly into Biology and Geography because these subjects have content which is mostly related to the environment. Pulkkinen (2006) also goes on to agree that lack of time is a barrier to the implementation of environmental education.

The researcher also found out that another challenge to the teaching of environmental education is lack of knowledge on the part of the teachers. This was clarified by Mr Z of a certain school when he said:

Our school lacks qualified environmental educationists.

The above finding concurs with Lindhe (1999) who also noted that lack of environmental knowledge on the part of the teacher was one of the barriers to the implementation of environmental education.

From my experience as a teacher I also realised that most teachers lack environmental knowledge, so it becomes difficult for them to teach students about environmental issues.

The researcher also noted that lack of teaching and learning resources is another challenge being faced by teachers. During an interview, one teacher said:

Lack of adequate resources to utilise in promoting the teaching and learning of environmental education is our challenge at this school. Sometimes I have to ask students to bring materials like shovels and hoes from home. However only a few students would bring the tools and some would say they were not granted permission by their parents. We are also facing a problem of inadequate funds to conduct workshops related to environmental education.

Chi-Chung Ko and Chi-Kin Lee (2003) agree that lack of teaching and learning materials and the issue of safety of learners when the teacher wants to take them out to provide them with field experience was a challenge.

As a teacher, I realised that most schools do not have the resources to use in the implementation of environmental education. Schools do not have the materials to use for activities like gully filling and parents do not cooperate. There are inadequate funds to buy seedlings for afforestation purposes. Some schools do not afford to purchase bins for litter disposal. As a result pupils end up throwing litter everywhere and this makes environmental management to be very difficult.

The researcher also realised that large class sizes was one of the challenges faced. This was clarified by one teacher who said:

I teach about sixty students per class, if I want to use active teaching methods like field work it becomes difficult to control the students and their safety is compromised.

The above observation is in agreement with Lindhe (1999) who observed that large class size was an obstacle in using active teaching methods. Chi- Chung Ko and Chi-Kin Lee (2003) adds that the use of safety of learners when the teacher wants to take them out to provide them with field experience, especially when there are many children in the class is a great challenge.

From my experience, controlling a huge class is very difficult. Most teachers struggle in dealing with large numbers of pupils. Usually it is very difficult to produce excellent results when a class has many students. This is why some teachers are failing to implement environmental education successfully.

Lack of support from other teachers is another challenge being faced by other teachers. Some teachers are not willing to share their knowledge with other teachers. The researcher also realised that the syllabi for environmental education were not available in schools, so teachers do not really know what they were expected to teach the students because they do not have a guide. To clarify this one teacher said:

When I ask for help from other teachers they say they are too busy or they do not know.

Such a response demotivates other teachers who are willing to teach environmental education. This is why implementation has not been effective.

In conclusion, it is because of the challenges stated above that environmental education implementation is failing in schools. Therefore, there is need for schools to deal with the problems so as to successfully implement environmental education.

I suggested that teachers should be trained through workshops or staff development programmes to empower teachers with the necessary environmental knowledge. Schools should source funds from donors to support environmental education. Making environmental education an independent subject would also help to improve environmental education.

4.2.3 Research Question No 3: (How can environmental education in schools be improved?)

Improving environmental education in schools was discovered to be necessary in spreading awareness to the pupils and the communities. Some teachers are failing to implement it because they are facing challenges. However, teachers gave various suggestions on how to improve environmental education.

Research findings revealed that to improve environmental education in the form of staff development programs and workshops.

To quote one teacher's response when asked what could be done to improve environmental education in schools, he said:

We need to conduct staff development programs or workshops whereby we invite an experienced speaker to come and share his or her knowledge with us.

Another one said:

Education is the best solution to environmental education implementation and we are in great need of it. Our colleagues who are not in the science and geography departments also need to be taught so that they can be involved in implementation. We also do not have adequate knowledge about environmental education.

The above findings are in agreement with Lots (2004) who says that education including formal education and public awareness are critical in promoting sustainable development and improving the capacity of the people to address environmental issues.

If the teachers and pupils are educated about environmental issues, they may change their attitude towards the environment. They may focus on improving their surroundings and they will also be in a better position to make informed decisions about the environment on matters

like pollution and deforestation. Therefore, education helps people to deal with environmental degradation in general.

