



## ENVIRONMENTAL EDUCATION IN ZIMBABWEAN SECONDARY SCHOOLS: 'GREENING OR TRANSFORMATIVE SOCIAL CHANGE?'

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### ABSTRACT

*The paper sought to appraise the practice of environmental education (EE) in secondary schools in Zimbabwe. It tries to establish whether it has any transformative impact on the behavior of teachers and pupils towards the environment through an assessment of their actions on the immediate school and the outer wider community. The study targeted teachers in secondary schools around Gweru peri and urban. Transformative impact of environmental education in secondary schools was assessed using the systems thinking theory and social critical theory to analyze the role of learners and teachers in the development and maintenance of school grounds, bringing about awareness to other members of the school community as well as the role of pupils and teachers in the community as indicators of transformative social change. 100 teachers in Gweru peri and urban secondary schools participated in the study. A questionnaire was used to gauge the pupils and teachers' actions to find out whether they have developed pro-environmental behavior as a result of environmental education practice in the schools. Results show that what is going on in the schools under the guise of environmental education is mere 'greening' of the curriculum which takes more of a factual stance of environmental education at the expense of action competence. They do not lead to transformation of communities, pupils and teachers as shown by their limited action in solving practical environmental problems in the community's context. Environmental education practice in the schools must be applied in solving problems of the community and promote the understanding amongst students on how to solve practical environmental problems in the students' context. Study also recommends that teachers need to model pro-environmental behavior, forge partnerships with other environmental stewards such as community members and other organizations concerned with environmental issues.*

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**Keywords:** Environmental education, 'greening', Transformative social change, Action competence

## Environmental Education: Meaning and Scope

“The great aim of education is not knowledge, but action” (Herbert Spencer). This paper sets out to assess the extent to which environmental education in Zimbabwean secondary schools is promoting action in the school as well as in the community. But, before that the paper will give an overview of the concept environmental education. Environmental education is a debatable concept that means different things to different groups of people. The concept of environmental education like the concept of environment has evolved since its inception. Originally, it was viewed as a study of nature, but, when it was realized that changes in the socio-economic field have an impact on the environment and vice versa (Awan, 2013). This recognition led to a shift on the conception of environmental education to include a study of the social, political and economic dimensions in addition to the biophysical. White (2004) defines environmental education as an interdisciplinary and holistic form of education that is geared towards action and change, which promotes the use of participatory learning, learning by doing and action based methodologies. Shava (2003) noted that, environmental education includes the varied learning processes that provide opportunities for people to learn knowledge, skills, and attitudes that enable them to act out within their community in an environmentally responsible way. Environmental education is a range of educational processes through which we respond to environmental issues in order to foster change in the direction of community life in a healthy environment. The two definitions above show, that, EE is a process, an unending series of activities or interactions between learners, educators and the larger community, which provides opportunities for learners to find out and share environmental information. Learners are engaged in a process of knowledge creation and take responsibility to manage the environment. It is a response to risks, issues and problems arising from the biophysical, political, economic and social components of the environment. Huckle (1991) identifies three characteristics of education for the environment. Firstly there is a shared speculation with pupils on those forms of technology and social organization that enable people to live together in harmony, as people and, with the natural world. Secondly environmental education is seen as a form of praxis in which teachers and pupils seek to democratically transform society through reflectively constructing and re-constructing their world and thus thirdly, developing critical and active citizens who are able to bring about the transition to sustainable development. The underlying assumption being that environmental education must empower learners. It is a form of education anchored on the emancipatory mold. Fien (1993) on the other hand identifies three discrete forms of environmental education which are *education about the environment*, *education through the environment* and *education for the environment*.

Education about the environment entails dissemination of knowledge about natural systems, the ecological, economic and political factors that influence decision making about the environment. Focus in this type of EE is more on students’ understanding of factual concepts about the environment. Education through the environment involves use of learner centered methodologies so that learners get practical experience in the environment. It provides learners with what Fien (1993) term an appreciation of the environment through direct contact with the environment. It uses

students' experiences in the environment as a medium of education. This type of environmental education although it uses learner centered approaches it seldom challenge learners to take action for sustainable living(Le Roux, 2000),hence these two types of environmental education practice are taken in this paper as *mere' greening'* of the curriculum while education for the environment which recognizes the importance of action competence and uses a critical approach to education is taken in this paper as a type of environmental education that can bring about transformative social change. Transformation as applied to social change is a process through which who we are, individually or collectively is changed so deeply that the following are altered: identity, behavior towards the environment, actions and creativity. Transformative social change can only occur if members of society through learners are aware of their default condition thus requiring a sustainable relationship of the learning in schools with the whole web of life that includes the community, students and other organization that are geared for community stewardship. Transformative learning is a type of learning that is deeply engaging and touches deep levels of values through a process of realization and recognition.Sterling (2003), argues that such type of learning gives rise to a heightened relational sensibility and sense of ethical responsibility. Transformative learning involves learning processes that are oriented towards change. Teweroviki Teaero in Johnston and Carter (2007) underlines that transformative education is a process that brings about deep and significant changes for the better in an individual and ultimately culminates in similar changes at the societal level principally brought about through innovative and creative teaching and curriculum reform and appropriate policy at the school level.

