

**IMPLEMENTATION OF ENVIRONMENTAL EDUCATION IN
VOCATIONAL EDUCATION AND TRAINING INSTITUTES:
A COMPARATIVE STUDY BETWEEN TANZANIA AND
FINLAND**

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VOCATIONAL EDUCATION AND TRAINING INSTITUTES:
A COMPARATIVE STUDY BETWEEN TANZANIA AND
FINLAND**

**By
Seif Hashim**

**A Dissertation Submitted in Partial Fulfilment of the Requirements for Award
of the Degree of Master of Arts in Education (MA-ED) of Mzumbe University
2016**

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled ***Implementation of Environmental Education in Vocational Education and Training Institutes: A Comparative Study between Tanzania and Finland***, in partial/fulfilment of the requirements for the award of the degree of Master of Arts in Education of Mzumbe University.

Major Supervisor

Internal Examiner

Accepted for the Board of Social Sciences

DEAN OF FACULTY OF SOCIAL SCIENCES

DECLARATION AND COPYRIGHT

I, Seif Hashim, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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DEDICATION

This work is dedicated to my beloved wife Asha Kinunu and my children Ashura, Ashia, Riadhi and Ridhiwani who inspired me through their love, support and encouragement.

ABBREVIATIONS AND ACRONYMS

CBET	Competency Based Education and Training
CIDA	Canadian International Development Agency
DAS	District Administrative Secretary
DSM	Dar es Salaam
EE	Environmental Education
ESD	Education for Sustainable Development
ETP	Education and Training Policy
IDA	International Development Aid
ITC	Instructor Training Unit
ITU	Instructor Training Unit
IUCN	International Union for the Conservation of Natural resources
MNRT	Ministry of National Resources and Tourism
MoE	Ministry of Education
MoEC	Ministry of Education and Culture
MoEVT	Ministry of Education and Vocational Training
MVTTC	Morogoro Vocational Teachers' Training College
NBE	National Board of Education
NBI	Nile Basin Initiative
NEMC	National Environmental Management Council
NGOs	Non- Governmental Organisations

RAS	Regional Administrative Secretary
Re-Well	Regional Wellbeing
RVTSC	Regional Vocational Training and Service Centre
TAKK	Tampere Institute of Vocational Adult Education
TIE	Tanzania Institute of Education
TREDU	Tampere Vocational College
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational Scientific and Cultural Organisation
URT	United Republic of Tanzania
VET	Vocational Education and Training
VETA	Vocational Education and Training Authority
WWF	World Wide Fund

ABSTRACT

The main focus of this study was to investigate the implementation of Environmental Education (EE) in Vocational Education and Training (VET) Institutes in Tanzania and Finland. This review mainly used a qualitative analysis based on comparative research results and secondary data. Qualitative data was subjected to content and thematic analysis. A sample of 65 respondents which comprised of 49 students, 14 teachers and 2 government officials were used. To explore reality of EE in VET institutes, students, teachers and government officials provided their insights by sharing how they understand, implement and practice EE. Based on my fieldwork with questionnaires with students, in-depth interviews with teachers and EE professionals complemented with observations and many document surveys, the findings of this dissertation revealed that there is no big difference in understanding of EE among the VET institutes' students and teachers in both Tanzania and Finland, since they almost all mentioned of education consisting of raising awareness, and knowledge and skills development on the environment. These views concur with the goals and objectives of the Tbilisi Conference. The study further discovered that there is a slight difference in the professionalism and approaches used in implementing EE where Morogoro Vocational Teachers' Training College (MVTTC) teachers have no professionalism of EE and the course is taught as a cross-cutting issue while teachers in (Tampere Institute of Vocational Adult Education (TAKK) and Tampere Vocational College (TREDU) are professionals of EE and the course is taught both as a cross-curricular issue and as a separate course. Furthermore, during implementation of EE, almost all VET institutes face the same constraints including respondents' negative attitudes towards teaching EE, lack of knowledge and skills on EE, inadequate time, financial constraint especially when required going for study tours. Last but not least, these institutes differ in practicing EE as they differ in environmental awareness. Recommendations to curriculum developers and policy makers were made in light of these findings and suggestions for further research were also made.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Countries of the world have been called to curb the challenges caused by environmental problems such as climate change, increasing consumption of natural resources, land degradation, pollution, deforestation (URT, 1997), social problems and development issues. The global, regional and national concern have desired for people to use Environmental Education (EE) as a tool to change their attitudes and practices as well as improve and adapt proper skills, decisions and environmentally sound practices to improve environment. Good places where such EE skills, decisions and practices would be rooted at are the learning institutions including schools and other educational establishments such as at VET institutes and universities.

These institutions in general, have the ability to quickly support the growth of their students as environmentally and socially responsible and skilled citizens who are able to consider the aspects of EE in their work and everyday lives. Since every one of us needs to live in a healthy and well conserved environment, be it individually or in groups, we should participate in planning and following up the implementation of various environmental programmes. EE therefore, has been conventional as one of the significant tools for maintaining and preserving the environment we live in (Mtaita, 2007; Kimaryo, 2011). It is also a milestone for improving the quality of life of people since it provides knowledge which contributes to change of attitude and practice of individuals and the society at large. This study attempted to investigate the implementation of Environmental Education (EE) in Vocational Education and Training (VET) institutes in Tanzania and Finland. The study sought to compare the way VET institutes from both countries practice EE.

This chapter outlines the background to the research problem under study, statement of the problem, research objectives and research questions. The chapter also presents the organisation of the proposal and then presents the significance of the study, scope and delimitation and limitations of study.

1.2 Background to the Study

Tanzania (Mzumbe University), Uganda (Kyambogo University) and Finland (University of Tampere) have collaboration via the Regional Well-being Project (Re-Well project). This dissertation is also part of Re-Well project. Among the activities of the Re-Well project is a students' exchange program. Students on this program are supposed to do comparative studies on different aspects of the Re-Well Project collaboration. These include: Promoting Basic and Physical Wellbeing through Adult and Vocational Education; Education of Educators for Promoting Wellbeing; Environmental Wellbeing and Economic and Political Wellbeing (Re-Well project, 2015). As a requirement for the exchange program, this study investigated the aspect on Environmental Wellbeing. Under this theme, this study sought to establish how Vocational Education and Training (VET) institutes in Tanzania and Finland implement environmental education (EE) and how they can support each other to strengthen their efforts to improve the Social Wellbeing of their communities through the implementation of EE. It is important to do comparative studies on the implementation of EE by VET institutes in Tanzania and Finland because among other things EE is instituted in both of their education systems. Besides this, Finland is a global leader in education field as well as one of the pioneering countries in vocational education. For instance, in all quality requirements in Finland, there is either sustainable development or environmental issues inside the qualification requirements. With this wealth of experience, therefore, it was perceived important to do comparative studies on the implementation of EE by VET institutes by the two countries as well as investigate the kinds of practices each can borrow from one another so as to improve the welfare of their people through implementation of EE.

In everyday life, the world is suffering from new and challenging environmental problems. These problems include natural disasters, warming and cooling periods (URT, 1997). Over the past 30 years, the environment in Africa has continued to deteriorate, resulting in a type of environmental change which is making more and more people in the region vulnerable to environmental problems due to increased risk and inadequate coping capability (UNEP, 2002). The deterioration of environmental resources featuring in Africa has not spared Tanzania. Thus, with such situation,

people ought to take precautionary measures against such environmental related problems. The deterioration of environmental situation in the country calls for imperative actions to address the impact of environmental change. Tanzania's National Environmental Policy of 1997 formulated objectives on how to maintain the environment. Such objectives include disseminating education and raising public awareness on the close relationship between environment and development, and to promote individual and community participation in environmental practices (Allen & Downie, 1999).

Education in its broad sense is renowned as one of the fundamental gears for combating problems related to environment. These include deforestation, drought, land degradation, soil erosion, pollution and many others (URT, 1997) through imparting knowledge, skills and practices; promoting sound and logical thinking, reasoning and judging; and above all enabling individuals to be conscious on how to judiciously deal with such problems. EE was then introduced in a formal curriculum as a measure of creating awareness about the impact of environmental change.

According to Wilke, Peyton and Hungerford (1980), EE competency is the ability to provide learners with the ecological knowledge, conceptual awareness, investigative analysis skills, and participatory action skills needed to become environmentally literate citizens. Therefore, EE is a life-long process that leads to an informed and involved citizen having the creative problem-solving skill, scientific, economic and social literacy in order to attain sustainable development.

In Tanzania, EE is not a new observable fact. It was offered informally from one generation to another since time immemorial (NBI, 2004). Children were raised up by their parents to identify and distinguish varieties of plants and animals to be eaten without affecting their health as well as how to collect them.

Formally, EE in its broad sense was carried out for many years through sector-oriented programmes including agriculture, forestry and community development outreach or extension programme (URT, 2004). The government of Tanzania enacted NEMC Act 1983 as the first step in environmental conservation (NBI, 2004). The objective of NEMC is to create and enlighten the Tanzania society about the environmental

awareness by undertaking awareness and sensitization programmes, acquisition and dissemination of information and training. EE was introduced in the formal education sector for the first time in 1967 when the Arusha declaration was pronounced. The current EE initiatives began in the early 1990s. However, EE was not fully established in learning institutions and therefore, many challenges affect its implementation (Mtaita, 2007).

Tanzanian and Finland's EE awakening movements started in 1972 after participating at the Stockholm Conference. EE is an important component in the education curriculum of Tanzania at the primary, secondary and tertiary levels (URT, 2004; UNCED, 1992). Ever since then, the concept of EE has been introduced to both Tanzania and Finland progressively from the international agreements into national policy and documents. Following the rapid development of EE in the world resulted from the international arena as well as participation in the international environmental conferences and workshops, Tanzania found herself responding to worldwide environmental issues. The above identified international conferences and declarations resulted to the development of school curriculum, in different ways, at different times, in several locations of the world (Bolstad et al., 2004). Tanzania realized the role of EE in solving environmental issues that's why deliberate efforts have been taken to integrate it into school curriculum.

The first groups of people to be facilitated with EE were the government officials at the ministerial level (Ministry of Education and Culture), Inspectors of Schools, Teacher educators, Heads of Schools and some Primary and Secondary School teachers. Afterwards, the Tanzania Institute of Education (TIE) incorporated elements of EE in the primary and secondary school curriculum. At tertiary levels there were attempts made by AGENDA and other institutions to incorporate EE elements in the Adult Education Institute, financial, social welfare and other institutions.

More important still, Non-governmental organisations (NGO's) were also allowed to put their efforts to promote EE through introducing environmental clubs and extra-curricular activities in schools (Wildlife Clubs, Malihai Clubs, Roots and shoots, eco-schools among others) and specific resource conservation clubs (NBI, 2004). As if that

was not enough, these Non-profit environmental organisations are also offering technical, financial and education assistances to the mass about environmental issue s (Henegar, 2005).

It has been suggested that the path towards a better future for all Tanzanians involves including EE in every curriculum and in all levels of education (URT, 2004). EE has been included in the school curriculum since 1960's and further in the Education and Training Policy (ETP) of 1995. The ETP set objectives of the EE including "*to enable a rational use, management and conservation of the environment*" (MoEC, 1995, p.2). The Ministry of Education and Vocational Training (MoEVT) has integrated EE in curricular for Pre-primary, Primary, Secondary schools, Teachers' and Vocational Training Colleges (MoEVT, 2008).

With all that efforts taken by the Tanzania's government through ETP to integrate EE in VET curriculum, the status of the environmental management for sustainable development has not improved. This is evidenced by poor environmental management in the form of environmental degradation including pollution of all kinds (water, air, land, and noise), soil erosion, poor waste management among others are still prevailing in schools, VET institutes and in the community surrounding these institutions at large. Despite Tanzania's ecological richness, the country has been facing environmental challenges such as deforestation, loss of wildlife habitats and biodiversity, land degradation, drought, deterioration of the aquatic systems, and lack of accessible, good quality water, and environmental pollution (URT, 1997). While there are many places where EE is implemented, the most common locations are schools and other educational centres/institutions (Henegar, 2005; Baraza & Alfredo, 2004). These play a vital role in the process of helping learners learn environmental awareness and care. Essentially, these educational institutions are part of the community surrounding them, hence it is anticipated that what students learn in these institutions should be reflected in society. However, the implementation of EE has been difficult for many students, teachers, policy makers and the community at large.

It is in this context, that the proposed study sought to examine how VET institutes in Tanzania and Finland implement EE and the practices they can borrow from each other to improve the social wellbeing of the people in their respective communities. It is into account under this study the graduates of VET institutes enter into businesses that have instant and direct impact on the environment; they play a significant role in implementing practical solutions to current environmental problems. From the above account, therefore, it is important that they are trained to understand environmental problems and become cognizant of sustainable development so that they may contribute to its establishment in a meaningful way. Environmental education as part of general and vocational training helps to make people competent and responsible in the use of natural and environmental capacity (Hollstein, 2002). EE should cover a wide area such as laws, rules and regulations as well as solving problems related to the environment rather than merely teaching students about environmental protection.

1.3 Statement of the Problem

There is no doubt that the need for EE is increasing. As non-renewable resources run out and the subject of sustainable living becomes more and more prominent, the need for individuals knowledgeable in environmental issues and decision-making grows (Henegar, 2005).

Following earlier observation indicating the nature and kind of activities carried out in VET institutes, especially those works related to technical and vocational like workshops, to a large extent, produce a lot of wastes ranging from liquid, gaseous to solid which altogether accelerate pollution and destruction of the environment. In the same line, many studies such that done by Lindhe (1999) in primary and secondary schools on the greening of education in Tanzania, Mtaita (2005) on the potentials and opportunities of environmental education in Tanzanian secondary schools, using New Zealand schools as an example as well as Kimaryo (2011) on integrating environmental education in Primary School Education in Tanzania showed that there was very little impact of environmental education in schools and in communities.

Report that, EE is mostly done in lower levels of primary and secondary schools with less attention in VET institutes especially evidence of comparative basis between Tanzania and Finland.

Although EE is offered in these institutes, its implementation is neglected, and this is witnessed by a number of things including mismanagement of garbage. This account of fact played a driving role for this study to examine the way students, teachers and other professionals implement EE as well as finding out constraints that have been militating against the smooth implementation of EE in VET institutes using Tanzania and Finland as a comparative cases.

1.4 Objectives of the study

1.4.1 General objective

To examine the implementation of EE by VET institutes in Tanzania and Finland

1.4.2 Specific objectives

Specific objectives that guided this study included to:

- (i) Investigate how EE is understood in Finnish and Tanzanian VET institutes.
- (ii) Establish the approaches and/or methods used by VET institutes in Tanzania and Finland for implementing EE
- (iii) Establish the constraints to effective implementation of EE in VET institutes in Tanzania and Finland.
- (iv) Identify practices that the VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE.

1.5 Research questions

In line with the specific objectives four questions have been developed as follows:

- (i) How EE is understood in Tanzanian and Finnish VET institutes?
- (ii) Which approaches and/or methods do VET institutes in Tanzania and Finland use in implementing EE?

- (iii) What are the constraints to effective implementation of EE in VET institutes in Tanzania and Finland?
- (iv) Are there any practices that VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE?

1.6 Significance of the study

The results of this study are useful to government and educational leaders in Tanzania and Finland for devising effective ways of implementing the EE in VET institutes. The findings may also be used by the government and other stakeholders in formulating better policies and EE plans in the countries. Besides, it contributes knowledge to the existing literature about the implementation of EE in the curriculum of the VET institutes in Tanzania and Finland. Furthermore, the results of this study creates awareness and consciousness on the importance of involving various stakeholders at the grassroots level in the process of developing and implementing various EE policies and plans. More importantly, the findings may provide information that may be used by other researchers who will be dealing with the related problems.

1.7 Scope and delimitation of the study

This study focused on implementation of EE in VET institutes in Tanzania and Finland. The researcher investigated the way people understand EE, approaches used to implement EE, constraints to effective implementation of EE and practices that the VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE.

The study was confined to two similar institutions (Tampere Institute of Vocational Adult Education (TAKK) and Tampere Vocational College (TREDU) in Finland and Morogoro Vocational Teachers' Training College (MVTTC) in Tanzania. These institutions are similar in terms of their role, which is to prepare vocational education professionals and also teachers. Besides, it was not easy for the study to cover the whole countries due to time factor, size and geographical distribution of the

population. Furthermore, the study was confined to only MVTTC because among other factors, MVTTC is the only vocational teachers' training college found in Morogoro. The study required few stakeholders including students, teachers and environmental education officials to express their views on their understanding of the implementation of EE in VET institutes.

1.8 Limitations of the study

Kombo and Tromp (2006) contend that limitations involve the problems the researcher is likely to face when conducting the study. It includes the factors that influence the scope of the study.

The study on implementation of EE in VET institutes met a number of limitations. First, some students failed to fill in the questionnaires because they do not understand the English language. Instead, this predicament was solved by the researcher by reading and interpreting questions for them. This was especially at MVTTC, while at TREDU and TAKK questionnaires were translated into Finnish. Apart from that, at TAKK, none of the respondent returned back the questionnaires sent to them. Thus, the researcher used the information from the interview made to the TAKK professional teacher. Another limitation was about incomplete filling in of the questionnaires. This predicament was solved by having a close supervision of all questionnaires administered to them to see which one was not filled-in and returned them back to the students for completion. Finally, at TREDU only four student respondents returned back the questionnaires sent to them, thus, this affected the sample size.

1.9 Operational Definitions of Terms

In this study, key terms/terminologies used are defined by the researcher in order to clarify the terms so that the reader could understand and avoid unnecessary confusion.

Implementation of EE: In this study, implementation of EE is the teaching and learning EE in the classroom or outside the classroom and also doing all things related to EE practically around the institutes' premises.

Environmental Education: EE is the teaching and learning of the environment either as a cross cutting issue or an independent course included in VET institutes curriculum. It is an approach of teaching and learning about the environment and its associated problems and how to solve them.

Cross-cutting issue: Crosscutting issue is a subject matter that has been integrated in study areas, and is taught in one or all study areas by one or all teachers.

VET teachers: In this study, VET teachers are those persons who teach EE in the VET institutes and they are either professionals or non-professionals.

VET students: These are adult learners with different ages trained in various vocational courses.

Approach to EE: In this study, approach to EE is the way environmental education is offered and implemented in the VET institutes.

Constraints to EE implementation: These are all things which create problems for all respondents including students, teachers, government officials and other EE professionals and stakeholders unable to effectively and efficiently implement EE in VET institutes.

1.10 Overview of the Study

This study is organised in six chapters. The first chapter presents the background of the problem, statement of the problem, objectives of the study, research questions, scope and delimitation, limitation of the study, operational definitions of terms and summary of the chapters. The second chapter presents the review of the related literatures. The chapter explains models which were used by the study. It explains also empirical reviews which were conducted in different countries and research gap. The third chapter describes the research methodology which was used in data collection, sample and sampling techniques and data analysis techniques. The fourth chapter presents the findings of the study. Chapter five presents discussion of findings of the study. Finally, chapter six presents conclusions, recommendations and suggestions of areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In order to get a wider picture about the implementation of EE in both Tanzania and Finland, review of related literature was done. This study aimed to investigate the conception, approaches and constraints to implementation of EE in VET institutes in Tanzania and Finland and practices that each country can borrow from each other so as to promote the welfare of their people.

