INFLUENCE OF ENVIRONMENTAL EDUCATION ON CONSERVING ENVIRONMENT IN KENYA, CASE STUDY MOIBEN CONSTITUENCY, UASIN GISHU COUNTY

BY

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DECLARATION

I, the undersigned, declare that this project is my original work and that it has not been presented in any other university or institution for academic credit. No part of it is to be reproduced without prior permission from the author or university of Nairobi.

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This proposal has been submitted for examination with my approval as University supervisor

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DEDICATION

This project is dedicated to my parents Mr and Mrs. Burer, my sisters and brothers and my close friend Bethwel for their support and encouragement

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ABSTRACT

The importance of environmental education (EE) is well known globally among societies. Environmental education is gradually promoted as a sustainable tool in protection of the natural environment. This study aimed to survey the influence of environmental education on conserving natural environment in Moiben constituency. The main objective of the study was to establish the influence of informal, formal, indigenous and experiential education on environmental conservation and find out challenges in environmental conservation. The finding of the study broadened understanding of environmental education on environmental conservation. Survey research design was employed and the sample unit was heads of households in Moiben constituency. Simple random, systematic and purposive sampling techniques were used to sample 373 head of households in Moiben Constituency who were administered with questionnaire. Interview guides were also employed. Research instruments for this research were questionnaires and interview guides. Validity was established by consulting experts from the department and colleagues. The researcher used both qualitative and quantitative methods to analyze data. The study established that, formal education cannot provide a platform for better conservation of natural resources because of its target population. This is because it does not give opportunity for the learner to have contact with the environment and make environmental conservation more practical, thus it is not flexible enough but improves learners' knowledge and attitudes toward the environment. On the other hand, Informal education has articulated environmental conservation well enough because it is a more creative and flexible. Indigenous education is a part of peoples' cultural and social identities, well-being, sustainable development and intellectual and cultural vitality which plays a crucial role for the successful conservation of the environment. It also safeguards the natural environment and resources which are under serious threat, through cultural taboos and their sanctions that help to check abuse of the environment at least among the local people. Experiential education helped the learners to know about their environment, to identify problems concerning the use of natural resources, to seek alternative solutions to environmental problems, and to be committed to taking action to alleviate these problems. The study concluded that, as opposed to other types of environmental education, experiential education helped the learners to know about their environment, to identify problems concerning the use of natural resources, to seek alternative solutions to environmental problems, and to be committed to taking action to alleviate these problems. The study therefore recommended that; Traditional institutions should provide considerable protection of ecosystems and biodiversity without governmental restrictions

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATION AND ACRONYM

DESD- Decade of Education for Sustainable Development

EE- Environmental education

IK- Indigenous knowledge

NEPAD- New Partnership for African Development

UNDESD- UN Decade of Education for Sustainable Development

UNESCO: United Nations Educational, Scientific, and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The global and local concern about growing environmental degradation has called for the need to help people to transform their attitudes and practices. As a result, education has been recognized as one of the important tools for conserving the environment through the cultivation of knowledge, skills, values and positive attitudes towards the environment. The need for and importance of environmental education has been emphasized through a series of intergovernmental forums and documents from the 1970s as a strategy for addressing the growing trend of environmental problems. (Brenchin S.R., and Kempton W ,1994)

Environmental education is already part of the education system in most of the countries in the world. Development of environmental education depends on the history of each country in terms of environmental problems, political situation and economic conditions Education was first recognized as an important conservation strategy in the 1970swhen the United Nations Educational, Scientific, and Cultural Organization made global environmental education a high priority. According to the Belgrade Charter:

> "The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones" (UNESCO, 1975).

In the 1977 Tbilisi Declaration that followed, the United Nations called for programs to foster environmental awareness, provide opportunities and skills for environmental protection, and create new patterns of behavior (UNESCO, 1977). The Declaration's primary objectives – increasing awareness, building knowledge, changing attitudes, and encouraging participation in pro-environmental behaviors – remain important goals of environmental education efforts around the world.

In March 2006 African Ministers of Education made a commitment to implement the UN Decade of Education for Sustainable Development in the context of the Second Decade on Education in Africa. Their statement of commitment emphasizes, the need to situate UNDESD activities within key policy initiatives such as the Millennium Development Goals, the United Nations Declaration on the New Partnership for African Development (NEPAD), the African Union's Second Decade on Education Plan of Action, and the Dakar Framework for Action aimed at achieving the Education for All goals. Since the DESD launch, nations and regions across the world have engaged in developing ESD strategies and frameworks or reviewing existing ones. However, the first DESD Global Monitoring and Evaluation Report (UNESCO, 2009b) highlighted that no country is close to embedding sustainable development into its structures or systems

Like many other countries, Kenya as one of the member states in international conferences on the environment, has responded to global concern about the environment and international declarations by including environmental education (EE) in the school curriculum at all levels from the 1990s. Since independence, Kenya has continued to demonstrate her commitment to environmental management through various initiatives,

among them the National Development Plans of 1974 and the National Environment Action Plan of 1994.

The National Environment Management Authority (NEMA), a regulatory body of the ministry of environment and mineral resources (MEMR), handles environmental coordination in Kenya. Further, there have been a number of sectoral policies on environment in fields such as Agriculture, Livestock, Water, Energy, Food, Land, Wildlife, Forest, Industry, Trade, Arid Lands, Disaster Management and the Draft Sessional Paper No. 6 of 1999 on Environment and Development. The Environmental Management and Coordination Act (EMCA, 1999) provides for the integration of environmental concerns in national policies, plans, programmes and projects. In this regard, EMCA 1999 provides for the formulation of National, Provincial and District Environment Action Plans every five years.

In Uasin Gishu County, there are a number of initiatives started by various groups to promote environmental educational programmes. An environmental group called Itinerant Group for Environmental Amelioration (IGEA) has been involved with about 10 schools in Ntonyiri and Igembe in nursery establishment and tree planting programmes Various schools, both secondary and primary have initiated clubs like Wildlife Clubs of Kenya, 4K clubs and Environmental clubs to promote conservation of the environment in and around their schools. There are over 50 schools with such initiatives and the District Environment Officer is co-ordinating their activities. University of Eldoret which is based in the district offers a full course in Environmental studies at masters' level.

The reorientation of education as a whole towards sustainability involves all levels of formal, non-formal and informal education in all countries. The concept of sustainability encompasses not only environment but also poverty, population, health, food security, democracy, human rights and peace. Sustainability is, in the final analysis, a moral and ethical imperative in which cultural diversity and traditional knowledge need to be respected. (Thessaloniki Declaration) this has been echoed by various researchers. (ASEAN Secretariat, 2001)

In this regard various nature of education has been used to create awareness at global and local level in developing and developed countries. This include formal, informal and non -formal and indigenous. To reach sustainability goal environmental education should not only be taught formally but both non-formal, informal Education should be cooperated. Agenda 21, of Rio Earth Summit in 1992, states that:

> "Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environmental and development issues. . . . Both formal and non-formal education is indispensible to changing people's attitudes" (UNESCO, 1992).

In other words, environmental education should be understood not only in the aspect of formal education, but also through formal and non-formal/informal education, to acquire understanding, skills and values that will enable them to participate as active and informed citizens in the development of an ecologically sustainable and socially just

society. Formal education ensures students gain all the knowledge and skills necessary for environmental literacy and continue to retain them after graduation. Logically, if the behavior is not enforced, it will erode over time, and it is here that non-formal environmental education emerges. Non-formal education should provide some sort of intervening function for maintenance and reinforcement of environmental knowledge gained through school (UNCED1992)

Since the mid 1980s, non-formal education has expanded further from a mere supplement toformal education to being the core concept by which to achieve a learning society. Beginning in the late 1980s, many non formal education(NFE)centers have broadened their functions and have been converted to continuing education centers promoting the concept of, and providing opportunity for, lifelong learning outside the formal education system" (UNESCO-PROAP, 1997, p14.The goal of non formal environmental education is to create environmental awareness of a population that don't have the formal environmental education. It helps to close the gap created by deficiency in formal education. This includes the use of the Mass Media, new technologies for communication and information and museums.

Informal learning is "casual and continuous learning from life experiences outside organized formal or non-formal education" (ERIC, 1999). This includes learning in the family, workplace,

social life, etc.; accordingly, an increase in environmental information is key to promoting informal learning. In this context, the media plays an important role. The media can convey environmental information even to people who are not interested in environmental issues or who do not have time for formal and non-formal schooling.

Since environmental efforts require the participation of society as a whole, the media has a significant role in solving problems.

In informal learning, a variety of participants can perform different functions through diverse activities toward achieving the goal of environmental education. Many types of media have been used for this purpose, such as the Internet, computer programmes, documentary films and TV programmes.

