Education for Sustainable Development as a Vehicle for Transformative Learning: A Case for Teacher Education in Zimbabwe

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Abstract

Education for Sustainable Development has been viewed as a tool for socio-economic and ecological transformation. Teacher education institutions have made an attempt to adopt ESD as a contemporary curriculum issue. The purpose of the study was to assess the extent to which Teacher Education Institutions are mainstreaming Education for Sustainable Development in Curriculum practice. A qualitative study of one teacher training college was undertaken. Staff members and residential student teachers constitute the population of the study. Stratified random sampling was conducted to staff members as well as to students. In depth interviews and document analysis were used as data gathering instruments. Content analysis was used to sort data into codes, patterns and themes. Findings reveal that lecturer respondents noted that Education for Sustainable Development content in most curricular subjects remained generic requiring a pedagogical paradigm shift and a wholesome overview of perceptions and current life practices. Further findings show that pedagogical approaches did not shift towards problem-based learning that could stimulate problem solving and critical thinking skills necessary for solving real life problems. Additional findings were that soft skills assessment that is continuous is not inherent within the current formative assessment design of the institution. The study

contributed to knowledge, theory and practices in Teacher Education by proffering suggestions on how Education for Sustainable Development can be fully embraced in order to transform learning, increase ecological literacy and prompt action towards solving existing ecological crisis.

Key words: Transformative learning; Education for Sustainable Development (ESD).

Introduction

There is a general observation that globally societies in many instances have chosen unsustainable ways of resource extraction, consumption and general livelihood (Svanstrom, Lozano-Garcia & Rowe, 2008; Varady, Zuniga-Teran, Gerlak, & Megdal, 2016). The thrust now is for communities to reverse unsustainable actions by being ecologically conscious through ecological literacy that should culminate into social change. Such social change entails a paradigm shift towards development that is sustainable to avert prevailing ecological crisis and an impending environmental collapse. Although various scholarly definitions of sustainable development are advanced in literature (Bruntland, 1987; Grosseck, Tiru & Bran, 2019; Hallinger & Nguyen, 2020; Keahey, 2021) most of these converge on the notion that it is development that meets economic, social and environmental needs and aspirations of societies in ways that foster symbiotic relationships that benefit present and future generations.

This entails development that is sustained by holistic, mutually inclusive creation of synergies aimed at use, deployment and conservation of existing resources inclusive of integrated and interdisciplinary approaches of knowledge and skills development needed for a sustainable future. UNESCO (2014) defines Education for Sustainable Development (ESD) as a type of education that endeavours to empower and place responsibility on individuals and groups of people to create a sustainable future.

This study adopts Grosseck's et al. (2019) definition of ESD which views it as teaching that puts sustainability at its core. Such an approach to teaching endows learners with leadership and management skills, knowledge, literacies, values and attitudes requisite for shaping a sustainable future (Grosseck et al., 2019). Svanstrom et al. (2008) argue that education will play a crucial role in this adaptation towards sustainable

development. Several international conferences such as the Rio Earth World Summit (1992) have been convened culminating into significant resolutions on ESD and the role of higher education.

Teacher education as part of human capital development produces change agents who must steer societies towards sustainable development. Moore (2005) advocates for reforms in institutions of higher education to align curriculum with ESD frameworks and avert the environmental degradation that is currently a feature of most societies. Regrettably, Orr (1992) observed that most institutions still educate at all levels as if no crisis exists. Concurring, O'Sullivan (1999) advocates for a progressive reforms in the curriculum of higher education in order to create agents of change who are conscious of and can put an end to the current ecological crisis. Has teacher education continued in the comfort of subject oriented teaching and learning, ignoring the transformative learning approach to knowledge generation? One of the five fundamental types of learning advocated for by ESD is learning to transform oneself and society. Higher education in general and teacher education in particular has to be responsive to principles and practices of ESD and embrace these changes through not just learning to transform (*transformative learning*) but also learning by doing.

