Attitudes and Perceptions of Teachers and Students towards Environmental Education in Schools Surrounding University of Eldoret, Uasin Gishu County, Kenya

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Abstract

The study investigated the attitudes and perceptions of teachers and pupils towards environmental education in schools surrounding University of Eldoret, Uasin Gishu County, Kenya. It aimed at finding out the level of knowledge on environmental education, modes of delivery and strategies of improving environmental education in the schools. It was carried out in the months of February and March 2014 during the first term of the primary school academic year. A survey research design was adopted, using questionnaires as the instrument for data collection. A Likert scale was used to measure attitudes, perceptions and level of knowledge.Schools were categorized into two: public and private, from each of which three schools were selected by simple randomization. Thus a total of six schools, thirty teachers and thirty six pupils from classes seven and eight participated in the study. Closed- and open-ended items in the questionnaire were used to collect data.. The relationship between respondents" environmental knowledge and their attitudes towards environmental education was determined by using simple Pearson correlation analysis. The study found that pupils had positive attitudes towards environmental education with a higher percentage of pupils in public schools strongly agreeing with the statement that learning about the environment is important, prepares pupils for the future and improves people"s understanding and awareness of environmental issues. Private school teachers showed more positive attitudes than those from public school, and there was a significant positive relationship between attitudes and level of knowledge. Class instruction method was found to be the most used mode of delivery while a majority felt that field visits would be the best mode. One third of the interviewees suggested that more outdoor activities would improve teaching and learning of the environment and environmental issues.

Key Words: Attitudes, Perceptions, Environmental Education

INTRODUCTION

In the recent decades, human activities and lifestyles have changed as a result of industrialization, mechanization and technological advancements, putting a lot of pressure on environmental resources (Moses, 2004). Uncontrolled and insensitive human activities have led to challenges in the management and sustainability of the environment as they have adversely affected all ecosystems on the planet; i.e. the environment has been consumed in an insensitive and unsustainable manner and the consequences of those activities can no longer be ignored. This has created the need to educate citizens on environmental issues since the consequences threaten the future of humanity (Güney 2004).

Several conventions have been held to discuss environmental issues and build the base for environmental education. The third Inter-Governmental Conference on Environmental Education held in 1977 realized the vital role of environmental education in improving and preserving the environment and provided the framework, guidelines and goals to help member countries integrate environmental education in their educational systems (George 1999). Environmental education connects each one of us with the world we live in. It teaches us about our natural as well as built environments and help raise awareness about various issues that impact the immediate environment upon which we significantly depend, and also helps highlight the actions we can take to improve and sustain the ecosystem (Kumar, 2014).

In Kenya, increased encroachment of natural ecosystems by anthropogenic activities has triggered a lot of concern among stakeholders (NEMA, 2010) and in the 1980‘s the government responded by establishing environmental conservation programs. After a few years of implementation it was observed that their impact was negligible (Edward, 1997). This led to the government directing resources to the establishment of formal and non-formal environmental education programs that would equip Kenyans with skills and knowledge to avoid environmental destruction and themes on environmental education were integrated in the school curriculum in an attempt to educate pupils in the need to reduce the pressure

of human activities on the environment (GoK, 2008). These themes are most prominent in classes six, seven and eight, incorporated in various subjects including social science, science, languages and creative arts (Morris 1999).

Kenya‘s Vision 2030 blue print also lays emphasis on sustainable development and encourages learning institutions to include environmental education in their training curricula, and especially primary school education which is open to all. For successful implementation of environmental education (EE), having teachers with inadequate environmental knowledge and poor attitudes towards environmental education poses a great challenge in the implementation of EE in primary schools and is unlikely to produce environmentally sensitive pupils. Similarly, having pupils who do not regard EE as important for the future is also a challenge for its success.

The Vision 2030 blue print also aims at providing globally competitive quality education, training and research so as to produce a work force and citizenry that will meet the requirements of a modern industrialized country while aiming at the achievement of sustainable development. The success of the blue print and in particular on Environment matters such as plastic bags initiatives, water catchment management, protecting wildlife migratory routes and sound solid waste, management require an environmental conscious population.

For successful implementation of EE, having teachers with inadequate environmental knowledge and poor attitudes towards environmental education poses a great challenge in its implementation in primary schools and is unlikely to produce environmentally sensitive pupils. Similarly, having pupils who do not regard EE as important for the future is also a challenge for its success.

