

THE BENEFITS OF MAINSTREAMING ENVIRONMENTAL EDUCATION IN THE SCHOOL CURRICULUM

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ABSTRACT

The mismanagement and even over- exploitation of environment has been an area of concern globally in the last three decades. This is closely related to human activities such as mining, human settlement and agriculture. In retrospect, these effects are now being felt through drastic climatic changes, rising of the water basin and distinction of important plant and animal species. This catastrophe has been associated to inappropriate knowledge, ignorance and retributive attitudes towards environmental issues. The purpose of this study was therefore to investigate the benefits accrued through the mainstreaming of environmental education in the school curriculum. It was guided by one research objective, that is, to examine the benefits of mainstreaming themes of environmental education in the school curriculum. The significance of this study would be: to add more information to the present literature on benefits of mainstreaming environmental education in the school curriculum, to help curriculum developers in formulation of a syllabus that mainstreams environmental education in the school curriculum and to provide a feedback to the Kenyan community on the benefits of mainstreaming environmental education in the school curriculum. This study adopted a survey design. The findings of the study revealed that mainstreaming environmental education in the school curriculum equipped learners with the necessary knowledge and skills that is instrumental in preserving and conserving the environment. The study further revealed that the teaching of environmental education helped the learners to develop positive patterns of behaviour toward the environment. It was therefore concluded that the curriculum implementers should give more emphasis on teaching of environmental education at various levels as a method of promoting better management of the environment. Finally this study, recommends that: curriculum developers at the Kenya Institute of Education should ensure that topics on Environmental Education are integrated at all levels in the school curriculum and information on Environmental Education should be disseminated through other educational programmes such as adult literacy and other non-formal activities.

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INTRODUCTION

The threats to the environment were first raised during the Stockholm Conference (1972). The key issues discussed in the conference were: inadequacy of human settlement whereby the participants noted that the houses in towns were not enough and thus need to construct more houses, the problem of insufficient clean water, infectious diseases such as tuberculoses, cholera and typhoid and rampant poverty (Dasmann, 1984). In attempt to address these problems, several recommendations were made, among which; the United Nations was to establish an international programme in Environmental Education, an agency to address environmental issues was to be formed (United Nations Environmental program; UNEP) and the earth's capacity to produce essential renewable resources was to be maintained and whenever practicable, restored. Although, most

of these recommendations were implemented by many member countries, globally, the degradation of the environment still persisted even up to date. For instance, Joseph (1997) argues that despite the implementation of the recommendations of the Stockholm Conference, the earth's forest cover has been significantly reduced to provide wood; ores have been mined for both fuel and to build things; plants and animals have been domesticated, bred and commoditized to provide food. Similarly, according to Hilbert & Renkl (2007), human beings are capable destroying the environment by establishing settlements anywhere on the Earth's surface.

In Kenya, environmental issues and in particular its destruction through by human activities is a major area of concern. The continuous depletion of the natural resources has been documented in several

researches (Hellen, 1984; Hungerford, 1988 and Denis, 1987). In addition to this depletion of resources, environmental pollution; water, air and soil has also been reported to be on the increase in Kenya (Collins, 1997). Similarly, recent findings by Kombo (2006) indicate that the pollution and destruction of the environment is still on the increase in Kenya. For example the destruction of the natural forest in 2007 was 13%. In 2008, it was 14.2%, whereas in 2009, it was 14.4%. The destruction rate according to the information documented by the Ministry of Natural Resources was 14.7% in 2010. This sensitivity and the attempts to find solutions in a rational and systematic way is the concern of environmental education.

Globally, several attempts have been tried towards construing Environmental Education as a field of study in the school curriculum (Githinji, 2008). The most commonly strategies used to teach concepts on Environmental Education are the interdisciplinary and multidisciplinary approaches (Muyanda, 1993). The interdisciplinary approach was tried in the 1980s, where most countries developed a curriculum of Environmental Education as a subject of study. However, this approach was found to be not effective. The main argument leveled against Environmental Education in the interdisciplinary approach was that it did not fit within the tenets of any traditional subject area in the school curriculum. This implies that no one particular subject area could own it, and so it has often oscillated between the boundaries of the fragmented traditional subject areas (Muthoka, 1998). Similarly teaching about the environment seems a lot more controversial in this form of curriculum design, since it poses the challenges associated with relevance, learner participation and evaluation. In contrast to the interdisciplinary approach, the multidisciplinary one, critically examines the curriculum and infuses subjected matter on pertinent issues which affect the society across several subjects (Slater, 1986). In a multidisciplinary curriculum students are engaged in social practices and are not merely prepared for later social participation like in the case of environmental management. The emphasis is on immediate participation in day to day life activities in their community, rather just a mere participation in future life (Wilhite, 1990). Based on this approach, Environmental Education has therefore been seen by some of its proponents as concerned with developing a curriculum which encourages active participation and collaborative decision making and involves critical analysis of the ecosystem and its sustainability.