The researcher also established that pre-service or in-service training is necessary to improve environmental education. It would empower all the teachers with the appropriate environmental knowledge.

One teacher said:

Training of personnel will help all teachers to gain knowledge about the environment. This will help them to pass on that knowledge to the pupils and this may lead to behaviour change. This means their attitude towards the environment may change.

Grey (2003) also observed that attitude helps to acquire social values, strong feelings and concern for the environment and the motivation for effectively participating in its protection and improvement.

From my teaching experience, I discovered that lack of adequate knowledge about a subject may result in the teacher failing to deliver a lesson. Most teachers lack environmental knowledge, which is why most schools were failing to implement environmental education.

The researcher also noted that use of environmental clubs could lead to the success of environmental education. Environmental clubs could be conducted during time set aside for co- curricular activities. This would solve the problem of lack of time and huge class sizes since a club would consist of few members who are manageable and time for co-curricular activities is longer and this would make fieldwork possible. The members of the club would also spread their knowledge about the environment to rest of the students.

One teacher's response was:

The school needs to establish an environmental club led by a skilled resource teacher. Our timetable already has space for clubs and it will be easy to add an environmental club to other already existing clubs. If environmental education becomes part of the clubs, its implementation will be possible.

Another response from a certain teacher was:

We need to have environmental projects like water harvesting, tree nurseries and gully reclamation programs at school. The environmental club will be responsible for the running of the programmes.

The above observation is in agreement with EMA (2008) which noted that it is crucial to include environmental projects in communities in order to get attention of other members. Therefore, introducing environmental clubs in schools would help to get the attention of many students who will be taught about environmental issues.

The researcher also found out that another way of improving environmental education is for schools to provide teaching and learning materials. The schools should fund environmental education programs or seek for help from donors.

One teacher said:

Schools must secure teaching and learning materials like textbooks and syllabi for the success of environmental education. As teachers we can also make our own materials and we can take the initiative to write our own textbooks for the pupils to read. In this way environmental education can be successful.

The availability of teaching and learning materials as well as funding would make the implementation of environmental education to be easier in schools since lack of resources was one of the major hindrances. Teachers with environmental knowledge really need to take

the initiative to write textbooks and avoid only depending on schools to provide every teaching or learning material.

UNESCO (1980) also concurs that for implementation to be successful various components of education like the objectives, content, methods, materials, training personnel, research and evaluative activities should be considered.

Therefore, it means that environmental education should be taught the way other subjects are taught in a school putting into consideration the objectives, methods and activities. All necessary resources must be provided so that it can be successful.

Research findings also established that if environmental education is incorporated into the school curriculum, students would get the opportunity to learn about the environment, acquire attitudes of care and concern for the environment and develop skills to solve environmental problems. If pupils manage to develop a positive attitude towards their environment, implementation would have been successful.

It is therefore necessary for schools to adopt the measures that were suggested by the teachers so that the implementation of environmental education could improve in school. Students are future leaders, if they acquire knowledge it means they will be able to pass on the knowledge to the future generation. This means that the environment will be sustainably managed to cater for many generation to come.

4.2.4 Research Question No 4: (What are teachers' perceptions on integrating environmental education into secondary education?)

Integrating environmental education into the secondary education system is one way of empowering the young generation with environmental knowledge. Teachers were questioned and interviewed to find out about their views on integration.

Research findings revealed that most teachers support the idea of integrating environmental education into secondary education. One teacher said:

Environmental education should become an important and permanent component of the education system. This would help all the students to develop a positive attitude towards their environment.

These results are in agreement with UNESCO (1980) which says that Zimbabwe needs an organised system through which values of environmental education can be imparted in people to enable them to adopt a new approach and acquire new knowledge

This shows that integrating environmental education into secondary education would help to give a widespread environmental education which would cover every school in the country. It means that pupils will become more knowledgeable about their environment and their skills also help them to improve the quality of the environment.

Teacher M of another school's response was:

Integrating environmental education into secondary education would help to equip people with knowledge on ways of keeping the environment safe so that it can sustain even generations to come.

