

Enhancing Botswana Children's Environmental Knowledge, Attitudes and Practices through the School Civic Clubs

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An intervention study was set up through the School Civic Clubs to improve Botswana Children's environmental knowledge, attitudes and practices. The underlying assumption in using this informal approach was based on the premise that the school time table is already overcrowded and that the infusion approach currently adopted in the country has not produced the desired results. Hence, the Civic Clubs were introduced into ten Primary schools in Botswana. Using this informal approach, the children were given requisite training in civic and environmental issues, and they engaged in various activities for a period of six weeks. Data was collected before and after the project activities using two hundred members of the civic clubs and two hundred non-members of the club. Data collected were analyzed using descriptive analyses. Findings indicate a significant change in the knowledge and attitudes of the pupils after their exposure to the club activities. Also, there was a significant difference in the knowledge of pupils exposed to the EE club activities and those not so exposed. The interaction of pupils' gender and class of study were also examined. Teaching children environmental issues through the School Civic Clubs was explored in the study, and the findings seem to demonstrate the effectiveness of this approach as against the more theoretical classroom-based teaching currently going on in schools. The use of the Civic Clubs in promoting environmental education was therefore advocated by the study, both in Botswana and in other countries.

Key Words: civics clubs, environmental education, environmental knowledge, environmental attitudes

Introduction

As early as 1988, World Wide Fund-United Kingdom (WWF-UK) had made a remarkable statement regarding the functionality and usefulness of environmental education when it noted that "environmental education is fundamental to the well-being of the planet and of its inhabitants". Through the exploration and development of insights, awareness, knowledge, skills and attitudes it develops essential competencies that enable people to make reasoned responses to the individual and social use of the environment" (WWF-UK, 1988). Botswana like any other country has come to appreciate that environmental education has an important role to play in molding an individual to become a responsible citizen towards his/her environment. The Ministry of Education realized that the absence environmental education (EE) in the school curriculum may contribute greatly to the improper use of the environment as evi-

denced by the general public's lack of environmental responsibility and accountability. Quoting a one time Botswana Minister of Education "my Ministry accepts that it has an important role in coordinating and promoting environmental education in the country" (Government of Botswana, 2002, p.2). The importance of EE was further emphasized in the Revised National Policy on education (Government of Botswana, 1994) which recommended that teacher education should entail methodologies that ensure that learning results in attitudinal changes and citizen participation. The overall aim of environmental education in Botswana is to develop a society that is aware of and concerned about the environment and its associated problems; a society which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively towards solving current problems and preventing new ones.

Specific goals for Primary Education EE in Botswana are:

- To make pupils aware of the physical, natural and cultural resources around their homes, schools and communities
- To develop a sense of appreciation of the importance of these resources to the students and their communities
- To impart to learners, basic skills necessary for healthy living and the conservation of natural and made / built resources around their home, school and community
- To impart basic knowledge and skills that will promote the desire to conserve and preserve environment and its finite resources from the dangers of over-exploitation, waste and pollution
- To acquire skills of inquiry, critical thinking, and problem solving. (Government of Botswana, 2002).

The curriculum places more emphasis on making schools to become advocate agents in changing and moulding students' behaviour and action towards the environment. In view of this, schools have been mandated with the responsibility of developing social and moral values towards their environment (McColough and Kethoilwe, 2000). Introducing a new subject in schools, called Environmental Education was considered not feasible, as the school time-table is already over-crowded. Therefore, the Ministry of Education took the infusion approach in which EE is infused mainly into Social Studies and other subjects. This approach has had its own problems as EE is still at its infancy in the curriculum. Problems include teachers who are not yet competent in dealing with the subject, lack of resources, time constraints as well as the fact that the subject is not examined among others.

This study focused on using an informal approach through the school civic clubs to address some of the pertinent environmental issues in the country. The Botswana Vision 2016 has also placed a strong emphasis on the major five principles (development, democracy, self-reliance, unity, and the botho) (Government of Botswana, Vision 2016). If these objectives of education are to be realized, a major strategy based on research should be put in place.