## BACK GROUND

The world's first intergovernmental conference on Environmental Education(EE) was held in 1977 and was convened in Tbilisi, Georgia (USSR).One of the aims of EE as recommended in the conference was to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological ,physical ,social ,economic and cultural aspects, and acquire the knowledge, values and practical skills to participate in a responsible ,effective way in anticipating and solving environmental problems, and in management of the quality of the environment. This educational practice calls for transformation of society. This shift in the focus of education can only be realized if schools aim to transform the learners they are in charge of as well as the communities that they serve. As the international community considers EE as a core value in education, there is a need to contemplate whether its practice in the schools is bringing about the desired transformative social change. It is against this realization that this study seeks to appraise the transformative potential of EE practice in secondary schools in Gweru, Zimbabwe. Many studies on the implementation of EE have been conducted the world over.Pace (2010)conducted an evaluation of the action research project aimed at exploring the impact of transformative pedagogies on Pre-service teachers following an EE programme offered at the University of Malta. Pace found that development of an environmental ethic is dependent on the trans-disciplinarity, wide conceptualizations and a pedagogy that is primarily

learner centered, these results were also confirmed by Feng (2012). (Rioux, 2011) looked at how the collection of used batteries by secondary school pupils promotes pro-environmental behavior and found out that the young people's behavior can be predicted by ethical (pro-environmental values), affective (neighborhood attachment) and cognitive (perceived behavioral control) variables. Misfud (2011), looked into the environmental attitudes, knowledge and behavior of Maltese youth. Misfud found out that, students are more knowledgeable about the global environmental issues more than about the local environment because they received most information through school books and the internet. Uri (2011) looked at how to teach in a way that leads to thinking for sustainability. All these studies although they expose some defects in the teaching of environmental education they did not look at the impact such a teaching model has on the surrounding environment, thus, announcing a point of departure with this study which sought to evaluate EE in Zimbabwean secondary schools to find out the extent to which its practice brings about transformative social change of the learners, teachers, their immediate environment and the surrounding communities.

In Zimbabwe the Presidential inquiry into education and training in 1999 recommended the integration of EE in the school curriculum. Important milestones for EE in response to the recommendations of the commission worth mentioning here include the development of the National environmental policy (Zimbabwe, 2004) through a multi stakeholder consultative approach which took place between 2000 and 2004 (Van Ongevalle *et al.*, 2011). EE in action in Zimbabwe has been developed to influence policy. Policy implementation processes included integration of EE in all learning institutions at various levels. Since these recommendations in 1999, little research has been done to evaluate the implementation of EE in schools. Realizing this dry spell, this study was conceived and it sought to evaluate the practice of EE in Zimbabwean Secondary school, specifically looking at the situation as it obtains in Gweru peri and urban schools to assess whether it is bringing about transformative social change of pupils, teachers and other stakeholders in the community or not.

### **Theoretical Framework**

The study was informed by the social critical theory in education and system thinking theory. Secondary school teachers and students are members of society who through critical action in communities may come up with what Huckle (1983) called a fairer and less troubled world in which to live. Social critical orientation in this study allows for probing impacts of environmental education on the schools' and communities' environmental and sustainability problems. Critical perspective entails questioning appearances and taken for granted practices, probing assumptions and implications. Taken for granted practices such as the supply of waste bins/pits, gardens, orchards among others will be probed to find out whether teachers realize the importance of these in relation to what they teach in the classrooms. Establishment of a school garden, for example should make meaning to all teachers involved in EE. For example a food and nutrition teacher can use the garden to introduce a topic on healthy foods, while a science teacher can use the same garden to teach about an ecosystem. Teachers of all subjects should find use of such places as they

can act as place based pedagogical areas to teach different concepts depending on the innovativeness of the teacher concerned. Social critical theory is used as a framework in this paper because it concerns itself with a critical understanding of and an informed commitment to the improvement of society, what the author refer to as transformative social change of the society. Social critical pedagogy seeks to empower students to participate in the democratic transformation of society. Systems thinking theory is used to provide insight into not only, how learning occurs within a participatory educational programme like environmental education but also into the relationship between such educational programmes and the broader community (Sterling, 2004; Krasny and Tidball, 2008). In this study systems theory is used to find out how implementation of environmental education in the schools has impacted on teachers, pupils, the school and the larger community where the school is situated so as to suggest an ecology of EE that act in consort with other community initiatives because learning is a social process which occurs when individuals are engaged in social activities not passive development of pro environmental behavior. Vedak and Pandey (2010), argue that systems approach can offer a perspective more useful than an analytical approach because the systems view allows for thinking in terms of connectedness, relationships and interactions.