Purpose of the Study

This study therefore sought to find out the extent to which Teacher Education responded to issues of sustainability.

Objectives

The study sought to:

1. assess the extent to which current instruction delivery in teacher education has responded to ESD expectations.
2. examine perceptions of college students and lecturers on ESD.
3. evaluate the benefits of ESD.

Literature Review

There is a general agreement in literature (Wals & Jickling, 2002; Leal-Filho, Manolas & Pace, 2015; Franco, Saito, Vaughter, Whereat, Kanie & Takemoto, 2019) that higher education is one way that governments can use to foster a new world order with socio-economic development that is anchored on sustainability. Higher education including teacher education

has the autonomy to craft own curriculum that should adequately respond to economic, social, ecological and or political demands. Many governments and teacher education institutions have responded to chapter 36 of Agenda 21, on Education, Training and Public Awareness which premises education as critical for eliciting sustainable development and enhancing the capacity of the people to address environmental and development issues, (Calder & Clugston, 2002) by greening the curriculum, (UNESCO, 2002). UNESCO (2007) acknowledges that teacher education institutions in Africa, Asia, the Carribean, Europe and North America have made efforts to reorient their curriculum to address issues of sustainability.

With technical and financial support from the Secondary Teacher Training Environmental Education Programme (St^{2}eep) teacher education institutions in Zimbabwe undertook a programme of curriculum greening. UNESCO (2002) observed that effective communication and negotiating consensus among stakeholders is an indispensable ingredient for curriculum greening. The greening process should be backed by institutional policies covering such areas as; selection and training of lecturers, incentives, and assessment. Advocacy and training in Education for Sustainable Development are critical for buy-in by lecturers, students and the community. What was the extent of curriculum greening and the buy-in by college administrators, lecturers, and students in teacher training institutions?

The form of learning associated with ESD in many respects is embodied in the tenets of transformative learning (Svanstrom et al., 2008). Mezirow (1997) explains transformative learning as a process of effecting change in a frame of reference through critical reflection of both habits of mind and points of view. Transformative learning should realise changes in assumptions, perspectives and behaviour, (Cranton, 1992) while Boyd (1989) includes change in the self. ESD advocates for lifelong learning and perceives the educational needs of people as constantly changing with time (UNESCO, 2014). Problem- and Project-Based Learning is the pedagogy associated with ESD. The Higher Education Academy (2014) purports that teaching and learning approaches that are considered effective in the context of ESD tend to have an authentic aspect, allowing students to transfer their learning to real life problems and situations. Students are

asked to solve real world problems similar to those they will encounter in their real professional life and are empowered to provide solutions, (Steinemann, 2003; Wals & Jickling, 2002). Participatory methodologies which stimulate higher order thinking including action research/case studies, explorations/experiential project work, stimulus activities such as stories and plays generate transformation.

The role of the educator transforms to facilitation and co-learning, (Mezirow, 1997; Wals & Jickling, 2002 and Cranton, 1994), giving up positions of power and monopoly to knowledge sources (Cranton, 1996) resulting into discomfort. Moore (2005) discovered that students are comfortable with subject-oriented learning and become uncomfortable when alternative models of learning are introduced. Lecturers and students are jilted out of their comfort zones by ESD's prescription of participatory pedagogy. Since predisposition to engage in transformative learning is not a preserve of every student or lecturer, which pedagogies are being employed in teacher education institutions to scaffold ESD?

The Quality Assurance Agency for Higher Education and Advance HE (2021) proposes that assessment of ESD should test achievement of agreed outcomes through ongoing tasks that permit the development of critical thinking and problem solving. ESD provides a myriad of soft skills which are difficult to assess using conventional assessment techniques designed for hard skills. Has curriculum greening accommodated assessment of soft skills and how successfully has ESD been assessed in teacher education institutions?