2.2 Theoretical framework of the study

In this chapter, the author presents and discusses the historical background and definition of EE, models, approaches and/or methods for the implementation of EE; the global driving force behind EE, development of education and EE in Tanzania and Finland. Also, constraints to the implementation of EE and EE in practices, the empirical review on EE and synthesis and research gap in the literature reviewed.

2.2.1 Historical background of EE

The history of the development of the main terms and definitions of environmental education has been studied by different scholars. They try to give an account of who, when and where the term has been originated and by providing different arguments, theories or models which hold up a particular concept or view.

Following international, national and local initiatives towards addressing environmental problems in the world, EE has been largely used as a strategy of addressing such problems. The pressure for EE around the earth has evolved as a result of growing concerns over the environment and its associated problems in the 1960s (Palmer, 1998; Tilbury, 1995). Our generation has witnessed unprecedented economic growth and technological progress which, while bringing benefits to many people, have also caused severe social and environmental consequences. Inequality between the poor and the rich among nations and within nations is growing and there is evidence of increasing deterioration of the physical environment in some forms on a world-wide scale.

This condition, although primarily caused by a relatively small number of nations, affects humanity (UNESCO, 1976). Although EE has a rich heritage sometimes dates very far back, its renewal and unprecedented importance in the educational field result mainly from awakening of public consciousness in the face of such serious problems as overpopulation, pollution, the use and availability of natural resources, and the general degradation of certain natural sites (Sytniket *al*, 1985). For example, Disinger (1983) cited in Bartosh (2003) contends that the term “Environmental Education” appeared for the first time in 1948 at the meeting of the International Union for the Conservation of Nature and Natural Resources. Palmer (1998) further elucidates that, about the term of EE, it is internationally claimed that Thomas Prichard first used it in Paris in 1948 at a meeting of the International Union for the Conservation of Natural Resources (IUCN), while Wheeler argues that this term first appeared in 1947 in the book *Communities* by Parl and Parcival Goodman. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality (IUCN, 1970). The essential prerequisite of EE is practically oriented and is thus integrated into learning the environmental problems associated with a rapidly changing world to be solved. This requires a coordination of VET courses and a corresponding organisation and implementation of the various factors of the educational process in VET institutes, curriculum, teaching and learning materials just to mention a few.

2.2.2 Definitions of EE

Following the historical background of the development of EE in the world, it is noteworthy to define what EE is all about. Environmental Education can be described and defined in a variety of ways (Disinger, 1993; NAAEE, 1999).

Wal et al. (1990) in Le Roux (2001:56) defines EE as the process that enables students and teachers to participate more fully in planning, implementation and evaluation of educational activities aimed at resolving environmental issues that learners have identified. The UNESCO conference report interpreted environmental education as follows: It “[...] should be viewed as a result of the reorientation and dovetailing of different disciplines and educational experiences which facilitate an integral

perception of the problems of the environment, enabling more rational action (UNESCO report, 1979). After acknowledgement of the term, organisation concerned moved towards the definition and its meaning of EE and it is until 1970 that during the IUCN working meeting in Nevada of USA, this influential definition above was formulated and adopted (Palmer, 1998).

Environmental education is aimed at producing citizenry that is knowledgeable concerning with biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp *et al* 1969). Bartosh (2003) further elaborates that among the goals of EE Stapp *et al.* (1969) named the development of *knowledge* and *understanding* of biophysical environment and interrelations of all its components, and awareness and concerns for environmental quality as well as the development of *responsible behaviour* patterns.

McGregor, 2003 cited in Bartosh, 2003 points out that, one of the most widely accepted definitions of EE were given in the Tbilisi Declaration which was developed in the international conference of environmental educators, sponsored by UNESCO in 1977. There, UNESCO-Tbilisi Conference (1978) defines EE;

...as a process aimed at developing the world population that is aware and concerned about the total environment and its associated problems and which have the knowledge, attitudes, motivations, commitments and skills to work individually and to work collectively towards solutions of current problems and preventing the new ones.

According to that Declaration, EE is seen as a life-long process that is interdisciplinary and holistic in nature and application. It concerns the relationship between human and natural systems and encourages the development of an environmental ethic, awareness and understanding of environmental problems, and development of critical thinking and problem solving-skills.

Generally, EE can be defined as a process by which people develop awareness, concern and knowledge of environment and learn to use this understanding to preserve, conserve and utilize environment in a sustainable manner for the benefit of present and future generations.

2.2.3 Models (dimensions) to the implementation of EE

An effective model of EE implementation was needed to achieve the goals of EE. The 3-dimensional model was first suggested in 1974 by the School's Council in UK and later published by Lucas (1979). It is commonly accepted as mentioned by Palmer (1997: 1998), Sterling and Cooper (1992), Uzzel (1999) and others that there are three components in the model (dimensions) to the implementation of EE. These are education *about*, *through/in/from* and *for* the environment. According to Palmer (1997: 1998), the model consists of two sub-systems, formal and informal education. The “in-about-for” classification was an attempt made by Lucas in 1979 to categorise the different meanings that had been given to the term “environmental education”. This implies that EE has to act as abridge helping the individuals raise awareness, develop knowledge and understanding about their environment. Tilbury (1995) suggests that to achieve the goals of EE one is required to adopt these three dimensions to environmental education: practically this will enhance developing environmental awareness, knowledge, values, concern, responsibility, and action, although not necessarily in that order.

2.2.3.1 EE as education *about* the environment:

This is usually part of formal education and has empirical character. It is traditional way of viewing EE as education *about* the environment, also known as *objective view*. The environment is a topic or theme of study. Through it students develop ecological understanding, although at times environmental concern may also result. Education about the environment entails developing awareness, knowledge and understanding about human-environment interactions. This also has been insisted by Kimaryo (2011) who said that, education *about* environment involves developing individuals' knowledge on environmental issues and problems. This way of looking EE began at early stages of development of EE where most people talked of raising awareness and generating knowledge and understanding about the environment (Gough, 1997; Tilbury, 1995). By that time, people believed that if one got knowledge on environment, he/she would be in a position to think of measures to take to solve problems related to environment (Gough, 1997; Palmer, 1998). Therefore, the teaching of EE involved mere transmission of knowledge about the environment and

environmental problems. Mtaita (2007) asserts that, EE in Tanzania educational institutions especially at the school level is offered reflecting raising students' awareness which is education *about* the environment; this is also clearly manifested in the way students are trained in it.

2.2.3.2 EE as education through/in/from the environment:

This dimension is a part of both formal and informal education. The view of EE was developed after discovering that creating awareness and transmitting knowledge to the students about the environment is not enough; rather learners should be actively involved in taking actions towards environmental issues. Education *in* the environment favours student-centred and activity-based learning. This approach usually takes the form of outdoor education/field work developing environmental awareness and concern by encouraging personal growth through contact with nature. The interpretation of the environment is facilitated by the use of real life situations as a basis for developing knowledge through inquiry (see Lee & Williams, 2001); hence, the focus on experiences in the environment.

Teachers in Tanzania still employ traditional ways of inculcating knowledge to their students such as “talk and chalk method” despite the fact that they are supposed to insist learning by doing such as visiting various places to learn more about environmental issues (Mahenge, 2004).

2.2.3.3 EE as education for the environment

This is a part of informal concern for environment. In the past, education *about* and *in* the environment was the focus of EE. It was concerned with the development of knowledge about the environment and the acquisition of skills using the environment as the medium (they limit themselves to promoting understanding, appreciation and concern); initiatives in EE using this approach tended to avoid controversial issues, resulting in a failure to develop values, problem-solving skills and actions for the environment. In actual fact, EE is more than those two dimensions above (about and in education on environment). Education *for* the environment goes beyond this to develop a sense of responsibility and active student participation in the resolution of environmental problems.

It regards environmental preservation and improvement as an actual goal of education. Lee and Williams(2001) ascertain that education for the environment involves improving environment through developing individuals' attitudes towards environment and take appropriate measures to solve environmental related problems. It adopts a holistic outlook to the study of environmental problems, reflected in its global and interdisciplinary approach. However, to achieve the goals of environmental education requires integration of these three approaches to environmental work (Tilbury, 1995; p. 207).

Education *about*, *for* and *in* the environment now involves more emphasis on education for the environment, where the anticipated outcomes involve critical appraisal and active participation by all individuals in environmental issues. This shift encourages the development of attitudes, behaviours and problem-solving skills to build responsible and committed individuals. Students are expected to make decisions for the environment which reflect an understanding of the principles of ecologically sustainable development.

Kimaryo (2011) asserts that, the three dimensions are sometimes known as *levels* of implementing EE. The first level involves knowledge development about the environment; the second level is about interaction with the environment to get in-depth understanding of it through experience. The third level after getting knowledge and understanding of the phenomena is to value it and to take deliberate action to maintain it. These dimensions enable the students, teachers, environmental officials and other EE professionals to look at environment into different perspectives and actively participate in developing the necessary skills to solve environmental problems. The three common ways to the implementation of EE, that is, *about*, *in*, and *for*, combined, they provide a holistic approach enabling individuals and groups to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.

From this review it can be realised that the complexity of EE created challenges in its interpretation as well as the way in which it could be approached. Although, there are many terms and definitions of EE, they have a lot in common.

All of them agree that it is necessary to develop knowledge, skills, positive attitudes toward the environment and responsible behaviour.

2.3 Approaches to the implementation of EE

Professionals in the field of EE devote extensive attention to describing EE because they recognise that its definitions and goals influence its development and continuance (Ham, Langseth, & Fazio, 1985). There is no common approach on how EE can be implemented in VET institutes. It can be implemented by integrating it into the VET institutes' curriculum. EE can be fixed as a separate (independent) course, or it can be embedded in specific subject of the curriculum (treated as a cross-curricular issue), or can be taught as a theme in major issues (thematically oriented approach).

2.3.1 EE as a separate subject

This is an approach for implementing EE in VET institutes' curriculum. There is a debate among scholars of EE on establishing EE as a separate subject. It has been widely accredited that EE is not a subject, a body of knowledge or skills like other disciplines. It is a situation in which the learner may be involved or in which others may be involved. It should be a new orientation or emphasis permeating the whole curriculum, (UNESCO, 1976; UNESCO, 1978), yet in practice this may not be so. The teaching of EE as environmental studies or environmental science is seen as a new thing among the other established subjects of the curriculum (Gough, 1997). Gough (1997) further elucidates that, in order to maintain relationship between man and environment, there is a need to consider other approaches apart from that of instituting EE in school curriculum as independent course/discipline.

2.3.2 EE as a cross-cutting issue

Another approach to integrating EE into the VET institutes' curriculum is to integrate content of environment into all related courses. For instance, in MVTTTC EE has been instituted in the course by the name Workshop management. The approach has been termed in various ways according to various scholars and literature. For instance, Jackson (1992), names it as correlated – subject design whereas Klein (1985) refers to it as multidisciplinary, and sometimes is known as a whole curriculum approach to EE. It is important to note that in many other areas of the curriculum, EE is not

necessarily taught as a separate subject and indeed it has been recommended that it should not be taught on this basis (UNESCO 1985; European Commission, 2009; Mtaita, 2007; Gough, 2009, Lukonde, 2011). However, the implication of this approach is that curriculum documents do not necessarily prescribe the EE content and there is flexibility in terms of the extent to which it is covered (European Commission, 2009). The Tbilisi Declaration states EE should be provided at all ages and grade levels and be interdisciplinary in its approach (UNESCO 1977). In other words, rather than isolating EE to one course or discipline, it should be taught in multiple disciplines. This direction is further supported by professional environmental educators such as Simmons (1989) who writes: by incorporating EE throughout the total curriculum at every grade level, a more comprehensive treatment of environmental concerns can be accomplished.

2.3.3 EE as a theme in major issues (thematically oriented approach)

In this approach, important issues are identified disregards of the demarcation between subject areas. The core of the unit is based on issues of concern rather than on topics (Fraser, 2000). Teachers become facilitators and support learners by providing them with guidance and learning resources. When curriculum is organised around these major issues, it facilitates relevant and holistic learning. This is also supported by contemporary literature in EE which insists holistic approach in viewing environmental education (Bolstad et al., 2004; McClaren& Hammond, 2005). McClaren and Hammond (2005) further claim that holistic approach in dealing with environmental issues creates a room for exchanges or collaborations among different subjects and disciplines, for example, concepts from more than one discipline may be integrated by a central theme, issue, problem, topic or experience. The complexity and totality of EE thus suggests a holistic approach to teaching and learning. The Tbilisi Declaration stated that EE should consider the environment in its totality, natural and built, technology, cultural, historical, moral, aesthetic (UNESCO, 1978). The holistic nature of EE underpins participation in all aspects of life.

Learning becomes significant if learners experience what is happening in real life situations. Also, learning will be holistic because it will involve knowledge from

different disciplines and also will expose the learners to the ways people interact with their environment. By learners being part of the community, they will observe what is going on in the real life situations and therefore, be able to engage in solving different problems including those related to environment (Kimaryo, 2011).

From the statements above, it can be concluded that most of the literature favour the integration of EE into existing curricular of different subjects (is multidisciplinary and relates to concepts in many subject areas).

2.4 EE methods

There are a number of methods employed in implementing EE, and therefore no common methods for the teaching of EE (Lee & Williamson, 2001). Fien (1993) elucidates that '*about* and '*through*' the environment are valuable only in so far as they are used to provide skills and knowledge to support the transformative intentions of '*for*' the environment". However, much debate in EE has paid attention on discussing the methods that support EE *for* the environment. Most EE teaching text and manuals advocate for experiential and participative pedagogy. With this background, it is education *for* the environment that seems to have the potential of contributing most to the general well-being of environment and the teaching methods tend to be linked to education *for* the environment. Furthermore, Sytnik et al. (1985) observe that EE should be oriented towards the solution of problems (problem-solving approach) and be concerned with opportunities for action (action-oriented approach). EE teaching/learning is meaningful only when the acquired knowledge and skills are helpful in dealing with real life situations. "A suitable mix of methods would seem useful together with a better understanding of the ideas which inform and influence our use of these methods in different situations (Le Roux, 2001: 85)."

Generally, since there are no unique methods for implementing EE, however, the ones which address all the three dimensions to EE that is education *about*, *in* and *for* the environment will then be regarded as the appropriate ones.

2.5 The global driving force behind EE

The United Nations Education, Scientific and Cultural Organisation (UNESCO) and United Nations Environmental Program (UNEP) created three major declarations that have guided the course of environmental education.

Stockholm Declaration (Sweden) June 5-16, 1972: This Conference may have set the stage for greater awareness of the need to advance EE internationally. The United Nations Conference on Human and Environment held in Stockholm in 1972 in which it endorsed EE in its recommendation 96, the results of which led to the EE being included in school curriculum was noteworthy step in redefining and re-establishment of EE (UNESCO, 1972). The conference declared that EE must be used as a tool to address global environmental problems.

The Belgrade Charter (Serbia) October 13-22, 1975: In 1975, participants of the International Workshop on Environment, conducted in Belgrade, Yugoslavia, developed and adopted the Belgrade Charter (UNESCO, 1975). This Charter provided goals, objectives and guiding principles of environmental education programs that were further defined during the world's first Intergovernmental Conference on Environmental Education (Stockholm Declaration) hosted by UNESCO in cooperation with the UNEP. It further defines an audience for EE, which includes the general public. The conference proposed what has become the most widely accepted definition of EE: "EE is a process aimed at developing world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones" (UNESCO-UNEP, 1976, p.2).

In October 14-26, 1977, participants of the Intergovernmental Conference on environmental education held in Tbilisi, Georgia (USSR) adopted the Tbilisi Declaration that outlined EE objectives as well as its goals (UNESCO-UNEP, 1978). The conference noted the important role of EE in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities. It updated and clarified the Stockholm Declaration and the

Belgrade Charter by including new goals, objectives and principles of EE. As such it has international legitimacy and stands as a blue print for EE in many countries (Palmer, 1998).

Other Conferences

In 1987, there was an Intergovernmental Conference on environmental education by UNESCO and UNEP held in Moscow. This was a review of the progress of the set priority for environmental education in the 90's during the Tbilisi Declaration. United Nations Conference on Environment and Development (UNCED) held another Intergovernmental forum on environmental education in Rio de Janeiro (Brazil) from 3-14 June, 1992. This was then known as Earth Summit. This Summit focused on three broad concepts which are: First, an "Earth Charter" covering a number of principles aiming at development and protection of the environment. Second, "Agenda 21" was intended to be a global action plan for sustainable development in the 21st century. Third, developing countries demanded a considerable increase in new funding from developed countries to contribute to sustainable development. One repercussion of the Rio de Janeiro conference on EE is the recommendation that, environment and education should be incorporated as crucial part of learning. Also, another Intergovernmental meeting was on environmental education in Commonwealth held in 1990 in Bradford in which there was a debate on the present state of discussion of environmental education in the Commonwealth. In 1995 there was Intergovernmental Convention on environmental education in Bradford in which the main issue was to review and plan for future development of environmental education in the 90s.

2.6 Development of EE in Tanzania

The government of Tanzania has been struggling to provide education as a tool for promoting development in the country (URT, 1995). It has also recognised the need for EE and Communication to promote improved management of natural resources, which is a pre-requisite for sustainable development (Allen &Downie, 1999). Tanzania participated in the United Nations Conference on Environment and Development (UNCED) in 1992 and officially endorsed Agenda 21, the key policy output of the conference: Agenda 21's Chapter 4 encourages countries to promote

sustainable consumption and production pattern. The decision to include EE has also emanated from the enthusiasm to translate and implement some deliberations made in the Agenda 21 document about the environment and sustainable development (URT, 1997). Following this endorsement, the Government of Tanzania advocated for EE and education for sustainable development (ESD) in its education systems, enacted legislation pertaining to conservation and advocated for cleaner production methods across key sectors of economy (UNEP, 2012).

EE in its broad sense was carried out for many years through sector-oriented programmes including agriculture, forestry and community development outreach or extension programmes. The current EE initiatives began in early 1990s through the programme launched by National Environmental Management Council (NEMC), Ministry of Education and Culture (MoEC), Ministry of Natural Resources and Tourism (MNRT) and the World Wide Fund for Nature (WWF)- Tanzania thereafter EE programme expands to include other players (NBI, 2004). The overall goal of these programmes was to use education to bring about attitudinal change and environmental stewardship and rational utilization of natural resources for eradicating poverty and bringing about sustainable development.

Although the problem of formal EE is a worldwide phenomenon, it is more pronounced in third world countries and Tanzania is one among them. Tanzania's national Environment Action Plan, launched in 1994, called for a National EE and Public Awareness Program which would utilize a combination of measures to improve public environmental awareness and would promote both formal and non-formal EE. The EE in the non-formal education is not the main focus of the paper, but here I want to mention that some Non-Government Organisations (NGOs), environment clubs as well as the media have played very important role in enhancing the public's environmental consciousness.

In the context of Tanzania, education policy statements define EE as a process and it signifies the problem-solving view. In the National Environmental Education Strategy document (2005-2009), EE is defined as:

a life-long process aimed to equip individuals and the whole Tanzanian society to acquire knowledge and develop ethics and become environmentally aware/conscious, responsive and have relevant skills in identifying, managing, monitoring, evaluating and solving environmental issues and problems (URT, 2004, p.9)

Tanzania formal environmental education is increasingly a prominent problem part of primary, secondary, and tertiary education (UNESCO-PROAP, 1996). The problem of formal EE is experienced in education policy, curricula, subjects, syllabi, contents and, environmental education trained experts.