Indigenous knowledge is starting to become more widely valued in the Western community, for a variety of purposes. David Suzuki explores Indigenous traditional ecological wisdom in his writings on environmental issues (Knudtson& Suzuki, 1992; Suzuki, 1997, 1998). Traditional ecological knowledge (already often abbreviated to TEK) is becoming an integral part of understanding the environment wherever such Indigenous knowledge still exists (Langton, 1998; Williams,1999)

Experiential education has been used to offer solution of some problems in formal education institution this is according to (Grande, 2004; O'Connor, 2006). Experiential learning is the process by which one learns information through hands on experience—it connects them with their surrounding environment, gives them a sense of self-identity, and installs passion and appreciation for the natural world.

1.2Statement of the Problem

Although the Earth's climate varies naturally, the IPCC stated that, there was evidence for human activities being responsible for global warming (Costello, et al, 2009;IPCC, 2007) as anthropogenic greenhouse gas emissions increased by 70% between 1970and

2004 (IPCC, 2007). This increase in greenhouse gas concentration has already significantly influenced climate (Costello, et al., 2009). Future climate change projections included changing surface temperatures, precipitation changes, sea-level rise, and changes in the frequency and magnitude of extreme weather events (such as heat waves)(Solomon, et al., 2007).M.A. Thesis – F. Cardwell McMaster University – Geography.

Kenya like other sub-Saharan African countries faces the uncertainty and potential risks of climate change. The country's fragile ecosystem was put under intensive pressure arising from species migration due to habitat destruction and reduction. Already, almost 50% of the country's key biodiversity warehouse was at risk due to reduced habitat and other human induced pressures(Kenya Country Report).

The vulnerability of Kenya to climate change was extreme due to reliant climate vulnerability sector like agriculture and tourism. Land degradation, draught, floods, conflict and insecurity in resource use, overgrazing and deforestation, soil erosion and fertility decline, water scarcity, food insecurity and wood fuel crisis. Although Kenya's policy and legal framework provided for a firm foundation for sustainable forest management, there were shortfalls in implementation. Excision and degradation of forests in Kenya continued, with little regard to the laws and the quality and importance of the forests(Kenya Country Report, 2005-2012).

Multiple factors affected forests in Kenya. These included conversion of land uses and changes in land use patterns for agriculture, settlement, and industrial/commercial purposes. Tropical montage cloud forests were likely to be affected by climate change, especially temperature and precipitation change (Bruijnzeel, Scatena & Hamiton 2010).

Loss of forest in Kenya has serious socioeconomic consequences, not the least of which was its negative effect on the GDP of the country.

Uasin Gishu County is an agricultural area, it highly depend on environment resources for instance rain and land. For the past four year the weather has changed negatively. For instance in year 2013, there was a lot of rains while in the year 2014 the rains have delayed affecting farming activities.

The main water resources in the County include dams, rivers, boreholes, shallow wells and springs. The County is drained by 4 major rivers, namely; Moiben with its 3 tributaries; Sosiani also with its 3 tributaries; Sergoit with 2 tributaries; Kipkarren with 9 tributaries and River Nzoia (CIDP 2013).

Much has been done both globally and locally in terms of environmental education both by the government and non-governmental organizations to create public awareness and conservation. This study seeks to establish the influence of environmental education on creating pro- environmental behavior.

1.3 Purpose of the Study

The study aimed to investigation the influence of environmental education on conserving natural environment in Moiben constituency.

1.4 Objectives of the Study

The objectives that guided this study included:

1. To determine how the formal education influences conservation of environment in Moiben constituency.

2. To assess the extent to which indigenous knowledge influences conservation of environment
3. To establish how informal education influences conservation of environment
4. To assess how experiential education influences conservation of environment.

1.5 Research questions

1. To what extent does formal environmental education influence conservation of natural environment in Moiben constituency?
2. To what extent does indigenous Education foster conservation of natural environment?
3. How does informal environmental education encourage conservation of natural environment?
4. How does experiential education influence conservation of environment?

1.6 Significance of the study

Environmental sustainability is increasingly threatened by large-scale changes tothe natural environment that could significantly affect human and ecosystem health.

Findings of this study will be availed through the internet to reach out the relevant stakeholders. This includes;The Ministry of Education in formulation of Environmental Education Curriculum to ensure students gain knowledge and skills necessary for environmental conservation; Ministry of Environment Science and Technology in policy making that incorporates effective environmental education to aid in conserving the environment and Community members will be able to understand the role played by Non-formal education in providing intervening function for maintenance and reinforcement of environmental knowledge gained through school. Traditional

institutions will be able to provide considerable protection of ecosystems and biodiversity without governmental juridical restrictions.

1.7Delimitations of the study

The research was carried on households in Moiben Constituency. The research was concerned with the contributions of Environment Education in conservation of environment. The time frame lied only in the year 2014.The study was based on the assumption that the sampled respondents were a fair representation of the rest because of their homogeneous characteristics in culture. The whole of Moiben household were not studied, but samples of 373 head of households were chosen systematically in Moiben constituency. This study did not go into all the factors that influenced the environment conservation.

1.8 Limitations of the study

A study on all the factors that influence environmental conservation was highly complex. Even here, problems that were encountered overlapped with the characteristics of environmental education and the factors influencing environmental conservation. This was addressed by sticking to the specific objectives of the study.

1.9 Basic Assumptions

The study assumes that target population posed informal, formal and indigenous education. The researcher assumed that the subjects responding to the survey answered the questions completely and honestly to the best of their knowledge.

The study assumed that the subjects responding to the survey answered the questions completely and honestly to the best of their knowledge. Also assumed was that other

demographic variables, such as urban city, gender, socio-economic status, etc., might present differences among the groups studied.

1.10 Definition of terms

Environmental Conservation: Is the responsibility for protecting and enhancement of the environment and management of its resources.

Experiential education: is the process of learning by doing which begins with the learner engaging in direct experience followed by reflection.

Formal education: Education acquired through defined curriculum from an educational institution.

Informal Education: Education that takes place outside educational institutions and caters to person of all ages. (UNESCO 1997:41)

Indigenous Education: is the local knowledge that is unique to a culture or society that is passed from generation to generation.

Sustainable development: Development that meets the needs of the present without compromising that ability of future generation to meet their own needs (Brundtland Commission Report 1987)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed past studies on environmental education in conserving environment. It discussed the type's environmental education employed in environmental education employed. It elaborated informal, formal, experiential and indigenous education on conserving natural environment across the globe. The challenges encountered conserving the environment. The chapter also discussed the theoretical framework, conceptual framework of the study, critical review and summary of the literature review.

2.2 Formal education and environment conservation

Even though environmental education developed slowly and hesitantly in the first 20 years after the 1972 Stockholm Conference, the last 20 years have seen a significant growth in environmental education programs. As a result, many primary, secondary, and higher education schools across nation have been increasing efforts to integrate environmental topics across the curriculum (Venkataraman, 2008).

Education specifically has also been shown to influence attitudes. In a study on manatee conservation, it was shown that greater knowledge about manatees was positively correlated with support for manatee protection (Aipanjiguly et al., 2002). Formal education level, even when not specifically tailored to conservation, also correlates with positive attitudes (Infield, 1988) and may be used as a predictor of local attitudes(Mehta &Heinen, 2001). For example, it has been shown that undergraduates' knowledge of

conservation biology may affect the environmental opinions that they hold(Caro et al., 1994).

According to the University of Maryland Research Center, a growing body of evidence supports the significance of environmental education to formal education in providing positive student outcomes in the areas of math, reading, and science achievement (Ernst, 2007). Strong evidence suggests that well-designed environmental education programs in primary and secondary schools, not only improve students 'Strong evidence suggests that well-designed environmental education programs in primary and secondary schools, not only improve students'knowledge and attitudes toward the environment, but also improve students' Performancein School.

Kenya has had what may be termed technically as an environmental education policy since 1986 though the appropriate environmental issues have separate policies. Sessional paper number 6 of 1988 states that environmental education should be made part and parcel of education and training and that environmental education should be taught at all levels in the education system. Since 1985, environmental issues have been defined and integrated into the curriculum in science, agriculture, home science, geography, history, biology and chemistry subjects taught in Kenya schools.

According to (KIE 1997), the main focus has revolved around soil erosion and soil conservation measures, overgrazing and overstocking of animals, afforestation and desertification, waste disposal, energy consumption and pollution, water conservation, wildlife conservation, and, biodiversity and ecosystems. Environmental education has

also been included in the training of primary schoolteachers since 1986 and on selected subjects for secondary school teachers since 1974.It has been an in-service course for all teacher trainees since 1985.

