ISSN: 2186-845X ISSN: 2186-8441 Print
Vol. 2 No. 4, October 2013

POSITIVE ATTITUDE TOWARDS ENVIRONMENTAL CONSERVATION: THE ROLE OF PRIMARY EDUCATION IN KENYA

Sammy M. Mutisya[11], Kirui E. Kipgetich[2], Kipkirui J. Rono[3]

[1]Maasai Mara University, Narok, [2]Moi University, [3]Kabianga University, KENYA.

[1] mutisyasm04@gmail.com, [2] kiruielias@yahoo.com, [3] ronokipkirui@yahoo.com

ABSTRACT

This study was carried out with 276 standard eight pupils in eleven primary schools in the rural town of Narok in Kenya's Narok County. It evaluated their attitude towards environmental conservation. A descriptive research design was used and data was collected using the Pupils' Environmental Education Attitude Questionnaire (PEEAQ). Data analysis included tabulation of percentages. The study found that most pupils had positive attitude regarding environmental education, environmental conservation, interdependence between man and other organisms, conservation of natural resources, management of solid wastes and protection of forest lands. This data was used to explore ways by which environmental education (EE) in primary education might capitalize on pupil attitude, and hence progress towards protection of local environment; and how this might occur through primary school pupils being nurtured into the role of informed decision-makers and action-takers. The authors recommended that EE implementations in primary education to be contextualized so as to inculcate environmental attitudes and values that provoke learners to think about local environmental issues and make decisions regarding protecting their local environment.

Keywords: Environmental conservation, attitude towards environmental conservation, environmental education

INTRODUCTION

The next generation is presumably supposed to benefit from the present day natural resources (Carson, 1962). Hence the burden of ensuring future generation gets their share of today's natural resources lies with the present generation. Therefore the present young generation should be made to understand it's their responsibility to preserve the present natural resources for the future generation. This can be achieved through EE.

Towards this end, EE should be incorporated in education systems to ensure environmentally friendly values and attitudes are passed from one generation to the next. Important attitudes towards environmental conservation can be formed and encouraged in child during their early years of development (Laddawan and Joan, 1987). Hence primary schools are crucial in the impartation of these environmental values and attitudes since they receive children who are at their early stages of development.

"Environmental attitudes provide a good understanding of the set of beliefs, interests, or rules that influence environmentalism or pro-environmental action" (Fernandez-Manzanal et al. 2007). This presumes that if schools inculcate in children positive values and attitudes towards environmental conservation they would take an active role in conserving the environment and its resources and hence preserve them for the future generation.

[1] Corresponding Author: Sammy M. Mutisya, Maasai Mara University, P.O. Box 278 020500, Narok, Kenya, Tel: +254 722 694 583, mutisyasm04@gmail.com

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According to UNESCO (1978), EE objective targets social groups and individuals and are about awareness, knowledge, attitude, skills and participation geared towards environmental conservation. Towards this end objective on awareness aims at creating sensitivity to the total environment and its allied problems, while the objective on knowledge is about gaining a variety of experiences and acquiring a basic understanding of the environment and its associated problems.

On the other hand, the attitudinal objective is about acquiring a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection. Further, the skill objective is about acquisition of the skills for identifying and solving environmental problems while the last objective aims at providing opportunity for active participation at all levels in working toward resolution of environmental problems. This study investigated the acquisition of the attitudinal objective by primary school pupils by class 8 pupils.

Despite many research studies investigating peoples' attitude towards the environment suggesting that peoples' attitude was positive (Bulent et al. 2009), environmental destruction has continued unabated at the local regional and global level. A research study by Mutisya and Barker (2011) in rural Narok town of Kenya's Rift valley Province found out that primary school pupils had high conceptual understanding and awareness of environmental degradation taking place in their local environment. However, there exists a gap between the conceptual knowledge EE and the motivation to participate in environmental conservation.