2.7 Policies and strategies addressing EE

The need and importance of EE and communication has been emphasised in various national policies and strategies, as well as various pronouncements from international fora including the International Conference on Environment in Stockholm 1972, UNESCO's International Environmental Education Conference in Tbilisi 1977, Brundtland report of 1987, Rio Earth Summit of 1992 commonly known as the UNCED and the Johannesburg World Summit on Sustainable Development of 2001 (URT, 2004). Since the Stockholm Conference on environment in 1972, the Government has prepared a number of policies, enacted a number of legislation and initiated several programmes which address environmental and natural resources management. International summits have influenced the development of policies in various sectors and curricula in formal education (Mtaita, 2007). In 1983, the United Republic of Tanzania (URT) enacted the National Environmental Management (NEM) Act in 1983 in order to streamline and enhance environmental management in the country. One of the objectives for establishing NEM Act was to create an enlightened Tanzanian society by undertaking awareness and sensitization programmes, acquisition and dissemination of information and training. The recent enacted Environmental Management Act (EMA 2004) has further strengthened the focus on EE and the need for increased participation by the people of Tanzania in environmental decision making and programmes development and implementation. EMA 2004 has clearly spelled out that EE and information are key tools in environmental decision making and management.

Other policies include National Forest Policy (1998), National Beekeeping Policy (1998), National Land Policy (1995), National Fisheries Sector Policy (1997) and Wildlife Policy of Tanzania (1998). Besides, there are policies in education which include Education and Training Policy (1995), National Higher Education Policy (1999) and Science and Technology Policy (1996). The provisions of these policies form an overall goal of the education sector, which is to ensure provision of quality education. They also address issues of access and equity at all levels of education. For example, one of the aims of the ETP is to enable a rational use, management and conservation of the environment (URT, 2004).

EE policy can be exposed in five perspectives: “behavioural perspectives (seeking to change behaviour and making people aware); experiential learning perspectives (seeking to educate/learn through experiences in nature); constructivist perspectives (whereby learners create or construct meaning for themselves); socially critical perspectives (the concern is the social processes in creating knowledge and critical intervention for change); and outcome-based education (where the focus is on outcomes and managing education for society’s economic development)” (URT, 2004, p. 9).

From then on, a series of environmental policies and measures have been taken place by the Tanzanian government in order to bring about environmental pollution and ecological destruction under control.

2.8 EE in VET institutes in Tanzania and Finland

Throughout the world, and in particular the countries of Sub-Sahara Africa, the governments are renewing efforts to promote technical and vocational education and training with the belief that skill formation enhances productivity and sustains competitiveness in the global economy.

One of the efforts therefore, is to integrate EE in VET institutes since the graduates from these institutes are also the main users of environment such as those dealing with carpentry and other forms of technical or vocational expertise.

2.8.1 EE in VET institutes in Tanzania

At present the structure of formal school education in Tanzania is 2-7-4-2-3+ that is, 2 years of pre-primary school education, 7 years of primary education, 4 years of Ordinary Level secondary education and 2 years of Advanced Level secondary education, followed by a minimum of 3 years of University education.

Primary is 7 years of basic education after pre- primary. At the end of the seventh year, pupils sit for the national examination known as Primary School Leaving Examination (PSLE) which selects pupils to join public secondary schools. Those pupils who are not selected join private secondary schools, while the rest can go to vocational training or enter the workforce (URT, 1995). In addition to the option of transferring to advanced secondary education, pupils at ordinary secondary school level may also continue studying within secondary vocational education.

In Tanzania, vocational education is offered at various vocational training centres. These institutions offer study programmes in various technical and vocational fields, for instance programmes for students who want to become carpenters, electricians or plumbers. These programmes generally conclude after 2 or 3 years with traditional examinations that lead to various diplomas or certificates.

2.8.2 EE IN MVTTC

The development of vocational teachers' education training in Tanzania goes back to 1973 when a separate Instructor Training Unit (ITU) was established and located within the campus of the present Dar es Salaam Regional Vocational Training and Service Centre (DSM-RVTSC). The unit was established with technical assistance from the Canadian International Development Agency (CIDA) (VETA, 2014). Due to increasing demand of Vocational Teachers as the result of economic reforms and development, it was necessary to expand capacity of the unit. Construction of the present college (MVTTC) started in 1983, under the 6th International Development Aid (IDA) project funded by the World Bank and was completed in 1986.

Following the establishment of the Morogoro Instructor Training Centre (MITC), the ITU was transferred to the new MITC in 1987 as fully fledged vocational instructor training (VETA, 2014). The ITU was expanded from the government mission to establish a vocational training centre in each region before the year 1990. Given this mission, the ITU was transformed into instructor training centre (ITC) which was situated in Morogoro in 1987. The ITU was renamed in 1990, and became Morogoro Vocational Teacher Training College (MVTTC) (Prospectus, 2013).

In the Tanzanian context, the study focused on the implementation of EE in MVTTC. MVTTC is the only a teacher training college for vocational education schools/centres in Tanzania. The college has several centres in the country which are visited by teachers to teach. It offers a number of programs including long term and short term courses. In the short term course is where EE (environmental sustainability) is integrated and it is found under the title of Life Skills (Cross-cutting skills) (VETA, 2014).

However, at MVTTC and school levels, EE is not taught as a separate subject or study area but as a crosscutting issue. EE therefore, is neither broken into specific contents or outcomes nor have specific guidelines to direct its teaching. This implies that EE was not fully established in leaning institutions and therefore, many challenges affect its implementation (Mtaita, 2007).

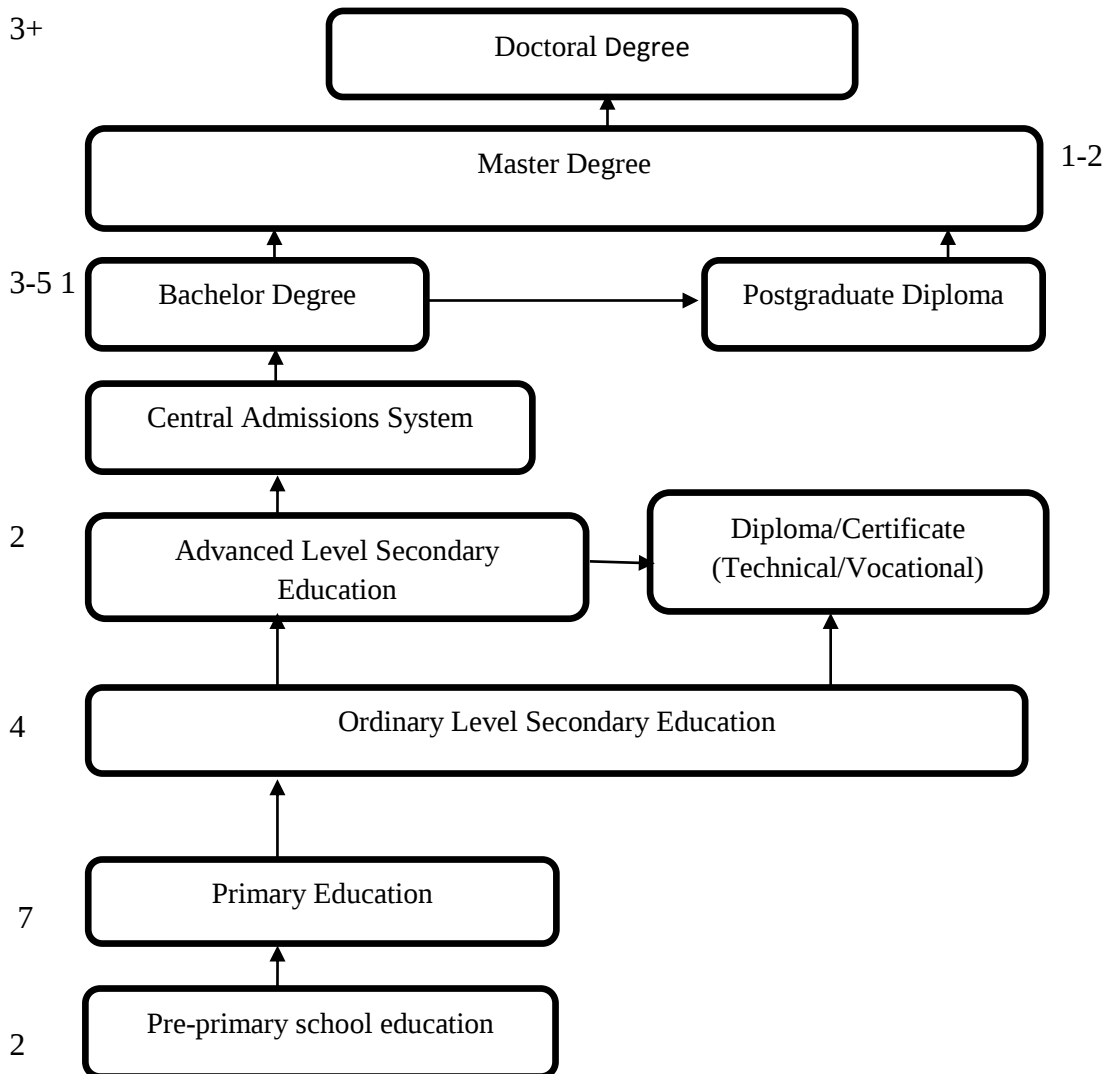
Despite the fact that EE in VET institutes in Tanzania is taught as a cross-cutting topic, the initiative taken by Tanzanian government to slot in EE into the VET curriculum is creditable. This is due to the fact that Tanzanian economy is largely dependent on the country's environmental and natural resources (URT, 2004). Thus, it is important to clearly address the issue of environment in all levels of education including in vocational education training institutions/colleges. Thus, there is a need to have a kind of education that raises people's awareness and devise solutions to available environmental problems. In Tanzania, this is emphasised by the Environmental Management Act no. 20 which spells out explicitly that, in order for the effective utilization of natural resources, EE should be a major prerequisite (URT,

2004). Also to attain quality life we need to live in a healthy and well conserved environment.

MVTTC offers Diploma and Certificate programmes to in-campus and off-campus modes. The entry qualifications for diploma programme include: vocational teachers certificate course, National Form Four certificate, Trade Test Grade One or CBET Level III certificate of competency, Full Technician certificate, Two years teaching experience in vocational training institution and ability to pay fees.

For certificate in VET, the entry qualifications are: National Form Four certificate, Trade Test Grade One or CBET Level III certificate of competency, Full Technician certificate of competency or equivalent, ability to pay fees and teaching experience in vocational training college is an added advantage.

Figure 2.1: Structure of Education System in Tanzania including VET institutes



Source: Researcher's own construct, 2015

2.9 EE in VET institutes in Finland

The Finnish education system comprises pre-primary education, basic education, general upper secondary education and vocational education and training, as well as higher education provided by polytechnics and universities.

In Finland, vocational education belongs to secondary education. After nine year comprehensive school, almost all students choose to go to either a *lukio* (high school), which is an institution preparing students for tertiary education or, to a vocational school. Vocational education is popular and about 45% of each age group attends

vocational high schools and the number is growing. Almost all young people finishing comprehensive schools have access either to general upper secondary education or to upper secondary vocational education and training (CedefopReferNet Finland, 2012). Both forms of secondary education last three years, and give a formal qualification to enter university or *ammattikorkeakoulu*, i.e. Finnish polytechnics.

The education in vocational school is free, and the students from low-income families are eligible for a state student grant. After completing secondary education, one can enter higher vocational schools (*ammattikorkeakoulu*, or AMK) or universities.

In Finland, the term “vocational teacher” encompasses teachers in vocational upper secondary education, vocational adult education and polytechnic education (MoE, 2006). All teachers at VET institutions and polytechnics have pedagogical education worth a scope of 60 ECTS credit points. Teachers of vocational subjects are required to have an appropriate Master’s degree or a polytechnic degree or, if the field does not allow for this, the highest possible qualification in their own occupational field. In addition, they must complete pedagogical studies with a scope of 60 ECTS and have at least three years of work experience in the field. Polytechnic lecturers are required to have a Master’s degree and three years of relevant work experience and senior lecturers need to have a licentiate or doctorate and the same work experience. They are also obliged to complete the pedagogical studies for teachers within three years after taking up their post (MoE, 2006).

Vocational teacher education studies include basic studies in education, studies in vocational pedagogy and teaching practice as well as optional studies which can comprise studies in adult education or special needs education, for example.

Special needs teacher and guidance counselor education also takes place after completion of teaching qualifications for general or vocational education (MoE, 2006).

Vocational teachers are trained at five vocational teacher education colleges and one Swedish-speaking university, the ÅboAkademi. Teacher education colleges operate in conjunction with polytechnics. All vocational teacher education colleges provide

multi-field training, meaning that they train teachers for all vocational fields. This dates back to the 1990's when the law on vocational teacher education changed such that basic education for teachers was integrated into higher education. This meant that more than twenty post-secondary level teacher training colleges were merged into seven bigger colleges. This model is considered to be successful, as many issues are common to all fields (MoE, 2006).

Qualification requirements: Moving towards an academic profession

In order to become a teacher in Finland, you need to fulfill qualification requirements as set out in legislation. There is no separate procedure for accreditation or recognition. All teachers at VET institutions and polytechnics have pedagogical education worth a scope of 60 ECTS credit points.

2.9.1 National strategies towards sustainable future

In Finland, the Finnish National Commission on Sustainable Development (SD) and the Ministry of Education have elaborated national strategies of education for sustainable development (2006). According to the targets of these strategies, all schools and educational establishments have sustainable development programmes by 2010, and 15% of schools and educational establishments have been certified for their sustainability work by 2014. Sustainable development is also incorporated as a comprehensive, subject crossing theme in the national core curricula of general and vocational education.

2.9.2 Environmental certification

In 2000, Trade Union of Education in Finland OAJ took the initiative in preparing environmental criteria to help schools and educational establishments in their work for sustainable development. Environmental criteria and a certification system were developed in the Life Environment project Envedu (2001-2004), which received financial support from the European Commission and the Finnish Ministry of the Environment.

The participants in the project were the Trade Union of Education in Finland OAJ, the OKKA Foundation (a foundation for teaching, education and personal development

supporting the educational sector. Its founding organisations are the Trade Union of Education in Finland OAJ and several teachers' associations in vocational sector), National Board of Education, Hyvinkää-Riihimäki Vocational Adult Education Centre, SYKLI Environmental School of Finland, University of Oulu, University of Joensuu and Cooperative Eco-One. From 2004 onwards, the OKKA Foundation has been responsible for the management of the certification system.

2.9.3 New Sustainable Development criteria

During 2010, the environmental criteria and certification system were updated to cover the environmental, economic, social and cultural aspects of sustainability. The criteria apply to the basic education and general and vocational upper secondary education, and vocational and liberal adult education. The new criteria and related self-evaluation tools are based on the principle of quality circle (plan, do, check, act), and are applicable with quality systems. They provide a systematic tool for the planning of teaching and constructing sustainable development programmes. The criteria include sustainability themes such as responsible procurements, recycling and prevention of waste, energy and water, nutrition and health, safety, wellbeing of staff and students, cultural environment and cultural diversity. The idea was that the school selects annually one or more themes which are implemented in teaching and school culture.

In order to encourage the promotion of EE and Sustainable Development Education (SDE) in Finland, a national strategy for EE in 1992 was created, as well as strategy for SDE (2006-2014, 2006). Sustainable Development (SD) has also been taken into account in the national curricula for primary and secondary schools (National core curriculum for basic education, 2004; National core curriculum for upper secondary schools, 2003). In all qualification requirements in Finland, there is either sustainable development or environmental issues inside the qualification requirements.

Finland is one of the leaders in Environmental Performance Index in 2014 by Yale University and number one for example in air quality (PM 2.5), water and sanitation, health impacts and pesticides regulation. Education organisations offer the wide selection of environment-related courses for public and private sectors actors. They

include EE, Environmental Protection, Quality Environment and Safety (QES) Management, Energy Efficiency, Material Efficiency, Sustainable Development, Hazardous Waste Management, Waste management, Waste Water Treatment, Environmental Risk Management, Contaminated Soil Management, Environmental Teacher Training among others.

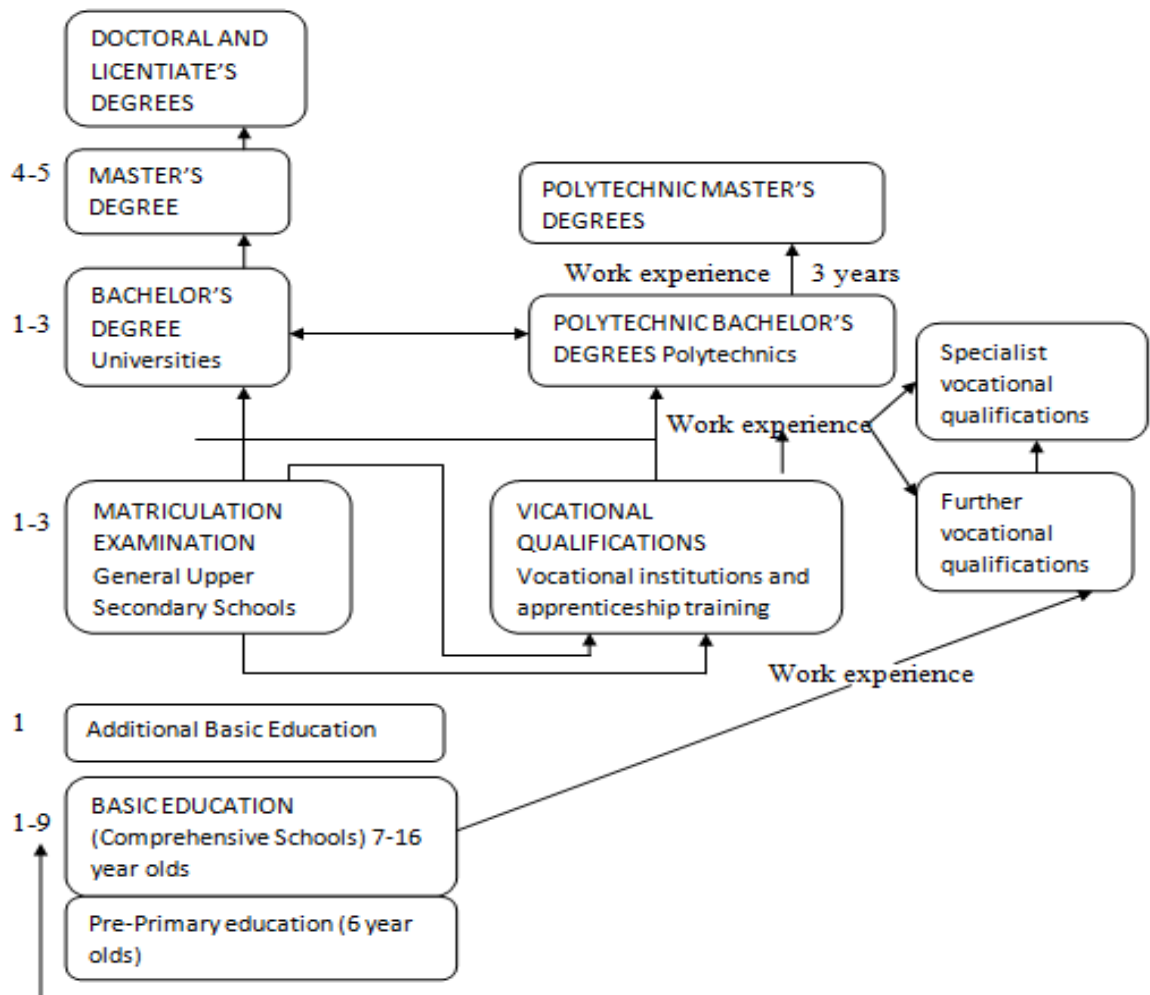
2.10 Finnish Models in EE

In Finland, the basis of education is provided by constructivist pedagogy (Jeronen, Jeronen and Raustia, 2009). Learning is an active and constructive process, and pupils construct their own understanding and knowledge. Pupils should be creative and discover the problems as well as provide alternatives ways of solving them. In this process, the teacher acts as a guide, and his or her main task is to create learning activities that will engage learners.