It is one of the aims of environmental education to develop in students a greater awareness of the total environment and caring attitude towards their natural surroundings. This observation

agrees with UNESCO (1980) which noted that incorporating environmental education into the curriculum will help students to learn about the environment, develop skills to solve environmental issues and acquire attitudes of care and concern for the environment.

This shows that integrating environmental education into secondary education would make students change their perspective about the environment. They will develop love and care for it, leading to a successful implementation.

Response from another teacher was:

Incorporating environmental education into secondary education would provide students with problem solving skills and they will be able to finally put an end to problems like pollution, erosion and deforestation.

That means having environmental education as part of the school curriculum would help students to deal with problems of land degradation around their schools. Environmental education would equip students with environmental management skills.

From my experience I realised that education is the key to change. In schools which effectively implemented environmental education, I hardly saw gullies, litter or deforestation in surrounding areas. This proves that the pupils were using their knowledge to prevent land degradation. This led to the conclusion that education helped the pupils to adopt behaviours and practices which protects the environment. This observation makes it very important for environmental education to be incorporated into secondary education.

Research findings revealed that incorporating environmental education into the school curriculum would enable students to develop a positive attitude towards the environment at a tender age. The students would grow to become responsible adults who can conserve their environments. These students would also transfer their knowledge to the elders at home. As a result everyone would be in a position to play a part in environmental conservation. This is

supported by UNESCO (1980) which states that environmental education should be incorporated into programs intended for all learners whatever their age. This would make individuals and communities understand the nature of the natural environment and develop a sense of responsibility and urgency regarding environmental programs and avoid future environmental challenges.

Therefore, the researcher concluded that incorporating environmental education into secondary education was necessary because it would help learners to develop knowledge, skills, concern and positive attitude towards the environment.

4.3 Summary

In this chapter data pertaining to this research was presented and analysed. The findings dealt with the challenges faced in the implementation of environmental education in schools. Reasons why environmental education implementation has not been successful were also presented. It was noted that the major challenges were lack of time, lack of knowledgeable and experienced teachers, lack of teaching and learning materials, lack of support and huge class sizes. The findings were confirmed by teachers and pupils. Ways of improving environmental education in schools were also highlighted. Teachers gave training, use of environmental clubs and sourcing teaching and learning materials as some of the ways of improving environmental education in schools.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter focuses on the conclusions that were drawn from the research. The research also provides recommendations based on these findings. Recommendations were made with the aim of improving environmental education in schools. The recommendations would also help teachers to overcome the problems they are facing in implementing environmental education.

5.1 Summary

The foundation of the research was laid down in Chapter one. Issues concerning the purpose of the study were articulated. The purpose of the study was to find out the challenges faced in implementing environmental education in secondary schools in Mhondoro- Mubaira Cluster. The chapter also highlighted the background to the study. The study was based on the fact that pupils` attitude towards the environment did not exhibit any knowledge of environmental issues yet it was the responsibility of the schools to educate students about issues concerning the environment and its conservation. Mhondoro-Mubaira is facing massive environmental degradation in the form of gullies, siltation due to erosion, deforestation and litter. Since it is the duty of the schools to educate the nation, the researcher sought to find out what was hindering successful implementation of environmental education in schools. Furthermore, research questions, significance of the study and definition of terms were also highlighted in chapter one.

Chapter two reviewed literature relating to environmental education. It looked at the concept of environmental education and how best it could be used to sustainably manage the environment. The main theorist was UNESCO, The Tbilisi Declaration of (1978). The

significance of environmental education was highlighted at the Tbilisi conference of 1977. An important outcome of the conference was that environmental education should make individuals and communities understand the nature of the environment. Annon (2004) also confirmed that environmental education aimed at developing a world population that was concerned about the total environment and its associated problems and had the attitude, knowledge and skills to work towards solutions of current problems and prevent new ones. The chapter also looked at other researchers' views on the challenges hindering the implementation of environmental education in schools. It also looked at other authors' suggestions on ways of improving environmental education in schools.

Chapter three described the steps taken by the researcher during the data collection process. The researcher used the descriptive survey design. The sample consisted of twelve teachers and forty students from schools in Mhondoro- Mubaira Cluster, Chegutu District. Questionnaires, interviews and observations were used to collect data. Data analysis procedures were also looked at in chapter three.