Perceptions of higher education students on sustainable development are positive (Kagawa, 2007; Von der Heidt & Lamberton, 2011; Franco et al. 2019), while Sharma and Kelly (2014) observed that majority of students perceived ESD as a good thing. However, Kagawa (2007) argues that most students failed to explain the meaning of sustainable development, that is, student respondents could not give an 'even partially accurate answer.' It will be interesting to note whether students in teacher training institutions have a conceptual understanding of ESD. Ull, Martinez-Agent, Pinero and Aznar-Mingnet (2014) document as one of their findings that the majority of students were oblivious of how their daily activities negatively impacted the environment but had consensus that ESD was an appropriate strategy to reduce the existing ecological crisis. This study seeks to establish

perceptions of students in teacher training institutions taking cognisance that there is a shortage of research concerning how students perceive ESD, (Sharma & Kelly, 2014; Kagawa, 2007).

Educators in teacher training institutions find it challenging to embed sustainable development courses in the curriculum, (Von der Heidt & Lamberton, 2011). Challenges have been encountered in adopting transformative learning and interdisciplinary approaches required to peddle ESD because teacher trainers find it difficult to cede power and assume a role of perpetual and willing learners, (Cranton, 1996). Jones, Trier and Richards (2008) are of the opinion that there is general support for the integration of ESD in the curriculum, yet there exists fear and uncertainty among lecturers concerning real integration possibilities. Most lecturers view ESD in terms of curriculum content as opposed to the pedagogy employed.

With such perceptions how have lecturers in teacher training institutions embraced ESD as a concept and as practice? UNESCO (2007) acknowledges that ESD is recognised as important and central to success of sustainable development at international level as evidenced by several World Forums/Conferences and the declaration of a Decade of Education for Sustainable Development (DESD, 2005 – 2014) in 2002. What have been the success stories of ESD at institutional level?

Theoretical Framework

This study is informed by the Transformational Learning Theory (Dirkx, 1998) as was originally authored by Mezirow (1997) and the Critical Theory (Blewitt & Cullingford, 2004). Transformative learning provides a framework of how adults learn (Dirkx, 1998; Hidalgo et al. 2018), and mechanisms for transformational learning include experience, critical reflection and rational discourse (Mezirow, 1997). Mezirow framed two types of perspectives in transformative learning theory. The first perspective is meaning schemes which involves interpretation of specific knowledge, beliefs, value judgments, and feelings while in the second is meaning perspectives concerned with the rule systems governing perception and cognition (Scheele, 2015). He postulates that "critical reflectivity" is vital as a "critique of the premises or presuppositions upon which habits of expectation are predicated" (p. 15).

Mezirow explained that critical to transformation theory is the movement toward reflectivity in adulthood as a function of intentionality advanced through increased ability and experience, which may be significantly influenced by educational interventions (Enkhtur & Yamamoto, 2017). "Transformative learning involves an enhanced level of awareness of the context of one's beliefs and feelings, a critique of their assumptions and particularly premises, an assessment of alternative perspective, a decision to negate an old perspective in favour of a new one or to make a synthesis of old and new, an ability to take action based upon the new perspective, and a desire to fi t the perspective into the broader context of one's life" (Mezirow, 1991; p.161).

Adult students in teacher training institutions should learn through rational and critical reflection on their assumptions and beliefs. Dirkx (1988) believes that transformative learning emphasises on actualization of both the individual and society through reflection, dialogue, critique, imagination and action as problem based learning pedagogies that induce liberation and freedom. Pedagogies adopted for curriculum delivery in teacher education institutions should encompass sustainability. UNESCO (2011) claim that ESD aims to help people develop attitudes, skills, perspectives and knowledge to make informed decisions and act upon them for the benefit of themselves and others, now and in the future. Teacher education needs democratic reconstruction to accommodate problem solving pedagogies which embrace ESD principles and practices.

