

International Studies in Sociology of Education

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/riss20

Implementing ecopedagogy in highly centralised curricula contexts: a critical analysis of an environmental education course taught at one Tanzanian university

Mjege Kinyota

To cite this article: Mjege Kinyota (2021) Implementing ecopedagogy in highly centralised curricula contexts: a critical analysis of an environmental education course taught at one Tanzanian university, International Studies in Sociology of Education, 30:1-2, 153-172, DOI: 10.1080/09620214.2020.1854824

To link to this article: https://doi.org/10.1080/09620214.2020.1854824

Published online: 27 Nov 2020.

Submit your article to this journal

Article views: 44

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=riss20

INTERNATIONAL STUDIES IN SOCIOLOGY OF EDUCATION
2021, VOL. 30, NOS. 1–2, 153–172
https://doi.org/10.1080/09620214.2020.1854824

Routledge
Taylor & Francis Group

ARTICLE

Check for updates

Implementing ecopedagogy in highly centralised curricula contexts: a critical analysis of an environmental education course taught at one Tanzanian university

Mjege Kinyota

Department of Educational Psychology and Curriculum Studies, Dar es Salaam University College of Education, University of Dar es Salaam, Dar es Salaam, Tanzania

ABSTRACT

Ecopedagogy has become central in transforming environmental pedagogies. Nevertheless, its full potential has not been realised especially in developing countries. This study investigated the extent to which a course taught in one university in Tanzania reflects the tenets of ecopedagogy. Based on seven-years experience in teaching the course, analysis of the course curriculum and on lessons from recent efforts to teach the course using ecopedagogy, I find the course more consistent with ecopedagogy in the aspects focusing on indigenous knowledge, learning from different perspectives and democratisation of learning. However, the course is less consistent with ecopedagogy in the aspects of critical analysis of environmental discourses and globalisation. Moreover, I report on the contradictions arising from teaching using a highly centralised curriculum, on one hand, and using approaches that emphasise on critical co-construction of knowledge on the other hand. Finally, the implications for theory and practice are discussed.

ARTICLE HISTORY
Received 12 March 2020
Accepted 17 November 2020

KEYWORDS
Course curriculum; development; ecopedagogy; environmental pedagogies; Tanzania

Introduction

Environmental pedagogies (EPs) are fast becoming key instruments in enabling people to live sustainably with nature. Thus, EPs represent a topic that continues to dominate both national and global agendas. For instance, the 2030 Agenda for Sustainable Development (SD) stresses on, among other things, promoting SD so as to protect the environment. As a response to this, many efforts to safeguard the environment, including provision of education, are being taken by national states and international organisations (Elibariki & Maguta, 2017; Koziarski et al., 2016). This comes as the world has for the past 40 years of intensified globalisation and neoliberal policies witnessed practices that are very unfriendly to the environment and life in general (Arnove, 2007; Stromquist, 2002; Torres, 2002). To

CONTACT Mjege Kinyota kmjege@yahoo.com
© 2020 Informa UK Limited, trading as Taylor & Francis Group

illustrate, in the 1980s the World Bank (WB) and the International Monetary Fund (IMF) proposed economic transformations in low growing economies including those in Sub-Saharan Africa. Reflected in the Structural Adjustment Programs (SAPs) was the assumption that for growth to occur, these countries should embark on a neo-liberal journey of liberalizing their economies through privatisation, free markets, reduction of government expenditures, to mention a few (Camicia & Franklin, 2011; Jickling & Wals, 2008; Jucker, 2004). Not only have these policies greatly harmed the environment (Jucker, 2004) but also they have resulted to higher levels of social inequalities (Klees, 2008; Samoff & Carrol, 2007). As a matter of fact, the rate of environmental degradation is high, especially in Sub-Saharan Africa (Elibariki & Maguta, 2017; Kitula, 2006; Koziarski et al., 2016; Lugazia, 2016). This is in part contributed by the fact that social and economic life in Sub-Saharan Africa depends on natural resources, the forest in particular (Lugazia, 2016; Strauch et al., 2016). In Tanzania, human activities are not only creating bare lands (Kitula, 2006; Koziarski et al., 2016) but also threatening the lives of other living organisms.

Essentially, when confronted with environmental challenges, education is usually seen as an important tool in getting rid of environmentally unfriendly practices. Nonetheless, one problematic question is whether or not education is capable of opposing the market forces that are, on the contrary, promoting environmentally unfriendly values and lifestyles. In this regard, widely used models such as Environmental Education (EE), and Education for Sustainable Development (ESD) have been strongly attacked for overlooking several issues. For instance, EE models have tended to overlook the effects of environmental degradation on social issues (Lloro-Bidart, 2018; Misiaszek, 2015, 2018, 2020a, 2020b). Further, although ESD models came to address the aforementioned weaknesses of EE models, they also have been criticised for overemphasising on development – the development mainly framed in neo-liberal terms, hence overlooking social and environmental injustices resulting from it (Misiaszek, 2015, 2018, 2020a, 2020b). As a response, other scholars (e.g. Misiaszek, 2015, 2018, 2020a, 2020b) have called for a transformative environmental pedagogy – ecopedagogy – a pedagogy that seeks to critically analyse EPs and development discourses in terms of how they reinforce social and environmental injustices. Nevertheless, in the context of Tanzania, very little or no research has been done in the area of EPs, particularly transformative EPs. Instead, many scholars (Elibariki & Maguta, 2017; Kitula, 2006; Koziarski et al., 2016) have investigated the impacts of environmental destruction on the ecosystem. To fill the gap, this paper attempts to interrogate EPs in Tanzania. In particular, it investigates the extent to which an EE course taught in one university in Tanzania reflects the tenets of ecopedagogy. Based on my own experience in teaching the course for 7 years and on recent efforts to teach it using ecopedagogy, I make a critical analysis of both the content and

process of the course. Moreover, I attempt to resolve the contradictions involved in teaching by using a highly centralised curriculum, on one hand, while embodying approaches that emphasise on critical co-construction of knowledge on the other hand. This analysis is guided by the following questions: (i) To what extent does an EE course reflects the tenets of ecopedagogy? (ii) What lessons were learned as the researcher was implementing ecopedagogy?

