

Status of Education for Sustainable Development in teacher training institutions in Botswana

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Abstract: This paper reports on a qualitative study which evaluated the extent to which the ideals of ESD are incorporated into teacher training curricula. The study was conducted at 3 teacher training colleges of education and the University of Botswana. Participants of the study were lecturers. Questionnaire and observation were used to collect data. Findings reveal that in Botswana information on ESD has been fairly disseminated at teacher training institutions. This has resulted in the infusion of ESD in the training curriculum in some subjects. However, not much addressed the actual set of MDG and Sustainable Development Goals. To cover this deficit, the Ministry of Education came up with a strategy of change projects to sensitize institutions on EE and ESD. These projects range from infusion of ESD in the curricular, proper disposal of used oil and water and rain water harvesting. Results disclose that most lecturers were aware of the concept of ESD but have not taken much attention to have the concept aligned to courses they offer. As such amongst the recommendations made are, that there is immediate need to capacitate college lecturers on ESD.

Key words: curriculum, Education for Sustainable Development (ESD), environmental education, Teacher Training, qualitative research

INTRODUCTION

The paper evaluated Botswana's response to Education for Sustainable Development (ESD) and the extent to which the ideals of ESD are reflected or incorporated into teacher training curricula. In the face of changing climatic and environmental conditions (such as global warming and depletion of natural resources), education system must infuse into schools and academic oriented institutions' relevant subject matter to ensure a collective effort towards mitigation of fast changing environmental and living conditions. Education for Sustainable Development (ESD) does not only advocates for aspects of Environmental Education and sustainability but for holistic sustainability which is depicted by the five (5) priority areas as outlined in the United Nations Educational, Scientific and Cultural Organization (UNESCO) Road Map for Global Action Programme (GAP) on ESD (UNESCO, 2014). The holistic approaches include amongst others biophysical, social, cultural, political and economic approaches (Ketlhoilwe, 2010; UNEP, 2005). The interrelationships among these approaches include provision of focal point for advocacy and promotion of environmental education and training, supporting the development of high quality education learning

support materials, undertaking ongoing research into environmental education and training and the promotion of Information and Communication Technology (ICT) with respect to integration of sustainable development principles across all levels of education (UNEP, 2005).

The United Nations declaration of a Decade of Education for Sustainable Development (DESD) stated that there is need to integrate sustainable development into education systems at all levels so as to make education a key instrument for change (UNEP, 2005). This was affirmed at the Johannesburg Summit in 2005 (UNEP, 2005). At the summit, it was made clear that ESD addresses a wide area of themes that include the following: (which do not necessarily focus on the environment), poverty alleviation, citizenship, peace, ethics, democracy and governance, justice, human rights, gender equality, corporate responsibility, natural resource management and biological diversity. All these being the Millennium Development Goals (MDG) set in Rio 24th summit (UNEP, 2005).

Success of ESD lies mostly on reflecting the equal importance of the learning process and outcomes of the education process (UN Decade of Education for Sustainable Development (DESD) (UNESCO, 2006) through:

- a. Imbedding ESD in curriculum in an interdisciplinary and holistic manner
- b. Sharing values and principles that underpin Sustainable Development
- c. Developing confidence in addressing the challenges of Sustainable Development
- d. Employing variety of educational methods (literature, art, drama, animation, ICT etc.
- e. Allowing learners to participate in decision making and designing of educational programs
- f. Addressing local and global issues on Sustainable Development
- g. Ensuring long-term planning for Sustainable Development

STATEMENT OF THE PROBLEM

Although the concept of ESD has long been deliberated worldwide, Botswana's education system has since been lagging behind in the infusion and/or integration of ESD in the curricula at all levels of learning. This may be linked to the fact that the education Policies of Botswana have not included or adhered to the call for nations to address the MDGs and/or SDGs to integrate ESD in educational curricular. As a matter of fact, this condition has seen institutions putting very little to no effort in sensitising its trainees or learners on issues of sustainability. The implication of this state of affairs is that graduates from some training institutions are more likely to graduate without a concrete foundation on issues of sustainability and ESD.

OBJECTIVES OF THE STUDY

The objectives of the study are to:

- To investigate the extent to which the ideals of ESD are reflected or incorporated into higher education curriculum
- To find out response to Education for Sustainable Development by teacher training institutions

PURPOSE OF STUDY

The purpose of this paper is to examine Botswana's response to Education for Sustainable Development (ESD) and the extent to which the ideals of ESD are reflected or incorporated into teacher training curricula.