Cantell and Koskinen (2004) cited in Jeronen, Jeronen and Raustia (2009); Willamo, 2005 further contend that, the most widely known and used models in Finland are the environmental behaviour model, the Onion model, the House model and the model of Education for Sustainable Development.

All the models have the same purpose: education for the future. Their main aim is to develop skills and qualifications important for nature conservation, such as sensitivity for the environment, knowledge about nature and ecology, environmentally responsible emotions and values, understanding of environmental questions, critical thinking skills, social action skills, ethical growth, and responsible environmental behaviour (Canteli & Koskinen, 2004). They also share the idea that EE involves many different approaches.

Figure 2.2: The Structure of the Education System in Finland including VET teachers' education level



Source: MoE-Finland, 2006.

2.10.1 EE in TAKK

Tampere Institute of Vocational Adult Education (TAKK) is one of the biggest Vocational Adult Education centres in Finland established in 1962. In TAKK there are over 15,000 students from 40 different countries in the world. Students who join the department for their studies were those who were already working in industries. TAKK has achieved in the following areas of EE: First, starting the vocational environmental education at Pirkanmaa (Further vocational qualification of Environmental maintenance 2009 and Specialist vocational qualification of Environmental management 2013). Second, regional and national co-operation with different environmental management or education organisations (projects with other

education institutions (TREDU, TAMK, TUT, Ahlman, Edupoli, Salpaus etc.) and many companies (SKANSKA, Lemminkäinen, Delete etc.) and networking (PYY, YJY ry, FLF, SuLVIRY etc.)). Also, giving at least a bit of environmental knowledge to 15 000 students per year (qualification requirements and TAKK's own environmental programme).

2.10.2 The environmental training and services that TAKK offers

TAKK offers wide selection of environmental related courses which enables companies and other organisations to get more benefits from their environmental work

Figure 2.3: Environmental related courses in TAKK



Source: Literature, 2015

2.10.3 EE in TREDU

Tampere vocational college, TREDU started in 2013. System is part of vocational upper secondary education and city of Tampere. TREDU is located in 20 offices/colleges around Pirkanmaa-region in the city of Tampere.

Among them are Ylöjärvi, Nokia, Kangasala, Lempäälä, Orivesi, Ikaalinen, Virrat and Pirkkala. TREDU offers studies mainly for youngsters but also for adults, apprenticeship training and work places. Qualifications can be reached in basic qualification, further- and specialist vocational qualification (TREDU, 2015). The institute offers a number of environment related courses like plastic waste, climate change among others.

2.11 Constraints to the implementation of EE

Constraints here means all things which create problems for all respondents including students, teachers, government officials and other EE professionals unable to effectively implement EE. The complexity of EE not only creates challenges in its interpretation but also in the way it is approached (URT, 2004; Mtaita, 2005; Mtaita, 2007). For example, the constraints to effective implementation of EE in Tanzania include insufficient resources like time, funds as well as poor coordination to support efforts to develop EE (URT, 2004; Mtaita, 2005, Mtaita, 2007).

2.12 EE in practice

EE has been practiced since long time ago, and therefore, it is not new thing to most of the societies. It was part of informal education inherited from generation to generation (NBI, 2004). Most societies by that time were able to know that human beings and environment cannot be separated for example; children were brought up by their parents to know what plants and animals could be eaten and how to collect them. Land has always been cultivated in various manners and the concept of carrying capacity has been known from a practical point of view around the world (Lindhe, 1999). Even the early practice of EE in the formal education can be traced to the 20th century. It is not until 1960s with the worldwide explosion of environmental problems that EE has really entered the empirical stage. In Tanzania, for example, EE was introduced during the Arusha Declaration in 1967.

2.13 Empirical review

Various studies relating to implementation of EE in schools and technical and vocational education globally and locally have been conducted by various researchers.

A relatively large portion of literature on EE arises from outside Tanzania while a small volume is locally based.

2.13.1 Literature from outside Tanzania

The literature reviewed on EE in Schools and Technical/Vocational schools out of Tanzania include the following:

Radeiski (2009) conducted a research on the implementation of EE in elementary schools, in a comparative view of Sweden and Germany. The study adopted qualitative research approach using questionnaires and interviews as data collection methods. EE in both countries was integrated in their curricula and the age of students is from 7 to 16 for Sweden and from 6 to 12 for Germany. The findings of the study indicate that there is no big difference in understanding of EE and its tasks that is, EE has developed in practical requirements and in terms of theoretical concepts. The results further reveal that, EE is taught multidisciplinary in schools. Both Swedish and German primary school teachers incorporate the topic of environment in other subjects. Also she found that, in Sweden one curriculum is for all elementary schools in the whole country, all subjects are integrated (EE is no own subject) while in Germany every federal state has its own curriculum and EE is no own subject and different methods to educate EE.

Akinnuoye and Nor (2011) conducted study on implementation of EE using a case study of Malaysian and Nigerian Secondary schools. Data was collected by using professionally-validated questionnaire and direct interviews with secondary school Head Teachers and students from both countries of study. The results revealed that there were more schools in Malaysia that provide EE than were in Nigeria. Also more than 54% of schools in Malaysia have EE display rooms compared to 28% of Nigeria. Study further articulated that more than 50% of the teachers in Malaysia have attended basic EE in-service training while in Nigeria only 40% have attended the training. The study further found that in Nigeria facilities and resource persons were respectively inadequate and not considerably up-to-task compared to Malaysia. The study did show that only 12% of schools studied have necessary facilities in Nigeria compared to Malaysia with 100%. The study then concluded that more teachers in Nigeria agreed

that the concept of EE was difficult to teach due to lack of or inadequate facilities and conducive environment, thereby impacting its implementation negatively. On the other side, results showed that between the adopted techniques of implementation by the schools in Malaysia and Nigeria, Malaysian teachers were more competent in teaching EE than those of Nigeria.

A workshop conducted in Chandigarh, India (2003) on Integrating EE in Technical and Vocational Education revealed that, EE is systematic in primary, secondary and higher education, but that it is still at fledgling stage in technical and vocational education. In China, for example, more than 2,000 specialised secondary schools and vocational high schools currently offer environmental courses. However, this comprises less than 15 percent of the approximately 15,000 specialised secondary and vocational schools. In India's vocational secondary schools only 5% offer EE.

The above account shows that most of the studies reviewed above have been based on primary and secondary schools and very few technical schools. This indicates that VET institutes to a large extent, have been ignored.

2.13.2 Literature from Tanzania

Various studies have been conducted in Tanzania with the purpose of assessing whether the implementation of EE has been successful or not. Most of these studies have been conducted at the levels of primary and secondary schools. This is also emphasised by the Hogan (2007) who contends that most studies on EE conducted in Tanzania have been done at secondary school level.

Kimario (2011) carried out study in Tanzania which sought to examine primary school teachers' perceptions of environmental education, its integration into primary school education and teachers' teaching practices in Tanzania. The study adopted qualitative research approach using phenomenography and phenomenology as research methods. Methods employed to collect data were interviews and lesson observations. The findings of the study indicated that primary school teachers expressed variations in their perceptions of environmental education and education for sustainable development. However, most of them focused on the aspect of knowledge acquisition that is education *about* environment. The results further revealed that the

implementation of EE in these learning institutions has proved failure. Evidence of mismanagement of environment is clearly seen in schools, VET institutes and in the communities surrounding these institutions. The study also found that during the implementation of EE a number of barriers were encountered including inadequate study materials, time and overcrowding in the class. The above account implies that EE is perceived as education *about* the environment.

Mtaita (2007) conducted study to explore stakeholders' views of collaboration in the implementation and development of EE in Tanzania in 2007. The study adopted an interpretive research paradigm and purposeful sampling strategy. Data collection methods used included interviews with teachers, school leaders, government, and EE agency officials and questionnaires with students and parents. Data analysis followed qualitative and quantitative procedures. The results of this study showed that respondents' perceptions and teaching of EE were restricted to education *about* the environment. Little weight was given to education *in* and *for* the environment. The findings further indicated that despite the directives stipulated in the education policy of 1995 on the inclusion of EE in all subjects in the primary and secondary school curriculum, still the implementation of it is of less effective. This indicates that there is mismatch between what the curriculum demands to be taught and what is actually taught in these learning institutions.

The noted constraints to the implementation of EE included limited time and resources, and lack of training and funds. The above explanation implies that EE is viewed to be as a process of acquiring knowledge, skills and understanding as well as raising awareness and that EE is a challenging field to implement. In another study conducted by Lindhe (1999) on the greening of education in primary and secondary schools in Tanzania showed that there are a large number of EE components in the syllabi for primary school and less in secondary. These components are strongly related to the Education for Self-Reliance policy in the syllabi developed before the mid-1980s. The study further indicated that schools and communities surrounding these schools did not change their attitudes towards environment despite the fact that education on environment was offered.

Jambiya (2003) in a study conducted on environmental management around Lake Victoria in Tanzania found that although people living in this area are educated, their awareness on environmental issues is low.

The empirical literature review, therefore, shows that EE has been mostly issued in primary and secondary schools and was not successful. This was contributed by a number of factors such as lack of proper EE teaching methods, awareness or because it is taught as a cross-cutting issue. This had some negative implications on the implementation of EE in VET institutes especially in Tanzania.

Thus, this study sought to examine the way VET students and teachers and other EE professionals implement EE as well as constraints that have been militating against the smooth implementation of EE in VET institutes using Tanzania and Finland as a comparative study.

2.14 Synthesis and research gap in the literature reviewed

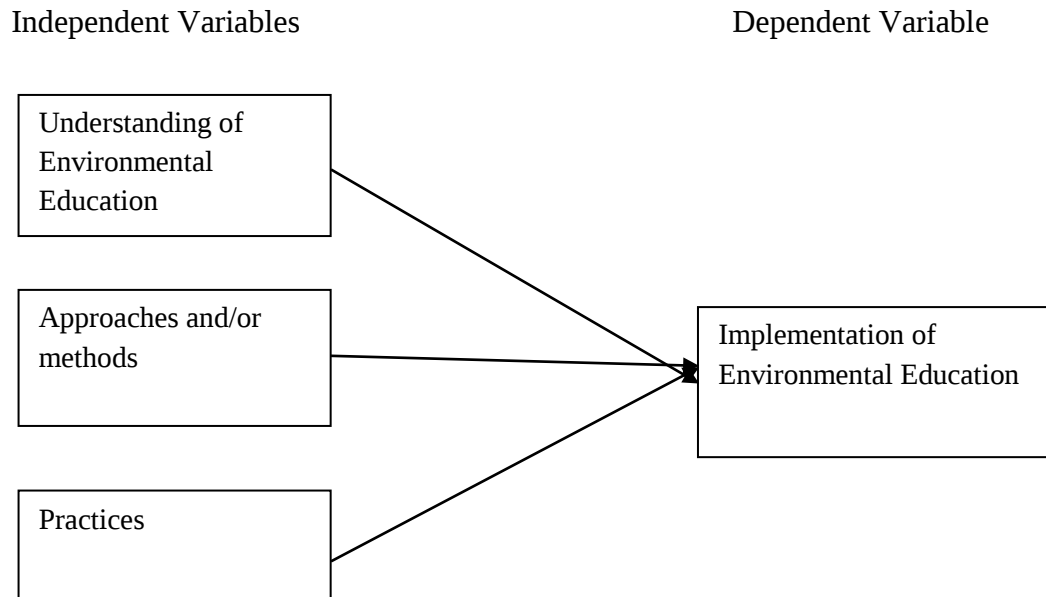
In light of previous studies that have been reviewed above, the researcher admits that, each focused mainly on implementation of EE either in pre-primary, primary or secondary schools and few of them in vocational schools. But also there have been little efforts on studies conducted to assess the implementation of EE in VET institutes in a comparative basis between Tanzania and Finland. Therefore, this study aimed at bridging the gaps in other studies that have been reviewed by investigating the way EE is understood and implemented in VET institutes in Tanzania and Finland, the constraints faced during implementation and practices that they can borrow from each other in order to strengthen their efforts to use EE to foster the social wellbeing of the human beings in their respective communities. These gaps were covered by administering questionnaire to students and interviewing teachers and government officials to get their views on the implementation of EE.

2.15 Conceptual framework

In order to examine the implementation of EE in VET institutes, it was required to have relevant and comprehensive conceptual framework so that it could help a researcher to organise his thinking and successfully complete investigation.

The Conceptual framework below shows the relationship between independent variables and dependent variable.

Figure 2.4 Conceptual framework



Source: Researcher's own construct, 2015

Assumption

The assumption of the Conceptual framework is that, a dependent variable which is the implementation of environmental education will depend on the independent variables which are understanding, approaches and/or methods and practices of the environmental education.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodological procedures that have been used in the study. These include the research design, area of study, research approach and target population. It also includes sample and sampling procedures, data collection instruments, validation of instruments, ethical considerations and data analysis procedure.

3.2 Research Design

This study sought to explore the implementation of EE in VET institutes in Finland and Tanzania. The study adopted an interpretive approach. Palmer (1998) and Palmer & Birch (2005) assert that, interpretive paradigm focuses on how individuals basing on their experiences, views and reflections conceptualise the environment. The design was selected in order to compare the way individuals in VET institutes interpret and implement EE. The design was also used because the study sought to draw an in-depth understanding of the phenomenon under study, EE understanding, implementation and practices.

3.3 Area of study

The study was conducted in three VET institutes (TAKK and TREDU in Tampere Municipality in Finland) and in Morogoro Vocational Training Teachers College (MVTTC) in Morogoro region. The region of Tampere was selected because it has most of Finland's VET institutes and it is also where University of Tampere collaborating with Mzumbe University is located. Otherwise, Morogoro was selected in this study because it is where the Tanzanian University collaborating with Tampere in Finland is located. In addition, the closest VET institution to Mzumbe University – MVTTC, is located in the Morogoro Town, which is in the region of Morogoro. Furthermore, the selection of these institutes was restricted to available funds and the researcher planned to take full advantage of the limited time scheduled for data collection.

3.4 Research Approach

For the purpose of this empirical investigation, the qualitative research approach was preferred. The selection of this approach was largely a response to the nature of this study which intended to attain the deeper understanding of EE, approaches used in implementing EE, constraints encountered during the implementation of EE and the practices that VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE.

Qualitative approach provided room for the researcher to enter the respondent's personal/world in order to gain deeper and clear understanding of their attitudes, feelings, perceptions and experiences through interviews and observations (Cresswell, 2007). The study used interviews, questionnaires, observations and documentary reviews.

3.5 Population, Sample and Sampling Procedures

3.5.1 Target Population

The target population of this study involved various stakeholders of VET institutes and government officials in Tampere and Morogoro. They included VET institutes' teachers and students; NEMC and NBS officials. These groups were targeted due to their roles, awareness and influence on the implementation of EE.

3.5.2 Sample Size

The sample of 65 units in three VET institutes was included in a proportion of 49 students, 14 teachers, 1 NEMC Official and 1 NBS Official.

Table 3.1: Composition of the sample

Country	Number of Institutes	Categories of Respondents				Total number of respondents
		Teachers	Students	NEMC Official	NBE Official	
Tanzania	1	12	45	1	-	58
Finland	2	2	4	-	1	7
Total	3	14	49	1	1	65

Source: Researcher's own construct, 2015

The respondents indicated in the table above were sampled for this particular study due to their roles, awareness and influence on the implementation of EE in VET institutes in both Tanzania and Finland.

Selection of students

Students were intentionally involved in the study due to the fact that these are the ones who are trained in EE and then are supposed to implement it in their institutes. In order to avoid biasness, students were randomly selected and therefore, able to express themselves literally. To get their views of the way they understood about EE and put it into practice in their institutes was very important. Data was collected through questionnaires. The study anticipated to include 70 students in the proportion of 50 from MVTTC, 10 from TAKK and 10 from TREDU. Unfortunately, a total of 49 students from three VET institutes were involved in the study, 45 were from MVTTC in Tanzania; 4 from TREDU and none from TAKK in Finland. This is because of various reasons including no return of the questionnaires as well as they were too busy with studies. For instance, questionnaires were sent to students at TAKK and TREDU VET institutes in Finland but no single questionnaire was returned to the researcher by the TAKK students. This actually made the researcher work on with only those returned by students of TREDU.

Selection of teachers

Teachers were also involved in the study because they are the key players in the implementation of the curriculum. Their selection was purposeful in the sense that their perception, interests, prior experience and other personality influence the quality of EE offered. These teachers participated in the interviews. A total of 14 teachers were involved in the study, 12 were from MVTTC in Tanzania and two from TAKK and TREDU in Finland, one from each institute. However, these two teachers from Finland were the professionals of EE unlike those from Tanzania.

Government officials

These government officials (1 NEMC and 1 NBE) were purposively selected because have policy guidelines, circulars and other documents related to the topic under study which are not easily accessed by other ordinary persons. Besides, there was no objection on this because the target group was small. These officials participated in interviews.

3.5.3 Sampling Techniques

In this study, simple random and purposive sampling techniques were employed. Students were selected randomly to avoid any bias. Teachers and government officials were being selected purposively since the researcher considered that these had required information, government circulars and some policy documents; awareness and influence that guide implementation of EE in VET institutes.

3.6 Data Collection Methods and Instruments

The study used various research methods and instruments in gathering relevant data, including interviews, questionnaires, observation and documentary reviews. In the first place, the instruments were designed and validated. Validation involved letting supervisors and other specialists in the field read them and provide some comments.

Table 3.2: Matrixes of research questions, methods, target groups and instruments

Research questions	Methods	Target group	Research Instruments
How EE is understood in Finnish and Tanzanian VET institutes?	Interviews and Questionnaires	Students and teachers	Interview guide and Questionnaires
Which approaches do VET institutes in Tanzania and Finland use in implementing EE?	Interviews, Questionnaires, Observation and Documentary reviews	Teachers, NEMC official and NBE official	Interview guide, Questionnaires, Observational guide and Documentary review guide
What are the constraints to effective implementation of EE in VET institutes in Tanzania and Finland?	Interviews, Questionnaires and Documentary reviews	Students, teachers, NEMC official and NBE official	Interview guide, Questionnaires and Documentary review guide
Are there any practices that VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE?	Observation, Documentary review	-	Observation, Documentary review

Source: Researcher's own construct, 2015

3.6.1 Interview

This technique was employed to gather data from VET institute teachers, NEMC and NBE officials (See appendices II, III, V and VI). In this study, a semi-structured face-to-face, (one to one) interview was used to collect data where telephone and mail interview schedules were used to collect data where 13 teachers (12 from MVTTC and 1 from TAKK), 1 NEMC official and 1 NBE official were interviewed; also, telephone interview was used to collect data from 1 NEMC official. This is used to collect data from very few respondents who were either too busy to participate in face to face interview during day time or those who are away from their offices. Furthermore, mail interview schedule was used to collect data from 1 NBE official and 1 TREDU EE professional. This technique is used in order to get their opinions, experience and feelings about the implementation of EE in VET institutes and its impact on the environment, as well as constraints in its implementation. However, unstructured interview was also used by the researcher to supplement some questions depending on interviewee responses. With regards to the interpretive nature of investigation, interview technique was seen to be appropriate to be employed. Interviews allowed flexibility in data collection since the researcher was able to modify difficult questions for more clarity and even ask some more questions depending on the context. During the interview sessions, the researcher used the notebook and mobile phone recorder to take the responses from the interviewee.