Thus the aim of EE should not be limited to environmental literacy, knowledge and awareness but also environmentally responsible behavior (Dusan and Stanka, 2009). In addition to acquisition of EE knowledge and skills, primary education system should also emphasize the acquisition of environmental values and attitudes so that citizen can appreciate conservation of the environment as a collective responsibility.

In Kenya, there are deliberate efforts to align primary education with international acts regarding EE. Towards this end the Koech Commission of Inquiry into the Education System of Kenya recommended teaching of EE in both primary and secondary schools (Republic of Kenya, 1999). This has further been included in the primary school syllabi KIE (2002). According to KIE the objectives of EE in Kenya's primary schools are to develop positive attitudes about the environment, to manage and conserve available resources, and to develop awareness and appreciation of the environment.

This has been implemented through integration and infusion of EE in an interdisciplinary way across Kenya's primary, secondary and tertiary education systems. In primary schools, EE has been infused more rigorously into science and social studies, and environmental values have also been integrated in english, mathematics and creative art. The Kenya National Environmental Action Plan (NEAP, 1994) points out that EE has also been strengthened in schools through co-curricular activities such as wildlife clubs, Boys Scouts and Girl Guides.

Despite the effort made in implementation of EE in Kenya's primary education, the Kenya Certificate of Primary Education (KCPE) examines only conceptual understanding of subject specific content. Furthermore, testing of EE content is not given equal weight as other subject specific contents in KCPE.

Hence acquisition of attitude towards the environment is never tested and thus it was not clear whether primary education in Kenya was achieving the attitudinal objective of EE. The present study therefore determined standard 8 primary school pupils' (age 13-14) attitude towards environmental conservation.

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LITERATURE REVIEW

The Tbilisi declaration made in 1977 in Tbilisi, Georgia challenged environmental education to create awareness and inculcate values amongst humankind in order to improve the qualities of life and the environment (UNESCO, 1978). However, environmental degradation continues to be experienced in many parts of the world. A major outcome of the Tbilisi conference was a detailed description of the objectives of environmental education which have since been adopted universally.

"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, 1978). Thus the aim of EE is to inculcate environmental friendly knowledge, values, and attitudes as means to creating responsible environmental behavior amongst citizenries.

According to North American Association for Environmental Education (NAAEE) (1996), environmental education should be learner-centered, providing students with opportunities to construct their own meanings through hands-on activities and minds-on investigations. NAAEE asserts that EE should engage learners in direct experiences and challenges that provoke them to use higher-order thinking skills.

Towards this end, a study that assessed high school students' environmental knowledge and attitudes before and after exposure to a 10-day EE course found statistical significant differences in attitudes of students after the course (Bradley et al., 1999). Statistically significant relationship was further reported between knowledge and attitude scores where students who held higher knowledge scores were found to have more positive attitudes towards the environment than students having lower knowledge scores. Hence EE should be broad based covering all the domains of objectives of EE as stipulated in the Tbilisi Conference since they are interrelated.

Environmental education is expected to have a big impact if it targets children in the elementary years of education (primary school age). Primary schools interact with children at an early age when important attitudes towards environmental conservation can be formed and encouraged (Laddawan and Joan, 1987).

Studies by Yilmaz, et al. (2004) investigating Turkish elementary school pupils further found out that pupils had positive attitudes toward population growth and energy conservation. They further found that young children tended to agree with the importance of environmental education and the need for an emphasis on pollution, soil erosion, and prevention of habitat destruction.

These findings concur with a study by Mutisya and Baker (2011) which also found out that primary school pupils in Kenya's rural town of Narok were aware of the key environmental issues in their local area and they also understood the causes of some of these environmental issues. Hence young children are aware and concerned about environmental activities taking place in their immediate environments.

Meltem et al (2011) further observe that environmental awareness and positive attitudes toward the environment developed at primary school level promote environmental literacy among citizens and build a sustainable future. These observations are in agreement with the Belgrade Conference on Environmental Education of 1975 and the Tbilisi Intergovernmental Conference on Environmental Education of 1977(UNESCO, 1978).