1979 Kenya's national symposium on EE led to the adoption of the integration approach of formal education level. Environmental components fused into subjects such as geography, agriculture and science. Since 1985, environmental issues have been defined and integrated in to the curriculum and taught in Kenyan schools. The decades leading to the world summit in 1992, Education was taken as an indicator of development and not as a vehicle to development. Even in centers where education and development were viewed as interconnected, the education system was not as responsive to the needs of the people as it really should.

The overall goal is to introduce comprehensive environmental education programmes in the formal education sector, from pre-primary to University to enable all its users assume responsibility and action towards sustainable use of the environment (Republic of Kenya, (2007).However there are specific goals for each level of education. Integration of environment and development concepts into existing contexts

2.3 Informal education and environment conservation

With growing awareness of the complexity of current environmental crises, formal education cannot provide a platform for better conservation of natural resources because of its target population. This is where informal education comes in, it narrows the gap to we find that the between education and communication improving public involvement

in solve complex problems. This is education outside the formal sector. It is a vast area ranging from the adult literacy

Education, "Functional" literacy programmes to a number of community and action oriented projects. Some are directly concerned with EE while others concentrate on specific subjects. The Sessional Paper No. 6 of 1999 on Environment and Development and the Environment Management and Co-ordination Act (1999) recognize the importance of non-formal education in the sustainable management of the environment. it is critical in achieving sustainable development because; Majority of environmental management practices are carried out by adults who are out of formal education .

It is a more creative and flexible as compared to formal education, it complements what has been learnt from formal education. Its strategies offer an opportunity for the learner to have contact with the environment and makes environmental conservation more practical. Some of the strategies that have been used in informal environmental education include: Museums, parks, use of media which include documentaries, Radio programmes, environmental programme funded by the Government and NGOs on environmental conservation. (Kerre. B. W & Obura. A. P (eds) (1992).

Informal environmental education brings about experience, sharing, creativity, pleasure and sensitivity toward the environment: It's a activities can be informing the population, discovery activities (guided visits, games, outings), but can also consists of the active participation of the public (workshops, volunteering, excursions, role play, field trips or visiting the park (Muli, A.M , 1990).

Informal Settings are typically places where learning takes place outside of a formal classroom, possibly in museums, zoos, aquaria, science and technology centers, homes, and clubs. They are also characterized as places where motivation is internal, the content is variable and possibly un-sequenced, attendance is voluntary, displays and objects are provided, learners are of all ages, and there is more diversity in the learners' backgrounds (Koran & Koran, 1988)

2.4 Indigenous education and environment conservation

Religious beliefs, traditional beliefs, cultural norms and practices play a crucial role for the successful conservation of the environment and specific organisms especially in the developing countries (Berkes*et al.*, 2000; Lingard*et al.*, 2003; Sasaki *et al.*, 2010). The natural environment and resources are under serious threat and at least cultural taboos and their sanctions have helped to check abuse of the environment at least among the local people. Religious beliefs, cultural norms and practices are often aligned with today's conservation ethics, and it is imperative that they are upheld as they are critical in the wise conservation and management of natural resources. It is the rural communities of the world, the preservation of the environment has a direct link to the culture of the people (Anoliefo*et al.*, 2003) which they pass it from generation to generations. These rural or indigenous people are those who are the original or oldest inhabitants of an area or region, who have lived in a traditional homeland for many generations (Toledo, 2000). According to (Barrow and Pathak, 2005 Tengö*et al.*, 2007; Jones *et al.*, 2008; Dudley *et al.*, 2009) there is a growing consensus that traditional institutions provide considerable protection of ecosystems and biodiversity without governmental juridical restrictions. Thus it is recommend that traditional education should be incorporated in environmental conservation. In revered areas, local people refrain from cutting down trees, killing

animals, harvesting useful plants within such sites. There are many practical reasons for conserving biodiversity, not to mention benefits related to food, medicine, and other materials as well as the environmental services supplied by natural ecosystems.

Indigenous knowledge evolves from close contact with the surrounding environment IKS is built by societies through generations of living in close contact with nature. It includes beliefs, myth, norms, and taboos, of a particular community. Every community has its own indigenous environmental knowledge that identify with their immediate environment. According to (Owuor n.d) Indigenous knowledge is developed and sustained through traditional education, which provides skills, trade training, and socialization avenues for many youths in Kenya today who never attended or dropped out of the formal school system. Common features in the process of knowledge transmission among most ethnic communities in Kenya occur within the context of family, community, clan tribe, and cultural age groups.

Africa is a continent that is endowed with an abundance of natural resources, which provide a potential springboard for economic development in the region (Opoku, 2006). For instance In Zimbabwe, the shone community are still using indigenous knowledge in conserving their environment. They have protected their values, beliefs, and taboos that have helped them conserve their natural environment: water sources, the natural vegetation and wildlife, and endangered nonhuman species (Chemhuru and Masaka, 2010). In Ghana, according to (Opoku, 2006) ancestral veneration plays a critical role in the conservation of resources. Traditional Ghanaians believe that ancestors can punish a person who violates traditionally sanctioned mores or destroys the environment.

In Kenya traditional education has been recognized by the constitution. Article 69(10) (c) of the Kenyan Constitution requires the State to respect the environment by protecting and enhancing IP in, and indigenous knowledge of, biodiversity and Genetic Resources of the communities of Kenya. For many years, communities have used Traditional Knowledge (TK) and associated Genetic Resources(GR) as a part of their very cultural and social identities, well-being, sustainable development and intellectual and cultural vitality. Article 8(j) of the Convention on Biological Diversity (CBD) to which Kenya is party obliges members to respect, preserve and protect Traditional Knowledge of local communities and associated Genetic Resources. For majority of the 42 communities or tribes in Kenya, TK is inseparable from their ways of life and their environment, natural resources, cultural values, spiritual beliefs and customary legal systems (Dei, 2002; Mudimbe, 1988; Semali, 1999; Turay, 2002).

The Indigenous knowledge is handed down from one generation to another through symbols, art, oral narratives, proverbs, and performance such as songs, storytelling, wise sayings, riddles, and dances (Dei, 2002; Mudimbe, 1988; Semali, 1999; Turay, 2002). In most rural, arid, and semi-arid parts of Kenya, especially in communities where formal education has had insignificant impact, oral art remains the most important means of transmitting knowledge and skills as a way of maintaining societal continuity from one generation to the next. For instance the Ogiek occupy the Mau Escarpment and Aberdare around the Rift Valley, as well as part of the Mt Elgon Forest in western Kenya have conserve the forest using their indigenous knowledge. The Maasai community also from Kenya, their culture forbids any community member from cutting down a tree, either for

firewood or any other purpose. People are also forbidden from interfering with the taproots or removing the entire bark of a tree for herbal extraction. According to their cultural belief, one can only use tree branches for firewood, and fibrous roots for herbs. If the bark of a tree has medicinal value, then only small portions of it can be removed by creating a "V" in the bark. The wound is then sealed using wet soil.

2.5 Experiential Education and conserving environment

Experiential education is a process through which a learner constructs knowledge, skilland value from direct experiences (Dewey, 1938). The term experience is understood to represent a fact or state of having been affected by or gained knowledge through direct observation or participation (Merriam-Webster, 1993). John Dewey (1938) an early promoter of the idea of learning through direct experience reflecting on actions, interactions and events, follows the idea that there is an intimate and necessary relationship between the process of actual experience and education.(Dewey, 1998). This type of learning differs from most contemporary educational approaches in that teachers first immerse students in action and then ask them to reflect on the experience. Paulo Freire (1970) built upon this theory of learning by promoting an educational praxis that included both action (experience) and reflection as essential components of a learning model.

An experiential foundation is necessary for a student to "know about their environment, to identify problems concerning the use of natural resources, to seek alternative solutions to environmental problems, and to be committed to taking action to alleviate these

problems". This can be achieved through the experience of outdoor education (Rillo, 1985).

Horwood (1995) discusses environmental experiential education as an integrative and additive model, combining "related reading of literature with related action in the world."Experiential education has been identified as being a holistic process, although many outdoor and adventure programmes focus on mainly physical challenges in a natural environment (Boud, Cohen, & Walker, 1993; Cooper, 1994; Hopkins & Putnam,1993).

Experiential learning is based on the belief that the process of personal growth occurs through change as a result of direct experiences (Burnard, 1991; Dewey, 1938; Gass, 1993; Rogers, 1985). It is an active process (King, 1988) involving the learner being placed in unfamiliar environments, outside their positions of comfort and into states of dissonance (Gass, 1993). This lack of harmony requires problem solving, inquiry and reflection (Kraft &Sakofs, 1991).

