

# STUDENT TEACHERS' PERCEPTIONS ON THEIR READINESS TO TEACH ENVIRONMENTAL ISSUES THROUGH THE GEOGRAPHY CURRICULUM IN BOTSWANA'S SECONDARY SCHOOLS\*

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## ABSTRACT

*The study of paradigm shifts in Geography by Post Graduate Diploma in Education (PGDE), and Bachelor of Education Secondary (B.Ed.) students in the Department of Languages and Social Sciences Education at the University of Botswana inspired this paper. The Environmentalism paradigm is well reflected in Botswana's Geography curriculum. However despite that Geography is the only subject in the senior secondary school curriculum in Botswana whose focal point is the people-environment relationship (Tabulawa, 2002), it has been reduced to a two year course in the school curriculum through the 1977 Commission on Education and the 1998 Revised National Policy on Education (RNPE). Its importance lies in that the subject aims in developing an understanding of contemporary social, economic and environmental issues in Botswana and the world, developing an appreciation of the significance of positive human attitudes and values on the management of the environment and land use, as well as developing an appreciation of the environment to enable them to act in an informed and responsible manner. This background provided an opportunity to find out from teacher trainees, who are not only products of the system but also agents who will shape education, what their perceptions and involvement in Environmental Education are, what they felt about the shrinking of the subject and its impact on the study of environmental issues, and if all relevant environmental issues were captured in both in their current studies and in school geography. Both qualitative and quantitative data collection techniques were employed. Interestingly the results point to the integration of environmental education in relevant school subjects. But given the repetition and fragmentation of environmental issues into Geography, Social Studies, Development Studies and Environmental Science in schools, what guarantee is there that we will not end up with another tragedy of the commons?*

**Keywords:** Teachers' perceptions, readiness, geography, environmental issues

## BACKGROUND TO THE STUDY

The Department of Languages and Social Sciences Education (LSSE), trains Geography teachers for the senior secondary school in Botswana. The crop of students includes both undergraduates studying for Bachelor of Education (B.Ed.) and graduates who go through the Post Graduate Diploma in Education (PGDE). However, both groups take a core course in the theory of Geography teaching. This course focuses on the nature and scope of Geography, the different geographical perspectives and how these philosophical foundations have had an impact on school geography. Among the key paradigms analysed was the human – environment paradigm.

\* Note: Initial findings of paper were presented in a conference held in Maseru, Lesotho in October 2011 at the Environmental Education Association of Southern Africa (EEASA).

It was through discussion and interaction with the students that researcher noticed the varying levels of understanding about, appreciation of, and interest in environmental issues. The students appreciated the strengths of the human – environment paradigm over other perspectives especially the fact that it can be understood virtually at any level of study, and that it is very relevant to current problems since most of the problems faced today have something to do with man – land relationship.

### **The Status of School Geography in Botswana**

School Geography in Botswana has gone through a number of changes though remaining one of the pivotal subjects within the curriculum. There are a number of things to note about the Geography curriculum before delving into its importance as a vehicle for teaching environmental issues. Firstly, Geography is only available for two years in Botswana's five year secondary school curriculum<sup>10</sup>. Botswana's Secondary school structure consists of three years Junior Certificate (Junior School – forms 1 to 3) and two years ordinary level (Senior School – forms 4 and 5). Thus Geography is available in the final two years of the education. Secondly, Geography is optional amongst History, Social Studies, Development Studies and Literature in English in the humanities group (Curriculum Blueprint Senior document). However, despite the odds that an average student has to choose one subject in this group, Geography has remained a very popular option for students, and hence a discipline for effectively dealing with environmental issues.

### **Geography as a vehicle for dealing with environmental Issues**

Environmental issues are enshrined in the Botswana's vision 2016. The vision sets some far reaching goals or targets that have been carefully synchronized with curriculum policies. The following are some of the pronouncements of Vision 2016 on Environmental issues

- i. Renewable resources will be used at a rate that is in balance with their regeneration capacity.
- ii. Non-renewable resources such as minerals will be used efficiently, and their depletion will be balanced by enhanced physical and labour capital.
- iii. There will be a fully integrated approach towards conservation and development.
- iv. The key natural resources and assets of the country will be equitably distributed between its people. Communities will be involved in the use and preservation of their environmental assets, and will benefit directly from their exploitation.
- v. The attitude towards natural resources will pay attention to a fair distribution between present and future generations.
- vi. The eradication of poverty will have created a situation where no one will be forced to damage the environment in order to obtain their basic needs.