Despite its merits, there were demerits as analysis of data was difficult and time consuming, consistence and objectivity were hard to achieve and little freedom for flexibility due to the fixed questions order. Each respondent was given the same questions thereby maintaining uniformity. Open ended questions approach led to confusion either because of the lack of understanding of the question by the informant or by the lack of understanding of the respondent's answer by the interviewer (Denscombe, 2007).

3.6.2 Questionnaires

Both open and closed ended questionnaires were administered to 65 students; 50 from MVTTC and 15 from TREDU (See appendices I and IV). Open-ended questions were

employed in order to get experiences and feelings from students about the implementation of EE in VET institutes. In each open-ended question asked, replies were summarised in a few words and entered onto a table. On the other hand, Closed-ended questions were set so as to get data which could not be obtained using open-ended questions. Responses gotten from questionnaires were then analysed to form main categories based on the research objectives. Consequently, after the data had been analysed, the researcher was able to identify various common themes which provided the framework of data presentation. The researcher decided to employ questionnaire because it was seen to be easy to run in the sense that it could supply a large amount of research data at a relatively low cost in terms of materials, money and time. It is easier to arrange and it supplies standardized answers to the extent that all respondents are supplied with exactly the same questions (Denscombe, 2007).

On the other hand, questionnaire has short comings. These include pre-coded questions can be frustrating for respondents and, thus deter them from answering, pre-coded questions can bias the findings towards the researchers rather than the respondents way of seeing things and they offer little opportunity for the researcher to check the truthfulness of the answers given by the respondents (Denscombe, 2007).

3.6.3 Observation

This study used observation technique to collect data through recording information from the field without asking from the respondents. Unstructured observation was used to see what and how EE was implemented in VET institutes. The researcher conducted non-participant observation. Researcher visited various places around the VET institutes' campuses and observed how EE was being practiced. The researcher was able to see, take pictures and note relevant phenomena that portray clear picture of the problem under study. This technique helped researcher to observe by his own eyes what is really done in these VET institutes pertaining to EE instead of relying on the verbal or written information given to him. This method was used to complement data collected through questionnaire and interview techniques.

3.6.4 Documentary Review

The researcher read various documents including both published and unpublished books, manuscripts, journals, reports and articles to obtain information pertaining to the implementation of EE in VET institutes in both Tanzania and Finland. In line with suggestion by Punch (2009: 159), the study used documentary review to collect data in conjunction with interviews and observations

3.7 Validation of Instruments

In this study the instruments were refined and modified according to the purpose of the study and the research tasks and questions. Before undertaking this study, the researcher conducted a pilot study in one of the secondary schools in which EE is taught as a cross-cutting issue.

The instruments were pre-tested in Mongola Secondary school in Mvomero District in Morogoro region involving one HOS, four teachers and eight students. The respondents were not part of the actual sample of the study. Questionnaires and interview guide were piloted to ascertain their validity before they were used. Some of the participants in the pilot study particularly students who sought for explanations on some statements were given the necessary consideration. Respondents were encouraged to make useful suggestions by commenting either orally, in writings or both on items with ambiguities. The aim of the pilot study was to check the effectiveness of the instruments for tapping the required information for the study.

Data collected during pre-testing was analysed. It was found that all participants (head of school, teachers and students) who participated in the study had almost similar interpretation of the understanding and implementation of the EE. About 86 percent of the participants (head of school and teachers) understood EE as creating awareness about the environment while 14 percent expressed it as an education involving solving problems and taking action to improve environment. During pilot study, it was revealed that, the approaches and/or methods used in teaching EE included that one where a topic of EE was taught within the major subjects such as Geography, Biology and Civics. There was also no specific teaching method.

The teaching of the topic was theoretical. Generally, EE was not taught seriously, as some of the respondents commented:

“The topic is not taught well because while we were at colleges of education, we were not trained well”.

“The topic is treated as a less important; it is partially taught only because it is in the syllabus”.

“EE period is used to compensate lost periods other subjects considered important”

“The time for environmental education is used to compensate lost periods of their subjects considered important”.

The feedbacks from the pilot study made the researcher modify and revise the instruments through re-wording some questions and clarify the instruction.

3.8 Ethical Issues and Considerations

Any research needs to consider ethical aspect. All our lives are totally circumscribed and submerged in research fields, therefore what most importance that research should be conducted with highly moral and ethical considerations (Omari, 2011). A researcher should behave in manner that does not compromise his image before the people.

The major issues considered include firstly, respondents of this study were given a prior-information about the intention of this study and requested to participate at their will and freely. No one was forced to participate in the study. The informants also were assured that all information they provided would have been treated with privacy and confidentiality. The purpose was to make the respondents feel at easy to provide the required information without fear of being held accountable for information they provided.

Secondly, formal procedures in conducting research: These included obtaining research clearance that allowed carrying out the study and introduced the researcher to the respondents. These clearances were obtained from Vice Chancellor of the University of Mzumbe, Regional Administrative secretary (RAS) for Morogoro Region and lastly, the District Administrative Secretary (DAS) for Morogoro District

introducing the researcher to the VET institutes' population (See appendices IX, X and XI).

3.9 Data Analysis Procedure

The study used qualitative method approach in order to access students, teachers and government officials' conception, experiences and practices about the implementation of EE in VET institutes. Qualitative data was summarized (writing key ideas), categorized (data grouped into meaningful chunks) this was done through coding of data and structured (written in narrative form).

The coded data was presented in narrative form, tables and percentages. Then data was presented, discussed and the report was produced.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

In this chapter, the major findings are presented in view of the data obtained from the study area. The study was designed to investigate EE implementation in VET institutes in Tanzania and Finland. Students and professionals in the field were asked to share how they envisioned and promoted EE implementation, including how students, teachers and government officials perceive and put EE into practice. The results obtained are presented based on the designed research objectives which included finding out how EE is understood in Finnish and Tanzanian VET institutes; finding out the approaches and/or methods the VET institutes in Tanzania and Finland use in implementing EE; examining the constraints to effective implementation of EE in VET institutes in Tanzania and Finland; and finally exploring any practices that VET institutes in Tanzania and Finland can borrow from each other as improvement interventions in their implementation of EE.

The methods used for data collection were questionnaires administered to students, in-depth interviews with teachers and other EE professionals. Questionnaires and interviews were complemented with observations on how EE is implemented in the institutes' premises. Other findings were obtained through document analyses. By focusing on these informants, rich picture of EE in VET institutes were developed to inform future development of practical EE implementation. Whenever relevant, information and conclusions from the literature review were referenced to provide context and connections among the viewpoints and participants' quotes. The findings are presented in forms of tables and figures followed by a brief explanation of the contents presented. However, there are commonalities and differences in the implementation of EE in both countries and crucial is the main difference based on two different educational systems, awareness and understanding of the general concept of EE.

4.2 Descriptive Statistics

4.3 VET institutes Location Analysis

Table 4.1: Frequency and Percentage Distribution of VET institutes by location

Location	Frequency	Percent (%)
Finland	2	66.7
Tanzania	1	33.3
Total	3	100

Source: Field data, 2015

Data presented in Table 4.1 show that two VET institutes were located in Finland (66.7 percent) while one VET institute (33.3 percent) was located in Tanzania. This disproportionate shows the under-representation of VET institutes in Tanzania. This was due to the fact that there are many VET institutes in Finland where University of Tampere collaborating with Mzumbe University is located unlike in Tanzania where there is only one VET institute which is in Morogoro region where Mzumbe University collaborating with Tampere University in Finland is located. .

Table 4.2: Expected and reached respondents by gender

Country	Category	Expected respondents	Reached respondents		Total	Percent	Remarks
			M	F			
Tanzania	Students	50	25	20	45	90	No return of questionnaires
	Teachers	12	8	4	12	100	
	NEMC Official	1	1	0	1	100	
Finland	Students	20	0	4	4	27	No return of questionnaires
	Teachers	2	1	1	2	100	
	NBE Official	1	0	1	1	100	
Total		86	30	35	65		

Source: Field data, 2015

4.4 Respondents

As mentioned in chapter three, participants of this study included students, teachers, and NEMC and NBE officials. Students and teachers were drawn from three VET institutes; two (TAKK and TAOK) from Tampere in Finland and one (MVTTC) from Morogoro in Tanzania. Other participants included NEMC official from Tanzania and NBE official from Finland.

4.4.1 Students

The information in Table 4.2 reveals that, a total of 49 VET institute students participated in responding to the questionnaires, 45 were from MVTTC and 4 from TREDU. Out of 49, 25 were males and 24 were females. All the students were studying EE either as a cross-curricular issue or as a separate course. Also, the number of students participated in the study was almost equal gender wise with a difference of only one student.

4.4.2 Teachers

The results in the Table 4.2 also depict that 14 teachers were involved in interviews. Face to face interviews were done to 12 teachers from MVTTC and 1 from TAKK whereas one teacher from TREDU was interviewed through mail interview. Furthermore, there were more male teachers who participated in the study compared to the female ones.

4.4.3 Government Officials

Table 4.2 further shows that, 2 government officials participated in the mail interviews, 1 from NEMC in Tanzania and the other from NBE in Finland.

4.5 Summary of Results by Research Objectives

4.5.1 Comparing the understanding of EE in VET institutes in Tanzania and Finland

This sub-section responds to the objective number one of the study which required finding out the way Tanzanian and Finnish VET institute students and teachers understand about EE.

The interpretation of the concept of EE resulted to emergence of the common ways of describing the way respondents understand about the term EE. It was assumed by the researcher that, in implementing EE, each respondent in VET institute had his/her own way of viewing about the term EE. Table 4.3 summarises the findings obtained under the first research objective. In collecting the data, interviews and open-ended questionnaires were employed in eliciting relevant information from the key informants who were teachers and students respectively.

The diversity of responses related to this research question is presented in Tables 4.3, 4.4, and 4.5 as well as explanation made by teachers in TAKK and TREDU which is not in table form.

4.5.2 Students understanding of EE in MVTTC

Getting students perception of their understanding of EE was deemed important since are the main subject of the EE. Five themes emerged from the questionnaires on students' understandings of what EE meant. These themes are featured in Table 4.3 below.

Table 4.3: Results on the way MVTTC students interpreted about EE

Description	Frequency	Percent
Creating awareness and consciousness about the environment	41	91.8
Acquisition of knowledge, skills and practices on the environment	37	75.5
Explore environmental issues, engage in problem-solving and take action to improve environment	24	53.3
Education on how people perceive the value of the natural world and teach how to change environmental behaviour	17	34.5
Helping someone to become smart and healthier	4	8.2

Source: Field data, 2015

Note: Information in Table 4.3 is based on Multiple Responses.

Table 4.3 reveals that EE was interpreted differently by the students. The majority of respondents 41 (91.8 percent) understood EE as creating awareness and consciousness about the environment, for example, *“EE is the study that helps people to become aware of environmental problems such as land degradation, pollution, deforestation, etc”*. 37 informants (75.5percent) perceived EE as an acquisition of knowledge concerning everything that surrounds human beings, e.g. *“Is the process of studying all things that surround human beings”*. Some respondents 24 (53.3 percent) interpreted EE as education about exploring environmental issues, engage in problem-solving and take action to improve environment, e.g. *“It is an education dealing with conservation of environment”*. Few respondents 17 (34.5 percent) perceived EE as education on how people perceive the value of the natural world and teach how to change environmental behaviour, e.g. *“It is an education which helps people change their perception toward environment such as getting people to recycle or build eco-*

friendly dwellings” and very few about 4 (8.2 percent) defined EE as education that helps someone to become smart and healthier, for example, “ I’m feeling good about environmental education because it helps me to be smart, health..”.

4.5.3 How teachers understand about EE

Teachers’ perceptions of understanding of EE are based on their knowledge, experiences, beliefs and personal meaning.

Table 4.4: Interview Results on the way MVTTC teachers understood of EE

Description	Frequency of Mentioned (Raked = 12)
Creating awareness and consciousness about the environment	10
Acquisition of knowledge, skills and practices related on the environment	9
Explore environmental issues, engage in problem-solving and take action to improve environment	7
Education on how people perceive the value of the natural world and teach how to change environmental behaviour	6

Source: Field data, 2015

With regards to the interview made to teachers, their responses resulted to identification of four different orientations of understanding the concept of EE. Teachers’ responses in understanding of the meaning of EE were also counted into more than one category which also reflects some aspects in the Tbilisi conference and that of three dimensions of EE which are education *about*, *in/through* and *for* the environment. The respondents were concerned with an aspect of education *about* the environment which focuses mainly on cognitive and awareness perspectives of EE.

During the interview with teachers, 10/12 (83.3 percent) mentioned EE as about raising awareness and consciousness on the environment. Some of the respondents’ interpretations below support this assertion:

For me, EE concerns with raising someone’s awareness on how to confront with his/her environment so that he/she can sustain his/her daily life in different environment e.g. in health issues, education and so forth so that finally he can raise his/her income
It is an education which helps students to raise their awareness of their surroundings

EE is a kind of education received by someone involving creating awareness on environmental issues such as pollution, soil erosion and be able to propose the possible means to solve them

EE is to be aware with environment of different things and be able to prevent occurrence of hazardous things. For instance, prevent accidents in workshops.

In an interview, 9 out of 12 (75 percent) teachers interpreted EE as process of acquiring knowledge, skills and practices. The following explanations from respondents support this:

In my understanding, EE is about educating somebody about general environment". Another teacher said that, "EE is an education which helps students acquire knowledge, skills and practices for protecting and improving the environment". In the perception, another interviewee posited that.. "Generally, I can say that EE may mean students getting education about environmental issues.

Several (7) informants which translates to 58.3 percent perceived EE as an education which deals with environmental problems. For example, one of the interviewees said: *"EE is about taking actions to prevent the outbreak of diseases or occurrence of accidents at the institute or workshop"*

Half of the respondents 6/12(50 percent) mentioned EE as education on how people perceive the value of the natural world and teach how to change environmental behaviour. This can be seen from the following statement: *"EE is about learning environment which makes someone to conquer the environment, not to be subjective to it"*

4.5.4 Students understanding of EE in TREDU

In describing the way students understood about the meaning of EE in TREDU, four themes emerged from the questionnaires. These themes are shown in Table 4.5 below.

Table 4.5: Results on the way TREDU students perceived about EE

Description	Frequency	Percent
Creating awareness and consciousness about the environment	2	50
Acquisition of knowledge, skills and practices on the environment	3	75
Explore environmental issues, engage in problem-solving and take action to improve environment	1	25
Education on how people perceive the value of the natural world and teach how to change environmental behaviour	1	25

Source: Field data, 2015

Note: Information in Table 4.5 is based on Multiple Responses.

Two (50 percent) of the students' descriptions of EE mentioned raising awareness and consciousness about the environment. For example, one student respondent posited that *"EE is about teaching nature knowledge and raising awareness for natural processes and human influence on these processes"*. Three (75 percent) indicated that EE is about acquisition of knowledge, e.g. *"It is education which involves passing on knowledge about current environmental issues"* or *"Learning in and about the environment"*. One (25 percent) commented about taking actions to solve environmental issues and also one (25 percent) of the total response indicated that EE involved education that helps one to change his/her environmental behaviour.

4.5.5 The understanding of EE by the teacher at TREDU

As was at TAKK, one professional teacher was interviewed and had this to say:

EE is to teach our students how their actions and choices as consumers effect to our common environment and how they can reduce the size of their footprint as citizens and professionals in their working place.

This way of understanding EE does not differ from other respondents from other VET institutes. It shows from the extracts that EE concerns with providing learners with knowledge, skills and understanding on how to deal with environmental problems as well as devising the possible means to alleviate those problems.

4.5.6 The understanding of EE by the teacher at TAKK

An interview involved one professional teacher of EE. In responding to the question, she had this to say: *“EE is all about acquiring knowledge and skills as well as creating awareness on the environmental issues”*.

Summary

Generally, there was no big substantive difference in the students and teachers' responses on the understanding of the meaning of EE in all three VET institutes in Tanzania and Finland. For example, in giving descriptions of the meaning of EE, the majority of students mentioned of raising awareness and consciousness as well acquiring knowledge, skills and understanding about the environment. This also concurs with teachers' results whose most of their descriptions of EE were based on those issues. It was also very interesting to note that views given by the respondents fall in the objectives of EE as formulated by Tbilisi conference embracing awareness, knowledge, skills, values and attitudes needed to care for the environment. These views also coincide with one of the dimensions of EE which is education *about* the environment.

4.6 Comparing the approaches and/or methods used by VET institutes for implementing EE

The findings under this sub-section come from the second research objective which sought to establish the approaches and/or methods used by VET institutes in Tanzania and Finland for implementing EE. It was assumed by the researcher that, in implementing EE, each VET institute had its approaches, methods or techniques that are found to be effective. Therefore, the study sought to establish approaches and/or methods used by Tanzania's and Finland's VET institutes for implementing EE. In collecting the data, interviews, questionnaires as well as documentation were employed in eliciting relevant information from the key informants who were students and teachers.

Apart from methods and/or approaches used in implementing EE, students were also engaged in practising different activities related to the implementation of the EE in their institutes. Question 4 in the questionnaire (Appendix IV), asked students to indicate contents they learnt in environmental issues in their institute. Responses were presented in Table 4.6

Table 4.6: Activities for Implementing EE by MVTTC students

Activity	What do you learn about environmental issues in your institute		Total
	Yes	No	
• Collecting garbage	41	4	45
• Recycling	0	0	0
• Planting trees and gardening	30	15	45

Source: Field data, 2015

Note: Information in Table 4.6 is based on Multiple Responses.

Table 4.6 reveals that all 45 respondents indicated that they did not learn about recycling in their institute. The majority 41 (91 percent) of respondents indicated that collecting garbage is their major activity as opposed by 4 (9 percent) who indicated that collecting garbage is not learnt as one of the environmental issues in their institute. Furthermore, 30 students (67 percent) indicated that planting trees and gardening is one of the environmental issues learnt in their institute as opposed by 15 (33 percent) who claimed that did not.

The results suggest that collecting garbage and planting trees and gardening are the major environmental issues learnt in their institute. The results further indicated that generally the issue of recycling is not taught and therefore not practised.

4.6.1 Approaches and/or methods used by teachers in MVTTC

Generally, EE in Tanzania is taught so as one to pass the examination, acquire certificate and get employment.

Before teachers in MVTTC were asked about the approach and/or methods they use in implementing EE in their institute, they were first asked if the course is in the curriculum and how they put EE into practice. In responding to those questions pertaining to objective two of the research, all 12 teachers (100 percent) uttered that:

Yes! EE is in the curriculum. The following is how it is put into practice. We direct students on how to keep their environment starting from keeping their living rooms clean; outside the classrooms, in the toilets just to mention a few. Also, because they are busy with studies, the college has hired other people who deal with general cleanliness of the environment around the college campus.