O'Sullivan (1999) suggested that a radical shift in education is necessary if we are to create change agents who can put an end to the current ecological crisis. He saw the ecological crisis as a cue for shifting educational priorities towards a transformative direction. For this purpose EE should provide a wide range of practical skills required in the application of the effective solutions to environmental problems and to carry out such tasks. EE has to bring about a close link between educational projects and real life, building its activities around the environmental problems that are faced by particular communities. This can only be achieved first if the behavior of individuals, especially learners, educators and community members are changed.

Wals *et al.* (2008) distinguished between two types of learning in EE: emancipatory or instrumental. Emancipatory focuses on personal growth while instrumental focused on environmental behaviors. These two types of learning can be achieved if EE aim to develop the whole human being and seeks to anchor sustainable lifestyles in strong emotional, ecological, ethical and political foundations. These foundations need to be established through a learning process that is constructive, building upon the ideas and the life world of the learner, critically challenging underlying assumptions and value claims, and it has to be transformative, changing lifestyles through the development of action competence and learner empowerment. Transformative learning in EE can be strengthened and supported through the use of teaching methods such as action research and community problem solving, active learning; practice centered learning approaches and critical approaches to learning (Jensen, 2002). Attitudes and behaviors of individuals are frequently molded after the attitudes and behaviors of others. Since children spend most of their day time in school buildings, a coordinated school environmental programme that focuses on preventing and solving environmental problems at the school site can provide an

excellent model of attitudes and behaviors for young people to emulate. One important goal of environmental education must be the development of an environmental ethic in all members of the school community and the application of that ethic when making decisions that affect the school. This assertion implies that the school has to 'walk its talk'.

(Doppelt, 2003), suggest that behavior change for sustainability is the articulation of a clear vision based on values that are linked to behaviors and strategies. Basing on this argument this study will measure the schools' commitment to transformative EE by establishing whether the schools have environmental education policies for it is thought that a school policy on EE can help the school in articulating a clear vision that can engage all people in the school in environmental behavior. Short (2010), argues that environmental educators must do more than simply teach about the environment but must prepare citizens with the knowledge and skills needed to actively address the world's environmental concerns. Heimlich and Ardoin (2008), subscribe to this view by suggesting that education entwined with action is an invaluable means of encouraging behavioral change. This evaluative study will therefore look at how these schools are involved in community activities under the flagship of EE to bring about transformative social change of learners, teachers and communities. Research has also shown that, students learn from the actions of their reference groups such as parents, peers, teachers and practices of their schools (Higgs and McMillan, 2006). Pajares (1996) noted that meaningful contribution by student can motivate them to apply their education to personal behavioral changes. Environmental education committee, clubs, school-based environmental policies and the act of determining the school's ecological footprint can be a measure of the teachers and the schools' commitment about what they teach. Helena Noberg-Hodge in Johnston and Carter (2007), notes that our students learn good things about the environment but the rest of the school community (their other teachers, administrators, staff, and parents) must reinforce and value the students' integration of that learning into other subjects. This is possible only if the school community itself is aware of the environmental and sustainability issues. This implies that EE in schools should be for everyone including the ancillary staff so that what is fostered to the learners is reinforced by all stakeholders in the school.

Pace (2010), argues that development of an environmental ethic depends on the trans-disciplinarity, wide conceptualization and a pedagogy that is primarily learner centered. This implies that educational institutions need to create what Moore (2005b) calls space for pedagogical transformation that supports transformative and trans-disciplinary learning. This is not only physical space, but, also time for learners to engage in reflection and dialogue. This implies that action competence and other methodologies that foreground democratic learning processes are important dimensions of transformative learning as they have the potential to enhance agency and capability. The ability to reflect on action and change the same action as a result of reflection and critical thinking are crucial aspects of transformative learning, hence, the key activities towards the attainment of transformative educational practice are action competence, lifelong learning, reflective practice, critical thinking and constructivism (Mokuku *et al.*, 2005). All this can be

achieved if educators and learners are engaged in collaborative community projects with members of the community as a response to community concerns. This practice will enable teachers and learners to engage in collaborative reflection, lifelong learning and learning from direct experience. This is feasible if methods such as community problem solving methods and action research, active learning, practice centered learning are used to address local environmental issues and risks.

Ferreira (2001) stresses, the need to use action research which includes audits, impact assessments and participatory appraisal as action taking methods that promote education for the environment. Action research helps learners to cooperate with the community in solving environmental issues. If people are aware of the need for and the ways of protecting the environment, they will act to preserve it, schools therefore, should assume responsibility for educating about environmental protection. These transformative techniques transform learners and therefore classes and communities into inquisitive, reflective, experienced and critical thinking individuals which is the basic unit of transformative social change. Van Rooyen and de Beer (2006) subscribes to this notion by arguing that education for the environment promotes heuristic and issue-based learning which aims at insights, values, attitudes and skills for sustainable lifestyles. When this point is reached it means transformative social change has been achieved. Relying on the recommendations of past researches, literature review and the identified theoretical framework the study sought to evaluate the practice of environmental education in the schools to find out the extent to which it is bringing about transformative change of the learners, teachers, schools and the communities concerned. The major question raised by this study was: To what extent are EE initiatives and practices in secondary schools in Zimbabwe bringing about transformative social change of pupils, teachers, schools and communities? In coming up with a response to this research question the study sought answers to the following questions:

1. To what extent are teachers and pupils participating in solving the school's environmental and sustainability problems?
2. What centres are found in the school premises and in neighbouring communities that indicate action competence of teachers and pupils?
3. In what ways are teachers and pupils engaged in community environmental and sustainability problems?