Data pertaining to this research was presented and analysed in chapter 4. The findings dealt with the challenges faced in implementing environmental education in schools. The extent of environmental education implementation in schools was presented. The research revealed most teachers teach environmental education as topics in subjects related. This shows that indeed it is being taught, but not more frequently. As a result, environmental education has not positively impacted on pupils to change their behaviour towards the environment. Teachers are failing to stress on environmental issues since it is not examinable. They are rather putting all their efforts on examinable subjects and neglecting environmental education. The research also revealed quite a number of challenges that are hindering the implementation of environmental education in schools and solutions. These were:

- Lack of time. This was because it was not timetabled. Teachers suggested that to provide time for environmental education it had to be introduced as a club and be taught during club time.
- Lack of qualified teachers. Most teachers lacked environmental knowledge as a result they failed to implement environmental education. In-service and pre-service training were the suggested solutions.
- Lack of teaching and learning resources. Schools did not have adequate resources to use, however teachers were advised to take the initiative to start writing their own textbooks and the schools had to also look for funding from donors.
- Large class sizes. These made it difficult for teachers to control pupils during outdoor activities. It also compromised the safety of the pupils.
- Lack of support from other teachers also made it difficult for environmental education to be successfully implemented.

5.2 Conclusions

The following conclusions were drawn from the study:

The research also concluded that environmental education was not being taught more frequently in schools, hence students had a negative attitude toward the environment. A holistic approach in the implementation of environmental education in schools would help to solve the environmental problems facing the nation as a whole. The teaching and learning of environmental education also need continuity so that pupils who acquire knowledge at primary level can continue practising environmental management even at secondary level. Therefore a cooperative effort is needed from the government, learning institutions, teachers, students and parents for the success of environmental education.

Schools were facing a lot of challenges that were hindering them from successfully implementing environmental education in schools. The research established that failure to implement environmental education was due to lack of environmental knowledge on the part of the teachers, lack of resources, lack of time and lack of support. This made it difficult for them to teach environmental concepts. As a result some teachers were not involved in implementation.

To improve environmental education there was need for schools to provide training in the form of workshops and staff development programs. In-service and pre-service training would also provide teachers with the much needed environmental knowledge. Environmental clubs and seeking for funds and donations in the form of teaching and learning materials were other suggested ways of improving environmental education. Seriously putting these suggestions into consideration would greatly improve the implementation of environmental education in schools.

Acquiring environmental education leads to a development of knowledge, skills and a positive attitude towards the environment. When pupils develop a positive attitude towards their environment, their problem solving schools will also improve and they will eventually practice conservation. Therefore learning about the environment is very important.

5.3 Recommendations

The following recommendations were made:

- There is need for pre-service training. Environmental education should be taught who are still at colleges so that when they are deployed to schools they would already have enough environmental knowledge.
- Environmental education should be taught as an independent subject.

- The ministry of education should provide teachers with teaching and learning materials or the ministry of environment and tourism can make sure that there are adequate resources to benefit both teachers and pupils.
- Instead of waiting for the government to produce books, the teachers and pupils can make their own materials. Teachers can take the initiative to write small booklets for their pupils to read.
- Every school should have an environmental awareness club led by a skilled resource teacher.
- Environmental education should be incorporated into the school curriculum.
- Engaging EMA in spearheading environmental awareness campaign.
- Community based organisations can provide informal environmental education through running a variety of environmental education programs.
- Organisations such as the Agritex should provide information and extension services like workshops, radio and television programmes on conservation matters.