Furthermore, when teachers were asked about the effects of teaching EE as a cross-cutting issue, they continued saying that: *“When talking of cross-cutting issue, it seems as if it is not very important to them, they are not tentatively like when they are learning core subjects, so they neglect EE”*.

Thereafter, teachers were then asked to indicate the approaches and/or methods they use. All 12 (100%) teachers articulated that the approach adopted is teaching EE as a *cross-cutting issue approach*. However, most of these teachers mentioned that, EE is seen in one of the modules known as *“Training Workshop Management”*. Their responses can be seen from the following statements:

EE has been instituted in the curriculum and it is taught as a cross cutting issue. Thus, it is in one of the modules called Training Workshop Management. Within this module there is a unit of environmental issues

Yes there is EE content in the curriculum. It is found in one of the modules by the name workshop management where inside it is where you can find issues of environment. Issues like occupational health and safety are studied in the environmental issues. In this case therefore, students get chance to learn about issues pertaining to their environment

In spite of the approaches used by teachers in implementing EE in MVTTC, the study further interrogated various methods these teachers used in implementing EE. This is because the two terms are used synonymously. Responding to the question, most of them articulated that, they use both theory and practice. This means that what students are taught in classrooms (theory) are supposed to be transformed into practice.

Others commented that they use participatory and non- participatory methods. Below are some of the comments some respondents gave:

Because we are in CBET program, we always use participatory methods. For example, in the class room situation, we divide students into groups and assign them a task and when these students are outside the class, we show them practically (demonstrate) then they practice

To do presentations showing different environments, for instance, making comparisons with a certain issue occurred somewhere, how it was there and how it is here, hence, solutions are taken. Also, through study tours, for instance, they would go somewhere so that they could see by themselves things like for example, construction of houses, roads, among others. All these of course need EE

Another respondent commented that when students go for study tours in other courses other than EE, the course instructor may use such opportunity also to chip in some issues related to EE, for example, soil erosion, pollution among others

All our teaching here is participatory mode of teaching. Trainees don't need theory rather they need tangible things. We need maximum interaction otherwise you can find you have no student in the class, after all we are training matured people, you cannot ask them why they are quitting, they can simply say I get bored....It is knowledge based. It is mostly offered theoretically rather than practically

It is participatory approach, for example, our learners are taught entrepreneurship as a subject, within entrepreneurship learners may be told to prepare a certain activity which is remarkable so is where you can find now learners try to interact with surroundings because when they are told to do such activity they are limited to the environment they are living in, thus, it is where now you find learners just dealing with the surroundings that's why I say it's participatory

4.6.2 Approaches used by NEMC

There are a number of approaches and/or methods used in implementing EE. Some of which include provision of trainings to teachers, working together with other people/groups (cooperation), creation of EE awareness such as introducing different EE clubs just to mention a few. For instance, teachers are kept updated through trainings. This can be done through workshops and seminars. This is also evidenced by the following response from the respondent:

NEMC has been working collaboratively with MoEVT, Tanzania Institute of Education (TIE) and other EE agencies and NGOs on training of teachers. Teachers at all levels in the education institutions need to be equipped with new skills whenever there is a curriculum reform so that they can put it into practice effectively and efficiently

He further uttered that:

NEMC had been worked with other people in different activities or projects related to EE. For example, we have been working with Ministries in raising people's awareness on environmental issues. We also register NGOs dealing with EE in the country

Question 4 in the questionnaire asked students what they learn in environmental issues in their institute. Responses are presented in Table 4.7

Students 'implementation of EE activities

Table 4.7: Activities for implementing EE by TREDU students

Activity	What do you learn about environmental issues in your institute		Total
	Yes	No	
• Collecting garbage	3	1	4
• Recycling	2	2	4
• Planting trees and gardening	2	2	4

Source: Field data, 2015

Note: Information in Table 4.7 is based on Multiple Responses.

The results on activities learnt at the institute are presented in Table 4.7. Using a tick box, the findings revealed that about 3 students (75 percent) indicated that the collecting garbage is one of the issues learnt in environment and of them, 1 student (25 percent) indicated that this is not learnt in their institute. However, 2 (50 percent) of the respondents claimed that they learn about recycling and the other 2 (50 percent) did not. Besides, 2 (50 percent) of the students indicated that planting trees and gardening are the ones among the issues learnt in the environment and the other 50 percent which is 2 students indicated that this is not learnt.

Summary

The findings from above account show that, collecting garbage and planting trees and gardening are the students' major issues learnt in both institutes. On the other hand recycling is mainly learnt in VET institutes in Finland unlike in Tanzania.

4.6.3 Approaches and/or methods used by teachers in TAKK

EE in TAKK has been instituted in the curriculum as in MVTTC. However, EE in TAKK is taught both as a *cross-cutting issue* (module training program) and as an *independent subject*. All teachers should teach either environmental issues or sustainable development issues to these students because qualification requirements include these issues. The institute has environmental program which includes also staff training. It trains staff in environmental issues.

In TAKK, there are teachers who have specialized in EE (Education managers in environmental sector) under the module commonly known as *Environmental Engineering*. Theory and practical work are the methods used to implement EE. Students are first taught in the classroom (theoretical part) and then go actually in the field. For example, 50 percent of the students do environmental job in work places. In implementing EE, methods like public hearings, study tours are used. For example, the interviewed teacher had this to say:

The whole training course is based on 20:80 systems; this means that twenty percent of their training is lectures and theoretical training and the rest the eighty percent, real huge part of the training is done in work life. Our students get theoretical knowledge of different kinds of modules, for example, waste management, and then they have to put into practice. For example, trainees actually build real waste management plant. The students come to TAKK for two days and here they get theoretical knowledge of how to build up waste management plant

4.6.4 Approaches and/or methods used by teachers in TREDU

Likewise in TREDU, EE is studied both as a cross-curricular subject and as an independent (separate) subject. For example, an interviewee said:

Environmental issues are studied both as an individual topic and integrated into other subjects. We use 40 hours to study global and national challenges, organisations that are involved and Finnish

legislation. Besides that we discuss on every other topic how to take notice on sustainability. Climate change, plastic waste and shrinking biodiversity are nowadays problems that especially education in it's all levels must be alert. We have a huge responsibility!

The respondent further described that, practically an approach used to implement EE is going out for field trip to study about different environmental issues and taking care of them. In an interview he had this to say:

Visiting places where students can see with their own eyes what we are talking about is an efficient approach. A waste treatment plant, sewage treatment plant, large clear-cut area in the forest. Adult students find this topic usually so interesting that the teachers' role is just to guide the discussion and clarify things that are not clear

4.6.5 NBE Official responses

This study interrogated the NBE officials on concern. It emerged from the findings that, environmental issues and sustainable development in Finland are the very important areas to be learnt in Finnish schools and other education establishments. For instance, the NBE official (Appendix III) when asked to explain the approaches and/or methods used in implementation of EE, she gave out the following explanation:

In the national strategies for education for sustainable development, a target for all Finnish schools and educational establishments to have a sustainable development plan by 2010 was set. In addition, 15 per cent of them have acquired external certification for their work on sustainable development by 2014. After this, sustainable development (SD) is promoted nationally by SD commitments. SD is also incorporated as a comprehensive, subject crossing theme in the national core curricula of general and vocational education. VET institutions are independent to promote environmental issues in their everyday practices, but for instance, sustainable development must be visible in quality management issues

Conclusion

In comparing EE approaches/and or methods used in Tanzania and Finland's VET institutes, there are both commonalties and differences.

Commonalities

In both countries, EE has been instituted in the national curriculum since the first international conference on environment held in Stockholm in 1972. Apart from that, both teach EE as a crosscutting issue although in Finland is also taught as a separate course. Also, in both countries EE is implemented formally in schools, VET institutes and other educational establishments. It is also implemented informally by individuals and private organisations.

Differences

There are differences in the formal implementation of EE, because in Finland EE is one of the qualification requirements, this means that in order for one to qualify for another level of education, one must have studied environmental issues while in Tanzania that's not the case, for instance, in MVTTC, EE is a unit in one of the modules named Training Workshop Management and is taught so as one to pass the examination, acquire certificate eventually get employment.

4.7 Constraints to effective implementation of EE

4.7.1 MVTTC in Tanzania

In light with the data obtained in the field through questionnaires, interviews, observations and documentary reviews, some constraints to the implementation of EE in MVTTC have been identified. Despite the fact that the government has put much of its efforts to institute EE in the curriculum, it is not given due attention like other core courses. The prime reason is that EE is not taught as a separate course; rather it is embedded within other modules such as Training Workshop Management. EE is usually considered to be periphery course (not compulsory course and as a qualification requirement).

Students

The main focus on EE to the students is on the passing of examination and getting certificate. However, during the implementation of the EE in MVTTC, some constraints were identified by the students; these included lack of enough training, lack of time and negligence of the course. For example, the majority of respondents about 44 of 45 (97.8percent) commented that they had no enough time to deal with

environmental issues. 27 of 45 (60percent) of the respondents said that they had no enough knowledge on EE while 16 out of 45(35.6percent) of students responded that they didn't find any importance of studying it because there is no independent exam for it. Students had this to say about the constraints they face during the implementation of EE:

We don't have enough time for doing environmental practices due to the fact that we are very busy with other core subjects". "We don't have enough knowledge and skills on environmental education; this is because we take this unit as a subsidiary. We don't have clear EE programs at our institute such as environmental clubs.

One student went further by saying that: *"It is because of poor environmental policies"*.

Teachers

According to the interviews, 8/12 (66.7percent) of teachers uttered that they did not have adequate environmental knowledge and skills (low training quality) because they are not specialists of it. The quality of training in EE course is low due to the fact that, when they were at training colleges there were no much emphasis has been laid on learning it and if so happened, the emphasis was being made on theory and certification, rather than on skills/competency acquisition. 6/12(50 percent) of respondents commented that, there were no regular seminars and workshops on EE. Furthermore, about 5 out of 12 (41.7percent) of respondents pointed out that, there was lack of commitment from other teachers (negative attitude towards environmental issues). For instance, *"some teachers do not give due attention when teaching EE likewise students cannot do anything pertaining to environment until you force them to do so"*. Furthermore, 4/12 (33.3percent) respondents mentioned about poor budgeting, i.e. finance) as a constraint). Inadequate funding has been a very serious problem in the effective implementation of EE in VET institutes. There is no budget set for environmental issues such as going for field trips, study tours and camps. All the above problems border on inadequate funding, and this is bound to affect the implementation of EE in VET institutes.

NEMC official

Financial problem was mentioned by the government official as one among major constraints in the implementation of EE in educational institutions including VET institutes in Tanzania:

Financial constraint is a big challenge to EE. If we had fund we could run many lots of courses or programs. We don't run many workshops and/or seminars to the teachers on the implementation of EE because of the shortage of fund.

4.7.2 Situation in Finland: TREDU

Students

Three out of four (about 75 percent) students uttered that time became one of the major constraints to effective implementation of EE; this is because they had also other courses studied “*We don't have much time for learning environmental issues*” However, one student (25 percent) from other country other than Finland said that it was difficult for her to exercise EE because they differ in ways of implementing it. This was what she said:

It is a bit different in putting EE into practice: Some things are different in Finland than they are in Germany (where I am originally from). Waste separation for example works differently and since I am living together with people from other countries we have a different system from what I am used to.

Others pointed out that: “*Sometimes it is easier not to care. Then you have to remember that it is important to recycle, and to separate trash for example.*

From the teacher

A teacher when interviewed through email responded that negative attitude and the managerial role toward EE are among other constraints to effective implementation of EE. This was supported by the clarification he made below:

Attitude problems: Some teachers are just ignoring environmental facts as they would be products of somebody's imagination.....He further asserted about the role of management crucial.. They need to show that they are in favour when events and campaigns to promote environment are happening. If the support of the management is lacking then all endeavours are in vain

From NBE official

In Finland, environmental issues and sustainable developments are part of the national curricula in VET. VET institutions are independent to promote environmental issues in their everyday practices, but for instance, sustainable development must be visible in quality management issues.

Summary

The responses pertaining to constraints to effective implementation of EE from all the informants from both countries seem to be similar like inadequate time, negative attitude and finance among others.

4.8 Practices that VET institutes in Tanzania and Finland share

This section illustrates practical examples of the implementation of EE. Each country can draw some insights and lessons to learn from each other as improvement interventions in their implementation of EE.

4.8.1 State of art in Tanzania

As mentioned in chapter two, EE in Tanzania is offered both formally and informally. People in Tanzania differ in practicing EE since some of the regions have enacted by-laws pertaining to environmental awareness and are highly observed. For example, in Kilimanjaro region, especially at Moshi District, if one is caught throwing any rubbish while is in the bus or any other means of transport, he/she is charged in cash (penalized) on the spot. This situation has made people become aware of environmental issues and therefore, has made the Municipality to be seen clean all the time. Due to low level on environmental awareness, still there are other people in some parts of Tanzania while are in the bus, are throwing garbage through windows despite the fact that, there is a regulation that in every bus carrying passengers must have waste bins so as to depose leftovers and other unwanted things.

In MVTTC in particular, EE awareness is somewhat high since the general surroundings in the campus are kept clean, flowers are well watered, grounds are swept, trees are pruned, and above all you may find waste bins in different areas

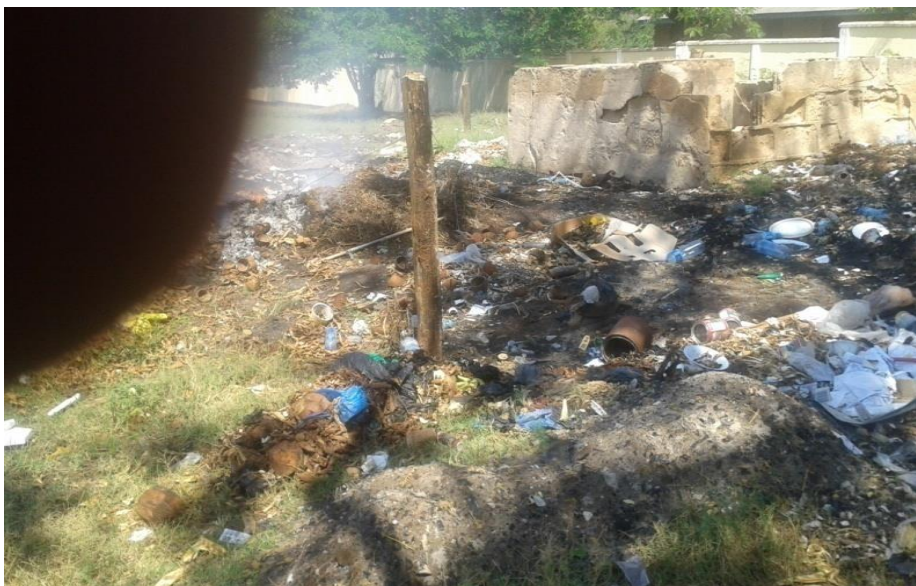
around the institute. This indicates that people are aware of what is supposed to be done in relation to environmental issues.

Although dust bins are there but all kinds of garbage are deposited in the same dust bins. There is no separation of the wastes. Wastes are managed by collecting them in the waste collection containers and then sent to an open space where is then burnt as a way of recycling it.

Figure 4.1: Waste bin in MVTTC



Figure 4.2: Treating the wastes in MVTTC



Source: Field data (2015)

In question 7 of the questionnaire (appendix IV), respondents were asked if they had gone for field trips, camps and study tours outside their institute to get more details on environment issues. The expected responses were ‘Yes’ or ‘No’. Responses are presented in Table 4.8

Table 4.8: Field trips, camps and study tours outside MVTTC

Have ever gone for field trips, camps and study tours outside your institute to get more details on environment.	Frequency	Percentage (%)
• Yes	4	9
• No	41	91
Total	45	100

Source: Field data, 2015

The results show that the majority of the respondents 41 (91 percent) indicated that they had never gone for field trips, camps and study tours outside their institute to get more details on environment. The results further suggested that they have never gone for these tours because they don’t have environmental clubs at their institute. However, 4 (9 percent) of the respondents indicated that they had gone for field trips and study tours outside their institute to get more details on environment EE.

In question 8 of the questionnaire (appendix IV), participants were asked to indicate if they had ever engaged in any activities related to the environment while they at their homes after learning in EE at their institute. The expected responses were ‘Yes’ or ‘No’, as summarised in Table 4.9

Table 4.9: Students engagement in environmental related activities in MVTTC

While you are at home, have you ever engaged in any activities related to the environment after learning EE in this institute?	Frequency	Percentage (%)
• Yes	11	24
• No	34	76
Total	45	100

Source: Field data 2015

The results revealed that the majority (34) of the respondents which is about 76 percent indicated that they haven’t engaged in any activities related to the environment while they are at their homes after learning EE in their institute. They argued that, they had no enough knowledge on environmental friendly activities. Besides, 11 out of 24 (24percent) of the informants indicated that they had engaged in activities related to

the environment while they are at their homes after learning EE in their institutes. For example, planting trees and flowers; slashing grasses and gardening.

4.8.2 State of art in Finland

Generally, Finland reacts positively to environmental issues and is proud of its clean, pleasant and safe environment. To Finland, environmental protection is taken into account into business life, as well as land use planning. The implementation of EE is a national wide agenda. The country has good quality air and large green areas where its citizens often enjoy their free time in nature: lakes, rivers and forests. For instance, in every VET institute including TAKK, TREDU and many others, and everywhere in the country, there are waste bins where you can deposit the garbage. The waste bins are of different categories where each type of waste is to be dumped into specified waste bin category. For example, there are waste bins for dry wastes; paper, plastic and many others (see photos). Besides that, the used (empty) bottles are collected and then sent to the supermarkets for selling. This encourages people to adhere to the conservation of the environment because no one can throw the bottle everywhere because by so doing, is like throwing money. This situation has made every individual to unknowingly involve in protecting environment. Furthermore, the social infrastructure is good and supportive. For example, in every institute you go, you can find doors for disabled people which are automatically opened if they sense that somebody is coming unlike in Tanzania in general and in MVTTC in particular where the same doors used by the abled are also used by the disabled. Also, there are toilets for these people with disabilities; even in the public cars there are special seats for disabled something which is contrary to Tanzania.

In addition to that, the country has maintained the hygiene to the extent that you cannot find any kind of flies or insects who can cause serious diseases like malaria, abdominal related diseases such as cholera, diarrhoea, dysentery, typhoid among others. But the only thing I observed there is that, people are free to smoke even before the public and pieces of smoked cigarettes are thrown everywhere like at the bus stops. In Tanzania this is quite different. Smoking in the public is strictly prohibited and if one is caught doing so, he/she may be charged.

4.8.3 TREDU

In question 7 of the questionnaire (appendix I), respondents were asked if they have ever gone for field trips(hiking trips), camps (Greenpeace camps) and study tours outside their institute to get more details on environment. If their answers were ‘Yes’, they were to identify the kinds of activities done and if ‘No’, they were required to give reasons, why not. The expected responses were ‘Yes’ or ‘No’.

Table 4.10: Field trips, camps and tours outside TREDU

Have you ever gone for field trips (hiking trips), camps (Greenpeace camps)and study tours outside your institute to get more details on environment?	Frequency	Percentage (%)
• Yes	4	100
• No	0	0
Total	4	100

Source: Field data, 2015

The findings reveal that all 4 respondents (100 percent) indicated that they had gone for field trips(hiking trips), camps (Greenpeace camps), and study tours outside their institute to get more details on environment. The activities performed included Greenpeace Camps to instruct members about how to pass on information properly and about current issues (topics included forests in Northern Europe, Sustainable energy and others); bee keeping; the importance of insects as well as camping and hiking in nature.