Education for development: implications for environmental protection and EPs

Development is considered as an essential goal of education (Olmos & Torres, 2009). Equally, the aims of education in Tanzania hereunder reflect that major goal.

(1) Guide and promote the development and improvement of the personalities of the citizens of Tanzania, their human resources and effective utilisation of those resources to bring about individual and national development;
(2) Promote the acquisition and appropriate use of literacy, social, scientific, vocational, technological, professional and other forms of knowledge, skills and attitudes for the development and improvement of the condition of man and society;
(3) Develop and promote self-confidence and an inquiring mind, an understanding and respect for human dignity and human rights and readiness to work hard for self- advancement and national development;
(4) Promote and expand the scope of acquisition, improvement and upgrading of mental, practical, productive and other skills needed to meet the changing needs of industry and the economy;
(5) Enable a rational use, management and conservation of the environment (Ministry of Education and Vocational Training [MoEVT], 2009, p. iii)

A closer look at these aims of education clearly reveals how development is the central focus of formal education in Tanzania. Meanwhile, the last aim proves how environmental protection and management are recognised by the country as an integral part of development. Thus, it is not surprising that EE is an essential aspect of school curriculum in Tanzania. Nevertheless, there has been a growing concern that the development being promoted by education is oftentimes framed in terms of neoliberal policies, something that has usually caused its associated environmental and social injustices to be overlooked (Misiaszek, 2015, 2018, 2020a, 2020b). Additionally, the

conflict between national and global neo-liberal policies that are being promoted by education and environmental protection efforts have tended to be overlooked. The conflict being referred here has been widely discussed. For instance, Hannigan (2006) notes that states experience a conflict of performing dual roles – protecting the environment and fostering development (often times development defined using neo-liberal frameworks). Again, quoting Bonnett (2003), Postma critiques the idea of SD as championed by the United Nations (UN) by arguing that;

> It brings into harmony two highly attractive but potentially conflicting notions. First is the idea of conserving or preserving those aspects of nature that are currently endangered through depletion, pollution and so forth. Second is the idea of accommodating ongoing human aspirations to develop, that is, in some sense to have more or better, where this necessarily has implications for natural systems … (Postma, 2006, p. 6)

Combined with resource imbalance, the pursuit of happiness driven by the desire to consume more is threatening life on earth as we know it today. For example, less than 20% of the world population (those residing in the North) are consuming more than 70% of the world resources (Jucker, 2004). If every country follows this 'Euro-American' lifestyle, it means we will need four to five planets (Jucker, 2004, p. 15). Jucker (2004) is perhaps correct as he warns that African countries should not emulate the path taken by industrialised countries.

To address this contradiction, as Jucker (2004) has argued, we will need to educate for new values as opposed to the neo-liberal values of consumerism, greed and competition. The same concern is expressed by Illich (1983) in his essay on deschooling society. He is concerned that institutions, including schools, have institutionalised and legitimatised environmentally unfriendly values and lifestyles. To reverse the situation, these values, he contends, must be unlearned.

Rethinking EPs using the lens of critical pedagogy

Although ecopedagogy is defined differently by different scholars (Nakagawa, 2017), there is a shared understanding among scholars that ecopedagogy is a transformative pedagogy rooted in critical pedagogy and Freirean philosophy (Dunkley, 2018; Misiaszek, 2018, 2020b; Nakagawa, 2017). Thus, understanding critical pedagogy is key in any efforts to transform EPs, particularly in instituting transformative models such as ecopedagogy. In this sub-section, I review the literature on critical pedagogy by drawing a connection between ecopedagogy and the teaching contexts in Tanzania.

At the heart of critical pedagogy is the understanding that there are connections between education and relations of dominations as well as the struggle against such dominations (Apple & Au, 2009; Apple et al., 2009; Freire, 2010). Critical pedagogy is in opposition with what Paulo Freire called banking education – an education where students are considered as having nothing to offer in the learning process. It is believed that such kind of education contributes to the preservation of existing power dominations (Alexander & Jarman, 2015; Freire, 2010; Spear & Costa, 2018). Moreover, according to Apple et al. (2009), before the phrase critical pedagogy was coined in Latin America by activists such as Paulo Freire, other forms of critical education were practised in the United States and elsewhere. Such forms of education challenged the existing power structures and other forms of social inequalities in the society. In that regard, critical pedagogy provides a platform where students and/or people in marginalised positions can air their voices (Freire, 2010; Kellner & Share, 2007). Therefore, the role of the teacher becomes that of a facilitator (Freire, 2010; Misiaszek, 2018; Payne, 2018). To use Freire's critical pedagogy as an example, Apple and Au (2009) note that:

> Freire's critical pedagogy revolves around the central idea of "praxis", the unification of critical reflection and critical action. It seeks to be a pedagogy that enables students and teachers to be "subjects of their own history". . . . who can look at reality, critically reflect upon that reality, and take transformative action to change that reality, thereby deepening their consciousness and working toward a more just world. Making use of the teaching methods of problem posing and dialogue, Freire's critical pedagogy intends for all relationships of hierarchical power to be challenged, including that of the student–teacher relationship. (Apple & Au, 2009, p. 997)

In the context of EPs, critical pedagogy would demand students and teachers to take part in critical discussions of environmental issues. Likewise, according to Lloro-Bidart (2018), challenging the positivist view of the relationship between humans and the environment should be an important aspect of EPs. On the contrary, the study of human–environmental relationships is oftentimes treated as apolitical (Lloro-Bidart, 2018). Closely related, Misiaszek (2020b) has argued that sustainability and development are taught as apolitical and absolute, something that has brought about the ignoring of critical issues such as who benefits and who suffers as humans pursue development. In this regard, just as in the natural sciences, EPs such as EE and ESD are characterised by the same problem of discouraging critical aspects. For instance, school science is often taught as empirical, objective and universal. In other words, science is considered as free from all outside influences, either political or personal (Apple, 2004). As such, any discussion regarding the power dimensions involved during the production of science knowledge are seen as unnecessary and evil.