Knowledge on environmental issues shape attitudes and perceptions of teachers and students towards EE which are important in the adoption and implementation of successful environmental education programs in schools. This is in turn a determinant of the environmental behavior, awareness, sensitivity and attitudes of people produced by the education system. The schools in the study area form a very good base for cultivating environmental sensitivity and responsibility amongst the local population as the area is faced by environmental problems such as soil erosion, pollution, inappropriate agricultural techniques and unsustainable land uses. Therefore this study aimed at determining attitudes and perceptions of teachers and pupils in primary schools surrounding University of Eldoret towards environmental education. It also looked into the level of knowledge of teachers and students on environmental issues and the modes of delivery of EE.

MATERIALS AND METHODS

The area of study (Fig. 1) is in Eldoret Municipality of Uasin Gishu County, Kenya. Eldoret town is approximately 330km N.W. of Kenya‘s capital city Nairobi, and the University of Eldoret is located about ten kilometers north of Eldoret town along the C48 Ziwa road.

The area has a cool and temperate climate that favors agriculture which explains why the county is a major food basket for the country, and it enjoys two rainy seasons with an annual rainfall ranging between 900 to 1200 mm and annual temperatures ranging between 8.4 °C and 27 °C. The wettest season in Uasin Gishu County is experienced in the months of April and May while the driest season comes between January and February (http://www.kenya-information-guide.com/uasin-gishu-county). The area is a high altitude zone situated on a tertiary phonolite/trachyte plateau with friable reddish-brown loam soils; and the local elevation of Eldoret varies from about 2100 to more than 2700 meters above sea level. The predominant land use in the area surrounding Eldoret town is subsistence and semi-commercial agriculture of food crops and dairy farming, but urban sprawl is steadily ―eating up‖ these agricultural lands.

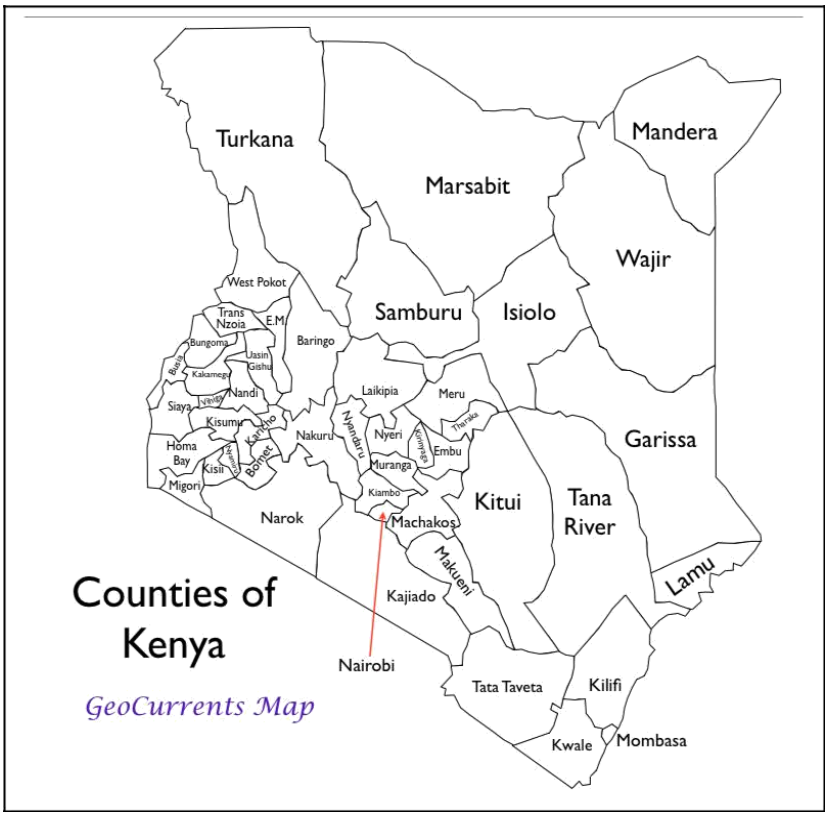


Figure 1. Map showing counties of Kenya
Source*: www.geocurrents.info*

The study involved teachers and students from sixteen (16) private and public schools within a radius of five kilometres from University of Eldoret.