Kraft and Sakofs (1991) argued that experiential activities should be real and meaningful providing natural consequences for the learner, for example, out door activities. Boud*et al.* (1993) proposed the following assumptions on which to base experiential learning: Experience is the foundation of, and the stimulus for learning; Learners actively construct their own experience, Learning is a holistic process, Learning is socially and culturally constructed (Rogoff, 1990) and Learning is influenced by the socio-emotional context in which it occurs.

Roland and Hoyt (1984) believed that the changing issues of natural resources and environmental management should form part of all experiential education programmes. The key is to make environmental sensitivity a proactive component of program design (Roland & Hoyt, 1984,). Hopkins and Putnam (1993) supported this view by suggesting environmental awareness should be an underlying philosophy and purpose of all outdoor and adventure education programmes. The environment provides the context for challenges leading to the opportunity for personal learning and growth(adventure education), with learning about the environment as a specific aim in itself (Hopkins & Putnam, 1993; Priest, 1990b).

Understanding the nature and role of experiential knowledge for environmental conservation is a necessary step towards understanding if it should be used and how it might be applied with other types of knowledge in an evidence-based approach.

2.6 Theoretical Framework

Kolb's experiential learning theory (learning styles) model

This study is based on experiential learning theory. This theory was developed by Kolb's (1984) Experiential Learning Theory (ELT) provides a holistic model of the learning process and a multi-linear model of adult development, both of which are consistent with what we know about how people learn, grow, and develop..This theory sets out four distinct learning styles which are based on a four-stage learning cycle. Kolb's model offers both a way to understand individual learning styles, and also an explanation of a cycle of experiential learning that applies to all learners.

Kolb proposed that an individual learner moves through a spiral of immediate experience which leads to observations and reflections on the experience. These reflections are then absorbed and linked with previous knowledge and translated into abstract concepts or theories, which result in new ways and actions to adjust to the experience that can be tested and explored.

Kolb includes this 'cycle of learning' as a central principle his experiential learning theory, typically expressed as four-stage cycle of learning, in which 'immediate or concrete experiences' provide a basis for 'observations and reflections'. These 'observations and reflections' are assimilated and distilled into 'abstract concepts' producing new implications for action which can be 'actively tested' in turn creating new experiences.

The ELT model portrays two dialectically related modes of grasping experience—Concrete Experience (CE) and Abstract Conceptualization (AC) -- and two dialectically related modes of transforming experience—Reflective Observation (RO) and Active Experimentation (AE) (Kolb, 2007). Learning arises from the resolution of creative tension among these four learning modes. This process is portrayed as an idealized learning cycle or spiral where the learner “touches all the bases “experiencing (CE), reflecting (RO), thinking (AC), and acting (AE)—in a recursive process that is sensitive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and reflections.

Based on this theory their various ways of gaining education, through experience, observation and through Abstract Conceptualization (AC) this represent the formal education where one**,** the learner relies on systematic planning and develops theories and

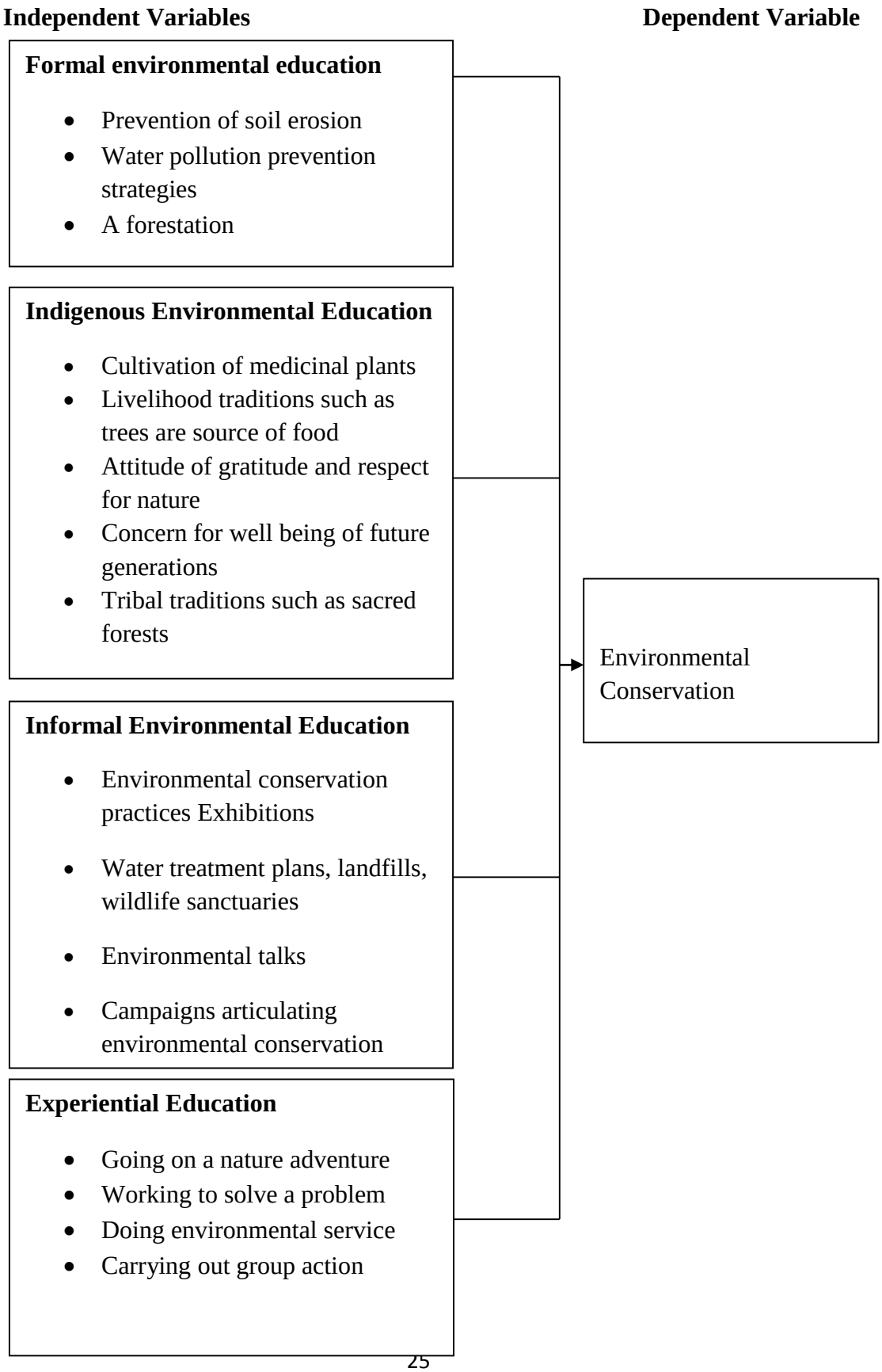
ideas to solve problems. The theory helps to understand the interplay between environmental conservation and environmental conservation.

Overall, the theory is widely accepted and is one of the most utilized learning models in education. , Kayes (2002) explains that the Experiential Learning Theory and model of Dialectic Inquiry provide two of the only models that remain both comprehensive and fully generalized. Although a number of variants of the Experiential Learning Theory have been proposed, the original theory continues to be one of the most influential (Vince, 1998). Despite the wide acceptance of Kolb's theory, there are salient issues concerning the structure and validity of its use. Kolb's work has been criticized for logical inconsistencies in theory construction and for the psychometric properties of the Learning Style Inventory (LSI). This critique will address Kolb's theory and provide criticisms related to the two areas. The first area that will be examined is the empirical limitations of the theory. The second area will target the LSI and its limitations.

Keeton-Morris (1998) states that the cognitive nature of Kolb's theory overemphasizes the role of the individual and "decontextualizes" the learning process.(p.18) In fact Kolb (1999) acknowledges Holman's criticism, saying that the latter's recent critique has been more focused on the theory than the instrument examining the intellectual origins and underlying assumptions of the Experiential Learning Theory; however, if the role of the learner is disproportionate to the process, results from the measure instrument would not have consistency and validity.

There are notable concerns related to the stability of individual learning styles over time. Truluck and Courtenay (1999) found that older individuals above the age of 65 demonstrated an age-related trend to become more reflective and observant in the learning environment. The LSI does not take this into consideration, which therefore contributes to the psychometric issues.

2.7 Conceptual frame work



2.8 Summary of the Literature Reviewed

Educating ourselves for Sustainable Societies means situating ourselves in relation to the current global system, reshaping our presence in the world, and leaving the comfortable position of neutrality. Because education is always based on values, regardless of whether it is formal, non-formal, informal, direct or distant learning, there will never be neutrality in education.