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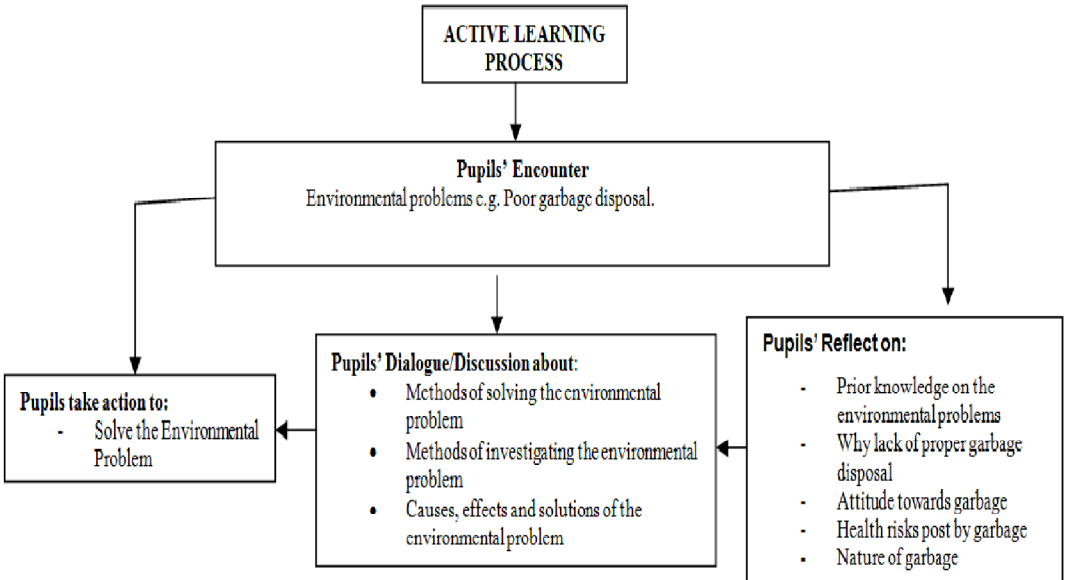
Producing people with knowledge of their environment, the right environmental skills and favourable attitude towards the environment still remains a challenge for EE. Korir (1987) asserts that without EE people would continue to mismanage and destroy the environment. Thus, EE remains to be the sustainable solution to the problem of conservation of natural resources.

THEORETICAL FRAMEWORK

The theoretical framework adopted by this study was based on a socially critical approach (Kemmis, Cole & Sugget, 1983, pp. 13 - 44) that portrays knowledge as being constructed through social interaction. Hence knowledge has meaning to pupils since the process of learning has significance in their social context. In an active learning process, the teacher designs activities that help learners to develop an understanding of environmental issues and the ability to make judgments on how resources could be developed, managed and utilized. The activities designed are relevant to the learners' local environment. Learners need to interact with each other and think critically about the environmental issues in their school surroundings. Based on this approach, EE learning should be an active process where pupils encounter environmental issues in their immediate environment, think about how to resolve them, discuss the solutions with fellow pupils, and take action to resolve the environmental issues.

Environmental Education as a Process of Active Learning



Source: Kemmis, Cole & Sugget (1983)

According to Kemmis, Cole and Sugget (1983) if EE is presented as an active learning process (see diagram above) in the learners local environment, there is an increased likelihood that pupils' pupils opinions and attitude towards environmental conservation will be enhanced and they will better be able to make informed decision regarding their environments.

Research Question

This study sought to answer the questions: What is the standard 8 pupils' attitude towards environmental conversation?

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METHOD

This study adopted a descriptive survey research design, one which does not manipulate variables or arrange for events to happen (Orodho, 2003) and does not attempt to control or manipulate the variables under study (Fain, 1999). This was used to describe pupils' opinions and attitude towards environmental conservation in the Central Division of Narok North District. The district is home to the famous Maasai Mara game Reserve and one of Kenya's water towers (Mau forest).