The study adopted a survey design, since this method allows determination of sample characteristics for a large group in a very short time. Surveys are also effective in determining ―the attitudes, opinions and perceptions of persons of interest to a study‖ (Borg, Gall & Gall, 1993). Survey models are good at describing situations in the past or present just as they are (Karasar, 2007). Stratified and simple random sampling methods were used (Table 1), with the schools being stratified into two strata of public and private schools and then three (3) schools selected from each category by simple random process. The study dealt with pupils from classes seven (7) and eight (8), three (3) pupils from each class, and five (5) teachers were randomly selected from each school. This brought a total of thirty six (36) pupils and thirty (30) teachers were thus selected as respondents in the study.

Table 1. Sampling frame

Category	Sampling technique	Number of respondents
Schools	Stratified based on ownership and sampled by Simple random sampling	6
Teachers	Simple random sampling	30
Pupils	Simple random sampling	36

The study used questionnaires for data collection which were administered to teachers and students. Items were designed in a selected-response format where respondents selected one response from the choices given and circled others that had a five point Likert scale:

5 – Strongly Agree 4 - Agree 3 – Indifferent 2 – Disagree 1 – Strongly Disagree

Use of selected –response for most of the items would make it relatively easier /less time consuming during data collection, coding and analysis. It would make it easier to categorize the responses in similar classes for analysis.

Data obtained from questionnaires was coded using SPSS, based on the given choices and Likert scale values for the level of knowledge and attitude and perceptions questions. For the open ended questions categories were developed from the responses obtained based on their similarity. SPSS and MS Excel (office 2013) were used for descriptive analysis and presentation of results using graphs and charts respectively.

RESULTS AND DISCUSSION

Tables 2 - 8 show the basic characteristics of respondents who participated in the study. Fifty three percent of the participating teachers were aged between 21 and 30 years, while four per cent were above 50 years of age. Nineteen percent (19%) of teachers aged 21 to 30 years were in public schools while 81% were in private schools (Table 2). This distribution is important in the assessment because environmental education is a recent addition to the school curriculum (GOK, 2008) and therefore older teachers are less likely to have been exposed to it in their initial formal training. Conversely the younger teachers who are more likely to have been exposed to environmental education predominate in the private schools.

Respondents' Characteristics

Table 2. Age of teachers

	Public schools		Private schools		Cumulative
Age(years)	Freq.	%	Freq.	%	%
21-30	3	19	13	81	53
31-40	7	47	2	13	30
41-50	4	27	0	0	13
Above 50	1	6	0	0	4
Total	15	100	15	100	100

There were equal numbers of male and female teachers in both categories of schools, thus gender influence in the results even out (Table 3).

Table 3. Gender of teachers public and private

	Public schools		Private schools		Cumulative
Gender	Freq.	%	Freq.	%	%
Female	8	53	8	53	53
Male	7	47	7	47	47
	15	100	15	100	100

Forty three per cent of all teachers had university education, with 47% and 43% of them being in public and private schools respectively (Table 4). Teachers with university education were evenly divided between public and private schools.

Table 4. Teachers' education level

	Public schools		Private schools		Cumulative
Education	Freq.	%	Freq.	%	%
Secondary	0	0	1	6	4
Certificate	6	40	4	27	33
Diploma	2	13	4	27	20
University	7	47	6	40	43
Total	15	100	15	100	100

Forty seven percent of all teachers had teaching experience of 5 years or less, while 7% had taught for more than 25 years. None of the teachers in private schools had more than 15 years' experience, and two-thirds (67%) of teachers in private schools had teaching experience of 1-5 years (Table 5).

Table 5. Teaching experience of teachers

	Public schools		Private schools		Cumulative
Experience	Freq.	%	Freq.	%	%
0-5 years	4	27	10	67	47
6 - 15 years	2	13	5	33	23
16-25 years	7	47	0	0	23
Above 25	2	13	0	0	7
Total	15	100	15	100	100

One half (50%) of all teachers and 73% of teachers in private schools had lived in the area for 1 to 5 years. Seventeen percent (17%) of all teachers and one-fifth (20%) of teachers in private schools had lived in the area for more than 25 years. The length of residence has a bearing on the teachers‘ knowledge of environmental changes that have taken place in the area, e.g. reduction in forest cover (Table 6).