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<sup>10</sup> School Geography has been shaped by several policies that include the National Policy on Education (NPE) of 1977, the Revised National Policy on Education (RNPE) of 1994, and Vision 2016. The NPE through its strategic plan 'education for Kagisano' made the geography curriculum more relevant, while the RNPE resulted in Geography being replaced by social studies at JC level meaning that the subject became only available on the last 2 years of school for learners.

- vii. The wildlife of Botswana will be managed for the sustainable benefit of the local communities, and in the interests of the environment as a whole (Vision 2016)

Another essential policy document, the Revised National Policy on Education (RNPE) (Botswana Government, 1994) resulted in the introduction of environmental education across the curriculum. This culminated into formulation of the 2003 Environmental Education Guidelines by the Ministry of Education and Skills Development, in which the national goals for environmental education were enunciated. The goals included the development of environmental awareness; acquisition of knowledge and understanding; skills; and the acquisition of desirable attitudes and behavioural patterns in interacting with the environment in a manner that is protective, preserving and nurturing (CDE, 2003).

However, Geography has always been the subject that has a special relationship with Environmental Education. The goal of geography is nothing less than an understanding of the vast interacting system comprising all humanity and its natural environment on the surface of the Earth (Ackerman ND). Tabulawa (2002) argues that Geography is the only subject in the senior secondary school curriculum in Botswana whose focal point is the people – environment relationship. The discipline is very relevant since environmental issues are topical issues in Botswana and thus, the need to produce an environmentally aware citizenry. The essence of the importance of Geography is captured in the syllabus aims of the subject, which among other things seek to develop desirable attitudes and behavioural patterns in interacting with the environment in a manner that is protective, preserving and nurturing, as well as developing foundation skills such as problem solving, critical thinking, communication, inquiry, team work /interpersonal skills to help students to be productive and adaptive to survive in a changing environment. (BGCSE Syllabus, 1998)

### **Student Teachers' Perception of Environmental Issues in Botswana**

In line with the teaching methodology suggestion of Lee and Williams (2001), Students were first exposed to Positivist, Interpretivist, and Critical approaches, involving education about, education in and education for environment respectively. This was done to make teaching more purposeful and inculcate a problem solving culture, which could be useful to link Geography teaching to efforts of solving environmental problems. Geography teachers are supposed to partner their students in suggesting real life solutions hence as argued by Stevenson (2007), teaching and learning are intended to be co-operative processes of inquiry into and action on real environmental issues. Such an inquiry process demands that students actively engage in critical or complex thinking about real problems. Stevenson (2007) further says that the development of knowledge, skills and values are not only directed towards action, but emerge in the context of preparing for (i.e. the inquiry) and taking action. Consequently, curriculum and pedagogical planning need to be highly flexible. For example, as well as adapting to students' own social constructs, the teacher should be amenable to students' decisions in relation to both their learning and their actions.

### **METHODOLOGY**

Both qualitative and quantitative approaches were employed to ensure triangulation and also get the best out of the student teachers. A total of 100 B.Ed. and PGDE students in the 2010 – 2011 and the 2011 – 2012 classes took part in this study. Thus 100 questionnaires were completed

with a return rate 100%. A sample of thirty three students was chosen for structured interviews and the interview guide based on the following questions was prepared to guide the research:

1. Which issues do you consider to be environmental issues in Botswana?
2. How would you address these issues through the teaching of Geography in the schools?
3. How far involved are you with environmental issues at University and home?
4. What challenges do you foresee interfering with your efforts to teach environmental issues through the Geography curriculum in schools?

The advantage of using a structured interview was its ability to be able to provide important background information on participants/respondents whilst at the same time giving them an opportunity to express their views freely about teaching and environmental issues. The researcher also felt that interviews were an important instrument if he were to access information about feelings, intentions, beliefs, knowledge and opinions. Informal interviews were also used along the course of the research. The data from the interviews was analysed to reveal patterns, themes and recurrent ideas pertaining to research objective. The questionnaire that was used was a modification of the one used by the ST<sup>2</sup>EEP project for the EE baseline survey in Zimbabwe. This questionnaire was tailored to focus on students' perceptions of environmental issues, as well as their involvement and confidence in working for a better environment. It was also used as a cross checking mechanism for validating information obtained from interviews. The data from the questionnaire was analysed using SPSS statistical package. The answers ranged from strongly agree, agree, neutral, disagree, strongly disagree to I don't know. The package was used to generate frequencies and other descriptive statistics.