Ecopedagogy: a transformative EE model?

When it comes to implementing more critical approaches to education, EPs have never been left out. This tells why several transformative models such as ecopedagogy and political ecology (Lloro-Bidart, 2018) have attracted the attention of many environmental educators and scholars. For instance, Misiaszek (2012) has distinguished between shallow and deep models of education. A shallow EE is described as one in which the teaching of environmental issues is detached from the complex nature of the society-environment connections. Such an education deals with environmental issues within the framework of 'current social, economic, political systems' (p. 3). Meanwhile, a deep EE is described as one that goes beyond shallow models by adding critical and transformative components. A deep EE is related to ecopedagogy. At the heart of ecopedagogy is an understanding of the connections between environmental issues and social inequalities (Dunkley, 2018; Misiaszek, 2012, 2018, 2020a, 2020b). As such, ecopedagogy is seen as a transformative pedagogy that seeks to uncover the power relations and unjust discourses embedded in the framing of environmental issues, with the goal of transforming the current views of reality. In other words, students' abilities to critically question what is being taught in EE courses become central. For example, as Misiaszek (2020b) has argued, critiquing the framing of SD and ESD would require deconstructing the meanings of the development being promoted. According to Gadotti (2008), ESD will not achieve its objectives because the current model of economic development reinforces values of 'unsustainable lifestyle' (p. 21). Moreover, in order to widen the space for learning, there is a growing demand for EE to be part of citizenship education (Misiaszek, 2015). This justifies why ecopedagogy is sometimes discussed along with Global Citizenship Education (GCE) (Misiaszek, 2015).

A long history of environmental injustices could be one aspect that justifies the need for ecopedagogy as an environmental pedagogy. Although this paper is not a comprehensive historical account of environmental injustices, few examples are worth presenting. For instance, Melosi (1995) has demonstrated how the voices of the people of colour and the poor have been missing in environmental literature and movements. According to Melosi (1995), the fact that these voices were missing even within the writings and programs of environmental activists is an indication of how the poor and racial minorities easily get airbrushed in the minds of those who control power. With regard to environmental conservation in Africa, DeGregori (2002) has noted oppressive actions and discourses such as conservation strategies that benefit the rich at the expense of local populations. Such actions and discourses have resulted to different identification processes where, for instance, hunting, beaching, visiting national

parks and access to open spaces are determined by social stratification. For example, while a rich hunter would be referred to as a sportsman, a poor one would normally be described as a poacher. These 'oppressive theoretical frameworks' (Warren, 2000, p. 46) that justify domination and subordination constitute a metaphor for how different forms of oppressions have for long time been institutionalised and justified by EPs and environmental movements. As such, there is a need to deconstruct environmental legislations, acts and policies in order to uncover and rectify the injustices that are embedded in them. Ecopedagogy is a utopian goal that can provide one way to do that.

EPs in Tanzania: a case of a course taught at one university in Tanzania

The motivation to write this paper is mainly grounded on my experience with teaching an EE course between 2013 and 2020. At the same time, some influence on this motivation can be traced back to 2017 when I took a course on ecopedagogy as part of my graduate coursework. Being significantly exposed to the course, in this paper I analyse the course in order to check its consistence with the tenets of ecopedagogy. The analysis covers the content of the course and the process of teaching the course, particularly in relation to the current efforts to teach the course using ecopedagogy. The analysis is guided by the Ecopedagogy-Global Citizenship Education (Ecopedagogy-GCE) framework (Misiaszek, 2015). This analysis seeks not only to bring to life the debate on the best ways to teach EE courses in Tanzania and elsewhere but also to suggest possibilities for rethinking about EPs.

'Contemporary Issues in Science and Mathematics Education' (University of Dar es Salaam [UDSM], 2011, p. 1) is an undergraduate course offered to all third-year student teachers pursuing a Bachelor of Education in Science at one university college. Located in North Eastern Tanzania, the university college is a constituent college of one comprehensive public university in Tanzania. Another constituent college of this comprehensive university is located in southern central Tanzania. All these three campuses use the same centralised curriculum. This course is, therefore, taught in all the three campuses using the same course curriculum. Being a centrally planned course entails that there are mechanisms by a central body to ensure that teaching is consistent with the course curriculum. According to the course curriculum, a total of 45 hours should be devoted to this course in each semester. In other words, two lecture hours and one seminar hour are spent for the course every week. During the lecture hours, students are supposed to listen to the lecturer, with very minimal opportunities for them to actively participate in the teaching-learning process. During the seminar hours, these students are given

opportunities to ask questions and present their projects. In terms of content, the course has five modules as follows:

> 1: Understanding basic concepts on science and technology education 2: The social issues surrounding wildlife resources 3: Achievements and consequences of western science and technology practice 4: Ethical and controversial issues in the practice of science and technology 5: The politics and issues surrounding Environmental Impact Assessment (UDSM, 2011, pp. 1–3).

The course is assessed through a series of examinations and one project as prescribed in the course curriculum. I presume that the campuses have variations in terms of how the course is taught and in terms of class size. In that regard, the analysis was limited to a university college where I have been teaching the course. It is important to note that, for the period that I have taught this course, the class size has been ranging from 75 to 92 students, an exception being a class of 126 who did the course in the semester that ended in February 2020.