Table 6. Length of residence of public and private school teachers in area

	Public schools		Private schools		Cumulative
Residence	Freq.	%	Freq.	%	%
0-5 years	4	27	11	73	50
6 - 15 years	6	40	1	7	23
16-25 years	3	20	0	0	10
Above 25	2	13	3	20	17
Total	15	100	15	100	100

Seventy percent of all teachers and 53% of teachers in private schools responded that they have college level education background in environmental education. It is significant that all teachers (100%) have been exposed to a certain level of environmental education, ranging from college level to in-service program (Tables 7).

Table 7. Level of environmental education public and private teachers

	Public schools		Private schools		Cumulative
	Freq.	%	Freq.	%	%
College	13	86	8	53	70
Seminar /workshop	1	7	4	27	17
In service program	1	7	3	20	13
Total	15	100	15	100	100

Seventy two percent of the pupils who participated in the study were 12/13 years old (Table 8a) and 53% were female (Table 8b). Twenty eight percent were older than 13 years. The pupils were in class seven (50%) and eight (50%), (Table 8c).

Table 8a. Age of all pupils combined

Age	Frequency	Percentage (%)
12 years	14	39
13 years	12	33
Above 13	10	28
Total	36	100

Table 8b. Gender of all pupils combined

Gender	Frequency	Percentage (%)
Female	19	53
Male	17	47
Total	36	100

Table 8c. Class of all pupils combined

Class	Frequency	Percentage (%)
Class 7	18	50
Class 8	18	50
Total	36	100

Attitudes and Perceptions

Pelstring (1977) defined environmental attitude as positive or negative feelings about the environment manifested in the form of learned tendencies. On the other hand, perceptions is the understanding derived from receiving, evaluating and storing information about the environment. Determining attitudes and perceptions of teachers towards environmental education is important since they function as the bridge between imparting knowledge and establishing attitudes in the pupils. They are an important factor in ensuring quality and practical environmental education to pupils as it is largely dependent on their knowledge and awareness of environmental issues and protection (Özden, 2008). The study sought to gauge the attitudes of teachers and pupils towards the environment and environmental education through close-ended questions.

Among the pupils, 72% in public schools considered the environment important and supported environmental education, strongly agreeing with the statements ―Learning about the environment is important and prepares the pupils for the future‖ and ―I support environmental education‖. In private schools, 50% and 44% of the pupils, respectively, strongly agreed with the two statements. It is notable that in both schools, 100% of the pupils either agreed or strongly agreed with the statement that learning about the environment was important. Also, 100% of the pupils in public schools and 88% in private schools either agreed or strongly agreed with the statement ―I support environmental education‖; and 12% of pupils in private schools, while agreeing that learning about the environment was important, did not support environmental education being in their curriculum. The study did not determine the basis for the attitude of the 12%.

Ninety-four percent (94%) of pupils in both public and private schools agreed or strongly agreed with the statement that ―Learning about the environment improves people‘s understanding and awareness of environmental issues‖; while 100% and 94% of pupils in public and private schools, respectively, agreed or strongly agreed with the statement that ―Learning about the environment will help us live in a cleaner and healthier environment‖.

Eighty-nine percent of pupils in both public and private schools found ―learning about the environment enjoyable and interesting‖ and 89% and 100% of pupils in public and private schools, respectively, wanted more topics about the environment included in their environmental education. Finally, 94% of pupils in both public and private schools felt more _environmentally responsible‘ taking part in environmental education activities.

Thus, it is clear that overall, a large majority of the pupils are ready to be educated in environmental issues and are predisposed to _care‘ about the environment, indicating that there is a positive future for environmental education and by extension environmental conservation if the current learners are engaged in informative environmental education that enhances their positive attitudes. It is, however, noted that due to the limited time available to conclude this study it was not possible to look further into the basis of some attitudes expressed by the respondents.

Among the teachers, 100% in both public and private schools agreed or strongly agreed with the statements ―Environmental education is important and prepares pupils for the future‖, ―Environmental education is the key to having a clean and healthy environment‖, ―Environmental education improves people‘s understanding and awareness of environmental issues‖, found environmental education enjoyable and interesting, and supported environmental education. All the teachers would like to teach more environment-related courses to be more environmentally conscious. However, 7% of teachers in public schools and 13% in private schools felt they did not feel more _environmentally responsible‘ taking part in environmental education, indicating that their expressed interest was cursory. It may be necessary to exclude such teachers in environment-related activities as the 13 – 15- year olds in primary grades 7 and 8 are generally quite perceptive to lack of interest/enthusiasm/passion on the part of teachers and will not motivate their interest in environmental issues. However, it is also clear that most teachers see environmental education as a necessary component of wholesome education for their pupils.