There has been environmental degradation and human wildlife conflict within the district threatening these two (Mau Forest and Maasai Mara Game Reserve) Kenya's most important natural resources hence this district was chosen. The accessible population for the study were the 276 standard 8 pupils (aged 13 and 14). The pupils had already been exposed to the whole primary school education curriculum.

Sample

Proportional random samples of schools and pupils were selected from each zone and school respectively. Where the proposed sample size per school was more than the school accessible population of standard 8 pupils extra schools were randomly sampled within the same zone. A simple random sample is one in which each member of the population has an equal and independent chance of being selected, while a proportional sample is where the sample size is a fraction of the whole sample size (Fraenkel and Wallen, 2000).

Instrument

Pupils Environmental Education Attitude Questionnaire (PEEAQ) which was developed by the researchers was used for data collection. PEEAQ determined pupils' attitude towards environmental conservation by indicating their level of agreeing or disagree with given opinions related to environmental education and environmental conservation.

PEEAQ was a Likert scale and consisted of 6 items with five or four opinionated statements covering six variables namely: environmental education, environmental conservation, interdependence between man and other organisms, conservation of natural resources, management of solid wastes and deforestation.

Each statement had five options (strongly agree, agree, not sure, disagree and strongly disagree) ranked 1 to 5 depending on the strength of pupils' attitude towards the opinion in the statement. The questionnaire was officially administered by the researchers with permission from the Kenya's Ministry of Education. On average the respondents took one hour to fill the questionnaire.

Data Analysis

A scoring guide was developed by the researchers and used to score the questionnaire. Pupils' responses representing the most favorable environmental attitude were given a score of five (5) and a score of one (1) was given to the least favorable hence the highest score was 130 and the lowest was 26. Mean percentage score and standard deviation were then calculated and used to describe pupils overall attitude towards environmental conservation.

The pupils responses for each opinion was summarized into 3 categories (agree, disagree and not sure). Descriptive statistics in form of percentages were used to describe the pre-coded categories (opinions) depending on whether pupils agreed or disagreed with the stated opinions. Descriptive statistics enabled the researchers to describe, organize and summarize data (Fain 1999).

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RESULTS

Pupils' Attitude Towards of Environmental Education

To determine pupils' attitude towards EE, pupils were presented with opinionated statements about EE to indicate their level of agreement or disagreement. The results are shown in Table 1.

Table 1. Pupils' Perceptions Regarding Environmental Education

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
Likes environmental education	92.4	4.4	3.3
Environmental education is somewhat difficult	23.7	55.5	20.8
Practical activities during environmental education lesson makes it enjoyable	86.0	7.7	13.9
Environmental education is only necessary for passing examinations	39.8	48.2	12.0

The results revealed that a great majority (92.4%) of the pupils expressed agreement that they loved EE while 86.0% also agreed that practical activities in teaching of EE makes EE enjoyable. A good number (55.5%) and (48.2%) of the pupils disagreed with the opinion that EE was difficult and that EE is only necessary for examination purposes respectively. This implies that primary school pupils had positive attitude towards EE and were ready to learn EE. Thus EE had a good opportunity to impart favorable environmental values to the primary school children transforming them into environmental conservationists.

Pupils' Attitude towards Environmental Conversation

To evaluate pupils' attitude towards environmental conservation, pupils were presented with statements expressing varied opinions regarding environmental conservation. Pupils were expected to express their level of agreeing or disagreeing with the stated opinions. The results are shown in Table 2.

Table 2. Pupils' Perceptions Regarding Environmental Conservation

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
I'm concerned about the problems affecting the environment in world the today.	70.7	17.2	12.1
Environmental conservation should be done by all citizens	88.7	4.3	6.9
There is little to be done about current environmental problems	32.8	47.8	19.3
Cleaning school environment should be left to the school ground workers	27.2	64.5	8.3

The results show that majority (70.7%) of the pupils expressed agreement with the opinion that they were concerned about the problems affecting the environment in the present world.