Why Environmental Education through Civic Clubs?

Citizenship education and environmental education are intimately related and their connection allows students to understand how their actions can influence their environmental welfare and that of their communities. It is hoped that the clubs will therefore foster in students, solutions to the existing lack of civic and environmental responsibility in the society. Environmental education can provide a vehicle for engendering responsible citizenship, through the utilization of several instructional models and guidelines that have always been in use in

the field of education. It has been argued that there are already some subjects in school that teach aspects of environmental education, why then do we need another programme of this nature. The answer to that is, whereas in all these subjects emphasis is placed on theoretical learning, in the approach being proposed here, pupils will be able to put what they have learnt into actions through various civic club activities.

The literature includes many kinds of indictments of the current state of citizenship and environmental education, and some of these are:

- Lack of genuine participation of pupils in meaningful projects, where there has been emphasis more on rhetoric rather than meaningful practice, which should be their fundamental right of citizenship (Hart, 1992; Barrat, Barrat & Scott, 2007; Stevenson, 2007).
- Generally, citizenship education has been neglected; it has been assigned a low curriculum priority; and student outcomes are frequently not specified (Boyer, 1990; Goodlad, 1986). Specifically, Goodlad (1986) writes “one of the most surprising shortcomings of the curriculum planning process is the general absence of any continuing, sustained appraisal of what is essential for young people to learn”.
- Lack of meaning – often, teachers’ present isolated facts devoid of any context that might give meaning to those facts (Goodlad, 1986; Newmann, 1989).
- Irrelevance- teachers do not typically connect classroom content to students’ life experiences or to contemporary issues of interest to them.
- Limited, Shallow Text Content- Most social studies texts used for citizenship education are restricted in their content, superficial in their treatment of subject matter, and presents facts devoid of their context (Avery, Bird, Johnstone, Sullivan & Thalmmer, 1992).

Other deficiencies in the current way citizenship and environmental education is being taught in schools presently as documented in literature are: passive learning, lack of training in thinking and process skills, lack of focus on pupils’ rights, teacher control, student obedience, low quality curriculum, text-bound instruction, inappropriate assessment etc. Generally, researchers and other writers also express considerable dismay over the inadequate preparation of teachers for providing citizenship and environmental education and the insufficient support provided by schools. On examining the social studies teachers who are mainly expected to provide adequate explanations in key issues, according to Kickbusch’s (1987) in his classroom observational study reveals “a paucity of teaching skills with which to support civic education goals”.

Nearly all writers in the subject of citizenship education agree that the subject is essential for preserving a country’s democratic way of life. Indeed, they often remind us that the main purpose of schooling is the preparation of competent citizens (Centre for Civic Education, 1994).

Citizens, in order to be effective, need to act from respect for the common good; that is, they need to be willing to discuss about the nature of what is good for the public and how to achieve it. They also need to have compassion, ethical commitment, social responsibility and some interdependence among people and between people and their environment (Adler, Luhn, and Philbim, 1993, Pereira, 1995). Effective civic education influences students in such a way that they believe in the benefits of civic participation, are interested in participating, and have a feeling that it is their responsibility to participate (Angel, 1991, Hoge, 1998) and play an active role in generating solutions for existing problems within their environment. Competent citizens require skills in higher-level thinking, critical reasoning, problem-solving, perspective taking, divergent thinking, constructing hypotheses, and evaluating evidence (Berman, 1990). It is unrealistic to expect children to suddenly become responsible

adult citizens without prior exposure to the appropriate knowledge and skills which foster competence to participate in the day to day management of their immediate environment (family, school, neighbourhood and community) (Hart,1992).