REFERENCES

- Annon, K. (2004). *United Nations Annual General Assembly Report*. New York, United Nations.
- Bartosh, O. (2003). *Environmental Education: Improving Student Achievement*. Washington. The Evergreen State College.
- Ballantyne, R. (1999). *Teaching environmental concepts, attitudes and behaviour through geography education: Findings of an international survey*. *International Research in Geographical and Environmental Education* 8 (1) 40-55.
- Bamberg, S. & Moeser, G. (2007). Twenty years after Hines, Hungerford and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of environmental psychology*. 27 (1) 14-25.
- Bhattacharrya, D. K. (2003). *Research Methodology*. New Delhi: Excel Books.
- Bogdan, R. C. & Biklen, S.K. (2007). *Qualitative Research for Education. An introduction to Theory and Methods*, New York: Allyn and Bacon.
- Böhn, D. (1997). *Environmental Education in Germany: An Overview*. In P. Thompson (Ed.). *Environmental Education for the 21st Century, International and Interdisciplinary Perspectives* (pp. 23 – 31). New York: Peter Lang.
- Chenje, M. Sola, L. & Paleczny (1998). *The State of Zimbabwe's Environment*. Harare. Government of the Republic of Zimbabwe, Ministry of Mines, Environment and Tourism.
- Chi-chung Ko, A., & Chi-kin Lee, J. (2003). *Teachers Perceptions of Teaching Environmental Issues within the Science Curriculum: A Hong Kong Perspective*. *Journal of Science Education and Technology*, 12(3), 187 – 204.
- Chiromo, A. S. (2009). *Research Methods and Statistics. A Student's guide*. Mbabane: Amadi Press.
- Cohen, D. K., & Ball, D. L. (1990). *Relations between policy and practice. A commentary*. *Educational Evaluation and Policy Analysis*, 12 (3), 331 – 338.

- Cohen, L. Manion, L. & Morrison, K. (2011). *Research Methods in Education*. New York: Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education (6th edition)*. London: Routledge.
- Cutter-Mackenzie, A., & Smith, R. (2001). *Gauging Primary School Teachers' Environmental Literacy: An Issue of "Priority"*. *Asia Pacific Education Review*, 2 (2), 45-60.
- David, W. (2009). *Cultivating the Ecological Education*. University of North Texas.
- Dillon, J., & Teamey, K. (2002). *Reconceptualising environmental education: taking account of reality*. *Canadian Journal of Science, Mathematics and Technology Education*, 2 (4), 467 - 483.
- Fien, J. (1993). *Education for the Environment: Critical Curriculum Theorising and Environmental Education*. Geelong, Australia: Deakin University Press.
- Fien, J., & Corcoran, P.B. (1996). *Learning for a sustainable environment: professional development and teachers' education in environmental education in the Asia-Pacific*.
- Fullan, M. (1991). *The New Meaning of Educational Change (2nd edition)*. London: Casell Educational Limited.
- Gough, A. (1997). *Education and the environment: policy, trends, and the problems of marginalization*. Melbourne: The Australian Council for Educational Research.
- Gough, A. (2002). *Increasing the value of the environment: a "real option" Metaphor for learning*. *Environmental Education Research*, 8 (1), 61-72.
- Gould, S. (2001). *Quantitative Methods in Educational Research. The role of numbers made easy*. London: Continuum Publishers.
- Grace, M., & Sharp, J. (2000). *Exploring the Actual and Potential Rhetoric-reality Gaps in Environmental Education and their Implications for Pre-service Teacher Training*. *Environmental Education Research*, 6 (4), 331 – 345.
- Grey, R. (2003). *Multilateral Environmental agreements in Africa; Efforts and problems in implementation*. *International environmental agreements* 3, no 2 97-135.

Grunewald, D. A. (2004). *Analysis of Environmental Education. Towards the sociological challenge of the earth charter*, Curriculum inquiry

Hart, P. (2003). *Teachers thinking in environmental education: Consciousness and responsibility*. New York: Peter Lang.

IUCN. (1994). *Caring For the Earth: A Strategy for Sustainable Living*, IUCN: Gland, Switzerland.

Kimario, L. A. (2011). *Intergrating Environmental Education in Primary School Education in Tanzania. Teacher's perspectives and Teaching Practices*. Abo Akademi, University Press.

Lee, J. C. K., & Williams, M. (2001). *Researching environmental education in the school curriculum: An introduction for students and teacher researchers*. International Research in Geographical and Environmental Education 10, 218 – 244.

Lee, J. C-K. (1993). *Geography teaching in England and Hong Kong: contributions towards environmental education*. International Research in Geographical and Environmental Education, 2 (1), 25 - 40.

Lee, J. C-K. (2000). *Teacher receptivity to curriculum change in the implementation stage: the case of environmental education in Hong Kong*. Journal of Curriculum Studies, 32 (1), 95-115.