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A great majority (88.7%) of the pupils agreed with the opinion that environmental conservation should be done by all citizens. This implies pupils had favorable attitude towards environmental conservation which was likely to influence positively their behavior regarding environmental conservation.

A slight majority (47.8%) indicated a disagreement with the opinion that there was little to be done about current environmental problems. Again, majority of the pupils (64.5%) disagreed with the opinion that cleaning of school environment should be left to the schools' ground workers. These statements aimed at ascertaining whether pupils were optimistic that solutions to environmental problems existed and whether they had a role to play in the resolution of the existing environmental problems. Pupils' opinions suggest that pupils' attitude towards environmental conservation was positive and were more likely to participate in looking for solutions for different issues that affect their environments.

Pupils' Attitude Regarding Interdependence between Man and other Organisms

To determine whether pupils would show concern of other organisms in the environment, pupils were presented with statements describing negative and positive relationship between man and other organisms in the environment. Pupils were expected to express their level of agreeing or disagreeing with the stated opinions. The results are shown in Table 3.

Table 3. Pupils' Perception of Interdependence between Man and other Organisms (N=276)

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
Always concerned about effects of human activities in the environment	81.9	13.4	4.7
Man can continue to survive even without other living organisms	18.7	65.0	16.2
What we do in the environment rarely affects other living things	35.5	54.9	9.5
Man may be blamed for the existing human wildlife conflicts in the environment	61.1	29.8	17.1

Majority (81.9%) of the pupils agreed with the statement that they were always concerned about effects of human activities in the environment. This attitude by pupils towards the environment suggests that pupils are likely to make informed decision about their action or inaction in the environment.

Again, majority of the pupils (65.0%) further disagreed with the statement that man can continue to survive without other living organisms. Further, a good number (54.9%) of the pupils disagreed with the opinion that what people do in the environment rarely affects other living things. This implies that pupils were aware that there exists a relationship between man and other organisms which need to be protected. They were further aware that man's activity in the environment was a threat to this relationship and there are consequences of interfering with the relationship.

The results further revealed that a high number of pupils (61.1%) agreed with the statement that man may be blamed for the existing human wildlife conflicts in the environment. This suggests that pupils were aware that man should be held accountable for any human-wildlife conflict since man is a rational being capable of making the right decisions. Pupils with such attitudes regarding inter-dependence between man and other organisms are more likely to

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avoid activities in their environment that are likely to threaten life of other organisms hence conserve their environment.

Pupils' Attitude Regarding Conservation of Natural Resources

To evaluate pupils' attitude towards conservation of natural resources pupils were presented with statements describing different perceptions towards natural resources. Pupils were expected to express their level of agreeing or disagreeing with the stated opinions. The results are shown in Table 4.

Table 4. Pupils' Perception towards Conservation of Natural Resources (N=276)

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
Controlled use of natural resources may benefit future generations	83.3	5.8	10.9
Natural resources have always been there and will be there in the future	57.4	24.6	18.0
Future generations may not require today's natural resources	24.0	61.1	14.9
Future generation have a right to inherit today's natural resources	75.9	10.2	13.9
It is being greedy to over use our natural resources to meet our present needs	63.1	23.3	13.1

The results revealed that majority of the pupils (83.3%) expressed agreement that controlled use of natural resources would benefit future generations. A majority (61.1%) also expressed disagreement with the opinion that future generations may not require today's natural resources. A good number (75.9%) further agreed that future generation had a right to inherit today's natural resources. On the other hand about 63.1% express agreement with the opinion that it was being greedy to over use our natural resources to meet our present needs.