The obligation and right for children to be involved and engaged in civic responsibilities and decisions about matters that affect their lives is firmly enshrined in the United Nations Convention on the Rights of the Child, The CRC according to Graham, Whelan & Fitzgerald, (2006):

...principally enshrines children's participation in all matters affecting children. Therefore, State parties must take all appropriate measures to ensure that the concept as rights-holders is anchored in the child's daily life from the earliest stage...State parties should take all appropriate measures to promote the active involvement of...schools and communities at large, in the promotion and creation of opportunities for young children to actively and progressively exercise their rights in the everyday activities (Recommendations issued by the Committee on the Rights of the Child during its 37th Session in Geneva on 17 September, 2004).

The basic premise of the Civics Clubs is that the citizenship consciousness attained will hopefully equip members with the knowledge and skills needed to engage them as active environmental citizens and that this will be transmitted through ripple effect to others in the school, in homes, the neighbourhood and finally across the community. Through the involvement of club members, awareness campaigns on citizenship and environmental issues will hopefully be used as an effective mode in bringing change and improvement in their own environment and communities now and in the future.

The Current Study

The conceptualization of this study was based on a recent study carried out by Obol, Allen & Bach (2003) on an audit of environmental education policy in Southern African countries. With regards to Botswana, the researchers remarked thus: "Botswana has no overall environmental education policy" (Obol, Allen & Bach, 2003, p. 26). However the Botswana Vision 2016 for Environmental Management calls for an informed and environmentally educated nation that will manage its resources in a sustainable manner. In addition, there was the EE guideline developed by the Government of Botswana, in 2002 for primary, secondary and tertiary institutions which forms the framework upon which the EE curriculum is designed. Obol et. al, (2003) went further to note that in Botswana the infusion approach was adopted in primary school education, where environmental education concepts were infused into the school curriculum across subjects. It should be noted that the infusion approach was adopted because the time-table is already overcrowded. Apart of lack of support for teachers teaching this content, another major problem facing the approach presently is that teachers lack the requisite knowledge on the infusion approach and consequently, the impact of EE is not reflected on the pupils' knowledge, attitudes and practices (Ajiboye & Silo, 2006)

Hence the study was conceptualized to use an informal approach through an intervention programme to educate primary school pupils in Botswana on EE. School Civics Clubs were established in ten primary schools in Botswana as part of a project funded by the Office of Research and Development (ORD), University of Botswana. The project focused largely on citizenship education. The clubs' activities included: raising funds for transport to visit various environmental sites, making compost for use on school vegetable gardens, cleaning campaigns within school and immediate communities, field visits clean classroom competition, etc. Also, both direct teaching and participatory approaches in introducing EE concepts

and issues to the learners were used in implementing those activities. Two hundred pupils were randomly selected from the entire club membership to participate in this EE related component of the research and their EE-related knowledge and attitudes were compared with another two hundred who were not members of the Civics Clubs from those schools not involved in the project. The essence of using non-club members was to succinctly determine the impact of the club activities on the EE-related knowledge and attitudes of the pupils. Three research questions were raised to guide the study. They are:

- 1) Will there be a change in the EE-related knowledge and attitudes of pupils as a result of their participation in the club activities?
- 2) Will there be a difference in the EE-related knowledge and attitudes of club member and non-club members?
- 3) Will the pupils' gender influence their knowledge and attitudes of the EE concepts and issues?

A questionnaire tagged "Pupils Environmental Knowledge and Attitudes Scale" with 20 items was used to collect data for the study. This instrument was adapted from Mansaray and Ajiboye (1997) and reflects issues treated in this study such as: compost making, desertification, littering, waste disposal and management, refuse collection, etc. While the first ten items measured the pupils' EE-related knowledge of the EE concepts, the other ten items were yes or no items designed to measure the pupils environmental attitudes. Although the instrument was validated by the initial authors, it was again administered on a small sample of pupils not involved in this study for the purpose of revalidation. The reliability of the scores obtained was tested using the Kuder Richardson Kr21 formula, and a reliability coefficient of 0.89 was obtained. With those pupils who were members of the Civic Clubs, the questionnaire was administered before and after the intervention activities, whereas for non-club members the instrument was administered on them once. The administration of the questionnaire on the non-club members was necessitated to give effect to the findings, to enable the researchers confirm that truly the difference found in the pre and post test scores of club members was actually due to the treatment given. The non-club members needed not be given a pre-test, because they were just used as control. The questionnaire was administered on four hundred pupils in all, with 196 boys (i.e. 48.7 %) and 204 girls (i.e. 51.3 %). Data collected was analyzed using mainly descriptive statistics and t-tests and the findings are presented below.