And for such a shift in perspectives to be realised, Blewitt and Cullingford (2004) believe that the use of Critical Theory in ESD will empower people to enact reforms that impact positively to a sustainable world order. Critical Theory was developed by the Frankfurt School and is reflective assessment oriented towards critiquing and changing the society as a whole. Critical Theory explains what is wrong with current social reality *(ecological crisis)*, identifies the change agents *(entire society including teacher training institutions)* and provide apparent parameters for criticism and achievable practical goals for the social transformation (*ESD*). Perceptions of both students and lecturers are an embodiment of the status quo acting as inertia towards effective implementation of ESD.

Significance of Study

Teacher training institutions will use results of this study to streamline inclusion of ESD into the curriculum. Scott and Gough (2004) are of the view that inclusion of ESD entails changes in developing college curriculum, designing the curriculum content and pedagogy. Colleges should bring in students everyday experiences and community perspectives into the curriculum. Teacher education pedagogy should skew assumptions, perceptions, beliefs and practices of students towards sustainability. Ecological literacy should be emphasised in teacher education with the power dichotomy between lecturers and students narrowing during knowledge generation within the didactic process.

Assessment should focus on soft skills with a bias towards continuous or college based assessment. Course work and examination weighting for accreditation has to be revised to reflect emphasis on formative assessment. Teacher training institutions through this study should adopt authentic assessment as a strategy. Issues of sustainability should not be theorised but modelled within teacher training institutions. Jones et al (2008) opine that, embedding ESD in the curriculum should be organised by head (*cognitive*), hands (*psychomotor*) and heart (*affective*). ESD should be a lived experience within Teacher training institutions.

Methodology

The study was qualitative in nature. Qualitative research seeks to understand the meaning people have constructed about the world; how people make sense of their world and the experiences they have in the world, (Merrian, 2005). Through this approach the study was able to get insights into how lecturers and students perceived ESD as a means to transformative learning. Participants were able to say out their thoughts instead of choosing from predetermined answers. A Teachers' College training secondary school teachers was used as a case for this study. The case study design was adopted because the phenomenon ESD cannot be separated from the real life context.

The population comprised four hundred and thirty seven (437) participants. 345 were resident finalist students in first term 2015 and ninety two lecturers. Lecturers formed two distinct categories (those who had been in the college from 2008 backwards and those who had joined college after

2008). Purposive sampling was used for selecting both student and lecturer respondents. Maximum variation sampling was employed to accommodate entire spectrum of subject areas constituting the curriculum. Respondents were conveniently drawn to represent all subject areas while information rich respondents such as Heads of Departments (HOD) and Heads of Subject (HOS) were purposefully included as part of the sample.

Focus group discussions with student respondents and face to face interviews with lecturers were conducted to generate data. Focus groups are based on group interviews that permit interaction between researcher and participants in order to generate data, (Kitzinger, 1995). This resulted in rich information where participants were able to discuss their perceptions. Semi-structured open ended questions were used to generate data during the interview sessions. Also follow up questions brought out deeper insights into the problem. To validate what had been collected from the interviews documents were analysed. Document analysis is a qualitative research method, (Bowen, 2009). Syllabi, assignments, tests, and examination question papers were analysed to validate data generated from interviews.

The research was explained to the head of institution and later to the participants. Both granted verbal consent. This was followed by collection of the important documents like syllabi, assessment tools and strategic plans for analysis. Dates and times for interviews were set. The use of document analysis and in-depth interviews enabled the triangulation of data collected.

The data collected is presented in text and the grounded theory was used to analyse the data. Responses from interviewees was named, categorised and described in search of deeper meanings that would answer the research question in this study.

Results

Fifteen lecturers out of a staff compliment of ninety-two were interviewed while two focus groups consisting of twelve (12) student teacher participants in each group participated in the in-depth interview discussions. Analysis of generated data reveals varied perceptions on the concept and practice of ESD.