## FINDINGS AND ANALYSIS

It is very interesting to find out how student teachers defined environmental issues. An analysis of the structured interviews shows that there was a recurrent pattern of certain issues being considered as more important environmental issues than others. Student teachers highlighted issues to do with the physical environment as more important. This was also confirmed by the responses from the questionnaire as shown in Figure 1

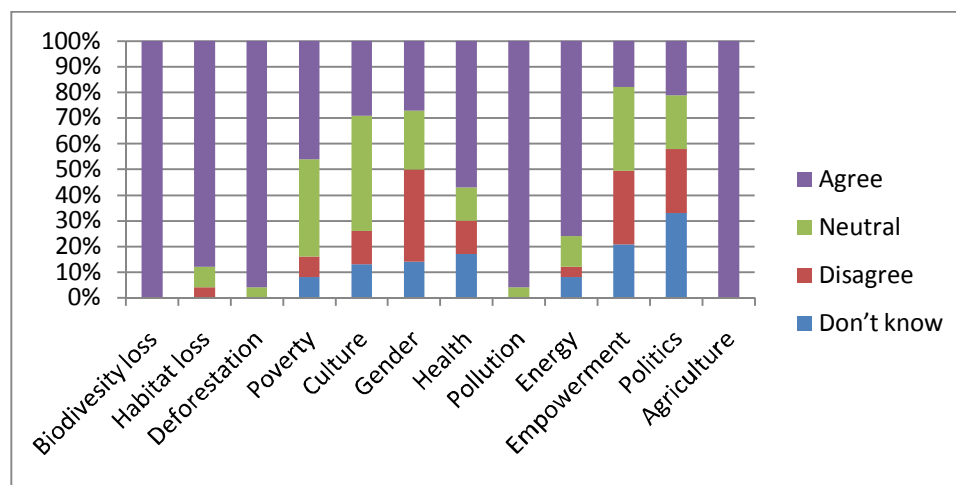


Figure 1. Perceptions on Environmental Issues

Figure 1 reveals that there is unanimous agreement on some issues as being important in Botswana. These include loss of biodiversity, loss of wild habitat, deforestation, pollution; and agriculture. There was also majority agreement for like energy and health. However, for poverty, culture, gender, politics and empowerment, responses in the neutral, disagree and don't know bands were more than 50%. It implies that the student teachers are not sure whether these issues were part of the concept environment or are important environmental issues. This analysis confirms that the student teachers do not necessarily view the environment as comprising of interacting dimensions argued by O'Donoghue and Russo (2004), that is the social, economic, political and bio – physical. However, triangulation with the structured interviews reveals the emergence of a thought pattern in which poverty, gender, empowerment, culture and politics are seen as issues best dealt with in other disciplines such as Social Studies and Development Studies. These two subjects are also offered alongside Geography in the high school.

The nature of both the rural and urban environment in Botswana today also dictates why issues of poverty may not seem not directly linked to Geography. For example in towns the world over, poverty is associated with issues of Urban decay, linked to the nature of urban development and age of infrastructure. This is contrary to the nature a City like Gaborone. Gaborone's infrastructure is relatively young with a lot of construction of buildings and roads taking in progress. The land use pattern is not the classical concentric model, and neither does it have a distinct sector pattern in terms of social class arrangement. Instead it has a multiple nuclei arrangement with all its service malls (CBDs) relatively young. Thus issues such as poverty, drug pushing, etc that are linked to urban decay appear not evident at present. In line with Vision 2016 and the Millennium development goals, Botswana has embarked on poverty eradication instead alleviation through national and community development programmes. This has had a feedback on the social environment as some of the programmes are meant to address problems and embark on development activities. In short, the Botswana society has been proactive such that some issues commonly associated with environment are not visible. Gender and empowerment issues are also well dwelt with, in Botswana and interestingly, there are more women than men who train to teach geography.

The fact that environmental issues are infused into all disciplines and that repetition could be good for emphasis could also result in the tragedy of the commons. This finding is important in the sense that it could help educators to repackage courses so that environmental issues are addressed without assuming they will be covered elsewhere. It is not surprising that student teachers perceive that way since their Geography content courses were done either in the Faculty of Humanities or Science. The two faculties have their own objectives and their courses may not necessarily be geared towards teacher education. Probably, when the students enroll for geography education it would be prudent to reorient them towards education for, education about and education through the environment.

The student teachers' readiness to teach environmental issues through geography in schools was also ascertained by establishing the student teachers' level of understanding and present involvement in environmental issues and activities respectively. Figure 2 summaries some of the findings.