CONCEPTUAL FRAMEWORK

This study is compatible with the transformative learning theory from the perspective of Jack Mezirow (1978, 1997) which offers learning that is uniquely adult, is abstract, idealised, and grounded in the nature of human communication. The theory is partly a developmental process, but more as “learning is understood as the process of using a prior interpretation to construct a new or revised interpretation of the meaning of one’s experience in order to guide future action” (Mezirow, 1996:162). Education for sustainable development requires change in the way education and training is been offered and as such this theory is relevant by reason that it offers an explanation for change in meaning structures that evolves in the domains of *instrumental* and *communicative* learning. The instrumental domain focuses on learning through task-oriented problem solving and determination of cause and effect relationships—learning to do, based on empirical- analytic discovery while the *communicative* learning domain involves understanding the meaning of what others “communicate concerning values, ideals, feelings, moral decisions, and such concepts as freedom, justice, love, labour, autonomy, commitment and democracy” (Mezirow, 1991:8). The relevance of this theory for education for sustainable development at college level is that projects done by student-teachers and staff have potential to encourage exploration of the environmental and sustainability concepts and ideas to influence transformative learning among staff and students’ at various teacher training institutions in Botswana.

LITERATURE REVIEW

The concept of Education for Sustainable Development

Since the time sustainable development was first sanctioned at the UN General Assembly in 1987, the parallel concept of education to support sustainable development has also been explored. From 1987 to 1992, the concept of sustainable development matured as committees discussed, negotiated, and wrote the 40 chapters of *Agenda 21*. Consequently, Initial thoughts concerning ESD were captured in Chapter 36 of *Agenda 21*, Promoting Education, Public Awareness, and Training (Rosalyn McKeown, 2002).

Education for Sustainable Development is the focus or projection of education that seeks to equip people towards creating a sustainable future. As such to achieve education for sustainable development can only be fully achieved through a united force by various stakeholders comprising government, private sector educational institutions, and media. Together these bodies can achieve expressive efforts towards achieving sustainable development goals. According to UNESCO (2000) the way each nation, and stakeholder be it private sector, individual, media or cultural group view sustainable development will depend on its own values. This is so primarily because each of these stakeholders have a different visualization of sustainable development and education for sustainable development. For instance some are interested in environmental preservation and protection; some have economic development interests while others may be more interested in social development. These variance in interests and visualisations deserve to be harmonised to effect mutual benefit of our nation states.

Like revealed above, stakeholders may differ in their interests and visualisations of ESD, but there is need for all to work within the scope of ESD as outlined by UNESCO (2002). In 2002 UNESCO indicated that ESD shall have the following four major thrust:

- Promotion and improvement of basic education
- Reorienting existing education at all levels to address sustainable development
- Enhancing public awareness and understanding of sustainability
- Training and skills development for the world of work.

For the purpose of this paper, two (2) thrust above are considered most relevant. These are: Reorienting existing education at all levels to address sustainable development and Training and skills development for the world of work. Reorienting existing education at all levels to address sustainable development Education for Sustainable Development requires the reorientation of many existing education policies, programmes and practices to address the social, environmental and economic knowledge, skills, perspectives and values inherent to sustainability (UNESCO, 2014). This goal is a challenge to nations to consider rethinking and revisoning education at all levels with a view to inclusion of a clear focus on the development of the knowledge, skills, perspectives and values related to sustainability issues relevant to current life status and going forward. This implies a review of existing curricula in terms of their objectives and content to develop transdisciplinary understandings of social, economic and environmental sustainability (UNESCO, 2002).

In Botswana's conditions, this may also bring a challenge and a need to consider a holistic review of approaches to teaching, learning and assessment to foster lifelong learning skills. Lifelong learning skills are the means by which students master academic content and translate knowledge into action (McGarrah, 2015). These include skills for creative and critical thinking, oral and written communication, collaboration and cooperation, conflict management, decision-making, problem-solving and planning, using appropriate ICTs, and practical citizenship.

The other major thrust relevant for this study is - training and skills development for the world of work. Sustainable development depends on the provision of specialized training programmes to ensure that all sectors of society have the skills necessary to perform their work in a sustainable manner (UNESCO, 2002). It implies that all sectors of the workforce can only contribute meaningfully to sustainability issues provided they have requisite enlightenment and skills. A challenge of teacher training institutions therefore is to conduct on-going training with a hands-on approach so that all their graduates have the knowledge and skills necessary to make decisions and perform their work in a sustainable manner.