Lindhe, V. (1999). *Greening Education, Prospects and Conditions in Tanzania*. Doctoral Thesis, Uppsala University.

Lotz, H. B. & Ward, M. (2000). *Environment Education Process and changing theories within education: trends and patterns. Rhodes University/SADC course in Environmental Education, Core text*. Grahamstown: Rhodes University.

Lotz-Sisitka, H. (2004). *Positioning Southern African Environmental Education in a changing political, economic, social, natural and epistemological (environmental) landscape*. Discussion paper commissioned by the SADC REEP. Rhodes University, South Africa.

Lucas, A. M. (1979). *Environment and environmental education: conceptual issues and curriculum implications*. Melbourne, Victoria: Australian International Press and Publications.

Makundi, E. (2000). *The Impact of the integrated social skills among Primary School learners in Mainland Tanzania*. Unpublished Masters Dissertation, Dar-es-Salaam: Faculty of Education, University of Dar-es- Salaam.

Marvasti, A. B. (2004). *Qualitative Research in Sociology: An Introduction*. London: Routledge.

Mtaita, U. Y. (2005). *The potentials and opportunities of environmental education in Tanzanian secondary schools, using New Zealand schools as an example*. A directed207study submitted in partial fulfilment of the requirements of the degree postgraduatediploma in science education. CSTER: Waikato University.

Mukoni, M. (2013). *Environmental education in Zimbabwean Secondary Schools. Greening for transformative social change*. International journal of Asian Social Science, 3 (4):971-991.

Munowenyu, E. (1999). *Introduction to Geographical Thought and Environmental Studies*. Harare. Zimbabwe Open University.

National Environmental Policy (2004). *Zimbabwe National Environmental Education Policy and Strategies*. Harare: Ministry of Environment and tourism.

Nordström, H. K. (2008). *Environmental Education and Multicultural Education- Too Close to Be Separate?* International Research in Geographical and Environmental Education, 17 (2), 131 – 144.

O’leary, Z. (2004). *The essential guide to doing research*. London: Sage.

O’Donoghue, R., & Russo, V. (2004). *Emerging patterns of abstraction in Environmental Education: A review of materials methods and professional development perspectives*. Environmental Education Research, 10 (3), 331 – 351.

Oxford Dictionary (2015). A process of putting a decision or plan into effect. UK: Oxford University Press

Palmer, J. (1998). *Environmental Education in the 21st Century: Theory, practice, Progress and Promise*. London: Routledge.

Palmer, J., & Neal, P. (1994). *The Handbook of Environmental Education*. London: Routledge.

- Pulkkinen, K. (2006). *Teacher Thinking and practice in Environmental Education: Finnish North Carelian Primary School Teachers as Environmental Educators*. In S. Tani, (Ed.). *Sustainable Development through Education, Proceedings of the International Conference on Environmental Education*. Helsinki, 14 June 2005 pp. 143 – 154.
- Shava, S. (2003). *Environmental education policy department in Zimbabwe. An educational experience*. South African Journal of Environmental Education 20: 128-134.
- Spiropoulou, D., Antonakaki, T., Kontaxaki, S., & Bouras, S. (2007). *Primary Teachers' Literacy and Attitudes on Education for Sustainable development*. Journal of Science Education Technology, 16, 443 – 450.
- Stapp, W. B. (1997). *The Concept of Environmental Education*. The Journal of Environmental Education Vol.1 No. 1, 30-31, Washington, DC: Heldref.
- Stevenson, R. B. (2007). *Schooling and environmental/sustainability education: from discourses of policy and practice to discourses of professional learning*. Environmental Education Research, 13 (2), 265 – 283.
- Tilbury, D. (1992). *Environmental education within pre-service teacher education: The priority of priorities*. International Journal of Environmental Education and Information, 11 (4), 267 – 280.
- Tilbury, D. (1995). *Environmental Education for Sustainability: defining the new focus of environmental education in the 1990s*. Environmental Education Research, 1 (2), 195 – 212.
- Tomlins, B., & Froud, K. (1994). *Environmental Education: Teaching Approaches and Students' Attitudes: A Briefing paper*, Slough: NFER.
- UNESCO, (1972). *Environmental Education and Training: Suggestions Developed by the Secretary General of the United Nations Conference on the Human Environment (Stockholm Sweden, 1972)*. Paris. France: UNESCO.
- UNESCO, (1978). *The Tbilisi Declaration*. Connect, 111 (1), 1 – 8. UNESCO-UNEP Environmental Education Newsletter.
- UNESCO/UNEP, (1980). *Environmental Education means Environmental Solutions*. Connect, XV (1), 1 - 8. UNESCO-UNEP Environmental Education Newsletter.