Studies indicate that there is a close relationship between environmental attitude and environmental knowledge and awareness which enables people to behave responsibly towards it (DiEnno & Hilton, 2005) however, Emmons (1997) observes that the relationship between environmental education and

positive environmental action is complex and requires deeper understanding of the contributing factors. Nonetheless, provision of environmental education from the primary school level is an important means of developing a population that acts responsibly towards the environment. As Palmer (1998) observes, it will foster a sense of responsibility for the state of the environment and teach pupils how to monitor, protect, and improve it.

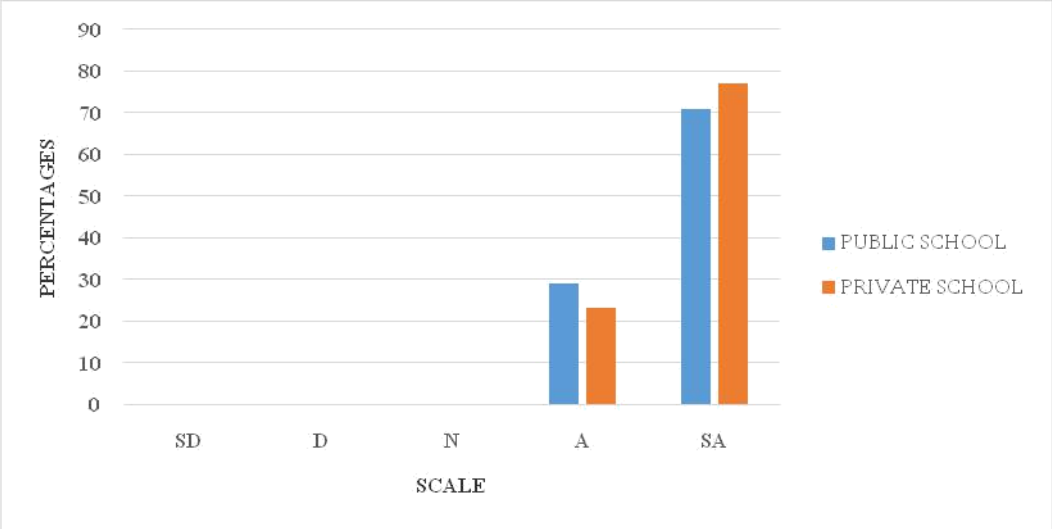
Level of Knowledge and Understanding of Environmental Issues

The study also sought to gauge the level of knowledge and understanding of environmental issues among the pupils and their teachers. All pupils (100%) in public and private schools agreed or strongly agreed with the statement that ―The environment supports our life and should be protected and cared for‖, while 100% of pupils in public schools agreed or strongly agreed with the statement that ―Harvesting of rainwater and avoiding wasting water will help have more water for use at school and home‖. Eleven percent (11%) of pupils in private schools disagreed with the second statement. Again, it was not possible to delve further into the basis of the attitudes expressed by the 11%.

All the pupils in public schools and 88% of those in private schools agreed or strongly agreed with the statement that ―Human activities e.g. cutting down of trees for timber and firewood are main causes of environmental damage‖. Twelve percent (12%) of those in private schools disagreed or strongly disagreed with the statement. Ninety-four percent (94%) of students in public schools and 100% of those in private schools agreed or strongly agreed with the statement that ‖Controlling soil erosion will help maintain the fertility of farms for good harvests‖, and six percent of those in public schools disagreed with the statement.

Seventy eight percent (78%) of pupils in public schools and 77% of those in private schools agreed or strongly agreed with the statement that ―Throwing away rubbish haphazardly reduces the beauty of our environment and causes diseases‖ while 22% in public and 23 in private schools disagreed or strongly disagreed with the statement. Ninety four percent (94%) of pupils in both schools agreed or strongly agreed with the statement that ―Taking care and protection of the environment will help avoid loss of plants and animals‖. Six percent in public schools were either neutral (public schools) or disagreed (private schools) with the statement. The above demonstrate that there is a firm foundation within the youth in primary schools on which environmental education can be built in order to strengthen environmental awareness in the community.