In Kenya, Environmental Education is implemented through the multidisciplinary; the themes on Environmental Education are integrated in all levels of the 8-4-4 system of education. The Kenyan curriculum has customized the international goals of

Environmental Education which were formulated during the Tbilisi Inter-governmental conference on Environmental Education of 1977; to foster awareness of concern about, economic, social and ecological interdependence in urban and rural areas, to provide every person with opportunities to acquire knowledge, values, attitudes, commitment and improve the environment and creation of new patterns of behaviour of individuals, groups and society as a whole towards the environment (Republic of Kenya, 2010). The commitment of the Kenyan Government to protect and conserve the environment is clearly demonstrated by her incorporation of a goal on environmental issues as one of her eight national goals of education:

...education should foster positive attitudes towards environmental development and conservation. It should lead the youth to appreciate the need for a healthy environment (KIE, 2008).

Thus, as an educational programme Environmental Education in Kenya, generally aims at increasing people's knowledge and awareness about the environment and associated challenges. In addition, Environmental Education develops the necessary skills and expertise required to address challenges that threatens sustainability of the ecosystem. The problem of this study was therefore to investigate benefits accrued by the community through the mainstreaming of environmental education in the school curriculum.

OBJECTIVE OF THE STUDY

This study examined the benefits of mainstreaming themes of Environmental Education in the school curriculum.

SIGNIFICANCE OF THE STUDY

The literature reviewed showed that there exists few documented information about the benefits of mainstreaming environmental education in the school curriculum in Kenya. The results of this study would therefore add more information to the present literature benefits of mainstreaming Environmental Education in the school curriculum in Kenya. The findings of this study would be of immediate benefit to curriculum developers in formulation of a syllabus that mainstreams Environmental Education in the school curriculum in Kenya. Further, the results of the study would also provide a feedback to the Kenyan community on the benefits of mainstreaming Environmental Education in the school curriculum.

LIMITATIONS OF THE STUDY

This study was limited by the intervening variables related to the characteristics of the respondents selected for this study; teaching experience and personal competency. For instance, the teachers with a long teaching experience were conversant with issues on mainstreaming of themes of Environmental

Education compared with the newly recruited ones. Similarly, the teacher's ability could also have influenced their responses when answering questions during the interviewees. Another limitation to the study was related to sample size. Specifically the study was affected by the intervening variable of mortality rate where a teacher and two principal interviewees who had been selected for the study could not be reached. Finally, there is also limited literature on mainstreaming themes of Environmental Education in school curriculum in Kenya. For this reason, the literature review was drawn from researches carried out within and outside Kenya.

DELIMITATION OF THE STUDY

This study delimited itself to the content of Environmental Education in the 8-4-4 primary and secondary school curriculum. This decision was taken due time constraints.

METHODOLOGY OF RESEARCH

This study adopted a survey design. Twelve teacher and ten principal respondents were interviewed. A documentary analysis of several government records and policy documents was carried out to complement the findings from the interviews. The documents analyzed included: reports from various commissions of education, Presidential decrees, government policies, research findings, primary and secondary school syllabi and other programmes related to integration of Environmental Education. The review focused more on the facial and content validity of the information on Environmental Educational. The documents reviewed in this paper were sampled through purposive sampling; three commissions of education, four government policies, twelve researches, eight session papers, Teaching resources and the various and secondary school syllabi.

RESULTS OF THE STUDY

The themes on Environmental Education have been mainstreamed in the school curriculum with a major objective of reducing the negative impact of human activities on the environment. The study found out that the goals of mainstreaming Environmental Education in the school curriculum in Kenya have been partially achieved. Acquisition of safer agricultural activities was recorded as one of the major achievement of Environmental Education. According to 57.8% teacher interviewees, there was evidence of a shift from the use of agrochemicals to use of organic manure in their school neighbourhood. In addition, the student respondents also stated that the teaching of Environmental Education made them aware about the negative effects of excessive use of fertilizers on the environment and in particular on soil pollution. This finding was supported by an analysis of the secondary school curriculum where the topics were adequately covered. In addition, the students further noted that evaluation of themes on Environmental Education in the school curriculum

made them read more widely on issues related to the environment. This was clearly captured in the excerpt below: Obviously inadequate preparation affects one's performance in both internal and external examinations...during my revision; I not only revise my class notes but also do personal research on Environmental Education. This is one of the emerging issues in the curriculum that every student is expected to learn regardless one's background. I think, students need to be encouraged to read intensively if they are required to actively participate on environmental conservation activities (Student Respondent).

The current study also found out that mainstreaming Environmental Education helped to create awareness among individuals on how to reduce water and soil pollution through the implementation of proper domestic health practices. This finding was supported by 89.3% interviews drawn from both urban and rural secondary schools. According to respondents, teaching of concepts of Environmental Education in the school curriculum, created insight among students on safe disposal of sewage that leads to water pollution. In addition, acquisition of information through learning in the school curriculum further sensitized the students on the safe disposal of foodstuff that is a major pollutant for soil/ land pollution. The same observation was made in a study carried out by Firor (1987). It was also reported by 57.7% respondents that the learners also developed positive attitudes and behaviour towards environmental issues.