### **Research Design**

Paper used a combination of descriptive survey design and naturalistic method to find the state of affairs about the practice of EE. The survey and naturalistic designs were useful in getting responses to the same questions from a number of teachers on their EE practice. Surveys involve the selection of a sample of respondents and administering questionnaires or interviews to gather information on variables of interest (McMillan and Schumacher, 1993). Survey method is the most appropriate approach to gather factual attitudinal data about self-reported beliefs, opinions values, motives, ideas, habits, feelings, characteristics, present or past behavior (McMillan and

Schumacher, 1993; Robson, 1995; David and Sutton, 2004). Since the present study sought to obtain descriptive and self-reported data from teachers about their practices of EE. The survey design was the most appropriate as it enabled the researcher to establish the characteristics of environmental education offered to pupils in Gweru urban and peri urban secondary schools under the flag of EE. Aim of a survey is to obtain information that can be analyzed to extract patterns and to make comparisons (Bell, 1989). Survey allows the researcher to expose the respondents to a set of questions, and to allow comparison. Due to the nature of the study self-evaluation by teachers filling up questionnaires about their EE practice was done and it was possible to reach a greater number of teacher respondents, thus making the sample more reliable as the sample size included more representatives from the target population. The survey method assumes that all respondents in the study have information or experience that bears on the problem being investigated (Dean *et al.*, 1982). Through the survey method, the researcher gathers data from a relatively larger number of respondents (Babbie, 1992; Gray, 2004). In this study the researcher managed to gather data from 100 teachers in Gweru peri and urban secondary school teachers. McMillan and Schumacher (1993) add that if surveys are correctly done sound information can be collected from a small sample that can be generalized to a large population. That is, the design permits the researcher to employ *inter alia*, random probability samples which facilitate the generalizability of results to the target population.

### Setting

Gweru is the third largest city located in the central province of Zimbabwe known as the Midlands province and is the capital city of the Midlands province. It is the city near the center of Zimbabwe at 19° 25' S and 29° 50' E. There are 16 Secondary schools in Gweru urban and peri urban which are not homogeneous as they can be classified into the following categories: Urban boarding government schools, urban day secondary schools, day peri urban schools and church boarding schools. As a central province, Midlands was chosen as the research locale because it has a pool of the different types of schools and teachers trained in various institutions across the country who are assumed to have a varied understanding of environmental education practice from their training as well as from the communities that they could have worked in. Teachers were chosen as respondents because they play a pivot role of educating students on EE.

### Sample

This study targeted all secondary school teachers in Gweru peri and urban because teachers are in the fore front in the teaching of environmental education hence they are well placed on what is happening in the schools as well as being in a better position to give a full account of their practices, habits, and on what they do with their pupils under the flag of EE that can aid the researcher to make an evaluation of whether what they are doing has a transformatory impact or not?. Sampling criteria used was stratified sampling followed by judgemental and simple random sampling. Stratified sampling ensured adequate sample size for subgroups of interest. Simple random sampling on the other hand ensured that each school had an equal chance of being selected



and therefore avoided bias. Schools were first of all categorized into urban and peri urban schools. In each of the category the schools were further stratified as boarding and day secondary schools. Judgemental sampling was then used to eliminate certain schools. All schools whose teachers participated in the pilot test of questionnaires were left out. The remaining schools were then written on pieces of paper which were then placed in small boxes, papers were thoroughly mixed. Three separate boxes were created as follows: urban boarding schools, urban day secondary schools, peri urban boarding schools. No box was set aside for peri urban day secondary schools because one teacher in the pilot sample was from the only one day secondary school in the peri-urban. Selection from the boxes was then random. Pieces of paper were picked one at a time without replacement from each box. Two schools out of a total of 5 urban boarding secondary schools were selected from the box containing urban boarding schools. Three from the box of day urban secondary schools were selected based on the researcher's judgment as these were many as compared to other types of schools; it was felt by the research that taking 3 out of the 6 day secondary schools will give a true representation of these schools. Two boarding schools out of a total of 4 in the peri urban were selected; one was a government boarding school and a church boarding school. 7 of the 16 secondary school in the study area delineated by the researcher to be Gweru urban and peri urban participated in the study that is almost 44% of the total number of school in this study area. This was a representative sample because according to Gay (1996), for descriptive studies 10% of the population is adequate for sampling. All in all 7 secondary schools participated in the study. 5 of the schools were in Gweru urban and 2 in the peri-urban. A total of 100 teachers of different subjects participated in the study, because it was felt that EE should span all disciplines. They were science teachers (20%), commercial teachers (14%), language teachers (30%) and practical subject teachers (9%) arts and humanities (27%).