These opinions suggest that pupils held the attitude that the present day resources should benefit the present and future generation. These is an environmental friendly attitude hence pupils are more likely to protect natural resources. A further 61.1% indicated disagreement with the opinion that natural resources have always been there and will be there in the future. These opinion shows the pupils had the understanding that natural resources are exhaustible and are bound to get depleted with use. This perception of natural resources would influence pupils to sustainably utilize their natural resources.

Pupils' Attitude Regarding Management of Solid Waste

To identify pupils' attitude towards management of solid waste in the environment pupils were presented with statements describing different opinions regarding solid waste management. Pupils were expected to express their level of agreeing or disagreeing with the stated opinions. The results are shown in Table 5.

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Table 5. Pupils' Attitude Regarding Management of Solid Waste (N=276)

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
Polythene bags pose a serious environmental problem	86.1	7.6	6.2
Taxing polythene bags used for packaging is punishing people for no reason	39.5	41.7	18.1
I would rather carry my shopping in a basket than use polythene bags	80.7	13.5	5.8
Polythene bags affects environmental beauty	86.9	9.4	3.6
Solid wastes rarely cause health risks to people	63.2	24.8	12.0

The results revealed that majority of the pupils (86.1%) agreed with the perception that polythene bags posed a serious environmental problem. A greater majority (86.9%) further agreed that polythene bags affected environmental beauty. Again, a high majority of the pupils (80.7%) expressed agreement with the opinion that they would rather carry their shopping in a basket than use polythene bags. A good majority (63.2%) also disagreed with the opinion that solid wastes rarely cause health risk to people.

These opinions suggest that pupils had observed the menace caused by solid waste in their environment. It further implies that pupils were concerned that there was increase of solid waste as a result of materials used for packaging shopping goods. Pupils who hold such attitudes regarding solid waste are more likely to take actions that would reduce the amount of solid waste getting into the environment and hence conserve their environment.

A slight majority (41.7%) of the pupils further disagreed with the opinion that taxing polythene bags used for packaging is punishing people for no reason. This opinion supports introduction of penalties as a measure to reduce the use plastic bags for packaging. This opinion shows that pupils were ready to support decisions that are aimed at reducing amount of waste getting into the environment. Hence pupils were ready to protect their environment against pollution by solid waste.

Pupils' Attitude Regarding Deforestation

To investigate pupils' attitude towards deforestation pupils were presented with statements describing different opinions regarding human activities that had resulted in deforestation in their immediate environment. Pupils were expected to express their level of agreeing or disagreeing with the stated opinions. The results are shown in Table 6.

Table 6. Pupils' Perception of Deforestation (N=276)

Statements	*Frequency Percentage (%)*		
	Agree	*Disagree*	*Not sure*
It is worrying that people are settling in Mau forest	63.9	11.7	24.3
It is important for Kenya to have large acres of forest land though some Kenyans have no land for settlement	53.7	33.8	12.1
Government should col1lect taxes from charcoal burning income	40.4	46.9	12.7
Local communities should be allowed to benefit from sale of timber from Mau forest	18.3	71.9	9.9

ISSN: 2186-845X ISSN: 2186-8441 Print
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The results revealed that majority (63.9%) of the pupils expressed agreement with the statement that it was worrying that people were settling in Mau forest. Mau forest was within pupils' immediate environment and one of the major water towers in Kenya currently under threat due to deforestation.

A good number (53.7%) of the pupils also agreed that it was important for Kenya to have acres of forest land though some Kenyans had no land for settlement. Majority (46.9) of the pupils further disagreed with the opinion that the government of Kenya should collect taxes from incomes obtained from charcoal burning. A great majority (71.9%) of the pupils also expressed disagreement with the opinion that local communities should be allowed to benefit from sale of timber from Mau forest.

Pupils' reactions towards these opinions indicate that pupil did not support the human activities that were going on in the Mau forest and there was no reason that would justify destruction of Mau forest. Hence pupils' attitude was supportive of protection of forest lands in Kenya. This further indicated that EE taught in primary school had influenced positively their pupils' attitude regarding protection of forest lands in Kenya.