Educators from all over the world agree that the way toward real sustainability can be through various existing currents which are based on values and principles linked to sustainability: Transformative Learning, Eco-literacy, Popular Environmental Education, Ecopedagogy, Gaia Education, and Environmental Educ-Action are some of them. All of these currents contribute to the construction of new models of society and remind us of the need to develop knowledge, awareness, attitudes and skills that are necessary to participate in the construction of these new models, integrating them into our way of being, producing, consuming and belonging (Yunis.E., & Thomas, T. 1998)

More than ever we advocate an education that invokes admiration and respect for the complexity of living systems, with the utopic vision to build sustainable societies through the ethic of care and protection of the biological and social diversity. In making this educational process, the trans-disciplinarily intrinsic to socio-environmental education leads to interactions between the various areas of science and technology and the different manifestations of popular and traditional knowledge. This allows the integration of existing knowledge, the production of new knowledge, and new social and environmental actions, while carrying out the Dialogue between Wisdom and Care as High Technology in the Education for Sustainable Societies and Global Responsibility

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the research design used, population of the study, the sampling procedure and sample size, data collection instrument, data processing and analysis.

3.2 Research design

Survey research is very appealing when sample generaliability is a central research goal. Survey research is often the only means available for developing a representative picture of the attitudes and characteristics of a large population Suited to help in understanding of human behavior and experience especially in more complex system and integrated life processes (Macmillan and Schumacher, 2001:16). Both quantitative and qualitative approach helped in understanding the participants in terms of their own environmental education and their environmental conservation.

Questions in the survey in the questionnaire explored the environmental education elements of the public in relation to natural environmental conservation. The results of this research intended to inform our understanding of how Environmental Education influences environmental conservation.

3.3 Target Population

The target population was all house holds of Moiben constituency, Uasin Gishu County. Moiben constituency is made up of five wards .According to 2009 Kenya census Moiben constituency. It has the population of 138,409 and 28,813 households. The area was selected since it represented both urban and rural population. Main economic activities

were large scale wheat and maize farming, dairy farming, horticulture and sports tourism. The study focused on men and women of 18 years and above in Moiben constituency

3.4 Sampling procedure

Mugenda and Mugenda, (1999) argue that at least 30% of the target population is acceptable. This sampling design ensured that the subgroups in the population was represented in the sample in proportion to their number in the population and have the same characteristics.

The study targeted household in Moiben Constituency which has five (5) wards. The two wards were simple random selected from the five wards. The selected wards were arrived at by assigning numbers to the five wards. Two were picked from a ballot box and they automatically became sample population. The two wards selected are Kimumu and Sergoit Wards which has a population of 42,346 and 16,220 respectively (2009 National Census). The two wards have five sub-location, three were simple randomly selected.

3.4.1 Sample size

The study employed systematic random sampling to select number of households for the study. Systematic sampling is a random method of sampling which applies a constant interval to choosing a sample of elements from the sampling frame. The following formula was employed in the calculation of the sample size.

The formula is given below (Reid NG, Boore JRP (1991)).

$$n = \frac{N}{[(1 + N(e)^2]}$$

Where n = sample size of adjusted population, N = population size and e = accepted level of error taking alpha as 0.05.

The second step of selection involved the systematic sampling procedure. By substitution 5557 households which is the study population in the formula, the sample size of households is 373 households in, Kimumu, Chepkoilel, and Keljil sub-location. A total of 373 head of households (male or female)were sampled with sampling intervals of 14. This means that, every 14th household was sampled out of the entire population 5557 households. This was derived from dividing total number of the population (5557 households) with number of sampling unit (373). Substitution of the households was allowed if they were not available.

3.5 Data collection procedure

Data was collected with the help of semi-structured questionnaires and distributed by research assistants who were assisting the respondents in filling the questionnaires.

3.6 Validity of research instruments

A test is valid if it measures what it is purport to measure (Mutai, 2000). A valid instrument is one that has both content and constructs validity. An instrument has construct validity if it measures a psychological construct e.g. satisfaction. If a student who scores highly in a test manifests high degree of construct then the test is valid (Mutai, 2000).

For this study, the validity of the questionnaire was ascertained through the consultation of expertise work force in the environmental studies departments, in Nairobi University. If the experts approved the validity, then it was regarded valid for adoption. However, the corrections from the experts were used to make corrections and improvements on all the instruments.

3.6.1 Reliability of research instruments

Reliability is the extent to which results are consistent over time and an accurate representation of the total population under study (Joppe, 2000). The research tested the reliability of research instrument and it was approved by the college supervisors. A pilot study was undertaken in 10 households from Kapsoya estate. The households were randomly selected for the pilot study. Kapsoya estate is in Kapsoya ward, Ainabkoi constituency. This study involved administering the same questionnaires twice to the same household with an interval of five days from the previous test. The completely filled pretest copies were collected and analyzed to determine vague question, deficiencies in the questionnaires and assessed if the method of analysis was appropriate. A reliability co-efficient of 0.7 was obtained and this indicated the relationship between the two sets of scores was high, thus reliable.

3.7 Data collection procedure

A permit was obtained from National Council of Science. Letters of transmittal were attached on questionnaires; copies were hand delivered to the respondents, a brief explanation on importance of research and assurance of confidentiality was given to respondents. The questionnaires was distributed then picked one day after distribution.

This meant that, respondents had adequate time to respond to questionnaires. Data collection ran for a period of seven days.

3.8 Technique of data analysis

Both qualitative and quantitative techniques were used to analyze the data. SPSS statistical package was used to analyze data obtained. Quantitative data was analyzed using descriptive statistics such as mean, percentage and frequency distribution.

3.9 Ethical issues

Ethical issues arose because researchers needed to protect their research participants; develop a trust with them; promote the integrity of research, guard against misconduct and impropriety that might reflect on their organizations or institutions; and cope with new, challenging problems, Creswell, (2009). Studies needed to be designed that contain ethical practices. Some of the ethical practices included confidentiality, getting a permit before embarking on research and voluntary participation of respondents. Other considerations included informed consent, anonymity and researcher's responsibility. Research was not pursued at the expense of human dignity however valuable the gains. The researcher undertook utmost integrity prohibit unethical behavior. This study ensured there is confidential and no personal riskwas involved, information was handled confidentially before and after the study. Consent from the respondent was sought, thus the study was entirely voluntary.

3.10 Operational definition

Households- Heads of families either male or female

Environmental conservation- Protecting natural environment for the future generation and sustainable development at individual and community level

Natural environment- Living and non-living thing ie Vegetation, soil, atmosphere, rivers, dams

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, DISCUSSION AND INTERPRETATION

4.1Introduction

This chapter presented the results of the data analysis procedures on the influence of environmental education on conserving natural environment in Moiben constituency, Uasin Gishu County. A total of 373 households in, Kimumu, Chepkoilel, and Keljil sub-location living in Moiben constituency participated in the study. The results of the study flow according to the objectives of the study:

4.2.0 Demographic Information of Residents

The study sought to determine the demographic information of respondents because it enables the researcher to gauge the reliability of the data received and know the type of people that he/she is dealing with. This information includes age, gender, working experience, education level, location, living area and marital status.

4.2.1 Gender of the Respondents

Data on gender of the respondents in the constituency was sought because men and women perceive issues differently more so in relation to the influence of environmental education on conserving natural environment. Also, the study sought to determine whether constituency has attained gender equity. The findings on employees' gender are as shown in Table 4.1.

Table 4.1 Gender of the respondents

Gender	Frequency	percentage
Male	215	58
Female	158	42
Total	**373**	**100**

Findings of this study showed that, majority of the respondents were male, (58%) while female respondents were (42%). These findings are an indication that the male in the constituency are more informed on environmental education. Similarly, the researcher could conclude that, since male are the heads of the family, they therefore participated in answering the questionnaires to represent their households. Hence, more male are likely to participate in environment conservation activities than female.

4.2.2 Age Brackets of the Respondents

Data on the age brackets of the respondents was sought since age brackets plays a critical role in understanding environmental education and conserving natural environment. To a larger extent, older people are more experienced and are likely to relate issues more directly than relatively younger people. This information was sought to determine whether the respondents were young or mature. The results are presented as indicated in Table 4.2.

Findings on age of the respondents showed that, majority of the residents, (40%) at Moiben constituency were in the age bracket of 29-39 years, followed by those in the

age bracket of 40-59 years (30%), then those in the age bracket of 18-29 years and above (20%) and finally those in the age bracket of 60 years and above (10%). It can be deduced that, majority of the residents of Moiben constituency are at their prime age.