Concept and development of Education for Sustainable Development in Botswana

At independence in September 1966, Botswana was young, poor and had a fragile democracy. The education system at independence was inherited from the British who had colonised and ruled Botswana from 1885 to 1966 (Jotia, 2006). The inherited education system had several features which were not applicable and therefore not beneficial to Botswana (Oats, 2014). It was therefore because of colonial influence that after independence immediate efforts were undertaken through various education policies (Republic of Botswana, 1977; Republic of Botswana, 1994; Presidential Task Group for a Long-Term Vision for Botswana, 1997) for the building of a politically, socially, economically and educationally strong nation envisaged by the then government. This shows that since the attainment of self-rule in 1966, the government of Botswana has deemed education as an essential tool for achievement of economic development and sustainability. The government has always recognized that current economic development trends are not sustainable and that public awareness, education, and training are keys to moving the society of Botswana towards sustainability.

According to Ketlhoilwe and Jeremiah (2013), Environmental and sustainability discourses are integral parts of education and national development plans and policies in Botswana. The authors reveal that sustainable development and education for sustainable development discourses have been introduced through curriculum documents such as the different subjects' syllabi and the Environment Education Guidelines (Ministry of Education, 2002). The Government of Botswana has also exposed awareness on sustainability issues by making sustainable development a emphasis for National Development Plans as can be seen from various national development plans such as Botswana Government (1991/7), (1997/2002), (2003/09) and (2010/16). The other instrumental policy document is the National Environmental Education Strategy and Action Plans 1 and 2 (Botswana Government, 1996 and 2007). The strategy and action plan emphasize both environmental education and education for sustainable development. Also, the objective in the National Environmental Education Strategy and Action Plan (NEESAP) are

all encompassing, making it the appropriate document to implement the post ESD activities (Magosi, 2015). These are the policies and initiatives that gave a drive to change projects in various learning institutions in Botswana.

Among others, the RNPE of 1994 was more direct and robust in authorising EE. Thus environmental education has been recommended by the 1994 Revised National Policy on Education (Botswana Government, 1994). Recommendation 44 of the policy indicated the need for defined national goals for environmental education and that EE should be incorporated into all subjects. Mostly importantly, the recommendation indicated that educational institutions starting with teacher training institutions and the University of Botswana should develop an environmental ethos and set an example to the rest of the community (Government of Botswana, 1994). This was indeed a milestones in terms of policy support for environmental and sustainability issues in education. However, the yields of this policy support are not satisfactory hence studies such as this one are conducted to find out the impact teacher training institutions are making in fostering the sustainability aspirations of the country. This is because from interpretation of the policy recommendations, it is clear that teacher training institutions have been called upon to in-service and pre-service teachers on environmental education and to be exemplary to the rest of the community through environmental ethos (Botswana Government, 1994).

METHODOLOGY

This qualitative study undertaken through the case study design targeted colleges of education in Botswana and the University of Botswana. A case study can be used in diverse forms, hence for this study multiple case study approach was used. In this approach a number of cases are studied to investigate some general phenomenon. It is for this reason that in this study multiple case study approach was chosen to fit the phenomenon being studied and to gain the information-rich and thick descriptions of data portrayed by Patton (2002) and Rubin and Rubin (2005). In this study the use of multiple case studies helped to select sites and participants with varied backgrounds and experiences on ESD and tertiary education in Botswana and this venture has added validity to the study.

Lecturers at colleges of education and University of Botswana lecturers were the target population. This study used probability sampling in particular simple random sampling approach to select two colleges to form the sample. Simple random sampling was preferred because it allowed each unit in the sample identified to have an equal chance of being selected. Further, simple random sampling was favoured because it permitted the selection of each unit independent of the selection of every other unit and increases validity in the study. The same approach to selection was used to identify 5 lecturers at each college selected to form participants for the study. The lecturers all held master's degree qualification and were from social studies education, science and practical subjects. On the side of the University of Botswana lecturers, purposeful sampling was used to select lecturers who offer environmental education courses. The University of Botswana lecturers all held PhD and were from the faculty of education with environmental education specialisation.

Questionnaire with semi-structured items was used to collect data. A questionnaire was selected based on the fact that it allowed collection of Large amounts of information can be collected from a large number of people in a short period of time and in a relatively cost effective way with limited effect to its validity and reliability. Data analysis followed stages of intensive reading to familiarise with data before coding for patterns and themes, category formation and triangulating between colleges and types of interviews.

RESULTS AND DISCUSSION

As open ended questions were used for data collection, the researchers analysed the collected data by searching for the statements that replicate commonalities or aspects of particular relevance to the study. Data from each college was first exposed to within case analysis, where data from each college is analysed separately. Then cross-case analysis was done by compiling the

findings to come up with the final data that was coded into themes. Merriam (2009) stated that in multiple-case study, within case analysis of each study is first done as a comprehensive case, and then analysed. After that, cross-case analysis was done after within-case is completed. There three (3) major themes which emerged from the study were that participant's conceptualisation of ESD differed, the need for teacher training on ESD and Botswana's response to the ESD call.