Curriculum Content

Lecturing staff employed in college by 2008 indicated that they were involved in greening of college syllabi across the curriculum through the St^{2}eep programme. Staff members who joined college after 2008 were not privileged to participate in syllabi greening nor were they adequately inducted to embrace such a curriculum innovation. Student respondents during the focus group discussion revealed evidence of ESD fusion into various curricula subjects e.g. Geography and Environmental Studies (*climate and conservation*), Science (*renewable energy*), Chishona (*morals and culture conservation*).

However, lecturer respondents noted that ESD content in most curricular subjects remained generic requiring a pedagogical paradigm shift and a wholesome overview of perceptions and current life practices. Analysis of syllabi revealed that ESD concepts were pronounced in Science, Geography and Environmental Studies, Chishona, Clothing and Textiles, Food and Nutrition, Art and Music but remained apparent across other curriculum areas. One lecturer interviewee questioned the meaning of 'curriculum greening' and indicated that aspects of ESD were in most syllabi by default or coincidence. Content restructuring failed to capture learners' everyday experiences hence remain theoretical and out of sorts with realities of life.

Pedagogy

Lecturers noted that pedagogical approaches did not shift towards Problem Based Learning that could stimulate problem solving and critical thinking skills necessary for solving real life problems. Students unanimously concurred that the lecture method was being predominantly used for instruction delivery in most subject areas. Lecturers and students observed that lectures remained theoretical with no meaningful participation from students or exposure to practical experiences to model ESD values.

Assessment

Assessment of ESD constructs remains the biggest challenge. Values, beliefs, habits or practices and attitudes are soft skills whose assessment is continuous and yet it is not inherent within the current formative assessment design. One lecturer respondent noticed that aspects of ESD were difficult to assess, hence were not emphasized nor being taught.

Importance

Lecturer and student respondents concurred that ESD is critical for conservation and efficient utilization of resources for posterity. ESD stimulates change in attitude, values, beliefs and practices however respondents were concerned with the absence of a policy to guide implementation of the programme. Interviewees in their various categories pointed the lack of administrative support in operationalizing ESD strategies. One lecturer respondent argued that 'without buy-in from the institution's administration all efforts to implement ESD will be futile.' Respondents revealed that despite having ecological literacy people were still throwing litter everywhere, left water taps running, leave lights on overnight in offices or when nobody is in the room during the day. Respondents were also agreeable that embracing ESD would not only recycle waste but provide cheap, efficient and clean sources of fuel like biogas.

Discussion

UNESCO (2007) affirms that internationally ESD is recognised as important and central to sustainable development, however individual nations who might have ratified international conventions fail to domesticate such polices. Policy frameworks and blueprints are crafted but are not operationalized due to lack of funding, expertise, political will and buy-in. Most institutions including teacher training institutions operate without a clear ESD framework, an observation that respondents made. An observation that institutional administration failed to support ESD implementation was echoed by many respondents. An operating policy for the implementation of ESD is non-existent nor is there a monitoring and evaluation framework in place for the programme.

Advocacy remains critical to facilitate wholesome buy-in by stakeholders. Lecturers who joined college after 2008 are oblivious of ESD infusion within syllabi, revealing that greening the syllabi was an event. There are coordinators and clubs operating in institutions but as pointed out by one interviewee, ESD should not be taken as a club or subject but as a way of life. Treating ESD as related content concepts within subject areas was good however the interpretation by most lecturers and students was 'ESD is just additional content.' This failed to stimulate change in assumptions,

attitudes and practices as envisaged. The infusion should have recognised practical sustainable ways of living within communities and build up the concept on what people already know. One interviewee stressed that, 'when introducing a curriculum innovation planners and implementers should build on what is already prevailing.'