In question 8 of the questionnaire (appendix I), participants were asked to indicate if they had ever engaged in any activities related to the environment while they at their homes at their homes after learning EE at their institute. The expected responses were ‘Yes’ or ‘No’.

Table 4.11: Students engagement in environmental related activities in TREDU

While you are at home, have you ever engaged in any activities related to the environment after learning EE in this institute?	Frequency	Percentage (%)
• Yes	2	50
• No	2	50
Total	4	100

Source: Field data, 2015

The results depicted that half of the respondents which is 2 (50 percent) had engaged in activities related to the environment while at their homes after learning in their institute and the other 2 (50 percent) had not.

Figure 4.3: Waste bin in TAKK for depositing papers only



Source: Field data, 2015

Figure 4.4: Waste bins in TAKK for depositing different kinds of garbage



Source: Field data, 2015

Figure 4.5: Waste bins in TAKK



Source:Field data, 2015

Figure 4.6: Waste bin in TAKK



Source: Field data, 2015

Summary

Generally, EE is offered in both countries; but the difference comes with the way it is practiced despite the good environmental education policies the countries have. For example, both countries have waste bins in their institutes but the difference is on how they have been designed for collecting different trash. For example, in MVTTC all kinds of litter is put into same waste bin unlike in Finland where there are categorizations of the waste bins and what kind of wastes are supposed to be dumped into which category of waste bins.

4.9 The comparative advantages and opportunities between Finland vs Tanzania

4.9.1 Things from Finland to improve people's welfare of Tanzania

There are a lot to be borrowed from Finland so as to improve people's welfare of Tanzania. The following are some of them: Firstly, EE should be one of the qualification requirements for one to go to another level of education. This state of affair therefore, will make people give EE a high priority, eventually, be in a good position to effectively and efficiently implement it. Thus, Tanzania can devise her policies and curriculum so as to make EE a compulsory subject in all levels of education.

Secondly, the wastes collected should not be dumped in the same containers as some of the wastes are explosive and some are not easily burnt like glasses.

Thirdly, the used bottles should be officially sold everywhere in the country. This will help maintain the country's cleanliness, safety and unnecessary pollution.

4.9.2 Things to be borrowed from Tanzania to improve people's welfare of Finland

Some lessons should also be learnt from Tanzania. For instance, in Tanzania, smoking before the public is strictly prohibited unlike in Finland where people smoke publicly and then throw away pieces of cigarettes. Smoking before the mass jeopardizes ones' health. I think this is a good thing to be learnt from Tanzania or else those who will be caught throwing pieces of cigarettes besides waste bins be charged instantly.

4.10 Conclusion

In conclusion, the study findings show that, there are similarities in the understanding of the term EE by students and teachers from the two countries. Although Tanzania and Finland, as pointed out in chapter two, differ structurally and in the number of respondents, still the conception of the term EE looks very similar. Moreover, the approaches used in implementing EE in VET institutes are almost the same since all the three institutes teach it as a crosscutting issue though in Finland is also taught as an independent course. During the interviews it became more and more clear and so it eventually shows in the results that EE is very important to be offered in all levels of education since human beings' survival depends on environment.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter presents discussion of the main findings presented in Chapter Four. The discussion of the results is drawn from the four research objectives and links the research findings and the literature in Chapter Two. The research objectives in this study addresses the understanding of EE, approaches and/or methods used to implement EE, constraints to effective implementation of EE as well as practices each country can borrow from one another on the implementation of EE.

5.2 Understanding of EE

The results for the first research objective focus on the students and teachers' understanding of EE. With regard to the students and teachers interpretation of EE, the respondents varied in the understanding of what EE meant. Daudi and Heimlich (2002) elucidate that, the different meanings for people depends on their continuum of understanding and their school of thought which may have been influenced by their experiences, professional and social backgrounds, academic level, and learning achievements. In an attempt to present students and teachers understandings of EE, data was analysed based on Tbilisi Conference EE goals and three models (dimensions) of EE. It is recommended through the literature that in order to clearly understand the meaning of EE, there should be discussed alongside EE goals and models (Tilbury, 1995; palmer, 1998). This data is now discussed alongside those goals and dimensions of EE. Four categories emerged from the students' questionnaires and teachers' interviews on the respondents' understanding of EE as shown in Table 5, 6 and 7 in Chapter Four and also from explanations made by the teachers (not in table form). The responses demonstrate that EE was understood differently by the students and teachers. However, the results of the study in all the three institutes reveal that some students and teachers had almost similar way of understanding EE as well as some seemed to differ. It is fascinating that, the majority of the respondents in both Tanzania and Finland placed their description of EE in some of the Tbilisi conference EE goals which are creating awareness about the environment as well as acquisition of knowledge and understanding of the

environment which is education *about* the environment. Few respondents focused on education *in* and *for* the environment. Nonetheless, there was need to emphasise the other two dimensions of EE too.

Since EE was mostly understood as creating awareness and/or acquisition of knowledge (education *about* the environment), even the way it was trained reflected merely imparting knowledge into students. In this aspect therefore, policy makers, curriculum developers as well as other stakeholders have the task to provide EE to VET institutes through creating consciousness and awareness on taking care of the environment. Both students and teachers were concerned with getting knowledge about the environment and knowledge of how to take care of the environment. Besides, some teachers appeared to be more focused on describing EE with regards to developing EE skills (education *in* the environment) such as problem-solving skills. This is because teachers with this orientation expect (that as one lives in the environment one will encounter various problems. In order to overcome the problems one encountered, one needs to have skills to solve them). Teachers with this orientation argued that, since we live in the environment, it is likely possible to confront with environmental problems, thus, in order to go about these problems we need EE skills. Equally, government officials pointed out that if students in these institutes are inculcated with attitudes to praise environment especially after getting to know that man's survival depends on environment, they would not think of polluting or destroying it in anyhow.

The results of this study concur with those found in studies conducted formerly in Tanzania, by researchers like Lindhe (1999), Mtaita (2007) and Kimaryo (2011), who produced similar findings on how EE is understood by different EE practitioners including teachers. For example, a study done by Mtaita (2007) revealed that teachers understood EE as education *about* the environment. Also, the one conducted by Lindhe (1999) recommended that such findings are anticipated in a society where people's survival is dependent on the environment.

In summary, the findings of this study, to some extent, reveal the definition which was adopted in this study which is education *about*, *in* and *for* the environment (Palmer, 1998). It is partly because most students' and teachers' descriptions of EE were restricted to education *about* the environment, which is mainly concerned with helping learners raise awareness and knowledge acquisition and understanding *about* the environment. Very slight emphasis was given to education *for* the environment which is concerned with the development of skills towards the environment. None of the respondents described EE as education *in* the environment. Education in the environment allows learners engage in observations and explorative activities beyond the classroom, and often in the natural setting. McLean (2003) asserts that education *in* the environment is manifested in various forms such as projects, camps, study tours, collecting wastes and activities utilising the school environment. One can conclude that this study reveals that students and teachers consider EE as education which is focused on helping learners raise awareness and develop knowledge about the environment.

5.3 Approaches and/or methods in implementing EE

The results for the second research question centre on the approaches and/or methods used by VET institutes in Tanzania and Finland for implementing EE. Teachers were asked on the approaches and/or methods they use in implementing the EE. They had diverse answers to this. Their variations constituted two major categories of approaches: taught as an independent subject and also taught as a crosscutting issue (topics into subjects). Likewise, in mentioning the kind of methods that they used, two categories could be acknowledged from their explanations. The first category was *participatory methods* and the second *non participatory methods*. The same applied to the approaches used, teachers from all the VET institutes pointed out that, both participatory methods (learners centred) methods and non participatory (teacher-centred) methods were employed.

5.3.1 At MVTTC

All teachers in MVTTC commented that, EE is taught as a cross cutting issue integrated in one of the modules known as Training Workshop Management.

However, most teachers in MVTTC suggested that EE would be better taught as a separate course. In the category of teachers with such orientation, had an argument that the course could be given equal weight as other courses instituted in the curriculum such as having its own reference and teaching materials, to be allocated in the general timetable, allocating sufficient budget since the nature of the course itself needs visiting different places for studying and observing a diverse of environmental activities. Consequently¹ if there is new body of knowledge it should be considered as an independent subject. They further claimed ¹that making it an independent subject will enable it be covered in depth.

On the other hand, some teachers recommended that EE could be taught as a crosscutting issue (integrated into existing subjects). These respondents seemed to agree that the inclusion of EE as a crosscutting issue in the curriculum was appropriate. EE is not to be added to educational programmes as a separate discipline or subject for study, but as a dimension to be integrated into them (UNESCO, 1985; Pandya, 2000). This will help to avoid overloading the timetable. The teachers in this category argued that in so doing will ensure that EE content is covered adequately since the time table will not be congested. Yet, some of teachers recommended that EE should be incorporated into courses where the course content matches with EE content like what it is currently practiced in MVTTC, and the opposite of it is also the case. This state of affairs can be attributed to lack of EE training among the teachers.

Since EE at MVTTC is embedded in other core courses, it was difficult for the teachers to (teachers lacked confidence to) explain the methods which they explicitly used (for implementing) in teaching EE. Nevertheless, they described the methods which they used in teaching in general, which include (the methods they used were those which they usually used in teaching other courses) EE. Thus, the methods used included both participatory and non-participatory. However, the commonly used methods are those based on teachers as source of knowledge (non-participatory) like lecture and question and answer. In this method, students to a large part were passive and they only participated through answering of questions from the teachers.

Therefore, the regular use of question and answer and lecture methods advocate that very little practical work was done by the students and most of the learning was in classrooms. Many teachers fail to implement participatory methods in their teaching due to constraints resulting from poor background of EE and lack of regular trainings. These teachers hoped that they would be trained adequately to teach EE when they were being trained as teachers. But they said that they did not have EE training either as pre-service or in-service training. Similar results were observed by Lindhe (1999) among teachers in primary and secondary schools in Tanzania and Kimaryo (2011) about integrating EE in Primary School Education in Tanzania (Teachers' Perceptions and Teaching Practices). Both studies revealed that teachers did not get any training in EE. It is believed that usually teachers use those methods which they know and which serve their purpose (Guthrie, 1990; Johnson *et al.*, 2000). Furthermore, the approach did not allow learners to view the environmental issues from a variety of perspective, apart from that of the presenter and did not develop critical thinking (UNESCO, 1986). Question and answer, and lecture methods are connected to education *about* environment. On the other hand, it was pleasing that a few of the respondents also opted to use discussion (participatory methods) as a method of implementing EE. If methods like discussions, study tours and projects could be used efficiently, they could lead to both acquisition of knowledge and development of skills hence, could lead to change of people's behaviour towards environment. Since students are matured enough, therefore, are given chance to express and share their thoughts and opinions on the way EE could be efficiently implemented.

In general, most teachers in MVTTC suggested that the course could effectively be implemented if it could be taught as a separate course and also being taught into all levels of education; starting from primary school level to the higher learning institutions. On the basis of these findings, the author makes conclusions that EE is far from being a priority in the VET institutes.

5.3.2 At TAKK

In Finland, the Ministry of Education has integrated EE at all levels of education that is, from lower to higher. For example, the curriculum of the VET institutes including that of TAKK clearly shows that EE is to be taught both as a cross-cutting issue and as a separate course. Thus, every teacher and the general community in TAKK and Finland as a whole, has a role and responsibility to implement EE either formally or non-formally. Teachers teaching EE in TAKK are both professionals and non-professionals unlike in MVTTC where the course is just taught by teachers who are not professionals. The EE specialists in TAKK have a tendency to prepare regular seminars and/or workshops on EE to train non-professional teachers so as to make them up-to date. With such situation therefore, makes every teacher and the general community particularly students in the institute become competent enough in implementing EE.

5.3.3 TREDU

Like many other VET institutes in Finland, TREDU as one of them, has a curriculum which indicates the presence of EE being taught as a crosscutting issue and as an independent course. However, visiting various places for study of issues pertaining to environment is one of the common approaches used in implementing EE. The researcher also concurs with this approach as once students go for field studies, makes them concentrate on the issue, become active and above all build permanent memory.

5.4 Constraints to effective implementation of EE

From the data analysis, respondents raised a number of constraints encountered during the implementation of EE some of which included students and teachers negative attitude towards environment, time, finance, poor background of EE for teachers in MVTTC, lack of training in EE on the part of teachers especially in MVTTC while in college among others. Some of these results hold up observations made by Kimaryo (2011) who pointed out the teaching of EE in primary schools in Tanzania 1poses a number of barriers to teachers. For example, they admitted that lack of expertise in terms of having mastery of EE knowledge. Also, poor funding makes them unable to

plan and go on field trips, which they feel that is a very effective method of teaching EE because pupils can see real life situations.

5.5 Practices that VET institutes in Tanzania and Finland can share to improve the implementation of EE

It is unquestionable that the practices on the implementation of EE differ from each country. EE is practised in various ways (Barker & Rogers, 2004; Daudi& Heimlich, 2002). Since Finland has great awareness on the EE, it has also different ways of practicing EE compared to Tanzania. This is due to the fact that, the country has good infrastructure such as distinguished waste bins. The presence of these waste bins with identifiable kinds of wastes to be deposited, has simplified the management of garbage. Also, the situation of selling used bottles to a large extent has stimulated people to maintain the environment unlike in Tanzania where such bottles have no special area(s) where they can be sold. More important still, in most of the VET institutes in Tanzania, including MVTTC do not have friendly social infrastructures. For instance, most of the buildings built do not regard the disabled. There are common doors, toilets, buses and many others; all these do not support this group of people.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Introduction

This study was set to explore the implementation of EE in VET institutes in a comparative perspective between Tanzania and Finland. The study employed interpretive approach and was purposively conducted in three VET institutes. This chapter concludes the study and also presents recommendations based on the findings and discussion. The conclusion and recommendations of this study were presented in relation to the research questions.

6.2 Conclusion

In accordance with the study findings, there are commonalities and differences on the way EE is implemented between the studied country institutes. Therefore, conclusions are drawn as follows:

Commonalities

In both countries, curricula are designed national wide by specific board or institute. For instance, in Finland is designed by the NBE while in Tanzania is designed by TIE. More important still, both countries face the problem of funding. Running smoothly EE in VET institutes needs investing enough fund to support a number of activities including going for study tours.

Differences

The implementation of EE in VET institutes differs in various areas including professionalism, specialization, environmental awareness and sensitization, methodology used, infrastructure and certification among others.

In Finland, EE in VET institutes is taught by the professionals of the EE known as education managers in environmental sector while in Tanzania the course is taught by teachers who are not specialists in it. Some students in Finland have specialised in EE as one of the major courses unlike in Tanzania where EE is taught as a topic within a module of the Workshop Management, in this context therefore, no single student has specialised in this course.

Furthermore, there is high environmental awareness and sensitization in Finland as a whole. This is evident through availability of waste bins in everywhere in VET institutes and even outside the institutes. This is contrary to Tanzania where environmental awareness and sensitization is not of that great extent. Apart from that, the other thing is methodology used. The methodology used in teaching EE in VET institutes in Finland is competency based while in Tanzania lecture and question and answer methods are mostly employed. Besides, infrastructure in Finland is highly improved, for instance, in public places you may find toilets as well as doors for disabled people whereas in Tanzania in almost all public areas with exception of very few places, you won't find friendly environment which would accommodate the disabled ones.

The comparison of the implementation of EE in VET institutes and analysis of the results of the study allowed for a room to confirm that there is no big difference in understanding and implementing EE in both countries (Finland and Tanzania). It was evident from the study results that in describing EE, a good number of informants in all the three VET institutes emphasised raising awareness about environmental issues which is education *about* the environment and also is one of the international objectives of implementing EE. Teachers' interpretation of EE based mainly on students' knowledge acquisition.

It is suggested that EE should be concerned with not only raising awareness but also developing knowledge, skills and attitudes which are responsible for effective care of the environment.

From the results obtained in the three institutes, it was evident that EE in one of the institutes which is MVTTC was taught as a crosscutting issue. In practice, EE existed only in Workshop Management as this study area had environmental topic included in its syllabus. Teachers who participated in the study thought that EE was wrongly incorporated in the curriculum as a crosscutting issue rather was supposed to be taught as an independent course. Since EE was taught as a crosscutting issue and was included in only one course, therefore, the majority of the respondents stated that it was not a priority in their lessons.

In this study, the approaches adopted in implementing EE were teaching EE as a crosscutting issue and as an independent course. However, in MVTTC, EE was integrated in the curriculum as a crosscutting issue while in TAKK and TREDU, the course was taught both as a crosscutting issue as well as an independent course.

This study acknowledges that most frequently used teaching methods by teachers were related to achieving education *about* the environment. However, a few respondents especially in TAKK and TREDU made use of teaching methods related to achieving education *in* and *for* the environment. While question and answer, and lecture methods used in MVTTC related to education *about* the environment, and study tours and camping methods used in TAKK and TREDU were related to achieving education *in* and *for* the environment. From above account, it could be concluded that all models of EE were practised in spite of education *about* the environment was frequently used. With this backdrop, there is need also to emphasise other forms of EE which are education *in* and *for* the environment.

Teachers in MVTTC who participated in the study believed that EE was wrongly included in the curriculum as a crosscutting issue. Some of respondents in MVTTC also claimed that, in order for the effective implementation of EE, the course could be included in all the teaching courses unlike what it is done now. It is clear from the study that EE was not successfully implemented as the other key objectives were ignored.

In conclusion, a meaningful EE needs to embrace all the three levels which are education *about* the environment which mainly reflects raising awareness and consciousness, knowledge and skills as well as understanding of the environment; *in/through* the environment which largely participates learners in the whole learning process and also involves learning by doing; this usually involves field work. Lastly, *for* the environment which deals with ways of improving the environment. In Tanzania, the approach which has been used to include EE into the VET institutes curriculum and in MVTTC in particular, is to teach it as a crosscutting issue integrated into one of the modules while in Finland and in TAKK and TREDU in particular, EE is taught as both as crosscutting issue and as a separate course.

Clarifying to the constraints respondents faced in implementing EE, the majority of them pointed out that, it was due to limited time, lack of knowledge and skills, negative attitudes by the teachers and lack of ownership of EE as EE existed as a crosscutting issue especially in MVTTC, all together contributed to the non-participation in EE. Hence, the effective implementation of EE became even more difficult because it required changes not only within the institute but to the curriculum developers, EE agencies as well as to the government.

6.3 Recommendations

In the light of the findings and conclusions in this study, the following recommendations are put forward. These touch curriculum developers and policy makers, recommendations to the VET institutes' management of the respective institutes sampled and recommendations for further studies.

6.3.1 Recommendations to Curriculum Developers and Policy Makers

Curriculum developers and policy makers play a greater role in influencing the curriculum and monitoring its implementation. This presents the need to consider the following factors:

- i. Since the education policy has clearly stipulated the inclusion of EE in VET institutes in both Tanzania and Finland and since EE in Tanzania has been instituted as a crosscutting issue in the MVTTC' curriculum, a call to Tanzania Institute of Curriculum Development is to devise guidelines on teaching EE. Likewise, policy makers in Finland have also to rethink of making laws and/or by-laws which will prevent her citizens from smoking publicly and throwing pieces of cigarettes everywhere they wish.
- ii. EE at MVTTC should be taught as a separate course and/or should be included in all study areas. This is in the view of the research results that EE was only taught as a crosscutting issue in Workshop Management which had environmental related topic.