### **Instruments**

Questionnaires and interviews are the most commonly used instruments for data collection in survey research (Gall *et al.*, 1996). Questionnaires were chosen for this study because they are relatively economical than interviews because of their low cost in terms of time and money as they can be sent to many respondents at a relatively little cost (Gray, 2004). Researcher was also able to cover a wider geographical area with minimal cost. Questionnaires enable standardized questions to be asked to all respondents hence same information was solicited from the respondents. They also ensured confidentiality and anonymity as it allowed teachers to self-report about their EE practices with little intrusion by the researcher, and moreover questions can be written for specific purposes'' (McMillan and Schumacher, 1993). This enabled the research to ask specific questions to evaluate the practice of EE in these schools. Furthermore respondent get something in written format and usually respond in written format (ibid) thus providing a permanent record of the information that can be revisited if need be. Questionnaires were used because it reduces bias that might crop in from the personal characteristics of the interviewer. There is also greater anonymity which is associated with the absence of an interviewer (Nachmias and Nachmias, 1996). Anonymity increases the chances of genuine information. In this study respondents were not asked to identify

themselves, hence chances of getting accurate and sensitive information were very high. Questionnaires are limited in that they do not allow the researcher to probe deeper into the respondent's feelings and opinions (Gall *et al.*, 1996; Nachmias and Nachmias, 1996). This was however overcome in this study by the inclusion of open ended questions as a follow up to close ended questions. Open ended items exert the least amount of control over the respondents, they have a potential for richness of responses and allow the respondents to give his or her own answer rather than simply agree with the researcher (McMillan and Schumacher, 1993; Gray, 2004). Questionnaire intended to solicit information on the practice of environmental education were designed by the researcher based on literature. Both open and close ended question were included.

### **Data Collection**

Permission to conduct the study was sought from and granted by the Provincial Education Officer resident in Gweru and after it was granted the researcher pilot tested the questionnaire beginning February 2012 using randomly selected teachers that were known as secondary school teachers by researcher. The main data collection process started towards the end of February up to early November 2012. The researcher visited the selected schools in person to administer the questionnaires to the teachers. Permission to administer the questionnaire to the teachers was sought from the school heads of the schools concerned. An introductory note was attached to the questionnaires explaining the purpose of the study as well as full instructions on the completion of the questionnaire. The researcher introduced herself during break time when almost all teachers were free to give all teachers irrespective of the subject taught to have a chance to participate. Researcher first explained the purpose of the study and then verbally sought for their informed consent. Researcher waited for the teachers to complete the questionnaires to ensure that respondents do not discuss their responses as well as to ensure a high return rate. A total of 110 questionnaires were issued out but only 107 were returned, 7 of the questionnaires were disregarded because they were not completely filled in, bringing the total number of teachers who participated in the study to 100.

### **RESEARCH FINDINGS**

Research findings presentation revolves around the following three themes:

#### **Commitment of the schools to Environmental Education**

To address research question one, question 1 was included in the questionnaire. The question sought to establish the transformative potential of EE by determining the extent to which teachers and pupils are committed to practicing EE principles and goals they teach and learn in the school. This was done by establishing their involvement in measuring their own school's ecological footprint through an audit of their own water, electricity and paper consumption as well as the policies and organizations that have been formed within the school to spearhead and support the

implementation of EE in the schools. The idea of the question was to try and evaluate how EE values have permeated the teachers who are expected to be in the forefront in EE implementation. Table 1 under appendix A gives a summary of the findings. The table shows that EE practice has not transformed members of the school community as the percentage of the responses saying “No” to most of the issues considered cardinal as indicators of transformative social change in EE are on the high scale. This shows limited commitment to the principles and practices of environmental education which is likely to impede the social transformative potential of other members of the school community such as the students and ancillary staff. EE values seem not to have permeated the teachers in particular as they are not taking steps to man and engage other school stakeholders into an environmental ethic deemed necessary to transform individuals and communities. Environmental issues and values seem not to be a center stage in the life of the schools.

### **Availability of Facilities Produced As A Result Of Environmental Education in the School and In the Community**

To assess the transformative potential of environmental education initiatives by way of analyzing the action competence of teachers and pupils on the school premises as well as the local community item 2a.2b, 2c and 2d were included in the questionnaire. Table 2, under appendix B, summaries the findings for item 2a. A follow up question to table 2 required teachers to identify the place based pedagogical areas that were developed by teachers and pupils as a learning activity while question 2b required teachers to identify the centers they think were more likely to promote pro-environmental ethic among members of the school community. Orchards, gardens and science corners were mentioned for question 2a. This shows that students are engaged in action oriented activities in the school. A closer look at the type of sites that were developed through learning activities of learners, they are more aligned to the teaching of science and other environmentally oriented subjects. This is a pointer to the fact that Environmental Education is still conceived as knowledge about the biophysical environment.