Another benefit that is accrued through the mainstreaming of Environmental Education in the school curriculum reported by 44.5% interviewees was related to reduction of air pollution. For example, several respondents noted that information acquired in Environmental Education sensitized them on the hazardous effects of Carbon monoxide on their personal hygiene. Responses by 67.4% principal interviewees shown that the major sources of Carbon monoxide were industrial fumes, emissions from vehicles and charcoal burners, which when inhaled by human beings form carboxyl hemoglobin in blood that reduces the oxygen transmission of blood (WHO, 1981). This inhibition of blood circulation leads to amnesia, fainting and even death. Through Environmental Education the respondents acknowledged that they learnt numerous precautions on the safe use of those sources of pollutants.

Another pollutant which was reported by the teacher interviewees was carbon particles from smoking vehicles. These particles cover plants and make them unable to carry out gaseous exchange and photosynthesis. To human beings it causes respiratory diseases. In attempt to reduce problems mentioned above, the interviewees further reported that information accrued from Environmental

Education had also equipped them with some of the things that they need to observe with respect to safe use and maintenance of vehicles. Similarly the respondents were also found to be conversant with the negative effects of lead mental that comes from cars exhaust. To avoid the effects of Lead such as retardation of mental development to baby and child, the respondents noted that they used the car fuel that had low concentrations of Lead or that which was Lead free.

DISCUSSIONS

From the study, it was found out that, several themes of Environmental Education have been incorporated in the school curriculum as a strategy to promote conservation of the environment. The integration of themes of Environmental Education is not new. Sinclair (1991) in a study on teaching of Environmental Education among the American youth reported that themes of Environmental Education were covered across the curriculum. According to Talla et al (1990) the topics on Environmental Education covered in the formal curriculum aimed at equipping learners with knowledge, skills and values that will promote active participation on issues related to environmental management among students. Similarly studies carried out by Simmons (1982) & Slater (1986) showed that the themes Environmental Education covered in curriculum included: impact of human socio-economic activities on the environment; mining, transport, irrigation and methods of conserving the environment. The objectives under these topics aimed at equipping learners with problem solving skills on issues related to the protection and conservation of the environment. Although the findings of the current study suggested that infusion of themes on Environmental Education in the school curriculum had helped individuals to develop positive attitudes on issues related to the protection and conservation of the environment, this finding seemed to contradict that of Raymond (1989) when he reported a no significant correlation between teaching themes of Environmental Education and learners' behavior change towards it among the youth in United states of America. However, research findings of a study carried out in Ghana agreed with the findings of the current study when it reported that teaching of themes of Environmental Education fostered positive attitudes towards the environment among community members (Ramage, 1993). Thus the findings of the current study suggest that mainstreaming themes of Environmental Education changes people's attitude towards the environment.

Information and training in Environmental Education can be communicated to the international community through creation of awareness, which helps social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems. In addition, it expands the knowledge bank

on Environmental Education. Through this, social groups and individuals acquire basic skills on how to manage their environment. According to Lenard (1989), incorporation of themes on Environmental Education has helped to change the people's attitudes towards the environment. Similarly, environmental educationalists will help social groups and individuals acquire a set of values and feelings of concern for the environment and willingness to participate in environmental improvement and protection.

Moses (2004) pointed out that mainstreaming themes of environmental education in the school curriculum can be used to empower individuals and social groups to attain skills for identifying and solving environmental problems. These sentiments were supported by Doxiadis (1976) when they stated that teaching of Environmental Education equips members of the community with skills that facilitate the effective management of the environment. Similarly, effective participation and promotion of Environmental Education can be achieved through providing social groups and individuals with an opportunity to be actively involved at all levels in working toward the resolution of Environmental Education. The importance of mainstreaming Environmental Education in the school curriculum had been captured in earlier studies (Githinji, 2008). In his study on teaching of Environmental Education programmes with primary school students, Githinji (2008) reported that teaching topics on Environmental Education in the non-formal dimension of the school curriculum compliments teaching of the same content in class. Due to the flexibility of the learning activities, students frequently discussed issues related to the environment with their patrons, which lead to improved understanding of the content on Environmental Education.

CONCLUSIONS

In conclusion, the findings of this study as reported and discussed in this section revealed that the themes on environmental education have been incorporated in the primary and secondary school curriculum in Kenya. Two main strategies were also used to teach themes on environmental education; interdisciplinary and multidisciplinary. In Kenya, the multidisciplinary approach had been utilized to mainstream Environmental Education in the school curriculum. The main objective of Environmental Education in the school curriculum is to equip learners with knowledge, values and skills that promote the protection and conservation of the environment. The mainstreaming of Environmental Education in the school curriculum has yielded positive results on the management of the ecosystem. For instance, people's attitudes toward the conservation of the environment have changed significantly. In addition, the citizens

had acquired the knowledge and skills required to maintain a healthy environment.

RECOMMENDATIONS

In light of the findings and conclusions drawn for this study, the following two recommendations were made:

- i. The curriculum developers at the Kenya Institute of Education should ensure that topics on Environmental Education are integrated at all levels in the school curriculum as well as have a good scope and should be relevant to the local situation.
- ii. The information on Environmental Education should be disseminated through other educational programmes such as adult literacy and other non-formal activities.

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