Pupils' Overall Attitudes towards the Environment Conservation

To determine primary school pupils' overall attitude towards environmental conservation, the Mean score and Standard deviation of PEEAQ was computed (see Table 7).

Table 7. Pupils Overall Attitude towards Environment Conservation (N=276)

	Mean (%)	*Standard deviation*
Pupils Score on PEEAQ	72.3	13.4

The results revealed that pupils' mean score in the PEEAQ was 72.3% with a standard deviation of 13.4. This was considered to be highly positive attitude towards environmental conservation. Therefore primary school pupils had favourable attitude towards environmental conservation. This implies that EE in Kenya's primary education had inculcated environmental values and attitudes that would enable primary school pupils make right decision regarding environment and influence positively pupils' behaviour in the environment. Hence primary school pupils as citizen of Kenya are more likely to actively participate in environmental conservation.

DISCUSSION

One of the objectives of EE is about acquiring a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection (UNESCO, 1978). Fernandez-Manzanal et al. (2007) further assert that environmental attitudes should create understanding of the beliefs, interests and rules that influence environmentalism or pro-environmental action. In Kenya, the objectives of EE in primary schools are to develop positive attitudes about the environment, to manage and conserve available resources, and to develop awareness and appreciation of the environment (KIE, 2002). Towards this end EE has been infused and integrated in all the subjects taught in primary schools in Kenya.

The present study evaluated standard 8 pupils' (aged 13–14) attitude towards environmental conservation. Pupils opinions regarding environmental education, environmental conservation, interdependence between man and other organisms, conservation of natural

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resources, management of solid wastes and deforestation. The study revealed that majority of the pupils had favorable attitude towards environmental conservation.

Within the goal of EE, development of a world population with positive attitudes, motivations and committed to providing solutions to current environmental problems and prevention of new ones from occurring is emphasized (UNESCO, 1978). Hence primary education in Kenya had achieved the attitudinal objective of EE by inculcating positive environmental values and attitudes to young children.

These findings are similar to a study by Yilmaz, et al. (2004) that investigated Turkish elementary school pupils which found out that pupils had positive attitudes toward population growth and energy conservation. Yilmaz observed that young children tended to agree with the importance of environmental education and the need for an emphasis on pollution, soil erosion, and prevention of habitat destruction. Another similar study by Tuncer, Sungur, Tekkaya & Ertepınar (2005) that examined the attitudes of young people towards sustainable development concluded that young people were concerned about environmental problems and nature.

A study by Mutisya and Barker (2011) in rural Narok town of Kenya's Narok County further revealed that primary school pupils had high conceptual understanding and awareness of environmental degradation. Bradley et al., (1999) assert that statistically significant relationship existed between knowledge and attitude scores where students who held higher knowledge scores were found to have more positive attitudes towards the environment than students having lower knowledge scores. Hence the high conceptual understanding and awareness of environmental degradation by primary school pupils reported by Mutisya and Barker supports the findings of this study.

CONCLUSION

The findings revealed that Kenya's standard 8 pupils had positive attitude towards environmental education, environmental conservation, interdependence between man and other organisms, conservation of natural resources, management of solid wastes and deforestation. Hence the study concluded that standard 8 pupils had positive attitude towards environmental conservation. The study further concluded that Kenya's primary education, through infusion and integration of EE in all the subjects taught in primary schools was achieving the attitudinal objective of EE.

RECOMMENDATIONS

Our research offers evidence that primary education in Kenya was inculcating positive attitudes towards environmental conservation to primary school pupils. Despite the fact that primary school pupils have positive attitude, the gap between that and achieving effective solutions to environmental problems is huge. There is a clear need for primary education to go beyond inculcation of environmental attitudes and values to action taking. Primary school pupils should be nurtured into the role of informed decision-makers and action-takers. EE should further be context based providing solutions to local environmental issues so as to inculcate relevant environmental attitudes and values that would provoke learners to think about local environmental issues.

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