Ecopedagogy-Global Citizenship Education (GCE) framework

The current study uses a framework of the connections needed between Ecopedagogy and GCE as elaborated in Misiaszek (2015) to investigate the extent to which the course reflects the features and principles of ecopedagogy. In this framework, Misiaszek (2015) holds an assumption that human beings, individually and/or collectively, involve in actions of one kind or another that contribute to environmental destruction. From those actions, there are individuals and groups who benefit more than others as well as those who pay the cost more. Misiaszek (2015) argues that the distribution of benefits and costs is not fair. In that regard, ecopedagogy whose focus is to 'critically question who benefits, who does not, and why social-environmental disparities exist' (Misiaszek, 2015, p. 281) is proposed as a relevant environmental pedagogy. Another assumption is that globalisation (Global Citizenship Education) can both be empowering and oppressing. Thus, EPs and citizenship education models that help to maintain social-environmental inequalities should be challenged.

Misiaszek (2015, p. 283) summarises two main elements of ecopedagogy, namely, 'the use of theoretical framing' and 'the democratisation of the learning process'. Within these elements are four main considerations. First is the need to learn environmental issues and solutions from perspectives different from what is known locally so as to deepen our understanding of social-environmental issues. Second is the need to focus on indigenous local knowledge and values when constructing learning spaces with the goal of contextualising the learning process. In these two considerations, students do not slavishly learn global or local knowledge, values and practices.

Rather, they critically construct and deconstruct local and global framings of social-environmental issues. This is related to what has sometimes been termed as 'globalisation from above and globalisation from below' (p. 284), both of which can at the same time be empowering or disempowering (Misiaszek, 2015).

The third is democratisation of learning, which has to do with the process of learning and is highly valued. Ecopedagogy borrows from Freirean pedagogy where students and teachers work together to critically reflect on social-environmental issues with the goal of transforming reality. As opposed to banking education where teaching and assessment rely on lectures and students' abilities to memorise information about social-environmental issues, ecopedagogy, calls for constructive and transformative teaching and assessment methods. The fourth consideration is constituted by students' prior knowledge and experiences. This informs the reflection of current discourses and practices. According to Misiaszek (2015), other types of global citizenship such as those that reinforce oppressive neo-liberal thinking are challenged instead. Quoting Shultz (2007), Misiaszek (2015) discusses a model of GCE that is consistent with ecopedagogy, that is, 'transformationalist global citizenship' (p. 284) under which globalisation is viewed as 'both empowering and disempowering, with the goal of realising social justice at the local level by strengthening empowering processes and eliminating oppressive ones' (p. 284). The assumptions and considerations offered in this framework permitted the researcher to gauge the extent to which the course is consistent with these tenets of ecopedagogy.

Materials and methods

This paper uses document analysis – 'a systematic procedure for reviewing or evaluating documents' which aim at eliciting 'meaning, gain understanding and develop empirical knowledge' (Bowen, 2009, p. 27) – and the author's own experience as a course instructor to investigate the extent to which an EE course features the tenets of ecopedagogy. Weekly memos from each reflective feedback session helped the researcher to recall the experiences of teaching the course. These memos covered a period of two consecutive semesters during which the researcher integrated ecopedagogy when teaching the course. The memos carried information about students' reactions, the supporting environment for the pedagogy being implemented, the challenges encountered and suggestions for improving future lessons. To minimise the researcher's bias and reactivity (Nagar & Geiger, 2007), especially that which would result from using his own experience, the analysis involved first immersing into the theoretical framework (Ecopedagogy- GCE) (Misiaszek, 2015), thus using the framework to interpret both the course content and process. The purpose was to make sense of

the themes of the course in relation to the assumptions, elements and considerations suggested in the framework while at the same time acknowledging some researcher's contribution in the construction of meaning.

The course curriculum served as a source of the course content analysed in this paper. Informed by his own experience in teaching the course, the researcher skimmed, read and made interpretations that were thought to serve the research questions. For instance, by reading phrases used in the course curriculum such as 'modern western science', 'development', 'sustainability' 'traditional African science and technology' (UDSM, 2011, pp. 1–3), the researcher could easily relate their meanings with the framework. To avoid forcing each emerging data to fit the theoretical framework (Stephens, 2009), the researcher remained open to other emerging themes. The theoretical framework allowed the researcher to identify and deconstruct specific phrases and sentences from the course description and modules. As well, by integrating his own experience as recorded in memos, the researcher was able to analyse the process aspect of the course. The analysis of both the content and process produced themes that were fitted into the theoretical framework and were organised using the main assumptions, elements and considerations described in the theoretical framework.

Results

This study investigated the incorporation of ecopedagogy tenets in teaching and the possibility of implementing ecopedagogy in the Tanzanian context. It is important to note that the use of the term ecopedagogy is unpopular in EP discourses in Tanzania. As a matter of fact, as a student who has taken EE courses from secondary education to undergraduate level and later taught an undergraduate EE course for 7 years in Tanzania, I had never heard of the word (ecopedagogy) prior to 2017 when I took a course on ecopedagogy. This may not, however, imply that EPs in Tanzania do not have ecopedagogy features.

The extent of ecopedagogy and reflections on lessons learned

Assumptions

Consistent with the theoretical framework, the course begins with an assumption that human activities fuelled by the rapid development in science and technology result not only to environmental destruction but also ethical, lifestyle and health concerns. Also, consistent with the assumptions of ecopedagogy, the course focuses on the analysis of how modern advancement in science and technology is associated with environmental, health and ethical issues and how indigenous forms of

knowledge can serve as alternatives for sustainable life (Misiaszek, 2015). However, contrary to the assumptions of the framework, the course content and process do not put much emphasis on deconstructing the framing of some phrases used throughout the course. For instance, according to the framework, the consistent use of phrases such as 'Modern western science', 'development', 'sustainability' 'traditional African science and technology' (UDSM, 2011, pp. 1–3) throughout the course should be dealt with critically by deconstructing them to assess the extent to which they reinforce social-environmental injustices.