For question 2b waste pits, recycling sites and having waste collection sites and bins were mentioned by most of the teachers as those places that are likely to promote a pro environmental ethic among members. When asked to identify places they use for their EE teaching purposes from the list above as well as in the community (question 2d). All were selected for question 2c except waste bins, waste pits and waste collection points. Although the schools have established these centers in their premises teachers were not able to fully recognize their pedagogical value. When asked through item 2d to identify place based pedagogical sites they normal use to conduct EE lessons in the neighboring community, surprisingly enough, community sites where teachers conduct EE lessons were not forthcoming except for established centers like botanical gardens and woodlands. No mention was made of community related problems that were solved or used for EE teaching. This attest to the fact, that teachers are not making effort to use the sites in the communities or solve environmental problems of the community.

### **School-Community Linkages**

To assess the transformative potential of communities through environmental education occurring in the schools, item 3a,3b and 3 c were included in the questionnaire to establish how EE is impacting on the wider community. Tables 3, 4,5and6 in the appendix section summaries the findings. The percentage of teachers who have participated in community awareness campaigns that are related to the environment is a bit worrying because if teachers through their EE activities do not disseminate their knowledge of Environmental education to the community, then EE will remain as an abstraction and not a reality. Question 3b was included in the questionnaire to assess the extent by which teachers participate in shows and exhibits and table 4 under appendix D, summarizes the findings. To assess the transformative impact of EE practice in the schools on the community question 3c was included in the questionnaire and table 5 under appendix E, gives a summary of the findings. To establish the communities of practice involved in EE in the schools and communities question 4 was designed and the findings are summarized in table 6 under appendix F. Tables 3, 4, 5 and 6 under appendices C, D, E and F respectively gives conspicuous evidence that EE practice in the schools is distanced from the community as most of the respondents report that they have not participated in any of the events, neither their pupils. There are also weaker partnerships and networks between the teachers in the schools and other organization that are involved in EE in the larger communities.

### **Discussion**

Environmental education in these schools is failing to bring about transformative social change of the students, teachers, ancillary staff and the wider community due to defects that have been noted in this evaluative study. The discussion, which, ensues below reveals that schools are not transformed through environmental education practices in the schools, as reflected by the analysis done on their commitment to environmental education in their daily practice, use of school and community facilities in the teaching of environmental education, as well as their community linkage

### **Commitment of the Schools to Environmental Education**

The school's commitment to EE was evaluated through a look for transformative practices such as taking the ecological foot print of the school, existence of environmental education focal units in the school such as EE committees and clubs that can model an environmentally responsible ethic as well as the existence of a guiding policy that should be known by all stakeholders in the school. Results in table 1 seem to suggest that little is done by teachers as an indicator of their practice of EE. There is little effort to integrate strategies that address the interdependence between the affective and cognitive dimensions as shown by limited constructive activities such as first -hand experience, learning by doing and involvement in real life issues, for example no effort is put to involve learners in measuring the ecological footprint of their own school by measuring the water and energy consumption of the school. According to [Hsu and Roth \(1998\)](#), action oriented classroom interventions have positive effects on responsible environmental behavior. Previous

studies endorse that EE is less effective when school cultures and practices contradict classroom practices and is enhanced when curriculum is mirrored in praxis (Orr, 1994; Higgs and McMillan, 2006). Policies in place are also not communicated to all teachers as revealed by the number of respondents who indicated the existence of environmental policies (6%). This implies that if the practice of EE is to have an impact in transforming behavior in an organization such as a school a guiding environmental policy is necessary. The school culture also must show a commitment to the teaching and communication of EE. Measuring of the ecological footprint of the school for example, can go a long way in making students, teachers and ancillary staff not only to see and communicate the financial and environmental implications of conservation but also instill a commitment to sustainability. Earlier researches have revealed that teachers can model environmentally responsible behavior for others (Higgs and McMillan, 2006). Establishment of an environmental education committee or club in a school that champion and spearhead environmental issues in the school, for example, can serve as a tool and are in for cement mechanism for transformative EE. They can serve to model an environmentally ethic for one another, ancillary staff as well as their students. Such committees or clubs can also coordinate EE programmes such as exhibits, shows or celebration of important environmental education events.

### **Availability of facilities produced as a result of Environmental Education in the School and in the Community**

Assessment of the school and community facilities was done to gauge the transformative potential of EE practice on the teachers, students, ancillary staff and surrounding community members. These have been seen by earlier studies to be in a position to encourage pro environmental behavior within and out of the school. According to Orr (1994)...”buildings have their own hidden curriculum that teaches as effectively as any course taught in them’ While Higgs and McMillan (2006) argue that materials surrounding in a school can be used to model sustainability education. Findings on this aspect seem to suggest that teachers see EE housed in science than in other subjects as reflected by the type of places they identified as place based pedagogical sites. Responses to item 2a seem to suggest that environmental education is limited to the biophysical aspect, sidestepping the economic, political and social aspects. Place based pedagogical areas in the community were not identified, showing that teachers are not making use of relevant community sites and problems in their teaching. Existence of few recycling dispatch points (15%) and recycling centers within the schools (4%) is an indicator that although teachers are aware of the importance of these in developing an environmentally responsible ethic they seem not to fully identify with these sites in their teaching of EE concepts in the curriculum. The importance of these seems not to be highly appreciated by the schools concerned. Establishment of a recycle center in the school in addition to visual cues such as waste bin and pits in the school can act not only as a communication strategy for the school’s commitment to nurture pro-environmental behavior but can also be more effective in equipping students with the necessary skills and understanding of the alternative methods of keeping the environmental clean. It can also educate students about the recycling programmes and its importance, thus, it can also be an additional area for place based