Participant's comprehension of ESD

It has emerged from findings that people view ESD in diverse ways. As a result, defining of the concepts, ESD, EE and Sustainable development seem to be problematic as many view the concepts differently. It is in this light that there it was found necessary to gather educators views on these concepts since the way they understand and practice them has implications for this study. Lecturers were asked to differential the concepts, ESD and EE, one lecturer, (C1SP2) said: *'To me ESD is a holistic approach in that it requires the wellbeing of the society, while EE only focus on the environment'*. Another one closer to above opined that *'EE focuses on the environment while ESD is holistic in approach because it caters for both the environment and the society they live in as well as the economy of the country'*.

A more elaborate view was from one UB lecturer who indicated that, ESD is a cross cutting interdisciplinary approach to learning that covers the integrated social, economic and environmental dimensions of the formal and informal curriculum. She further indicated that ESD is a pedagogical approach that should develop skills, knowledge and experience to contribute to an environmentally and ethically responsible society that reflects those values in their day to day. On the contrary, a thought-provoking response was from two (2) college lectures who pointed out that they cannot differentiate the concepts. Along the same vein, to a closer question, which wanted to find out how much information participants know about ESD, the same respondents gave answers such as- *'Nothing'*, *'very little'*, *'am not sure'*. To this question in fact, majority of respondents from colleges of education indicated that they know little about the depth and breadth of ESD. This is a serious challenge to Botswana aspirations of achieving UNESCO goals on ESD. The challenge facing Botswana is that if educators are unaware of the critical components of ESD and sustainable development reorienting education to address sustainable development will not happen.

On the contrary, the results obtained from Colleges of Education indicated that most lecturers were aware of the concept of Education for Sustainable Development but have not taken much attention to have the concept aligned to courses offered in these colleges. The implication of this state of affairs is that graduates from these colleges are more likely to graduate without a concrete foundation on issues of sustainability despite the fact that the colleges are engaged with change projects. This has seen some of the colleges making effort to sensitize the teacher trainees and other members of staff while other colleges are still lagging behind. Those colleges that have taken a step to sensitize their trainees are still skewed in their sensitisation as they mostly emphasise on sustainability with relation to the environment only. One college has taken a different route in their sensitization though, by including in their ongoing curriculum issues of sustainability in subjects such as the sciences, Art and design, and English. This has been seen as a great move towards achieving the goals of Education for Sustainable Development as stipulated by United Nations declaration of Decade of Education for Sustainable Development (DESD) (UNESCO, 2005; UNEP, 2006).

ESD and teacher training curricular

Academic staff members at colleges of education and the University of Botswana were asked questions regarding the curriculum offered in respect to ESD. On the question of the subjects/courses offered in line with ESD, all participants except two (2) indicated the yes options meaning that their institutions have courses/subjects with ESD components. When asked to explain their responses, most of them indicated that *"there is infusion of sustainable development issues in lessons, projects and lesson material"*. They also pointed out that at colleges of education subjects like agriculture, home economics, social studies, music and art are offered which have components on ESD and/or environmental education. As such participants believe that graduates can

continue using the knowledge and skills learnt from these subjects to sustain themselves. Although this seems to be embraced by most lecturers at colleges of Education, it was observed and noted during visits to the colleges whose main aim was to carry out needs analysis with regard to ESD, that most lecturers were either not aware of issues of ESD or they did not really understand what the whole concept on ESD. This led to some resistance by some lecturers in to join working teams on college change projects not develop any interest in wanting to get to find out what and how those projects would benefit them individually, their learners and the college as a whole.

While on overall, majority of college lecturers talked of infusion of ESD components across various subjects, the University lecturers mentioned a number of courses offered in her department which are in line with ESD. One lecturer further indicated that she has gone to the extent of developing a new course for anticipated pre-service programme which will be an introductory course in education for sustainable development.

The findings further show an indication that in Botswana information towards ESD has been fairly disseminated in teacher training institutions. Although certain subjects had topics which indirectly taught on some aspects of sustainability and ecological balance such as Biology, Chemistry and social studies like mentioned before, not much addressed the actual set of MDGs, which is what ESD and EE have been striving towards achieving. Due to this condition, the Ministry of Education and Skills Development came up with some ways of sensitizing some training institutions such as colleges of education on the issues of EE and ESD through change projects. These projects are in varied areas ranging from infusion of ESD in the curricular, proper disposal of used oil from the institutions kitchen, rain water harvesting and proper disposal of wastewater for purposes of safe re-use. All these projects are in a quest by colleges of Education in Botswana to address matters of sustainability and environmental protection.