Understanding that in some cultures terms such as 'modern' and 'traditional' have positive and negative connotations, respectively, in the past two semesters during which we implemented ecopedagogy, we attempted to deconstruct the framing of phrases such as 'modern western science and technology' and 'traditional African science and technology'. During class discussions, we (instructor and students) agreed that the phrases may reinforce discourses that devalue indigenous African knowledge. As such, we suggested the use 'western science' and 'indigenous knowledge/science' instead. This was meant to do away with the feeling that anything originating from Africa is always 'traditional' while anything from the West is always 'modern'. Additionally, due to time constraints and in order to avoid tempering with the course curriculum too much, there was less emphasis pressed on the deconstruction of terms such as development and sustainability and on how their framing using neoliberal frameworks could work against the very purpose of EPs – to conserve the environment.

In the fourth module we discussed environmental issues related to squatter settlements and how social stratification determines 'who live where' and the amount of toxic they might be exposed to. The nature of this topic allowed us to make a critical analysis of how human activities lead to environmental pollution and how social-environmental inequality is reflected in every aspect of life, including the choices of where to live. Generally, the course being analysed in this paper has content that supports the use ecopedagogy.

Contrary to the assumption that local practices (globalisation from below) can both be empowering and oppressive, students had misconceptions under which they regarded indigenous science and technology as always good and any alternative to replace them as evil and environmentally unfriendly. Although the third module of this course is about the achievements and consequences of modern western science, there was a tendency for students to think that the consequences of modern western science overweigh the achievements.

Considerations

Learning from different perspectives. The course curriculum clearly states that the course 'analyses and draws on a variety of contemporary viewpoints on scientific activities and innovations'. This seems to suggest that the course is consistent with the framework's emphasis on learning from different perspectives. In the past, classroom discussions drew from different world viewpoints regarding environmental issues. For example, the discussion of wildlife resources in module two has always involved a discussion of international conventions and treaties such as the Convention on International Trade in Endangered Species (CITES), and the use of frameworks provided by the International Union for Conservation of Nature (IUCN). However, there has been a feeling among students that this world view analysis has resulted in learning of some issues that are less relevant to African and Tanzanian contexts. For example, students have consistently questioned the learning of issues that do not exist and those which are considered culturally unethical, for instance, surrogacy motherhood.

During the course, there was also emphasis on a holistic understanding of environmental issues through their, economic, political, social, technological contexts. However, there was less emphasis on how power relations are reflected in the production of knowledge about environmental issues. Barriers to do so included time constraints and fear against tempering with the course curriculum. Given that final examinations are strictly monitored by a central body so that they adhere to the course curriculum, no much time should be spent on the process goals of the course. Instead, students must cover the content so that they are able to pass the paper-pencil examinations.

Focus on indigenous and local knowledge

In spite of limitations, this course puts much emphasis on indigenous and local knowledge. Consistent with the framework, the entire first module is devoted to 'locating traditional African science and technology' (UDSM, 2011, p. 1). Classroom discussions focus on revisiting different local practices of science and technology and how they can be integrated in school science (modern western science). Other modules are also discussed with a particular focus on African contexts. However, right from the start of using ecopedagogy, overemphasis on the discussion of African indigenous forms of knowledge has been both a strength and a limitation. While this discussion ensures that there is a desirable understanding of different perspectives from the African continent, it ignores the diverse nature of the big continent of Africa.

In fact, African countries have different cultural and economic contexts, hence different historical developments in the production of science knowledge. Thus, the instructor and students agreed that the balance

should be changed by putting much emphasis on locating Tanzanian indigenous forms of knowledge while carefully adhering to the consideration of learning from different perspectives. Nonetheless, shifting emphasis from African indigenous forms of knowledge to Tanzanian indigenous forms of knowledge would require a great deal of research to locate and document rich scientific and technological practices that have been part of the Tanzanian economic, cultural and social life. Moreover, the framework used in the current study does not specifically state the unit of analysis for which to define indigenous knowledge. One may also argue that Tanzania, being a vast country, does not provide a suitable unit of analysis. However, there was a feeling among students that the focus on Tanzania instead of Africa would make the course more practical and contextualised.

The democratisation of the learning process

By reflecting on the changes that have happened since the researcher started teaching the course using ecopedagogy, generally, the course is reported to adhere to the principles of *democratisation of the learning process*. The course is taught through a series of short lectures as well as group and whole-class discussions. There are a two-hour lecture and a single-hour seminar session per week. Seminars serve as opportunities for students and instructors to discuss and clarify issues not clearly understood during the lecture. They also provide a space for students to bring in issues they are interested to discuss. As well, the learning context provides an opportunity for instructors to select the suitable approach from a wide range of teaching and learning approaches. However, the class size (which ranges between 72 and 126) poses challenges to the implementation of the student-centred pedagogy. Additionally, the assessment using objective items such as multiple choices and matching items as per the university examination policy has tended to reinforce overemphasis on content coverage.

Valuing prior knowledge and experiences

The tensions involved when deciding whether to focus on local perspectives or on learning from diverse perspectives was felt in this aspect. First, the course syllabus does not clearly guide instructors on which perspectives to consider and how to balance between global and the local perspectives. Second, most students had less exposure to international perspectives such as CITES and IUCN. While learning from other perspectives has a potential to widen students' understanding, it compels students to learn new concepts which require extra efforts on their part. With most of students lacking international experience with environmental issues, prior knowledge has tended to be locally located. Third, limited time to complete the course gives less room for students to bring in prior knowledge and experience. As

reported earlier, there was pressure on the part of students and instructor to complete the syllabus as per the university policy.