pedagogy, saving as an educational tool and also a measure of the extent of commitment by the schools to communicate environmental issues. They act as a measure of how EE has permeated individual awareness and action as well as the core cultural values of the school.

### **School -Community Linkages**

Community linkages of the schools were assessed under the involvement of the students in solving environmental problems, dissemination and dialogue of information to and from community members by students, participation in public environmental programmes as well as partnership with other organization involved in environmental issues. This evaluative study looked at how these schools are involved in community activities under the flagship of EE to bring about transformative social change of learners, teachers and communities. The study reveals however, that, for the teachers who were once involved, they were involved as teachers excluding their students. For example some were involved in clean up campaigns with the national movement of catholic students at the Gweru bus terminus, others indicated their participation in the city clean-up organized by Kingdom bank named "go-green", "go clean." It was not an action linked to a topic taught in the classroom. Some were involved in educating the youth on clean-up programmes while others were involved under church initiatives and others were involved as resource persons to raise awareness of communities on the effects of drought and land degradation no mention was made of a teacher and his/her class being involved in the clean-up campaigns thus divorcing what is learnt from reality. Pajares (1996) noted that meaningful contribution by student can motivate them to apply their education and bring about personal behavioral changes as students develop a sense of self efficacy. This study reveals that little is done to help students to develop this sense of efficacy through the involvement of students to address community environmental issues and problems. Short (2010) argues that environmental education must prepare citizens with knowledge and skills needed to actively address the world's environmental concern, while Heimlich and Ardoin (2008) concur to this argument by suggesting that education entwined with action is an invaluable means of encouraging behavior change. Korhone and Lappalainen (2004) suggest that students who experience environmental problems as part of their daily lives will develop greater concern and awareness. EE that includes community engagement by students can therefore lead to consciousness about the existing problems that is likely to raise students' willingness to deal with environmental issues. This therefore implies that providing area-specific, local, hands on experience becomes very important in helping students to develop action competence and critical thinking. These hands on activities should however, not only include effects and causes of environmental problems but need also to focus on insights into possible solutions and alternatives (Jensen, 2002). Real community needs must be addressed while students learn through active engagement (Anderson, 2009) The percentage of teachers who indicated that they have participated in shows is a bit worrying, Only 5% participated while the majority (95%) have never participated, and most of them admitted that they participated in collaboration with the Environmental Management Agency (EMA). Others participated through the Gweru show to exhibit items made from waste paper as a way of showing that instead of waste paper polluting the environment it can be reused. It seems there are no

initiatives from the teachers themselves to disseminate their EE practices to their wide society so as to transform society by equipping members with knowledge, Blantyne and Packer (1996), argue that one important strategy in developing environmental conceptions and beliefs in relation to environmental issues is the constructivist learning approach. This approach emphasizes authentic, challenging projects that include students, teachers and experts in the learning community. Herbeden *et al.* (2001) acknowledges that environmental action through clubs, school participation in the national environmental education policy formulation processes, school participation in environmental expos, commemoration of environmental days are crucial in developing an environmental ethic while Higgs and McMillan (2006) contends that students learn as much from the actions of their reference groups such as parents, peers, teachers and the practices of their school. This implies that involving students in such national events like shows, exhibits, expos and commemoration of environmental related issues such as the Hiv/Aids, health day, 16 days of activism against domestic violence, tree growing days in Zimbabwe, for example, can go a long way in instilling a responsible environmentally ethic.

Few teachers (16%) reported that they were once involved in solving environmental problems of the community. Korhone and Lappalainen (2004) argue that a crucial element of the active participation in EE is dialogue in shared experiences through which environmental conceptions are altered or made. Most of the cited problems were more of biophysical nature as examples such as reclamation of gulleys to correct land degradation and teaching community members on using humus from food waste for their gardens were mentioned frequently. No mention was made of problems of an economic, social and political nature showing that environmental education is still associated with ecological risks and concerns. Research and debates in EE have argued for a paradigm shift in EE that address the social, economic and environmental issues in a holistic and interdisciplinary way (Tilbury, 1995; Sterling, 2001). Schools can also model transformative change to the community through its resource use and community linkages. Only 20% of the participants reported that they are linked with external organization involved in the stewardship of the environment. National waste collection and EMA were the organization that dominated the responses with a flurry reference to church organizations in some instances. Schools need to appreciate that the role of EE in bringing about transformative social change demands a whole systems view which looks at change in the schools that, should lead and support change in the wider society. They must realize that environmental issues are issues of interests to many stakeholders, hence the need to identify with those communities of practice for a concerted effort in solving environmental problems or issues that could be of a biophysical, political, economic or of a social nature.