Among the teachers, 100% in both school groups agreed or strongly agreed with the following six statements: ―The environment supports life and should be protected and cared for‖, ―Rainwater harvesting and sustainable water use practices will reduce water shortage‖, ―Human activities are a major cause of environmental degradation‖, ―Controlling soil erosion will help maintain the fertility of farms for good harvests‖, ―Poor waste management practices degrade the aesthetic value and increases disease prevalence‖, and ―Environmental protection and conservation will curb biodiversity loss‖. This demonstrates a firm level of understanding of environmental issues among the teachers, manifesting a strong foundation for environmental education in the schools sampled (Fig 2). It is noted that ―living conditions‖ of the respondents was not investigated though it is recognised that it would have influence on their attitudes and perceptions.



SD – strongly disagree, **D** – Disagree, **N** – Neutral, **A** – Agree, **SA** – Strongly agree

Figure 2. Teachers‘ knowledge

Knowledge of environmental issues is a major pre-condition for development of environmental sensitivity and attitudes at individual level. The primary aim of environmental education in primary schools should therefore be to help children understand the various biotic and abiotic elements, such as plants and rocks, in their surroundings and their interactions. It helps them become informed and active mediators of environment and man with confidence gained from understanding (Watts, 1969). This is reiterated by Habrich and Kohler (1981), who emphasized that environmental education should aim at finding concrete solutions to existing, local environmental problems while providing for the active participation of teachers and pupils in practice-oriented teaching and learning process.

A study by Morris and Schagen (1996) found that only 34% of students regarded environmental education as very important while recent works by Parker *et al.* (2007) and Anthony (2007) suggest that young people generally display poor attitudes to environment-related activities. Aziza *et al* (2003) noted that, though students‘ level of environmental knowledge was high with good participation in environmental activities, they only had moderate attitudes towards environmental education. Salami (1997) showed that teachers and students exhibited low levels of knowledge on the basic concepts of environmental education. It is noted that these studies did not specify whether they covered primary or post-primary school graders/teachers. The level of awareness appears to be higher among the pupils and teachers in the present study.

Relationship between Attitudes and Level of Knowledge

The results of the correlation showed that a significant positive relationship existed between attitudes and perceptions towards environmental education and level of knowledge and understanding of environmental issues, as shown below:

Public School pupils: $r = 0.991$ P-Value = 0.001.
Private School pupils: $r = 0.902$ P-Value = 0.036
Public School teachers: $r = 0.970$ P-Value = 0.006
Private School teachers: $r = 0.991$ P-Value = 0.001

The positive *r* value means that if the level of knowledge and understanding issues increases, the attitudes and perceptions towards environmental education also increases. The P value being lower than 5% (P=0.05) indicates that the correlation is statistically significant.

Modes of Environmental Content Delivery

On average, Class instruction method was found to be the most commonly used mode of delivery of environmental education content, as indicated by 52% of respondents. This was followed by demonstrations at 15% of the time, use of clubs (14%), study visits (10%) and drama/music/poems (9%) (see Figure 3).

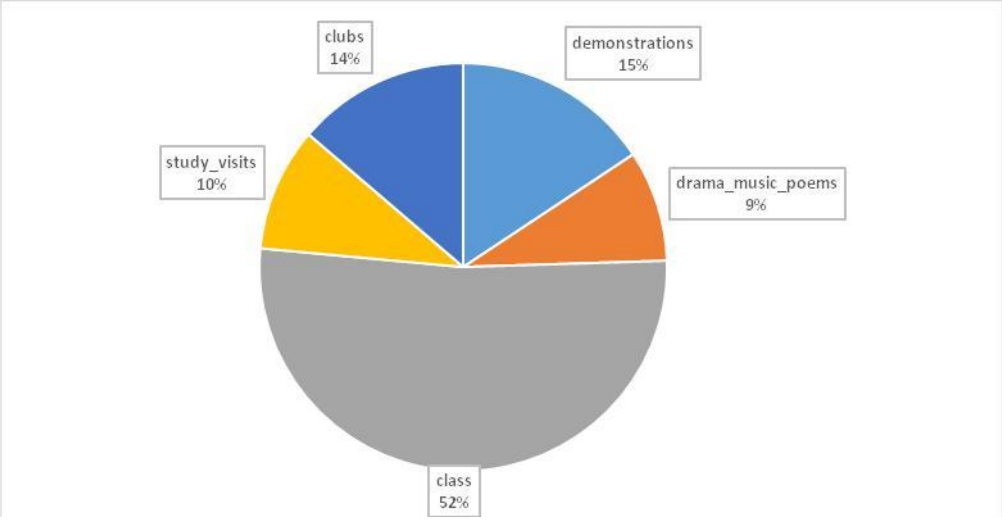


Figure 3: Modes of environmental education delivery (all schools combined)