Discussion

The framework used in this study borrows ideas from a Freirean pedagogy to frame the principles of ecopedagogy. While this course is consistent with some tenets of ecopedagogy in the aspects of course content and teacher–student relationship, it falls short in other aspects such as the transformative goals of learning. Moreover, more time for discussions and use of other student-centred approaches do not guarantee that the tenets of ecopedagogy will be integrated in the course. Generally, in the context of Tanzania, students have been taught to recite the curriculum content from topic to topic (Kafyulilo & Tilya, 2019; Vavrus & Bartlett, 2012). That is to say, students tend to believe that the teacher is a source of knowledge and that being a good student entails listening carefully to him/her. Unfortunately, these students' belief systems are not aligned with ecopedagogy which, among other things, emphasise on co-construction of knowledge. Furthermore, although there is an increased emphasis on the use of more learner-centred approaches in Tanzania (Kafyulilo & Tilya, 2019; Kitta & Tilya, 2010; Vavrus & Bartlett, 2012), such approaches do not necessarily involve discussing issues of knowledge and power as ecopedagogy would demand. Rooted in critical pedagogy, ecopedagogy emphasises on analysing power relations and challenging all 'oppressive conceptual frameworks' (Warren, 2000, p. 46) that justify dominations. In other words, ecopedagogy provides space for transformative learning that has power to instil in students critical mind-sets with which they can question, challenge and reflect on their environmental practices as well as what is learned in EE courses. Thus, given the general aim of preparing citizens who have inquiring minds (MoEVT, 2009), this course and other EE courses in Tanzania can benefit from adopting ecopedagogy in teaching.

Given limited time to complete courses, larger class sizes and overemphasis on content coverage and standardised examinations, often times it has proven challenging to teach using EPs such as ecopedagogy. As a consequence, there has been less room for critical discussions in many classrooms (Mkimbili et al., 2017). In addition, as the aims of education in Tanzania suggest (MoEVT, 2009), the development that is being promoted by education is defined in terms of neo-liberal ideologies. As a result, deconstructing myths that perpetuate relations of dominations is rarely a curriculum priority (Camicia & Franklin, 2011). For ecopedagogy to be fully integrated as an environmental pedagogy, the mentioned barriers have to be addressed. Regarding learning from other perspectives, it is worth considering including aspects such as globalisation in the EE course content in Tanzania. Conceptualised as a global economic, social, cultural and

political integration marked by rapid development of new information technologies and weakening of the power of national governments (Demaine, 2002; Mundy, 2005; Torres, 2002), globalisation offers a powerful framework for studying and understanding environmental issues. For example, its increased influence (in all its dimensions) on environmental degradation (technological dimension), life styles that are unsustainable (cultural dimension) and neo-liberal framings of development which focus on massive consumptions and extraction of natural resources (economic dimension) makes globalisation an important topic to be included in contemporary EE courses. Furthermore, as Torres (2002) has argued, globalisation is associated with blurring of national boundaries where the forces that shape environmental decisions (e.g. the United Nations) and main contributors of environmental degradation (e.g. Trans-national Corporations) fall beyond the control of the state. Seen from this sense, learning environmental issues from different perspectives is considered very essential (Demaine, 2002). However, the balance between learning global versus local perspectives will have to be worked out. More importantly, in Tanzania where curricula are centrally planned, decentralising curriculum decisions to the level of instructors will likely help instructors to balance between the local and the global depending on the learning contexts. In addition, the framework used in this study also rests on the assumption that indigenous and local knowledge and practices can both be empowering and oppressive. Given that students perceive indigenous knowledge to be always empowering (as the results have indicated), there is a need to deal with such misconception by promoting dialogue on various dimensions of globalisation.

Essentially, curriculum decentralisation will grant instructors and students autonomy to align the goals of the course with its content, outcomes and assessment activities. It is well known that a lack of alignment among the elements of the curriculum (e.g. goals, content, teaching activities, and assessment) leads to difficulties in implementing educational reforms (Sullanmaa et al., 2019). In this regard, there is a need to address the issue of course alignment if ecopedagogy is to be integrated in EPs. For instance, as of now, the course assessment policy (e.g. overemphasis on paper-pencil, objective tests) and its associated accountability measures enforced by the central planners are not well aligned with the tenets of critical pedagogy such as dialogue and problem posing. Instead, it reinforces the banking education model, hence limiting any dialogue regarding the course – including challenging the goals, content, assumptions and assessment modalities of the course itself. In other words, while the course content comprises of topics that permit critical co-construction of knowledge as ecopedagogy demands, the assessment activities suggested in the syllabus somehow limit that from happening as they put instructors and students in the pressure of seeking to cover the content so as to prepare for high-stakes examinations.

Thus, although one seminar hour per week is devoted to discussing various course issues, overemphasis on content coverage has influence on the choice of what is discussed during the seminars. In general, central curriculum planning implies monopoly of knowledge whereby the central planner is bestowed with the power to decide not only what should be learned but also how it should be learned. Thus, it is fair to say that course central planning is somehow in conflict with teaching by using ecopedagogy.

Limitations and conclusion

While this study has potential implications for EPs in the Tanzanian context where few or no research has been conducted on this subject, the study is not without limitations. First, relying on one's own experience with teaching the course might have resulted in potential biases associated with reporting a one-sided course reflection. Thus, future studies might consider interviewing students to explore their reactions in relation to the course. Additionally, classroom observation to assess the extent to which ecopedagogy is used in teaching the course could be another way to reduce potential biases. Second, the analysis was based on a single course taught to students who are not specializing in environmental sciences per se. Thus, doing the same investigation in the department of environmental sciences is paramount if a general conclusion about EPs in Tanzania has to be made. Extending this study to the department of environmental sciences is very important given that the majority of environmental science experts and policymakers are trained in this department. Thirdly, given that ecopedagogy is defined differently by different scholars (Nakagawa, 2017), this study might be limited to the framework used. Thus, future studies could extend the definition of ecopedagogy beyond the one used in this study's framework. In relation to this, future studies might also focus on the extent to which ecopedagogy (and critical pedagogy) is aligned with the cultural and social construction of power and power relations, particularly on how institutions such as families, religion, and politics influence student–teacher relations in Tanzania.