- iii. In order to have qualified teachers who can teach EE effectively especially in Tanzania, they should be trained in EE while in teachers' colleges or have to be prepared to become professionals right from the low levels of education.
- iv. Agencies dealing with environment such as NEMC should provide regular seminars, workshops and short courses for teachers on the EE so as to improve their efficiency and performance in the implementation of EE in these institutes. Through these arenas, teachers may exchange views and provide their challenges towards the course and therefore, devise the appropriate ways to mitigate the problem.

6.3.2 Recommendations to the VET Institutes' Managements

Researcher suggests the following remedies to be taken by the VET institutes managements

- i. Introduction of EE sensitization and teaching specific competencies in environmentally sound techniques among VET teachers. This is possible through seminars, workshops and indoor trainings, introduction of EE clubs]
- ii. Environmental Education clubs should be re-introduced in these VET institutes in both countries. This will help create environmental awareness to large number of people within and outside the VET institutes' premises.

6.3.3 Recommendations for Further Studies

A limited number of comparative studies have been conducted between Tanzania and Finland in the area of the implementation of EE in VET institutes. Most of them, including this one cover a small area of the phenomenon. For instance, the evaluation of the implementation of EE was confined to only three VET institutes (MVTTC, TAKK and TREDU) in Finland and Tanzania. So its results are limited to an extent that cannot be generalized to the whole countries as it does not give the whole picture of the situation. It is therefore, suggested that:

- i. Further research to be carried out using a large number of informants to shed light on the outcome of this study.

- ii. A similar study should be conducted in all the VET institutes in both Tanzania and Finland so as to get generalized information applicable to the whole countries.
- iii. Since the study was conducted in VET institutions at certificate and diploma levels in Tanzania, the same study may also be conducted in higher learning institutions to get the general picture of the way EE is implemented.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR STUDENTS OF VET INSTITUTES IN FINLAND

Dear student,

My name is SeifHashim, a student at Mzumbe University School of education, pursuing Master of Arts in Education degree. I am conducting a study on implementation of environmental education in Vocational Education Training Institutes: A comparative Study between Tanzania and Finland. This study will help me give some advice to policy makers, curriculum developers, education stakeholders as well as the community members on how to develop successful ways of implementing environmental education which will then result to the improvement of the environment. I am asking for your time to answer the following questions freely, openly and honestly. I wish to assure you that the information obtained from you will be treated confidentially, and will be used only for the purpose of this study. Please note that no answer is regarded as correct or wrong. Your cooperation determines the success of this study.

Background Information: *Put a tick and fill in blank spaces*

Name of your institute

Class level.....

Sex (a) Male [☐] (b) Female [☐]

Age (a) 15-20 [☐] (b) 21-26 [☐] (c) 26 and above [☐]

1. How do you define environmental education?

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

2. Have you ever learnt any environmental education in this institute?
YES [] NO [] If YES, what have you learnt?

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

3. Is there any necessity for you to study environmental education in regards to the courses you are studying at this institute?
YES [] if YES, why? NO [] if NO why not?

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

4. What do you learn in environmental education in your institute?

Collecting garbage YES [] NO []
Recycling YES [] NO []
Planting trees and gardening YES [] NO []
Others (please mention)

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

5. Do you have any environmental education clubs at your institute? *(if your response is NO, skip question 6, and proceed to question 7)*

YES [] NO []

If YES mention them

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

6. What kinds of activities are carried out in the environmental education clubs in this institute?

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

7. Have you ever gone for field (hiking) trips, camps (Greenpeace camps) study tours outside your institute to get more details on environment? YES [☐]
NO [☐] If NO Please give reasons
.....
.....
.....
8. While you are at home, have you ever engaged in any activities related to the environment after learning environmental education at this institute??
YES [☐] NO [☐]
If YES what were they about..... and if
NO why
9. Which constraints do you come across with during the learning and putting of environmental education into practice at your institute?
.....
.....
.....
.....
10. Suggest how best environmental education should be learnt in your institute to make it responsive to the current environmental issues the nation is facing
.....
.....
.....
.....

Thank you very much for sparing your time to respond to this questionnaire

APPENDIX II: INTERVIEW GUIDE FOR VET INSTITUTE TEACHERS IN FINLAND

1. How do you define environmental education?
1. How do you put environmental education into practice? Is it in the curriculum?
2. Is it necessary that environmental education be incorporated in the curriculum of VET institutes?
3. What are the qualifications/experiences/competences of the teachers teaching environmental education in your institute?
4. Which methods/approach do you use in teaching environmental education?
5. Why is environmental education important in your opinion?
6. Does your institute have environmental education activities/programs/clubs outside classroom? If yes what are they?
7. What constraints do you face in implementing environmental education in the institute? How do you solve them?
8. From where do you get information for your environmental education? (If the one who teaches it is not a professional)
9. Is there any other comment you would like to make in relation to environmental education?

APPENDIX III: INTERVIEW GUIDE FOR NBE OFICIAL IN FINLAND

1. Does Finland have specific policy on EE? If yes, how does it state?
2. What ways, approaches or strategies used to promote environmental education in VET institutes?
3. There has been a lack of appreciation of Environmental Education in VET institutes, what efforts done by the Finnish government to ensure Environmental Education is well implemented in VET institutes?
4. How do you involve yourself in the implementation of environmental education in VET institutes in Finland?
5. Is it necessary that environmental education be incorporated in the curriculum of VET institutes? If yes, why?
6. What kind of challenges do you face in implementing environmental education in VET institutes? How do you solve them?

**APPENDIX IV: QUESTIONNAIRE FOR STUDENTS OF MOROGORO
VOCATIONAL TEACHERS' TRAINING COLLEGE IN TANZANIA**

Dear student,

My name is Seif Hashim, a student at Mzumbe University School of education, pursuing Master of Arts in Education degree. I am conducting a study on implementation of environmental education in Vocational Education Training Institutes: A comparative Study between Tanzania and Finland. This study will help me give some advice to policy makers, curriculum developers, education stakeholders as well as the community members on how to develop successful ways of implementing environmental education which will then result to the improvement of the environment. I am asking for your time to answer the following questions freely, openly and honestly. I wish to assure you that the information obtained from you will be treated confidentially, and will be used only for the purpose of this study. Please note that no answer is regarded as correct or wrong. Your cooperation determines the success of this study.

Background Information: *Put a tick and fill in blank spaces*

Name of your institute

Class level.....

Sex (a) Male [] (b) Female []

Age (a) 15-20 [] (b) 21-26 [] (c) 26 and above []

1. How do you define environmental education?

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

2. Have you ever learnt any environmental education in this institute? YES []
NO [] If YES, what have you learnt?

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

3. Do you think it is important for you to study environmental education in regards to the courses you are studying at this institute?

YES [] if YES, why?

NO [] if NO why not?

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

4. What do you learn in environmental education in your institute?

Collecting garbage YES []

NO []

Recycling YES []

NO []

Planting trees and gardening YES []

NO []

Others (please mention)

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

5. Do you have any environmental education clubs at your institute? *(if your response is NO, skip question 6, and proceed to question 7)*

YES []

NO []

If YES mention them

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

6. What kinds of activities are carried out in the environmental education clubs in this institute?

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

7. Have you ever gone for field trips, camps and study tours outside your institute to get more details on environment YES [] NO []

If NO Please give reasons

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

8. While you are at home, have you ever engaged in any activities related to the environment after learning environmental education at this institute??
YES [] NO []

If YES what were they about..... and if
NO why

9. Which constraints do you come across with during the learning and putting of environmental education into practice at your institute?

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

10. Suggest how best environmental education should be learnt in your institute to make it responsive to the current environmental issues the nation is facing

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

Thank you very much for sparing your time to respond to this questionnaire

**APPENDIX V: INTERVIEWS GUIDE FOR TEACHERS AT MOROGORO
VOCATIONAL TEACHERS' TRAINING COLLEGE**

10. How do you define environmental education?
11. How do you put environmental education into practice? Is it in the curriculum?
12. Is it necessary that environmental education be incorporated in the curriculum of VET institutes? If yes, why?
13. What are the qualifications/experiences/competences of the teachers teaching environmental education in your institute?
14. Which approaches and/or methods do you use in implementing environmental education?
15. Why is environmental education important in your opinion?
16. Does your institute have environmental education activities/programs/clubs outside classroom? If yes what are they?
17. What constraints do you face in implementing environmental education in the institute? How do you solve them?
18. From where do you get information for your environmental education? (If the one who teaches it is not a professional)
19. Suggest how best environmental education should be implemented in VET colleges in Tanzania to make it responsive to the current environmental issues the nation is facing.
20. Is there any other comment you would like to make in relation to environmental education?

APPENDIX VI: INTERVIEW GUIDE FOR NEMC OFFICIALS IN TANZANIA

1. Does Tanzania have specific policy on EE? If yes, how does it state?
2. What is your task/role in relation to implementation of environmental education in Vocational Education Training institutes in Tanzania?
3. Is it necessary that environmental education be incorporated in the curriculum of Vocational Education Training institutes? If yes, why?
4. There has been a lack of appreciation of Environmental Education in Vocational Education Training institutes, what efforts done by the Tanzania government to ensure Environmental Education is well implemented in these institutes?
5. How do you develop environmental education in Vocational Education Training institutes?
6. What kind of challenges do you face in implementing environmental education in Vocational Education Training institutes? How do you solve them?

APPENDIX VII: TRANSLATED QUESTIONNAIRE INTO FINNISH FOR STUDENTS OF VET INSTITUTES IN FINLAND

YMPÄRISTÖKASVATUKSEN TOTEUTUKSEEN LIITTYVÄ KYSELY AMMATTIOPISTOISSA OPISKELEVILLE OPISKELIJOILLE

Hyvät opiskelijat,

olen Seif Hashim, kasvatustieteiden maisterivaiheen opiskelija Tansaniasta Mzumben yliopistolta. Olen tekemässä tutkimusta ympäristökasvatuksen toimeenpanosta ammatillisen koulutuksen instituuteissa. Kyseessä on vertaileva tutkimus Suomen ja Tansanian välillä. Tutkimuksesta saatavan tiedon avulla on mahdollista antaa päätöksentekijöille, opetusohjelman kehittäjille, kasvatustieteen toimijoille ja yhteisön jäsenille ajatuksia ja ideoita siitä, miten ympäristökasvatuksen toteutusta voitaisiin kehittää ja tätä kautta edelleen vaikuttaa ympäristön tilaan positiivisesti.

Pyytäisin teitä ystävällisesti vastaamaan seuraaviin kysymyksiin vapaamuotoisesti, avoimesti ja rehellisesti. Teiltä saamani tieto tullaan käsittelemään luottamuksellisesti ja sitä käytetään vain tätä tutkimusta varten. Huomioikaa, että kysymyksiin ei ole olemassa oikeita tai vääriä vastauksia. Kiitos yhteistyöstänne!

Taustatiedot (laittakaa rasti ruutuun)

Oppilaitoksenne nimi:.....

Luokkataso:.....

Sukupuoli: a) mies [] b) nainen []

Ikä: a) 15 – 20 [] b) 21 – 26 [] c) 26 - []

1. Miten ymmärrät ympäristökasvatuksen, mitä se mielestäsi tarkoittaa?

.....

.....O
nko omiin opintoihisi kuulunut ympäristökasvatusta (missään vaiheessa opintojasi)?

KYLLÄ [] EI []

Jos vastasit kyllä, mitä olet oppinut?

.....

.....

.....

2. Koetko, että sinulle on tärkeää opiskella ympäristökasvatusta liittyen omiin opintoihisi nykyisessä oppilaitoksessasi?

KYLLÄ [] Miksi?

EI [] Miksi ei?

.....

.....

.....

.....

3. Mitä opit ympäristöön liittyvistä asioista oppilaitoksessasi?

Roskien keräämistä KYLLÄ [] EI []

Kierrätystä KYLLÄ [] EI []

Puiden / kasvien istutusta KYLLÄ [] EI []

Muuta, mitä?

.....

.....

.....

.....

4. Onko oppilaitoksessasi ympäristökasvatukseen liittyvää kerhoa / järjestöä? *Jos tällaista ei ole, voit siirtyä suoraan kysymykseen numero 7.*

KYLLÄ [] EI []

Jos vastasit kyllä, mitä kerhoja / järjestöjä on olemassa?

.....

.....

Millaista toimintaa/ aktiviteetteja kyseisissä kerhoissa järjestetään?

.....

.....

.....

5. Oletko osallistunut ympäristökasvatukseen liittyville opintoretkille, leireille tai tutustumiskäynneille, jotka ovat suuntautuneet oppilaitoksesi ulkopuolelle?

KYLLÄ [] EI []

Jos vastasit kyllä, millaisia ympäristöön liittyviä aktiviteetteja tähän retkeen liittyi?

Jos vastasit ei, miksi et ole osallistunut edellä mainitun kaltaisiin aktiviteetteihin?

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

6. Oletko suorittanut joitakin ympäristöystävällisiä tekoja kotona opittuasi niistä oppilaitoksessasi?

KYLLÄ [] EI []

Jos vastasit kyllä, millaisia nämä teot ovat olleet?

Jos vastasit ei, miksi et ole toiminut näin?.....

7. Minkälaisia haasteita tai rajoitteita olet mahdollisesti kohdannut opiskellessasi ja saattaessasi käytäntöön ympäristökasvatukseen liittyviä seikkoja oppilaitoksessasi?

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

8. Miten ympäristökasvatusta tulisi sinun mielestäsi opettaa ja toteuttaa oppilaitoksessasi, jotta se vastaisi parhaiten maassasi vallitsevaa tilannetta ympäristön osalta?

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

Kiitos vastaamiseen käyttämästäanne ajasta!

APPENDIX VIII: THE BUDGET OF THE STUDY

S/N	Cost category	Cost in Tshs	
		Initial Plan	Final Plan
1	Research Proposal-equipment and materials (stationery and diskettes)	150,000.00	200,000.00
2	Pilot study-data, stationery and report writing	200,000.00	100000
3	First conduct -literature, surfing internet, secretarial services, photocopy, binding costs and payment of supporting staff	300,000.00	200,000.00
4	Data collection	350,000.00	0
5	Data entry, analysis and interpretations	450,000.00	100,000.00
6	Report writing and interpretations	200,000.00	150,000.00
7	Report editing	50,000.00	150,000.00
8	Report submission	150,000.00	200,000.00
9	Travel and transport cost	300,000.00	250,000.00
	Sub-total	2,150,000.00	1,350,000.00
	Grand total	3,500,000.00	

APPENDIX IX: WORK PLAN OF THE STUDY

The schedule of activities for 7 months

S/N	ACTIVITY	DURATION						
		SEPT 2015	OCT 2015	NOV 2015	DEC 2015	JAN 2016	FEB 2016	MAR 2016
1	Sharpening background information and developing research tools	√						
2	Study pilot to test research tools	√						
3	Actual data collection		√					
4	Data entry and analysis				√			
5	Research report writing and presentations						√	
6	Incorporating comments from the supervisors and submitting the report for publication							√

**APPENDIX X: INTRODUCTION LETTER FROM THE OFFICE OF THE
VICE CHANCELLOR-MZUMBE UNIVERSITY**



MZUMBE UNIVERSITY

OFFICE OF THE VICE CHANCELLOR

Tel: +255 (0) 23 293120/1/2
Fax: +255 (0) 23 2604382
Cell: +255 (0) 789 722 733
E-mail: drps@mzumbe.ac.tz
Website: www.mzumbe.ac.tz and www.drps.mzumbe.ac.tz

P.O.BOX 63
MZUMBE
MOROGORO, TANZANIA

Ref. No.: MA/EDU/MZC/013/T.14

Date: 20th January, 2016

TO WHOM IT MAY CONCERN

RE: INTRODUCTION OF SEIF HASHIM

The bearer of this letter is a postgraduate student at our university (Mzumbe University) pursuing **Master of Arts in Education (MA-EDU)**. As a part of requirements for completion of her studies, he is collecting information on ***"The Implementation of Environmental Education in Vocational Education Training Institutes: A Comparative Study between Tanzania and Finland"***.

This letter serves to achieve three purposes. Firstly, to introduce him to you, secondly, to request you to grant him permission to undertake the mentioned research at your Institute, and thirdly to request you to facilitate any form of assistance he might need in order to successfully pursue this noble exercise at your organisation/institute. We can assure you that this activity is entirely for academic and will never be used for any other purposes.

We trust that you will accord our student with necessary assistance.

Sincerely yours,

Dr. Erasmus F. Kipesha (PhD)
For: VICE CHANCELLOR

APPENDIX XI: RESEARCH PERMIT FROM RAS MOROGORO

THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Telegraphic Address: "REGCOM"
Phones: 023 2604237/2604227

Fax No: 260 09 73
In Reply please quote:



Regional Commissioner's Office,
P.O. Box 650,
MOROGORO.

Ref. No: AB.175/245/01/40

22 January, 2016

District Administrative Secretary,
Morogoro.

RE: RESEARCH PERMIT

Please refer to the above captioned subject.

I have a great honour to introduce to you **Seif Hashim** who is the student from Mzumbe University pursuing Masters of Arts in Education (MA-EDU) and at the moment conducting research at Morogoro Vocational Teachers' Training collage (MVTTC) - Morogoro.

The title of the research in question is "The implementation of Environmental Education in Vocational Training Institutes: A Comparative study between Tanzania and Finland".

Please provide her with all needed assistance to enable the accomplishment of this research.

Thank you for your cooperation.



Sophia Mnyanyi

For: REGIONAL ADMINISTRATIVE SECRETARY

Copy: - Vice Chancellor
Mzumbe University,
P. O. Box 63
Morogoro

" Seif Hashim
Researcher

**APPENDIX XII: RESEARCH PERMIT FROM DAS MOROGORO (KIBALI
CHA KUFANYA UTAFIGI KUTOKA OFISI YA KATIBU TAWALA WILAYA
YA MOROGORO)**

**JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA WAZIRI MKUU
TAWALA ZA MIKOA NA SERIKALI ZA MITAA**

Anuani ya simu: " MKUU WA WILAYA
Simu Nambari: 2614096
Fax Nambari: 2613848



OFISI YA MKUU WA WILAYA
S.L.P 681
MOROGORO

Unapojibu tafadhali taja:

Kumb. Na. AB.210/249/01/"C"/179

27/01/2016

Mkurugenzi,
MVTTC-MOROGORO

YAH: KIBALI CHA KUFANYA UTAFIGI BWANA SEIF HASHIM

Nafurahi kumtambulisha kwako Bwana Seif Hashim Mwanafunzi kutoka Chuo Kikuu cha Mzumbe anayefanya utafiti juu ya "The implementation of Environmental Education in Vocation Training Institutes: A comparative study between Tanzania and Finland".

Namleta kwenu ili aweze kuruhusiwa kufanya utafiti kwa lengo la kukamilisha Digrii yake ya pili.

Naomba apewe ushirikiano.

E.T. Nzunda

**Kny: KATIBU TAWALA WILAYA
MOROGORO**

Nakala: Mkuu wa Chuo,
Chuo cha Mzumbe,
MOROGORO

**K.N.Y. KATIBU TAWALA WILAYA
MOROGORO**

Bwana Seif Hashim,
MTAFITI