UNESCO-UNEP, (1990). *Environmentally Educated teachers the priority of priorities?* Connect, XV (1), 1 – 3. UNESCO-UNEP Environmental Education Newsletter.

Walker, K. E. (1997). *Challenging critical theory in environmental education.* Environmental Education Research, 3 (2), 155 – 162.

Wolff, L. A. (2006). *Education for Sustainable Development Needs a Critical Approach.* In S. Tani, (Ed.). *Sustainable Development through Education. Proceedings of the International Conference on Environmental Education (pp. 29 – 46).* Helsinki, 14

APPENDIX 1

QUESTIONNAIRES FOR PUPILS

I am a student at Midlands State University studying for Bachelor of Education Degree in Geography. I am doing a research study on challenges that are being faced by secondary schools in implementing environmental education. The researcher requests for your participation in order to gather data on research purposes. Information will be kept in strict confidence. You are therefore advised not to write your name on this questionnaire.

INSTRUCTIONS

Tick where appropriate.

Answer all questions

1. Gender Male/Female
2. Are you aware of the concept of environmental education? Yes / No
3. Are you being taught about environmental issues at your school? Yes / No
4. How often are you being taught about the environment? More frequently or less frequently?
5. Do you have an environmental club at your school? Yes/No
6. Are schools helping in spreading ideas about conservation of the environment?
Agree. Strongly Agree. Disagree. Strongly Disagree
7. Do you value environmental education? Yes/ No

Give reasons for your answer

.....
.....
.....

8. Identify any two indications of environmental degradation in your school.....

.....
.....

9. What has been done to deal with the problem of environmental degradation in your school?.....

.....
.....

APPENDIX 2

QUESTIONNAIRES FOR TEACHERS

I am a student at Midlands State University studying for Bachelor of Education Degree in Geography. I am doing a research study on challenges that are being faced by secondary schools in implementing environmental education. The researcher requests for your participation in order to gather data on research purposes. Information will be kept in strict confidence. You are therefore advised not to write your name on this questionnaire.

1 Gender.....

2 Experience.....

3 Level of education.....

4 Previous training in teaching EE.....

5 Is environmental education being taught in your school? Yes/No

6 What are the challenges hindering the implementation of environmental education in your school?.....

.....

.....

.....

.....

.....

7 What do you think can be done to improve environmental education in your school?.....

.....

.....
.....

8 Do you think teaching of environmental education is important in Zimbabwe? Yes/ No

Give reasons for your answer

.....
.....
.....

9 How best could Environmental Education be included in the school curriculum?

.....
.....
.....
.....
.....

APPENDIX 3

INTERVIEW GUIDE

I am a student at Midlands State University studying for Bachelor of Education Degree in Geography. I am doing a research study on challenges that are being faced by secondary schools in implementing environmental education. The researcher requests for your participation in order to gather data on research purposes. Information will be kept in strict confidence.

Aspects to be looked at:

- Why is it important for pupils to learn about the environment?
- To what extent is environmental education being implemented in your school?
- What environmental problems are you facing?
- What are the activities that you have done to address environmental degradation?
- What challenges have you faced in implementing environmental education in your school?
- What can be done to improve the implementation of environmental education?

APPENDIX 4

OBSERVATION GUIDE

Objectives

- To observe the general cleanliness of schools.
- Availability of dumpsites around the school.
- To observe if there are any activities to curb environmental degradation such as tree planting or gully filling.
- To observe the attitude of pupils towards the environment.
- Check on land and water pollution.

Appendix 5: Letter from the head office

Appendix 6: Letter from the provincial office

Appendix 7: Letter from the college