Results

To determine the difference in the club members' EE-related knowledge before and after the intervention, a t-test comparison of their knowledge scores was calculated and the summary is presented in Table 1.

Table 1. T-test comparison of club members EE-related knowledge.

Group	n	X	SD	t	P
Before Intervention	200	11.6	2.28	-59.94	.001*
After Intervention	200	24.66	2.95		

*Significant is at $P < .05$

It could be observed from Table 1 that there was a change in the students' knowledge of EE concepts and issues due to the intervention activities, and in fact this difference between the pre and post knowledge scores was found to be significant. With regards to students' environmental attitudes, it could be reported that before the intervention, about 56% of the pupils demonstrated positive attitudes to the environmental issues examined based on their responses to the items on the attitudes scale, whereas, after the intervention, the percentage of those with positive attitudes rose to 87% of the sample. The results obtained here indicate the effectiveness of the club activities in promoting EE-related knowledge and attitudes as there were significant changes in the pupils' knowledge and attitudes scores due to their exposure to club activities.

However to really ascribe the changes in knowledge and attitudes observed in the pupils to the club activities, a comparison of the club members and non-club members knowledge and attitudes scores was carried out, and the summary of the findings is presented in Table 2.

Table 2. T-test comparison of EE knowledge scores of club members and non-members.

Groups	n	X	SD	Df	t	P
Club Members	200	12.33	3.70	398	-10.46	.001*
Non-Club Members	200	7.37	3.57			

* Significant at $P < .05$

It could be observed from Table 2 that pupils who are members of the civic clubs obtained a higher EE knowledge scores than their counterparts who were not members of the clubs. This clearly demonstrates the effectiveness of the Civic Clubs in promoting good EE knowledge and attitudes among primary school pupils. A similar result was obtained with respect to EE attitudes of the two categories of pupils, with about 56 pupils (i.e. 28%) of those who are members of the clubs indicating some negative attitudes on the questionnaire while 172 (i.e., 86%) of those who are not members of the Civic Clubs demonstrating poor attitudes on the attitudes scale. Findings on the attitudes scale actually complement the results obtained on the knowledge scores. With regards to pupils' gender and their knowledge of EE, the findings are presented in Table 3.

Table 3. A comparison of male and female EE-related knowledge.

Group	n	X	SD	Df	t
Male	196	11.35	3.78	398	1.55 ^{ns}
Female	204	10.58	4.69		

ns = not significant at $P < .05$

It could be observed from the results in Table 3 that although there is a slight difference in the mean scores of male and female pupils, with the boys having a higher mean score, however, the noticeable difference was found not significant. This indicates that gender has no effect on the EE-related knowledge of the pupils.

Discussion

The result on the assessment of the relationship between the involvement of students in Civics Clubs and their understanding of environmental concepts showed that the pupils performed very well in the knowledge test. The implication is that the pupils sampled do possess the necessary knowledge that will enable them to contribute positively to the plethora of environmental problems prevalent in the country. The good result may be attributed to the fact that environmental concepts like pollution, afforestation, deforestation, ecology, etc are well discussed in the club, no wonder the pupils who are non-club members performed poorly in the knowledge test. In addition, pupils who are club members do attend meetings and workshops on environmental related issues where their knowledge on environmental issues is widened, deepened as well updated. The outcome of the findings on the relationship between the involvement of pupils in Civics Clubs and their understanding of environmental problems indicated that pupils are well aware of some environmental problems. This is clearly shown in their response to some specific questionnaire items where a majority of the pupils strongly agreed with the following statements on environmental problems:

- Human beings cannot do without producing wastes.
- Plastic containers might cause problems to the environment
- Mining can cause problems to the environment
- We are all guilty of polluting our environment.