However, there were significant differences between the two groups of schools when looked at separately: 70% of respondents from private schools said they used the Class instruction method, compared to 36% in public schools. Sixty seven percent (67%) of public school respondents engaged in outdoor activities associated to environmental education as compared to 52% in private schools. These activities included: field visits, studying plants and animals outside the classrooms, conservation, cleaning and gardening activities, studying land issues such as soil erosion and physical elements of soils characteristics and identification of environmental problems in their neighbourhoods. A majority (63%) of the respondents who engaged in these activities said they did them monthly, while 26% said they did them at weekly intervals. Eighteen percent of respondents from private schools used study visits compared to none among the public schools sampled.

Twenty one percent of respondents from both school groups said they used clubs, with 18% from private and 12% from public schools respectively using demonstration. Sixty seven percent (67%) of respondents from public schools and 21% from private schools said they had clubs that engaged in environmental education activities in their schools. These clubs included Environmental club, Wildlife club, 4K club Health club and Integrity club.

Fifty three percent (53%) of pupils and 37% of teachers said they believed study visits would be the best and most effective in teaching and learning environmental education. Eighteen percent (18%) preferred demonstrations and 15 % considered clubs the best and most effective in imparting adequate knowledge in environmental education.

While there is no right or wrong way of teaching and learning environmental education, it is important that it is based on first-hand experience of the environment. The most important and valuable resources available to schools and pupils are the neighbourhood and the environment itself. Almost all schools have resources such as fields and gardens which can easily be used for conducting various environmental education activities. These provide opportunities for activities to observe, record and interpret their own investigations. The learners should be encouraged to behave naturally and learn through being in contact with animals, plants, birds, and other natural objects. This will foster their appreciation of nature, practical knowledge about it, its local uses, and ways to manage it sustainably.

Environmental education requires a different teaching methodology than oral lecture in class as normally used in most subjects. Carrying out experiments and field surveys are more effective than lecture and demonstration methods. This calls for flexibility of curriculum and approach in different places. However, only a small number of teachers embrace the use of such environmental resources for teaching (Joseph, 1976), but Olembo (1990) suggests that teaching methods that encourage active student participation promote better understanding of content taught in class. Yunis and Thomas (1998) in a study carried out in Kenya found that the class method was preferred though it did not promote understanding. This was because the teachers have large classes and are required to cover a lot of content within a limited time.

Strategies to Improve Effectiveness of Environmental Education

Eighty nine percent (89%) of all the pupils agreed or strongly agreed with the statement ―Learning about the environment has improved how we take care of the environment in the school‖. Some of the good practices arising from teaching and learning environmental education included: using bins to dispose of litter/waste, improved caring for plants/trees/flowers in the school compound, improved pupils' hygiene (such as washing hands with soap after every visit to the toilets), reducing wastage of water, and increased enrollment in clubs related to environment. This implies a palpable change in behavior of the pupils.

Observing that environmental education has a lot of products at personal, household and community levels that enhance the welfare of the recipients and the environment, Chittibabu (1987) highlighted some of these products as including: creation of the urge for a clean environment, inculcating basic principles of sanitation and hygiene, and helping the pupils appreciate the need for conservation of the natural heritage. Miller (2002) noted that EE in the schools faces various challenges that hinder the desirable passage of environmental knowledge from teachers to the pupils, including resistance by teachers and inadequacy of skilled personnel. Coudsward (1977) goes to the extent of remarking that "where structure dominates instruction, learning is inhibited".

It is thus clear, as stressed by Swain (1997) that learners should be given the opportunity to relate to the things they feel. The introduction of EE program requires the involvement and participation of all stakeholders from students, teachers, parents and administrators. Seeking their views and fully understanding them is important for a successful implementation of EE programs. Khan (1987) is of the opinion that future strategies of formal environmental education should emphasize on learning through activities centred on real life situations to produce competent students who can apply lessons learnt to solve day to day environmental problems. Adopting a multi-disciplinary nature of environmental education and extending its teaching beyond the classroom to the immediate environment – school, home, neighbourhood to the natural and built environments would enhance its effectiveness.