Table 4.2Age Brackets of the Respondents

Age	Frequency	Percent
18-28	75	20
29-39	149	40
40-59	112	30
60 and above	37	10
Total	**373**	**100**

4.2.3 Highest Educational Level

Respondents' highest educational level was sought to give the researcher an insight on the educational level of the residents of Moiben constituency. This information was sought to determine whether respondents' educational level influenced understanding on influence of environmental education on conserving natural environment. The findings of this item were presented as in Table 4.3.

The findings of this item showed that, (40%) had O' Level education, (30%) of the respondent were Graduates, 15% of the respondents had Diploma, 10% of the respondents had A' Level while the remaining (5%) non-formal education.

These findings are a clear indication that there is professionalism at Moiben constituency. Majority are educated. This is due to the introduction of environmental education since 1985, hence, environmental issues have been defined and integrated into the curriculum

in science, agriculture, home science, geography, history, biology and chemistry subjects taught in Kenya schools, most of the people of Moiben are at least informed hence, need for informal education which has narrowed the gap that exists between education and communication improving public involvement in solving complex problems.

Table 4.3 Highest Educational Level

Educational Level	Frequency	Percent
Non formal education	19	5
O level	149	40
A level	37	10
Diploma	56	15
Graduate	112	30
Total	**373**	**100**

4.2.4 Respondents Marital Status

The researcher sought information on marital status to determine whether respondents' marital status influenced understanding on the factors that influence environmental education on conserving natural environment. The findings of this item were presented in Table 4.4.

Majority of the respondents as depicted by 50% were married,30% of the respondents were widowed, and 15% were single while 5% of the respondents were divorced. It can be deduced that, majority of the residents were married and rarely divorced.

Table 4.4 Respondents Marital Status

Marital status	Frequency	Percent
Married	186	50
Divorced	19	5
Single	56	15
Widowed	112	30
Total	**373**	**100**

4.2.5 Duration of living in the area

Respondents who have lived longer in the area were more experienced and were in a position to explain its progress and activities. Sometimes, residents who have lived for long understood the factors that influence environmental education and conserving natural environment. The findings of this item were presented as shown in the Table 4.5.

Table 4.5 Duration of living in the area

Duration	Frequency	Percent
Less than 5 years	37	10
5-10 years	19	5
10-20 years	93	25
Above 20 years	224	60
Total	**373**	**100**

Findings indicate that, majority of the respondents 60% have lived in the area for more than 20 years, 25% 10 and under 20 years,10% 5 and under 10 years and 5% less than 5 years. This indicates that the residents of Moiben constituency especially the aged, were born there and have not left their ancestral land. Hence, this depicts that; the respondents

will give the right response since they are aware of what as been happening in their constituency concerning the natural environment.

4.2.6 Place of residence

Information on place of residence was sought because it would give an insight on the understanding of influence of environmental education on conserving natural environment and how residents from both rural and urban differ in their views. Findings of this item were as show in the Table 4.6.

Table 4.6 Place of residence

Place of Residence	**Frequency**	**percentage**
Rural (not so populated)	250	67
Urban (very populated)	123	33
Total	**373**	**100**

Findings indicate that, majority of the respondents 67% lived in rural area which was not so populated while 33% live in urban area which was very populated.

4.2.7 Most important environmental issue in the area

The researcher was keen in determining the most important environmental issue in Moiben constituency. Findings of this item were as shown in Table 4.7.

Table 4.7 Most important environmental issue in the area

Duration	Frequency	Percent
Water pollution	37	10
Endangered species	19	5
Wet land destruction	56	15
Deforestation	112	30
Air pollution	56	15
Solid waste	93	25
Total	**373**	**100**

Findings indicate that, majority of the respondents 30% agreed that the most important environmental issue is deforestation, 25% solid waste, 15% bothwetland destruction and air pollution, 10% water pollution and 5% endangered species. The findings depicts that the residents of Moiben constituency are mostly faced with deforestation because of the large number of cattle they keep thus need a large land. To prevent overgrazing, they cut down the trees to widen the grazing pastures not aware that they are causing soil erosion and desertification. Also, they faced with solid waste because they are not careful the way they dispose waste materials after use.

4.3.0 Whether formal education has done enough in articulating conservation of natural environment

The researcher sought to find respondents response on whether formal education has done enough in articulating conservation of natural environment.

Table 4.8Whether formal education has done enough in articulating conservation of natural environment

Response	Frequency	Percent
Yes	112	30
No	261	70
Total	**373**	**100.0**

Findings indicate that, majority of the respondents70% were not in agreement with the statement that formal education has done enough in articulating conservation of natural environment while 30% were in agreement.

This indicates that, formal education cannot provide a platform for better conservation of natural resources because of its target population.it does not give opportunity for the learner to have contact with the environment and makes environmental conservation more practical, thus it is not flexible enough.

4.3.1 whether some of the concepts articulated in formal education concern conservation of natural environment

Respondents were asked to indicate whether some of the concepts articulated in formal education that concern conservation of natural environment. Based on a scale of five, respondents were required to tick against the response which they felt best suite the question. Findings of this item were as shown in Table 4.9.

Table 4.9 Whether some of the concepts articulated in formal education concern conservation of natural environment

Concepts articulated in Formal education	SA	A	UD	D	SD
Prevention of soil erosion	300	50	20	3	0
Water pollution prevention strategies	300	20	3	50	0
A forestation	310	50	13	0	0
Efficient resource utilization	250	3	3	23	100
Good land use practices	240	100	13	3	20
Mean Percentage	**75**	**12**	**3**	**4**	**6**

Findings of this item shows that, majority of the respondents, an average of 75% strongly agreed with the concepts articulated in formal education that prevention of soil erosion, water pollution prevention strategies, a forestation, efficient resource utilization and good land use practices aid in conservation of natural environment. 12% of the respondents were in agreement, 3% of the respondents were undecided, 4% of the respondents disagreed with the statements while 6% of the respondents strongly disagreed with the statements. The researcher therefore concluded that; formal education improves learners' knowledge and attitudes toward the environment. These findings are not in agreement with previous findings regarding whether formal education has done enough in articulating conservation of natural environment. This can be attributed to lack of understanding on environmental formal education entails.

According to (KIE 1997), the main focus of formal education has revolved around soil erosion and soil conservation measures, overgrazing and overstocking of animals, a

forestation and desertification, waste disposal, energy consumption and pollution, water conservation, wildlife conservation, and, biodiversity and ecosystems.

Here is the simplification of the results on a table.

Table 4.10 Whether some of the concepts articulated in formal education concern conservation of natural environment

Degree of Agreement	Frequency	Percent
Strongly Agree	280	75
Agree	45	12
Undecided	11	3
Disagree	15	4
Strongly disagree	22	6
Total	**373**	**100**

4.3.2 Environmental conservation achievements that have accrued as a result of application of formal education concepts

Respondents were asked to indicate whether environmental conservation achievements that have accrued as a result of some of application of formal education. Based on a scale of five, respondents were required to tick against the response which they felt best suite the question. Findings of this item were as shown in table 4.11.

Table 4.11 Environmental conservation achievements that have accrued as a result of Application of formal education concepts

Environmental conservation benefits accruing from Formal education	SA	A	UD	D	SD
Good agricultural practices that have protected soil characteristics	250	100	3	20	0
Alteration of procurement statutes	150	20	3	50	50
Water bodies in the area are well protected	350	23	0	0	0
There is enough land cover in the area	250	13	5	100	5
Efficient resource utilization	300	10	50	13	0
Mean Percentage	**70**	**9 3**		**10**	**3**

Findings of this item show that, majority of the respondents, an average of 70% strongly agreed that environmental conservation achievements that have accrued as a result of some of application of formal education. 9% of the respondents were in agreement, 3% of the respondents were undecided, and 10% of the respondents disagreed with the statements while 3% of the respondents strongly disagreed with the statements. The researcher therefore concluded that, formal education has a positive impact in natural environmental conservation. Here is the simplification of the results.

Table 4.12 Environmental conservation achievements that have accrued as a result of application of formal education concepts

Degree of Agreement	Frequency	Percent
Strongly Agree	261	70
Agree	34	9
Undecided	11	3
Disagree	37	10
Strongly disagree	30	8
Total	**373**	**100**

4.4 How you perceive role of indigenous education in conserving the environment

Respondents were asked to indicate how they perceived the role of indigenous education in conserving the environment because indigenous education revolves around religious beliefs, traditional beliefs, cultural norms and practices. The findings of this item are as shown in Table 4.13.

Table 4.13 How you perceive role of indigenous education in conserving the environment

Response	Frequency	Percent
Positive	223	60
Negative	112	30
Not aware	38	10
Total	**373**	**100.0**

Findings on table 4.13 above shows that, majority of the respondents 60% are in agreement that ingenious education aids in conserving the environment, 30% were not in agreement and 10% were not aware. This indicates that, ingenious education is a part of respondents' cultural and social identities, well-being, sustainable development and intellectual and cultural vitality which plays a crucial role for the successful conservation of the environment.