The integration of ESD into curricular by Molepolole College of Education is a move that strives towards empowering teacher trainees so as to have them well equipped when they graduate to be able to empower learners at the schools where they will be employed as well as have an impact in the society, which is in line with recommendations by UNESCO (UNESCO, 2014). This came in the form of a project inspired by Education for Sustainable Development concepts thus the college's change project. These will actually result in the colleges of Education in Botswana mainstreaming the concept of sustainable development in their curriculum. The advantage of which will be to add value to the courses taken by teacher trainees thus graduating globally competitive well-rounded teachers who will not only be able to teach learners on curriculum issues but also be abreast with global sustainability issues.

The other colleges reported to have their change projects aligned mostly on addressing issues of the environment and thus no integration nor infusion into the curriculum. The weakness of this approach is that trainees who are not involved in such change projects are left out. This therefore implies that the change projects carried out by some of the institutions of higher education in Botswana may have localised impact unlike when the concepts are shared through integration into the curriculum so as to benefit all.

Botswana's response to the ESD call

This research perceived to find out Botswana's response to the ESD call. As such participants were asked to state how in their view Botswana has embraced the concept of ESD. Results show that this was a challenging question for most college lecturers. Expressively, it was noted with a surprise that a huge majority of college lecturers were not aware of any innovations or strategies in place to address the ESD call. That is, for the question, how has Botswana embraced the concept of ESD, majority gave answers such as-no idea, I do not know, and, yes (without further explanation). It is therefore imperative for the Ministry of Education, through the department of training as the producer of teachers to take a deliberate initiative of internalizing the ESD concepts in order to impart it to the teachers who in turn must engrave it in the minds of the young ones (Tsayang & Bose, 2013). If government officials or school district administrators are unaware of the critical linkages between education sectors and sustainable development, reorienting education to address sustainable development will not occur (UNESCO, 2013).

The University of Botswana lecturers on the other hand were well informed on ESD issues. From their responses, it emerged that Botswana Government had availed a lot of opportunities to address the ESD call. Participant pointed out that a number of innovations through collaboration between different stakeholders like University of Botswana, NEEC, Department of Curriculum, and Department of Training & Development are being made and initiated to attempt to respond to agenda 21. Participants however decried the fact that there is neither clear national policy nor strategy on ESD. They suggested the need for the Government of Botswana to give greater attention to develop a policy at national level where ESD should be clearly articulated and it would be mandatory that it is mainstreamed in all aspects of education.

CONCLUSION

The findings of this study show an overall agreement among the academic staff at colleges of education and the University of Botswana particularly with respect to curriculum offered to teacher-trainees and ESD components. That is there is a positive picture that the Government of Botswana through the ministry of education and skills development is attempting to address ESD related issues. However, a contradiction was noted particularly at colleges of education in instances where lecturers would indicate that college curriculum has ESD components but fail to show deeper understanding on ESD issues. It is also clear that college lecturers do not have self-willingness to take part in ESD related initiatives of the country. Simply put, it appears ESD issues in most colleges are left the subjects which have topics related to ESD. These arguably show the lack of expertise on such lecturers with the perspective ideals of ESD.

This study maintains that it is imperative to capacitate college lecturers so that they pass requisite knowledge and skills to their students. If children are raised in good ESD ways, they will not lose these good ways when they are older and there will be no need to discipline or fight with them as they will be in good understanding of sustainable development (Tsayang & Bose, 2013). Education for Sustainable Development if incorporated and emphasised in the curriculum in teacher training institutions will enable trainees to understand themselves and others. This will make them understand their links with the wider natural and social environment. It also enables trainees to highlight the importance of respect and care for life in all its diverse forms that involve protection and restoration of the earth's ecosystems, respect for the dignity and human rights of people, respect for the rights of future generations and respect for cultural diversity.

RECOMMENDATIONS

Bearing in mind the findings, the researchers would advise policy makers in the form of teacher training officers to update curriculum developers and colleges of education, in particular lecturers on EE and ESD issues. Expressly, college curricula, both academic and 'methods course' material should be reviewed to add more content on EE & ESD. There is also need for the Government of Botswana to develop an ESD policy at national level to guide all operations and practice with respect to sustainability. There is also a dire need to develop capacity building programmes specifically for college lecturers on issues of Education for Sustainable Development.

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