## CONCLUSION

I contend that although the environmental content of the secondary school curriculum has increased, and place based experiential learning sites exist, most schools in this district are not

involved in social transformative environmental education. Much of what happens in the school under the guise of EE appear as nature study geared towards knowledge acquisition about the environmental risks and concerns which in this paper is called ‘greening’ of the curriculum. EE practice is still too distant from the communities. Collaborative community projects which respond to community concerns and engage learners in collaborative reflection and direct experience are limited, thus impeding the development of pro-environmental behavior which is a prerequisite for transformative social change. The writer therefore concludes that what is happening in these schools in relation to EE seems to be mere ‘greening’ of the curriculum and cannot bring about transformative social change.

### **Way Forward**

Based on the findings of this study the following recommendations are made: For environmental education to have transformative potential, schools should commit themselves to the principle and practice of environmental education by modeling a pro-environmental ethic through its culture, facilities and operations. A clear environmental education policy, establishment of focal units such as environmental education committees and clubs in a school can go a long way in making EE practice have a transformative potential. All individuals in the school must be involved in participatory environmental processes to achieve transformative social change. Environmental education in the schools must not aim to prepare students for participation in the community as it exists, but, it must take initiatives in the community for transformative change by engaging learners and teachers in a process of self-reflective transformation through action competence. All stakeholders that are teachers, students must join other cooperating community agencies in stewardship initiatives. Action competence allows learners to engage with the world by asking critical questions and engage in authentic situations. Environmental education in the curriculum must stimulate social, political, economic and environmental change of nearby communities by changing the community’s consciousness through their activities that must aim for an improved environmental quality. Environmental education must be community-embedded providing students with opportunities to construct working knowledge that is transactional rather than transmission knowledge through action based inquiry in the community. It should involve development of understanding of problems by learners sufficiently enough to develop possible action strategies. Environmental education must provide students with the opportunity to appreciate social reality especially environmental risks and concerns as socially constructed and subject to reconstruction through knowledge application not acquisition as observed by [Peden \(2008\)](#) Teachers must take more responsibility for their own actions in the classroom and school so that learners and communities can emulate them and moreover their practice of EE must aim to challenge communities to create alternatives. Partnership and networking with other organization dealing with EE have to be strengthened if EE in schools is to have a transformative impact on all citizens. Although this study is limited in that it focused on one district in a more or less urban set up, however its findings can be an in-road map to further evaluation of EE practice in secondary



schools. Future research should examine implementation of EE in a wider context of the country to cater for the different school set ups such as those in rural and farm schools.

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## APPENDICES

**Appendix-A.** Table 1 on Teachers' rating of their practice and existence of EE oriented policies and organization in the school. (N=100)

Activity/organisations	Yes (%)	No (%)	Not Sure (%)
Taking a waste paper audit of the school	4	84	12
Taking energy and water consumption audits using water and electricity bills	4	93	3
Holding awareness campaigns for other staff members including ancillary staff	3	94	3
Existence of an environmental education committee	6	93	1
Existence of an environmental education club	20	72	8
Existence of a school environmental education policy	6	92	2
Total	43	528	29
Mean	7.17	88	4.83

**Appendix-B.** Table 2 on Teachers' ratings on the existence of place based learning facilities within the school (N=100)

Place based learning area	No of teachers who confirm the existence of the place (%)	No of teachers who confirm the absence of the place (%)	No of teachers not sure about the existence of the place (%)	Total (%)
Garden	100	0	0	100

orchard	98	0	2	100
fishpond	26	73	1	100
Enough waste bins	71	19	10	100
Enough waste pits	80	13	7	100
Recycling centre within the school	4	94	2	100
Waste collection dispatch point for collection by recyclers	15	77	8	100
Science corners	10	34	56	100
Total	404	310	86	800
Mean	50.50	38.75	10.75	100

**Appendix-C.** Table 3 on Teachers' ratings of their involvement in community awareness raising campaigns (N=100)

No of teachers who were once involved (%)	12
No of teachers who had never been involved (%)	88
No of teachers who had never been involved (%)	88
Total (%)	100

**Appendix-D.** Table 4 on Teachers' ratings of their participation in shows and exhibitions (N=100)

Number of Teachers who have participated (%)	5
Number of Teachers who have never participated (%)	95
Total (%)	100

**Appendix-E.** Table 5 on Teachers' ratings of their involvement in solving the community's environmental problems (N=100)

Number of teachers who were once involved (%)	16
Number of teachers who had never been involved (%)	84
Total (%)	100

**Appendix-F.** Table 6 on Teachers' ratings of their partnerships with external organizations involved in environmental issues (N=100)

No of teachers who indicated that they are in partnership with external organisation (%)	20
No of teachers who are not linked to any external organisation dealing with environmental and sustainability issues (%)	80
Total (%)	100