Respondents were given a number of choices to improve environmental education and their selections were as follows: 32% proposed that the schools should be encouraged to make use of outdoor activities to improve how they teach and learn environmental issues; 18% selected formation and strengthening of clubs/associations that engaged in environmental activities, 17% said environmental education should be incorporated as a subject on its own, 13% felt teacher training on environmental education should be enhanced, and 9% said more resources such as books and higher budgetary allocations should be devoted to environmental education (Figure 4). The spread of responses indicates that ideally all these measures need to be taken to cater for all groups.

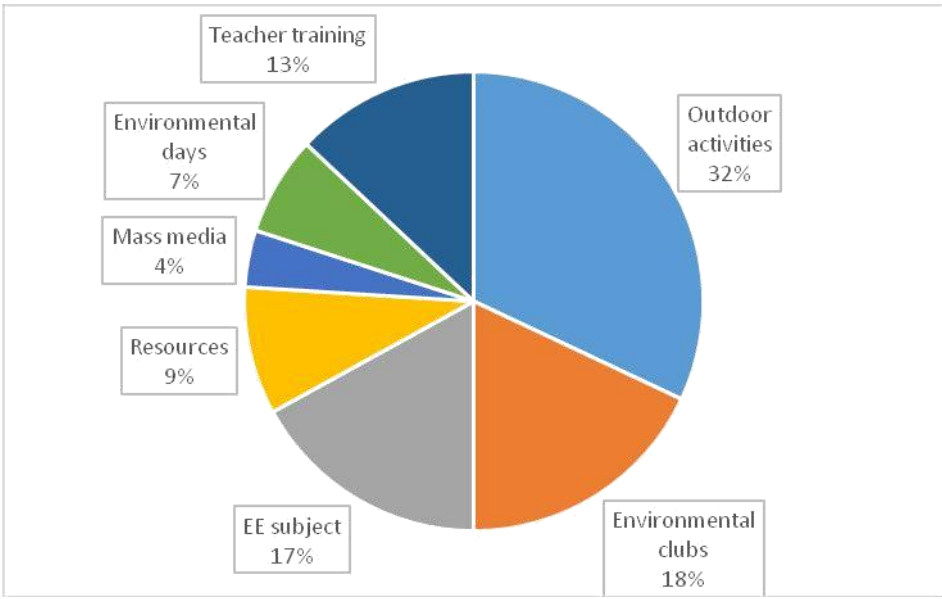


Figure 4: Measures to improve Environmental education

CONCLUSION AND RECOMMENDATIONS

The study shows that teachers and pupils in primary schools in the study area both have positive attitudes on and a high level of knowledge of environmental issues. In order to enhance and maintain these positive attitudes well planned outdoor activities would be the best strategy to be implemented in both public and private schools. They offer the best opportunities for learners and educators to interact more with the environment in a meaningful way. Environmental educational attitudes and perceptions of both teachers and pupils are important in the success of environmental education based on the premise that attitudes and knowledge have a positive relationship, and that every pupil has the ability to learn and should be able to demonstrate progress on an on-going basis. However, these environmental education activities require proper utilization of time and available resources without straining the schools‘ programmes, time and finances.

It is recommended that outdoor environmental activities for meaningful environmental education should be promoted in schools through strengthening of environmental related associations. This will give a platform for activity oriented learning. It is possible to include environmental perspectives in practically all the subjects taught in primary schools: even in elementary arithmetic, a grade one (or a kindergarten) pupil out in the school yard is not likely to forget that one tree plus one tree in the school yard equals two trees in the yard. This has been aptly demonstrated in the ―Whole School Approach‖ adopted by the World Wildlife Fund for Nature in implementing its Lake Victoria Catchment Environmental Education Programme (WWF, 2013). Workshops and seminars for teachers should be organized to provide teachers with up to date environmental education and the new paradigms of environmental conservation and protection. Curriculum developers should develop a comprehensive curriculum for environmental education to be implemented in schools as a core subject. This should be accompanied by resources such as budgetary allocations, and books to ensure effective implementation in schools in the area and the whole country.

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