

Effect of Environmental Education on African School children's Waste Disposal Practices

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ABSTRACT

The search for improved environmental quality has driven several governments in developing nations to adopt the use of environmental education (EE) in improving the attitude and behaviour of its citizenry towards waste management. Cultural belief is an emerging factor influencing learners' attitude and action taken towards waste management as reported in some literature. This study investigates the influence of EE on elementary pupils' attitude, belief and action taken. Both qualitative and quantitative methodologies were employed in the conduct of this study. Two instruments were adopted for the study, first is the Pupils Attitude Questionnaire on Waste Management (PAQWM) and secondly the Cultural Belief Inventory (CBI) were employed to pool data for this study .210 elementary (primary) grade 5 pupils were involved in the study. Samples were taken through a pre-test, treatment and post-test phases. Results show the pupils' attitude improved when pre and post-test were compared. Pupils developed significantly improvement in the way they dispose solid waste in their schools.

INTRODUCTION

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO 1978). To Ramsey, Hungerford and Volk (1992) it is a means of preparing individuals to be responsive to a rapidly changing technological world, to understand contemporary world problems, and to provide the skills needed to play an effective role in the improvement and maintenance of the environment. The theory is that environmental education must incorporate many aspects of the environment: natural and man-made, technological, social, political, cultural and aesthetic (Ramsey, Hungerford, and Volk 1992).

In considering EE as an instrument in the defence and improvement our environment, Manzanal, Barreiro and Jimenez (1999) pointed out that an understanding of the concepts and issues would help make the desired change in behaviour and attitude toward the environment. Hence this creates the opportunity to train people to contribute to the care of the environment.

There are several definitions of attitude in literature as there are authors. This may make the definition of attitude difficult. However, Manzanal et al. (1999) identified three linkable components form of attitude. First is the cognitive component, then an affective component that gives the attitude a sense of direction of behaviour or action. Thus the third part is action which is a consequence of the first two components. The subject of attitude is a core issue concerning EE especially in developing countries, where the problem of negative disposition to the environment is predominant (Ahove 2000). This

problem is traceable principally to the high level of illiteracy. This is especially true in most nations of the global south like Nigeria where management and disposal of waste has continued to plague its cities.

Thus issues such as culture, belief and social groups are fundamental concepts environmental educators must always put into consideration in EE research, curriculum, text materials and the learning and teaching process (Above 2000). Unfortunately, few research focus on EE, especially at the formal level, being on environmental awareness, knowledge, attitude, concern and action taken towards the environment (Fujita et al. 1999). Belief has a great influence on learners' cosmology. This is because every society educates the younger generation as a way of passing down the socio-cultural attributes of its people (Jegade 1997). Therefore eco-cultural diversities or belief exist between different ethnic groups, which have been found to influence learners' attitude, knowledge and action taken towards the environment. The African Worldview, which often conflicts, with western Science, is an area which paradigm shift in EE research is called for with vigorous pursuit. This paper therefore focuses on achieving this pursuit within the African setting.

METHODOLOGY

Sampling and Administration

The pupils who participated in this study 210 - 101 girls and 109 boys were elementary school 5 (grade 5) in two schools from Lagos State with age range of 9 to 11 years. The samples were given a pre-test on PAQWM and CBI. Three waste plastic Bins 1. Blue labelled paper and Nylons 2. Yellow labelled biscuits, orange and left over food 3. Red labelled cans and plastics were kept for each of the two groups or schools to dispose

waste accordingly for three days. Each day an EE Research assistant reports back on finding in each bin. The goal of these steps is to find out if the pupils will comply with the instruction without been taught. After two weeks they were subjected to the treatment phase. The treatment phase divided the pupils naturally into two groups based on the school by a simple random sampling technique. The first school had a total of 106 pupils, 50 girls and 56 boys in two separate classes of 54 and 52 pupils respectively. The second school had a total of 104 pupils 51 girls and 53 boys also in two separate classes of 50 and 54 respectively. The two groups were taught some basic topics in waste management for two weeks (actually 12 days), which are

1. What are wastes?
2. Types of solid waste
3. Agents and causes of wrong disposal
4. Consequences of wrong disposal of solid waste
5. Method of disposing solid waste
6. Practical steps in disposing solid waste in my school.

The time spent varies between 35mins to 50 minutes each day. While teaching the first group the discussion method was used along with graphical or pictorial representations.

Pupils ask questions alongside the discussion in the class. In the two groups or school pupils in the two classes were taught by using the normal lecture discussion method adopted by the school. Pupils asked questions but pictorial representations were not employed. Four in-service training teachers who are in their final undergraduate programme in education and had concluded courses in methodology and Environment education, which included waste management and disposal, taught in the four classes of

the two schools. These teachers are regular teaching staff of these schools. Emphasis during treatment was made on topic six with practical demonstration in each class irrespective of the group. After the treatment phase, the post-test instruments PAQWM and CBI were administered on all the pupils and were collected on the spot. The plastic bins were then kept at the usually corner, which provides access to all the samples. Pupils were then asked to use the bins as articulated by the labelling and colour. These bins were observed for seven days on daily basis by the authors along side the research assistants.

RESULTS AND DISCUSSION

The quantitative analyses were carried out on a SPSS (Statistical Package for Social Science) for Windows Software Program. For the two groups a statistical significant difference was recorded between the pre and post-test scores for PAQWM and CBI. The same was recorded for gender with each group and between the two groups. The action taken in this study may be described as action taken based on reflective reasoning.

Reports from the initial test on the samples of this study on action taken due to reflective reasoning on which bin blue, yellow or red to drop their waste found that all bins in the study for the 3 days of the test were filled with unexpected waste. All the waste bin had almost the same kinds of waste, except for the red waste bin labelled for plastics and metals had more of these and few of other forms of solid waste such a papers and biscuits. Daily assessments were carried out by the four field research assistants alongside the authors for the 3 days. The assessment had following average level of success for each waste-bin (see table 1).

Colour on Waste bin	Expected Solid Waste	Percentage of success	Percentage of failure
Red	Plastics and metals	60%	40%
Yellow	Biscuits, candies and waste food etc	50%	50%
Blue	Papers, Nylons etc	50%	50%

Table 1 showing average level of success for each waste bin.

However, after the treatment phase significant changes were found in the action taken by these pupils on where to dispose their solid waste. Each of these three bins had significant amount of the expected solid waste to be disposed in them in the first three days. This was especially true with the red bin meant for plastics and cans. Nothing else was found inside except the expected waste. However, the other two has almost significant amount of unexpected waste. The fourth to seventh day showed more improvements in the blue and yellow waste bin while the red bin had a 100% success between the fourth and seventh days. Although the others did not record a 100% success our assessment of success was about between 75 to 90%.

Interview conducted on some pupils to triangulate the results on action taken proved to be fascinating. Pupils say the red colour of the red bin was much more easily eye catching and that it was easier to dispose cans, metals and plastics into it because of the sizes and nature of these solid wastes. This may therefore account of the high level of success among the samples of this study in disposing the appropriate solid was in it.

Pupils also confessed a change of attitude in the way, they dispose their waste.

CONCLUSION

In this study, we examined the influence of EE on pupils' attitude, belief and action taken towards waste disposal. The main findings of this study show that EE has

positive influence on Nigerian pupils' attitude and belief towards solid waste disposal. This was also found to be very true in bringing about significant improvement in the action taken due to reflective reasoning by African children. The findings of this study may be accepted within the parameters of its limitations, which therefore call for further validation among African children.

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