To conclude, this paper attempts to provide suggestions on how this course and other EE courses in Tanzania can incorporate elements of critical pedagogy. More importantly, the paper reinvigorates the debate on curriculum planning in Tanzania. In particular, the paper has shown how central curriculum planning can be at odds with reforms which were introduced in the country in 2005 such as learner-centred pedagogy and competence-based education (Kitta & Tilya, 2010). With regard to ecopedagogy, while central planning ensures that implementers must conform to instructional time allocations, assessment weights and even the type of assessment activities prescribed in the course syllabus, flexibility in dealing with EE courses (including challenging the framings of the course by central planners) is at

the heart of ecopedagogy. This contradiction will have to be resolved if ecopedagogy is to be fully integrated in EPs in Tanzania.

Acknowledgments

My sincere appreciations should go to Kavenuke Patrick and Kapingu Mpologo who devoted their treasurable time to proofread this work.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Mjege Kinyota is lecturer in STEM education at Dar es Salaam University College of Education, University of Dar es Salaam, Tanzania. His research interests include teaching and learning in STEM, Environmental education, social justice education, teacher education in STEM and gender in STEM. He holds a Bachelor of Science Education (University of Dar es Salaam), Masters of International Education (University of Massachusetts), and a Ph.D in Comparative Education (Beijing Normal University).

ORCID

Mjege Kinyota http://orcid.org/0000-0003-2567-5269

References

Alexander, J., & Jarman, R. (2015). Prizing children's science information books: The text, reading and the reader. *Literacy*, *49*(3), 123–132. https://doi.org/10.1111/lit.12060

Apple, M. (2004). The hidden curriculum and the nature of conflict. In M. Apple (Ed.), *Ideology and curriculum* (pp. 77–98). Routledge.

Apple, M., Au, W., & Gandin, L. S. (2009). Mapping critical education. In M. Apple, W. Au, & L. S. Gandin (Eds.), *The Routledge international handbook of critical education* (pp. 3–20). Routledge.

Apple, M. W., & Au, W. (2009). Politics, theory, and reality in critical pedagogy. In R. Cowen & A. Kazamias (Eds.), *International handbook of comparative education* (pp. 991–1007). Springer.

Arnove, R. F. (2007). Introduction: Reframing comparative education: The dialectic of the global and the local. In R. F. Arnove & C. A. Torres (Eds.), *Comparative education: The dialectic of the global and the local* (3rd ed., pp. 1–20). Rowman & Littlefield.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, *9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Camicia, S. P., & Franklin, B. M. (2011). What type of global community and citizenship? Tangled discourses of neoliberalism and critical democracy in curriculum and its reform. *Globalisation, Societies and Education*, *9*(3–4), 311–322. https://doi.org/10.1080/14767724.2011.605303

DeGregori, T. R. (2002). The environment, our natural resources, and modern technology. Iowa State Press.
Demaine, J. (2002). Globalisation and citizenship education. *International Studies in Sociology of Education*, *12*(2), 117–128. https://doi.org/10.1080/09620210200200086
Dunkley, R. A. (2018). Space-timeScapes as ecopedagogy. *The Journal of Environmental Education*, *49*(2), 117–129. https://doi.org/10.1080/00958964.2017.1417223
Elibariki, R., & Maguta, M. M. (2017). Status of pesticides pollution in Tanzania—A review. *Chemosphere*, *178*, 154–164. https://doi.org/10.1016/j.chemosphere.2017.03.036
Freire, P. (2010). *Pedagogy of the oppressed*. The Continuum International Publishing Group Inc.
Gadotti, M. (2008). What we need to learn to save the planet. *Journal of Education for Sustainable Development*, *21*(2), 21–30.
Hannigan, J. A. (2006). Chapter 2: Contemporary theoretical approaches to environmental sociology. In J. A. Hannigan (Ed.), *Environmental sociology* (2nd ed., pp. 16–35). Routledge.
Illich, I. (1983). *Chapter 7: Rebirth of epimethean man. Deschooling society (1st Harper Colophon ed.)*. Harper Colophon.
Jickling, B., & Wals, A. E. J. (2008). Globalization and environmental education: Looking beyond sustainable development. *Journal of Curriculum Studies*, *40*(1), 1–21. https://doi.org/10.1080/00220270701684667
Jucker, R. (2004). Have the cake and eat it: Ecojustice versus development? Is it possible to reconcile social and economic equity, ecological sustainability, and human development? Some implications for ecojustice education. *Educational Studies*, *36*(1), 10–26. https://doi.org/10.1207/s15326993es3601_3
Kafyulilo, A. C., & Tilya, F. (2019). Learning technology by design: Experiences from in-service science and mathematics teachers in Tanzania. *Journal of Education, Humanities and Sciences*, *8*(1), 16–29.
Kellner, D., & Share, J. (2007). Critical media literacy is not an option. *Learning Inquiry*, *1*(1), 59–69. https://doi.org/10.1007/s11519-007-0004-2
Kitta, S., & Tilya, F. (2010). Assessmentstatus of learner-centred learning and assessment in Tanzania in the context of the competence-based curriculum. *Papers in Education and Development*, *29*, 77–90.
Kitula, A. G. N. (2006). The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District. *Journal of Cleaner Production*, *14*(3–4), 405–414. https://doi.org/10.1016/j.jclepro.2004.01.012
Klees, S. J. (2008). A quarter century of neoliberal thinking in education: Misleading analyses and failed policies. *Globalisation, Societies and Education*, *6*(4), 311–348. https://doi.org/10.1080/14767720802506672
Koziarski, A., Kissui, B., & Kiffner, C. (2016). Patterns and correlates of perceived conflict between humans and large carnivores in Northern Tanzania. *Biological Conservation*, *199*, 41–50. https://doi.org/10.1016/j.biocon.2016.04.029
Lloro-Bidart, T. (2018). A feminist posthumanist ecopedagogy in/for/with animalScapes. *The Journal of Environmental Education*, *49*(2), 152–163. https://doi.org/10.1080/00958964.2017.1417225
Lugazia, F. K. (2016). The holy spirit, eco-justice, and the African Lutheran response to ecological peril. Dialogue. *A Journal of Theology*, *53*(3), 282–286.
Melosi, M. V. (1995). Equity, Eco-Racism and Environmental History. *Environmental History Review*, *19*(3), 1–16. https://doi.org/10.2307/3984909

Ministry of Education and Vocational Training [MoEVT]. (2009). *Biology syllabus for advanced level secondary education, form V-VI. Dar es Salaam (Edition of 2017)*. Tanzania Institute of Education.