In figure 2 the student teachers revealed that they are well informed about the environment, and understand environmental issues very well. This concern for the environment was further

confirmed by the student teachers overwhelming rejection of the notion that only the government has the mandate to solve environmental problems. There is also a general consensus (over 80%) that they can handle environmental issues in their Geography lessons and that the teaching – learning methodology they have acquired are relevant for dealing with environmental issues with school children. This picture reflects a concrete move toward achieving the University of Botswana’s policy of mainstreaming environmental education into the various disciplines (Ketlhoilwe & Jeremiah, 2010). However, one should remember that they are referring to the handling of issues that they perceive to the holistic definition of the concept.

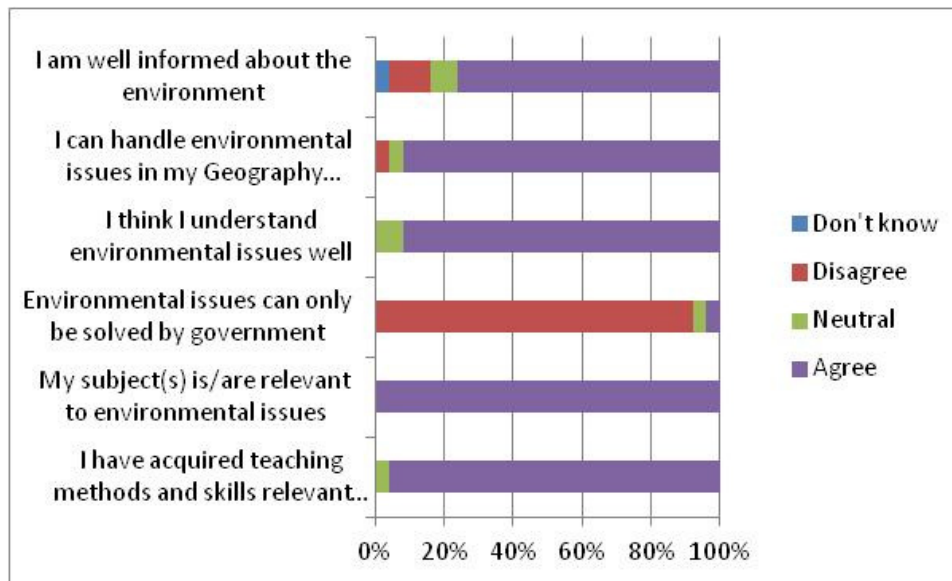


Figure 2. Student teachers’ present involvement in environmental issues

### Perceived Challenges

During the course of the interviews, respondents did highlight some perceived or possible challenges.

- a. Firstly, since Geography is only done for two years at ordinary level, it means that there is not much time available to teach the students so that they pass and to inculcate an ‘environmental culture’ in the school pupils. In the final analysis, school administrators are more interested in the pass rate than the behaviour, culture and attitudes developed in pupils. Thus the situation on the ground may not motivate teachers to effectively deal with environmental issues. Geographical knowledge and skills demand more time than the allocated two years.
- b. The final examinations should always include questions with an environmental analysis so as to encourage teachers deal with environmental issues across all the topics besides module three which specifically deals with utilization and management of natural resources.
- c. Environmental issues are topical and change with time. This calls for the teaching of skills to deal with such environmental issues. However, this may present problems where there is one more than one teacher teaching the same discipline, if the other teacher focuses mainly on factual information.

- d. Environmental issues are also dealt with to some detail in Social Studies, Development Studies and the Sciences. This creates a possible problem where one may cover the bare minimum as guided by the syllabus, hoping that the other subject areas will cover the same content, or that it may have been dealt with at Junior Certificate level. Such a scenario is possible taking into account that there is so much to cover in Geography in less than two years to prepare the students to write the final examinations.
- e. The researcher also observed that some respondents, though well equipped with skills, methods and approaches to deal with environmental issues in a geographical context, they simply dread teaching the higher level classes.

## CONCLUSION

From the study, one can conclude that the mainstreaming of environmental education into University courses is paying off. All the respondents showed that they understand environmental issues very well and are well informed about the environment. They also unanimously agreed that Geography is a relevant platform for dealing with and solving environmental problems. However, there were variations in what they considered as environmental issues, a phenomenon that could possibly be explained by the existence of other subjects that deal with the same environmental issues. Probably, the student teachers tend to compartmentalize environmental issues hence fail to appreciate the holistic nature of the concept environment. Despite that, it is quite evident that the student teachers are ready for the challenge though they may have to deal with the tight time budget. Lastly, the study confirms that once emerging issues infused are infused into the syllabus, there should be a visible effort to reflect the same change in examinations and teaching learning resources. But, there are so many other topical issues that have been infused into the various syllabi. These include population and family life education, HIV/AIDS awareness and gender sensitivity. Thus environmental issues also compete for the same time space hence at times it may be viewed as less important.

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