ESD as a vehicle for transformative learning was supposed to relate education to the realities of life, change attitude and assumptions of students and educators towards learning. Findings however indicate that students are still content subject oriented learning while lecturers have not departed from the use of the lecture method. Although Blake et al. (2013) recommend the use of some direct teaching methods, such as lecture method for the early stages of learning new knowledge or skills multi-method dimensions to learning can create opportunities for deep, reflexive learning and personal transformations. Blake et al. (2013) further note that survey participants in their study experienced the use of problem based learning (PBL), presentations, group work activities, simulations and role plays and individual investigations. Employing participatory pedagogies and multi-methods approaches such as those suggested in Blake et al. (2013) entails relinquishing monopoly and stronghold on knowledge, a threat lecturers are unwilling to take. Subject based learning is directed by examinations and students engage in the learning process to attain a diploma so any activities that do not focus on passing and acquiring the diploma seize to be important. The ethos of ESD is relegated to second place by both lecturers and students albeit with an acknowledgement of their importance.

Treating ESD as part of content across the curricula implies that it be subjected to existing assessment techniques just like the usual hard skills. ESD comprise a plethora of life values constituting soft skills which may not be subjected to assessment similar to hard skills. The importance of developing soft skills in higher education institutions is highlighted in Succi and Canovi's (2020) study. In their study the authors explore comparisons of students' and employers' perceptions regarding the value of soft skills in different European countries. Findings reveal that 86% of participants indicate an increased emphasis on soft skills. Consequently, the paper "…suggests that companies and Higher Education Institutions (HEIs) need to work together not only to increase students' awareness of

the importance of soft skills but also to guide them in taking individual responsibility to acquire and develop these essential skills in order to continuously adapt to the changing labour market and improve their employability" (Succi & Canovi, 2020 p.1834).

Transformation of attitudes, values, beliefs and practices is therefore best assessed formatively. This finding is in line with the description of transformative learning espoused in Damianakis et al. (2020). The authors frame transformative learning as a process by which students engage in their learning at holistically through emotional, cognitive, spiritual, physical, social, and environmental levels. An agreed set of standards should guide continuous assessment of practices depicting ESD. College based assessment is guaranteed for purposes of certification. According to the General Regulations contained in the Handbook for Quality Assurance in Associate Teachers' Colleges (University of Zimbabwe, 2014) a weighting of 70% examinations and 30% course work should be ensured during syllabus designing in every subject. This creates an opportunity for assessment of soft skills embedded within ESD, however there was no apparent evidence in assessing such skills from the data generated through interviews and analysed documents. Agreed standards set out in a check list for assessing ESD should be established to guide continuous assessment of change in assumptions, attitudes, values, beliefs and practices.

The argument by Kagawa (2007) that most students could hardly define ESD was sustained in this study. Lecturers and students demonstrated a limited comprehension of ESD by associating it with content and environmental littering. An in-depth conceptual understanding of ESD as a practice of life was clearly missing. Sporadic workshops as a form of in-service were inadequate. Transforming assumptions and practices (Mezirow, 2007) takes a lifetime, so a couple of days was insufficient for comprehending the expectations of the ESD strategy. Commenting on transformative learning experiences of international graduate students from Africa, Kumi-Yeboah (2014) observe that a majority 84.8% of the participants experienced transformative learning while 15.2% reported no transformative experiences indicating the need to give learners time for total transformations to occur. A comprehensive and systematic in-service programme with the full support of all stakeholders needs to be put in

place. Value systems of lecturers relating to knowledge generation during instruction delivery should transform to facilitation and willing co-learners which calls for more time in training than was made available.

Conclusion

Sterling (1996) argues that education itself must be transformed if it is to be transforming and sees environmental education for sustainability as a catalyst for this change. Education must assume a new role of transforming values, beliefs, assumptions and practices so that educators and students incorporate students' daily life experiences into the curricula. Real life problems such as the current ecological crisis require a paradigm shift in the manner instruction is delivered. Educators and students need to be co-learners in the learning process, a fit that might be inconceivable looking at the prevailing power dynamics in knowledge generation. ESD if fully embraced should transform learning, increase ecological literacy and prompt action towards solving the existing ecological crisis. Teacher Education has however not responded positively to environmental sustainability rendering ESD a futile curriculum innovation.

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