However, from the results obtained, over 87% of the respondents often throw their garbage in the open. This is so because according to them, the outlets for solid wastes are sometimes not readily accessible. The disposal of such wastes therefore becomes a serious problem that requires urgent attention. Findings on the assessment of the relationship between the involvement of pupils in Civics Clubs and their attitudes towards environmental issues revealed that pupils who are members of the clubs demonstrated a positive attitude towards most of the salient environmental issues discussed. More than 80% of the pupils strongly agreed with the following statements on environmental attitudes:

- For a healthy life, humans should be concerned with the quality of air, water and food.
- Instead of talking more about environmental problems, we should be more concerned about prevention of environmental problems.
- Membership to Civics Clubs should be compulsory for every pupil in my school.

The analyses of the responses of pupils showed that beliefs and value system have strongly influenced their attitudes to the environment. Still on our findings, there is no significant difference between the mean scores of male and female pupils; although boys had a slight better knowledge of EE concepts over their female counterpart. However, most of the respondents (those in the Clubs) irrespective of gender, demonstrated positive attitudes towards the selected environmental issues and problems. Lastly in the findings on relationship between attitudes of club members on environmental issues and those of non-members indicated that the pupils who are club members have positive attitudes towards most of the salient environmental issues while those pupils who are not members of the clubs have a negative attitude towards most of the salient environmental issues.

Furthermore, findings obtained from this study could be ascribed to the methodologies adopted in implementing the civic club activities. The project was largely participatory in nature, and this afforded the pupils the opportunities of being involved in designing and implementing the environmental information, communication and technology (ICT) activities

that they considered relevant to their needs. This is quite opposite to their normal classroom situations which is largely teacher dominated. The rationale is that when pupils are given the chance to select their own environmental activities, they get more involved and learn better than when these activities are imposed by an adult, in this case their teachers. Another quick related rationale is the fact that schools do not seem to have specialized EE programmes, because the infusion approach adopted by the Government, makes those environmental education concepts moribund in the carrier subjects. Hence, it was difficult for the learners to easily grasp those environmental concepts. Whereas in the civic clubs experimented with, the focus was on citizenship and environmental issues mainly. This may explain why the learners in the civics clubs actually performed better than their counterparts that were not exposed to the club activities.

Within the school context, pupils' attention is focused on many subjects and their aim was towards passing examinations. This is unlike the free atmosphere provided by the civics clubs. Here, the pupils are more relaxed and free to make a choice of what they do and learn. This is in line with the findings of Kennelly, Taylor and Jenkins (2008). According to them, teachers interviewed unanimously believed that meaningful engagement of, in the sense of students becoming involved and gaining ownership of a project, was associated with student motivation. They noted further that to engage and motivate students, most teachers stressed the importance of involving them in every stage of a project, not only the action phase but also the phases that involved identification and decision-making. This was what was done in this study where the pupils were involved in all the club activities throughout the project IEC activities. The pupils determined the activities they wanted and took decisions on how to accomplish them. It is also important to stress that similar findings obtained from the citizenship component of the project was also ascribed to the bottom-up approach adopted in the study as against the top-down approach found in most school classrooms in Botswana (Ajiboye, 2008).

Conclusion

The nexus between environment and citizenship training explored in this study seems very innovative and the success recorded in the project is remarkable. It is therefore recommended that this approach be sustained and replicated in other settings both locally in Botswana and in other countries. A curriculum for sustainability in a civil society would locate environmental citizenship among its primary objectives. This requires a revision of many existing curricula and the development of objectives and content themes, and teaching, learning and assessment processes that emphasize moral virtues, ethical discernment, learning how to learn, reflection, creativity, civic mindedness, motivation and abilities to work with others to help build a sustainable future (Fien, 2000). Hopefully with these findings, the formation of community civic and sustainable development clubs by youths will be done beyond the school in order to pursue environmental citizenship in their greater communities.

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