In Kenya, traditional education has been recognized by the constitution. Article 69(10) (c) of the Kenyan Constitution requires the State to respect the environment by protecting and enhancing IP in, and indigenous knowledge of, biodiversity and Genetic Resources of the communities of Kenya. Article 8(j) of the Convention on Biological Diversity (CBD) to which Kenya is party obliges members to respect, preserve and protect Traditional Knowledge of local communities and associated Genetic Resources.

4.4.1 Level of contribution of religious beliefs, traditional beliefs, cultural norms and practices to environmental conservation

Respondents were asked to indicate level of agreement of religious beliefs, traditional beliefs, cultural norms and practices to environmental conservation. A five point scale was used to ascertain the extent of the effect. Findings of this item were as shown in the Table 4.14.

Table 4.14 Level of contribution of religious beliefs, traditional beliefs, cultural norms and practices to environmental conservation

Religious beliefs, traditional beliefs, cultural norms and practices	VA	GE	ME	LE	NA
Traditional rain water harvesting	300	50	20	0	3
Cultivation of medicinal plants	250	20	50	50	3
Construction of village tanks and dams to capture rain water	300	0	3	20	50
Tribal traditions such as sacred forests	300	50	20	0	3
Livelihood traditions such as trees are source of food	200	50	50	70	3
Attitude of gratitude and respect for nature	300	20	50	3	0
Concern for well being of future generations	300	40	20	3	10
Mean Percentage	**75**	**9**	**8**	**5**	**3**

Findings of this item show that, majority of the respondents, an average of 75% agreed to a very great extent that traditional rain water harvesting, cultivation of medicinal plants, construction of village tanks and dams to capture rain water, tribal traditions such as sacred forests, livelihood traditions such as trees are source of food, attitude of gratitude and respect for nature and concern for well being of future generations contribute to environmental conservation. 9% of the respondents agreed to a great extent, 8% of the respondents agreed to moderate extent, and 5% of the respondents agreed to in a little extent with the statements while 3% of the respondents did not agree at all with the statements.

The researcher therefore concluded that, the natural environment and resources which are under serious threat, at least cultural taboos and their sanctions have helped to check abuse of the environment at least among the local people.

It is the rural communities of the world; the preservation of the environment has a direct link to the culture of the people (Anoliefo*et al.*, 2003) which they pass it from generation to generations. Also,), according to (Barrow and Pathak, 2005 Tengö*et al.*, 2007; Jones *et al.*, 2008; Dudley *et al.*, 2009) there is a growing consensus that traditional institutions provide considerable protection of ecosystems and biodiversity without governmental juridical restrictions.

The simplification of the results is shown in Table 4.15.

Table 4.15 Level of contribution of religious beliefs, traditional beliefs, cultural norms and practices to environmental conservation

Degree of Agreement	Frequency	Percent
Very Great Extent	280	75
Good Extent	45	12
Medium Extent	11	3
Little Extent	15	4
Not Aware	22	6
Total	**373**	**100**

4.5 Whether informal education has articulated environmental conservation well enough

The researcher further sought respondents to find out whether informal education has articulated environmental conservation well enough. Findings of this item were tabulated and presented as in Table.4.16.

Findings of this item show that, majority of the respondents, 70% were in agreement that informal education has articulated environmental conservation well enough while 30%

were not in agreement.

The researcher therefore concluded that, informal education has articulated environmental conservation well enough because it is a more creative and flexible as compared to formal education, it complements what has been learnt from formal education. Its strategies offer an opportunity for the learner to have contact with the environment and makes environmental conservation more practical.

Table 4.16 Whether informal education has articulated environmental conservation well enough

Response	Frequency	Percent
Yes	156	30
No	217	70
Total	**373**	**100.0**

4.5.1 Whether informal environmental education strategies, are being practiced in your area

Respondents were asked to indicate whichinformal environmental education strategies, were being practiced in their area. The findings are as shown in table 4.6.

Findings of this study show that, majority of the respondents, 82% agreed that environmental conservation practices exhibitions, water treatment plans, landfills, wildlife sanctuaries, environmental talks and campaigns articulating environmental conservation are the informal environmental education strategies being practiced in their area, 12% disagreed and 6% were not aware.

The researcher therefore concluded that, the informal environmental education strategies were being practiced in Moiben constituency because the respondents narrated how they shared the experience of learning then working together.

Table 4.17Whether informal environmental education strategies, are being practiced

State laws	**Yes**	**No**	**Not aware**
Environmental conservation practices Exhibitions	250	23	100
Water treatment plans, landfills, wildlife sanctuaries	323	50	0
Environmental talks	350	23	0
Campaigns articulating environmental conservation	300	73	0
Percentage mean	**82**	**12**	**6**

The findings are further simplified in Table 4.18.

Table 4.18 Whether informal environmental education strategies, are being practiced in your area

Degree of Agreement	**Frequency**	**Percent**
Yes	306	82
No	45	12
Not aware	22	6
Total	**373**	**100**

4.5.2How the state of the environment has changed as a result of application informal environmental education strategies

Respondents were asked to indicate how the state of the environment has changed as a result of application informal environmental education strategies. The findings are as shown in Table 4.19.

Table 4.19How the state of the environment has changed as a result of application informal environmental education strategies

Degree of Agreement	Frequency	Percent
Much better	205	55
Better	149	40
Much worse	19	5
Total	**373**	**100**

Findings of this study show that, majority of the respondents 55% agreed that the state of the environment has changed much better as a result of application informal environmental education strategies, 40% said that that their environment was better and 5% said that their environment is much worse.

From the findings, the researcher concluded that, the respondents after discovery of various activities like guided visits, games and outings, they became active participants of carrying out the new informal environmental education strategies after being motivated that the strategies were variable and possibly un-sequenced.

4.5.3 Whether the respondent has ever participated in any activity involving environmental conservation

Respondents were asked to indicate whether they have ever participated in any activity involving environmental conservation. The findings are as shown in Table 4.20.

Table 4.20 Whether the respondent has ever participated in any activity involving environmental conservation

Response	Frequency	Percent
Yes	335	90
No	38	10
Total	**373**	**100.0**

Findings of this study show that, majority of the respondents 90% agreed that they have participated in activities involving environmental conservation while 10% were not in agreement. The researcher therefore concluded that, most of the residents of Moiben constituency loved the experience of sharing, creativity, enjoyed pleasure and sensitivity toward the environment.

4.6 Rating your participation in experiential education

Respondents were asked to rate their participation in experiential education aimed at environmental conservation. A four point scale was used to ascertain the extent of their participation. The findings are as shown in Table 4.21.

Table 4.21Rating your participation in experiential education

Experiential education activities	1	2	3	4
Going on a nature adventure to discover and appreciate environment	250	50	50	23
Working to solve a problem related to environmental degradation	300	23	50	0
Choosing and testing out new environmental behaviour and sharing experience with others	320	50	0	23
Carrying out a group action to help environmental conservation	350	0	0	20
Doing environmental service for community for instance educating them about sustainable lifestyle	300	50	23	0
Mean percentage	**82**	**9**	**6**	**3**

Findings of this item show that, majority of the respondents, an average of 82% agreed that very often experiential education activities likegoing on a nature adventure to discover and appreciate environment, working to solve a problem related to environmental degradation, choosing and testing out new environmental behaviour and sharing experience with others, carrying out a group action to help environmental conservation and doing environmental service for community for instance educating them about sustainable lifestyle are the most effective way of disseminating environmental education, 9% agreed that they often did the experiential education activities named above 6% rarely did that and 3% did not do those activities at all.

The researcher therefore concluded that, the people of Moiben constituency participated in experiential education.This would be due to the fact that, experiential educationhelped them to know about their environment, to identify problems concerning the use of natural

resources, to seek alternative solutions to environmental problems, and to be committed to taking action to alleviate these problems.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the major findings of the study on influence of environmental education on conserving natural environment in Kenya, case study Moiben Constituency, Uasin Gishu County with close reference to the four main objectives of the study. The chapter also draws conclusions based on the findings of the data analyzed in chapter four and makes recommendations with close reference to the significance of the study. Lastly, the chapter provides suggestions for further research.

5.1Summary of findings

The first objective was to determine how the formal education influences conservation of environment in Moiben constituency. Findings of this item showed that majority of the respondents, an average of 75% strongly agreed with the concepts articulated in formal education that aid in environment conservation like prevention of soil erosion, water pollution prevention strategies, a forestation, efficient resource utilization and good land use practices aid in conservation of natural environment. 12% of the respondents were in agreement, 3% of the respondents were undecided, and 4% of the respondents disagreed with the statements while 6% of the respondents strongly disagreed with the statements.