Misiaszek, G. W. (2012). Transformative environmental education within social justice models: Lessons from comparing adult ecopedagogy within North and South America. In D. N. Aspin, J. Chapman, K. Evans, & R. Bagnall (Eds.), *Second International handbook of lifelong learning* (Vol. 26, pp. 423–440). Springer.

Misiaszek, G. W. (2015). Ecopedagogy and citizenship in the age of globalisation: Connections between environmental and global citizenship education to save the planet. *European Journal of Education*, *50*(3), 280–292. https://doi.org/10.1111/ejed.12138

Misiaszek, G. W. (2018). *Educating the global environmental citizen: Understanding ecopedagogy in local and global contexts*. Routledge.

Misiaszek, G. W. (2020a). Countering post-truths through ecopedagogical literacies: Teaching to critically read 'development' and 'sustainable development'. Educational Philosophy and Theory. *52*(7), 747–758. https://doi.org/10.1080/00131857.2019

Misiaszek, G. W. (2020b). Ecopedagogy: Teaching critical literacies of 'development', 'sustainability', and 'sustainable development'. Teaching in Higher Education. *25*(5), 615–632. https://doi.org/10.1080 /13562517.2019

Mkimbili, S. T., Tiplic, D., & Ødegaard, M. (2017). The role played by contextual challenges in practising inquiry-based science teaching in Tanzania secondary schools. *African Journal of Research in Mathematics, Science and Technology Education*, *21*(2), 211–221. https://doi.org/10.1080/18117295.2017.1333752

Mundy, K. (2005). Globalization and educational change: New policy worlds. In N. Bascia, A. Cumming, A. Datnow, K. Leithwood, & D. David Livingstone (Eds.), *International handbook of educational policy* (pp. 3–17). Springer.

Nagar, R., & Geiger, S. (2007). Reflexivity and positionality in feminist fieldwork revisited. In A. Tickell, E. Sheppard, J. Peck, & T. Barnes (Eds.), *Politics and practice in economic geography* (pp. 267–278). Sage.

Nakagawa, Y. (2017). WWOOF Ecopedagogy: Linking 'doing' to 'learning'. *Australian Journal of Environmental Education*, *33*(1), 1–17. https://doi.org/10.1017/aee.2016.30

Olmos, L., & Torres, C. A. (2009). Theories of the state, educational expansion, development, and globalizations: Marxian and critical approaches. In R. Cowen & A. M. Kazamias (Eds.), *International handbook of comparative education* (pp. 73–86). Springer.

Payne, P. G. (2018). Ecopedagogy as/in scapes: Theorizing the issue, assemblages, and metamethodology. *The Journal of Environmental Education*, *49*(2), 177–188. https://doi.org/10.1080/00958964.2017.1417228

Postma, D. W. (2006). Chapter 1: Introduction. In D. W. Postma (Ed.), *Why care for nature? In search of an ethical framework for environmental responsibility and education* (pp. 1–16). Springer.

Samoff, J., & Carrol, B. (2007). Education for all in Africa: Still a distant dream. In R. F. Arnove & C. A. Torres (Eds.), *Comparative education: The dialectic of the global and the local* (3rd ed., pp. 357–388). Rowman & Littlefield.

Spear, A. M., & Costa, R. B. (2018). Potential for transformation? Two teacher training programs examined through a critical pedagogy framework. *Teaching and Teacher Education*, *69*, 202–209. https://doi.org/10.1016/j.tate.2017.10.013

Stephens, D. (2009). Analysing the data: Finding the meanings. In D. Stephens (Ed.), *Qualitative research in international settings: A practical guide* (pp. 98–113). Routledge.

Strauch, A. M., Rurai, M. T., & Almedom, A. M. (2016). Influence of forest management systems on natural resource use and provision of ecosystem services in Tanzania. *Journal of Environmental Management*, *180*, 35–44. https://doi.org/10.1016/j.jenvman.2016.05.004

Stromquist, N. P. (2002). Chapter 1: Theorizing globalization. In N. P. Stromquist (Ed.), *Education in a globalized world: The connectivity of economic power, technology, and knowledge* (pp. 1–18). Rowman & Littlefield Publishers.

Sullanmaa, J., Pyhältö, K., Pietarinen, J., & Soini, T. (2019). Curriculum coherence as perceived by district-level stakeholders in large-scale national curriculum reform in Finland. *The Curriculum Journal*, *30*(3), 244–263. https://doi.org/10.1080/09585176.2019.1607512

Torres, C. A. (2002). Globalization, education, and citizenship: Solidarity versus markets? *American Educational Research Journal*, *39*(2), 363–378. https://doi.org/10.3102/00028312039002363

University of Dar es Salaam [UDSM]. (2011). *Contemporary issues in science and mathematics education course syllabus*. University of Dar es Salaam.

Vavrus, F., & Bartlett, L. (2012). Comparative pedagogies and epistemological diversity: Social and materials contexts of teaching in Tanzania. *Comparative Education Review*, *56* (4), 634–658. https://doi.org/10.1086/667395

Warren, K. J. (2000). Chapter 3: Quilting ecofeminist philosophy a Western perspective on What ecofeminist philosophy is. In K. J. Warren (Ed.), *Ecofeminist philosophy: A western perspective on what it is and why it matters* (pp. 42–71). Rowman &Littlefield.