The second objective was to assess the extent which indigenous knowledge influence conservation of environment. Findings of this item showed that majority of the respondents, an average of 75% agreed to a very great extent that traditional rain water

harvesting, cultivation of medicinal plants, construction of village tanks and dams to capture rain water, tribal traditions such as sacred forests, livelihood traditions such as trees are source of food, attitude of gratitude and respect for nature and concern for well being of future generations contribute to environmental conservation. 9% of the respondents agreed to a great extent, 8% of the respondents agreed to a moderate extent, and 5% of the respondents agreed to in alittle extent with the statements while 3% of the respondents did not agree at all with the statements.

The third objective was to establish how informal education influence conservation of environment. Findings of this item showed that majority of the respondents, an average of 82% agreed that environmental conservation practices exhibitions, water treatment plans, landfills, wildlife sanctuaries, environmental talks and campaigns articulating environmental conservation are the informal environmental education strategies being practiced in their area that lead to environment conservation, 12% disagreed and 6% were not aware.

The fourth objective was assess how experiential education influence conservation of environment. Findings of this item showed that majority of the respondents, an average of 82% agreed that very often,experiential education activities like going on a nature adventure to discover and appreciate environment, working to solve a problem related to environmental degradation, choosing and testing out new environmental behaviour and sharing experience with others, carrying out a group action to help environmental conservation and doing environmental service for community for instance educating them about sustainable lifestyle are the most effective way of disseminating

environmental education influence positively conservation of environment, 9% agreed that they often did the experiential education activities named above 6% rarely did that and 3% did not do those activities at all.

5.2 Conclusion based on findings and summary

The findings of the study have shown that, formal education cannot provide a platform for better conservation of natural resources because of its target population. This is because it does not give opportunity for the learner to have contact with the environment and make environmental conservation more practical, thus it is not flexible enough but improves learners' knowledge and attitudes toward the environment. On the other hand, Informal education has articulated environmental conservation well enough because it is a more creative and flexible as compared to formal education, it complements what has been learnt from formal education. Its strategies offer an opportunity for the learner to have contact with the environment and makes environmental conservation more practical. The learners after discovery of various activities like guided visits, games and outings, they became active participants of carrying out the new informal environmental education strategies after being motivated that the strategies were variable and possibly un-sequenced. Indigenous education is a part of peoples' cultural and social identities, well-being, sustainable development and intellectual and cultural vitality which plays a crucial role for the successful conservation of the environment. It also safeguards the natural environment and resources which are under serious threat, through cultural taboos and their sanctions that help to check abuse of the environment at least among the local people. The researcher also concluded that, experiential education helped the learners to know about their environment, to identify problems concerning the use of

natural resources, to seek alternative solutions to environmental problems, and to be committed to taking action to alleviate these problems.

5.3 Recommendations based on conclusion

The study has observed that although formal education, informal education, experiential education and indigenous knowledge, Moiben Constituency has not achieved its objectives and goals of conserving natural environment; therefore the study recommends that;

1 Formal education should ensure students gain all the knowledge and skills necessary for environmental literacy.

2 Non-formal education should provide some sort of intervening function for maintenance and reinforcement of environmental knowledge gained through school.

3 Traditional institutions should provide considerable protection of ecosystems and biodiversity without governmental juridical restrictions.

4 One should understand the nature and role of experiential education for environmental conservation.

5.4 Suggestions for furthest study

Based on the conclusions and recommendations of the study, the study suggests further research to be done on:

1) Similar study should be carried out in other locations.

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APPENDICES

APPENDIX I: LETTER OF TRANSMITTAL

M.A in Project Planning and Management,
School of Continuing and Distance Education,
The University Of Nairobi.

THE CABINET EXECUTIVE, HEALTH MINISTRY; ENVIRONMENT MINISTRY
UASIN GISHU COUNTY GOVERNMENT
P.O BOX 40 - 30100
ELDORET

Dear Sir/Madam,

RE: DATA COLLECTION

I am a postgraduate student at University of Nairobi pursuing A Masters of Arts in Project Planning and Management at The University of Nairobi. I am currently carrying out a research on influence of environmental education on conserving natural environment in Moiben constituency.

I kindly apply to be granted permission by your office to carry out research on households who are my respondents.

I look forward to your positive response.

Yours faithfully
Burer Sally

APPENDIX II: QUESTIONNAIRE

SECTION A

BACKGROUND INFORMATION

Note: Respondents should please tick () the correct answer in the box.

1. Location/Place

…….....

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

3. Age

(A) 18-28 years [ ] (b) 29-39 years [ ] (c) 40-59 years [ ] (d) 60 years and above [ ]

4. Marital status Married [ ] Divorced [ ] Single [ ] Widowed [ ]

5. Level of education

Non-formal education [ ] O' Level, 'A' Level [ ] Diploma [ ] Graduate [ ]

6. Which of the following alternatives characterize your living area?

a. Rural (not so populated)……..

b. Urban (very populated) ……..

7. How many years have you lived in the area?

a. less than 5 years ……

b. 5 and under 10 years …….

c. 10 and under 20 years ……...

d. more than 20 years ……

8. What do you think is the most important environmental issue in the area?

a. Water pollution b. Endangered species c. Wetland destruction e. deforestation f. Air pollution h. Solid waste i. Other _____

SECTION B

SPECIFIC RERSEARCH INFORMATION

9. Do you think formal education has done enough in articulating conservation of natural environment?

Yes [ ]

No [ ]

10.What are some of the concepts articulated in formal education that concern conservation of natural environment? **(SA-Strongly agree, A-Agree, UD-Undecided, D-Disagree, SD- Strongly disagree)**

Concepts articulated in Formal education	**SA**	**A**	**UD**	**D**	**SD**
Prevention of soil erosion					
Water pollution prevention strategies					
A forestation					
Efficient resource utilization					
Good land use practices					

Any other,

.....

.....

11. Concerning conservation of natural environment, what are some of the environmental conservation achievements that have accrued as a result of application of formal education concepts?

Environmental conservation benefits accruing from Formal education	**SA**	**A**	**UD**	**D**	**SD**
Good agricultural practices that have protected soil characteristics					
There is clean water supply in the area					
Water bodies in the area are well protected					
There is enough land cover in the area					
Efficient resource utilization					

Any other, please indicate

.....
.....

12. Indigenous education revolves around religious beliefs, traditional beliefs, cultural norms and practices. What is your take concerning the role of ingenious education tin conserving the environment?

Positive (For environmental conservation) [ ] Negative (Against environmental conservation) [ ]

Not aware [ ]

Give reasons,

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

13.Given the following religious beliefs, traditional beliefs, cultural norms and practices, what is your level of agreement on their contribution to environmental

conservation? **(VG- Very great extent, G- Great extent, ME- Moderate extent, LE- Little extent, NA- Not at all)**

Religious beliefs, traditional beliefs, cultural norms and practices	**VG**	**GE**	**ME**	**LE**	**NA**
Traditional rain water harvesting					
Cultivation of medicinal plants					
Construction of village tanks and dams to capture rain water					
Tribal traditions such as sacred forests					
Livelihood traditions such as trees are source of food					
Attitude of gratitude and respect for nature					
Concern for well being of future generations					

Any other, please indicate

.....
.....

14.Informal education ranges from the adult literacy education, "Functional" literacy programmes to a number of community and action oriented projects. Do you agree that informal education has really articulated environmental conservation well enough?

Yes [ ] No [ ]

15.Given the bellow informal environmental education strategies, are they being practiced in your area?

State laws	**Yes**	**No**	**Not aware**
Environmental conservation practices Exhibitions			
Water treatment plans, landfills, wildlife sanctuaries			
Environmental talks			
Campaigns articulating environmental conservation			

If yes, how has the state of the environment changed as a result of their application?
Much better [ ] Better [ ] Worse [ ] Much worse [ ]

16. (A) Have you participated in any activity involving environmental conservation?
Yes [ ] No [ ]

(B) Experiential education has been known to be the most effective way of disseminating environmental education. Given the following activities relating to experiential education aimed at environmental conservation, how can you rate your participation?

(1- Very Often, 2- Often, 3- Rarely, 4- Not at all)

Experiential education activities	**1**	**2**	**3**	**4**	
Going on a nature adventure to discover and appreciate environment					
Working to solve a problem related to environmental degradation					
Choosing and testing out new environmental behaviour and sharing experience with others					
Carrying out a group action to help environmental conservation					
Doing environmental service for community for instance educating them about sustainable lifestyle					

17. What are some of the challenges you face in environmental conservation?

.....

.....

.....