

Higher Education Curricula for Ecologically Sustainable Development

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Abstract

This paper considers the practice of higher education curricula for sustainable development under ecological crises. Therefore, the deficiency of an environmentally sustainable notion in higher education curricula is first examined based on the work of American educationist C. A. Bowers. Second, borrowing from the notion of deep ecology developed by Norwegian philosopher Arne Naess, I discuss the perspective of ecological significance, and how to develop a deep ecological attitude in university learning for sustainability. Third, drawing from the concepts of both Bowers and Naess, I elaborate on possible practices of sustainable development in higher education curricula, including defining the aims of sustainable education, exploring sustainable forms of cultural practice, developing an ecologically sustainable lifestyle, and formulating an interdisciplinary curriculum structure.

Keywords: higher education, curriculum, sustainability, ecology, sustainable development, Bowers, Naess

1. Introduction

Because of the increasing ecological crises regarding complying with high industrial development, sustainable development has received growing attention worldwide. Growing awareness of sustainable development is evidenced in international conventions and national policies. Education plays a crucial role in promoting sustainable development processes, a view that is emphasised in the following statement offered by The United Nations Educational, Scientific and Cultural Organization (UNESCO):

Sustainable development cannot be achieved by technological solutions, political regulation or financial instruments alone. Achieving sustainable development requires a change in the way we think and act, and consequently a transition to sustainable lifestyles, consumption and production patterns. Only education and learning at all levels and in all social contexts can bring about this critical change. (UNESCO, 2012a, p. 13)

Accordingly, higher education is an educational level that can employ environmental innovation for sustainable development. Learners who are university educated may lead global ecological change. However, commercial logic has contaminated higher education, and economics has heavily affected its teaching and learning outcomes, fostering ecological crises. Marginson (2014) observed that higher education institutes are expected to advance the global competitiveness of a nation by preparing and attracting knowledge-intensive labour. These institutes have unconsciously become educational instruments for economic improvement. Barnett (2014) warned that higher education has been framed within a narrow band of concepts, which has typically been associated with economics.

For sustainable development at a higher education level, Stephen Sterling and Barnett conceived the sustainable notion of the university. Sterling (2013) argued that socialisation and vocational goals do not account for the challenge of sustainability. Higher education requires a transformed educational paradigm. It provides vision, image, design, and action for achieving healthy societies and ecologically sustainable lifestyles. He argued that paradigm change is a transformative learning process, and defined the sustainable university as follows:

The sustainable university is one that through its guiding ethos, outlook and aspirations, governance, research, curriculum, community links, campus management, monitoring and modus operandi seeks explicitly to explore, develop, contribute to, embody and manifest—critically and reflexively—the kinds of values, concepts and ideas, challenges and approaches that are emerging from the growing global sustainability discourse. (Sterling, 2013, p. 23)

Sterling indicated that university curricula should produce innovative values, concepts, and ideas for leading sustainable development, particularly related to critical and reflexive perspectives. Barnett claimed that the *ecological university* is emerging. The ecological university is the university that ‘takes seriously both the world’s interconnectedness and the university’s interconnectedness with the world’ (Barnett, 2011, p. 451). According to Barnett, the ecological university cannot enclose itself; it is an institute ‘for the other’, where ‘the other’ is typically outside its campus. The ecological university functions in promoting world wellbeing, and helps to create a sustainable world. The students in this type of university can be identified as global citizens who are concerned about global development. They also understand their responsibilities in the world and towards the world.

Sterling and Barnett presented an imaginative blueprint of a sustainable university by discussing the possibilities of embedding the notion of ecology or sustainability into higher education. Following their proposal, this paper explores how a university curriculum can inspire students to understand their responsibilities for improving the world. Curriculum practice is an effective channel for transforming values, concepts, and notions of environmental sustainability. Proper knowledge of ecology is essential for conducting meaningful acts that prevent ecological harm to the Earth. Education takes responsibility for solving environmental problems and facing ecological crises. However, the meaning of sustainability could be limited to internationalisation, employability, and enterprise (Sterling, 2013). Similarly, the university curriculum has been narrowly manipulated for the purpose of job-obtainment, economic production, or operational capacities. This trend is typically evident when ‘graduate attributes’ are formulated in university curricula (Barrie, 2006). This study primarily focused on developing a robust circulation of ecology by employing a broad concept of nature to substitute for ‘society’ or ‘world,’ which is narrow. The ecological learning related to developing ecological attitudes or values in higher education was explored in this study. Naess stated that studies ‘dealing with humans’ *deep attitudes* towards nature and of how they could be changed... are neglected or not even seen as relevant in most schools, universities, or privately financed research institutions’ (Naess, 2005, p. 19). The possibility for creating deep attitudes was the focus of this study. In higher education, sustainable education practices primarily involve changing the physical environment or guiding institutional sustainable management, and are rarely concerned with the cultural level of ecological practices. Spiritual growth concerning human interaction with nature has also received scant attention. However, the intrinsic value of nature is a fundamental topic to be learned (or experienced) in university curricula. For exploring this notion, I first examined the deficiency of the environmentally sustainable notion in higher education curricula based on the work of C. A. Bowers, an American educationist who focused long-term attention on ecological issues. His work particularly explored the ecological crises in higher education. Second, borrowing the notion of deep ecology from Norwegian philosopher Naess, I discuss the perspective of ecological significance, and how to develop a deep ecological attitude in university learning for sustainability. Drawing from both concepts of Bowers and Naess, I elaborate on certain notions concerning possible practices in a higher education curriculum for accomplishing sustainable education.

2. Ecological crises and higher education curricula

Bowers (1993) asserted that ecological sustainability cannot avoid the influence of culture and ideology. In his view, ecological sustainability cannot be accomplished until knowledge, technological practices, and communal relationships are sustainable. Bowers reflected that American society has become a consumption-addicted society, in which higher education has unavoidably become involved in the consumptive approach. Bowers stated

The university, especially in the United States, has become increasingly oriented toward providing the knowledge for the development of new technologies, as well as educating students to equate consumerism with personal success and happiness. (Bowers, 2011, p. 15)

Universities play an essential role in scientific improvement. However, according to Bowers (2011), new scientific technology that universities support is unable to manage the crises of hyper-consumerism. By contrast, it promotes the expansion of economic consumerism, or a consumer-dependent lifestyle. To solve this problem, Bowers indicated that university curricula must examine the conceptual roots of the current ecological and cultural crisis. Certain cultural assumptions show environmental limits; however, most university faculty members are unaware of them. University academic professions have also been overly differentiated. In Bowers' view, examining the solutions of ecological crises requires cross-discipline dialogues. Nevertheless, the university curriculum reform is unable to respond to the requirement by changing the traditional curriculum structure.

Bowers posited that instead of seeking for individual success and happiness promoted by industrial culture, a curriculum reform must be guided by university faculty to 'enable current and future generations to live in more ecologically sustainable ways' (Bowers, 2011, p. 30). Bowers described this curriculum reform as follows:

The basis for the claim that curriculum reform must go beyond exposing students to the environmental sciences, and to an examination of environmental issues from the perspective of various disciplines, is that students now need to learn how to become less dependent upon the products and expert services of the market economy that are overshooting the sustaining capacity of natural systems. (Bowers, 2011, p. 31)

University students are excessively dependent on commercial products in their consumptive culture. Their desires are easily stimulated by attractive advertisements guided by the market economy. They buy more than they need, which causes a waste of resources and environmental harm. Bowers stated that, even in environmentally-oriented courses, the curricula ignore the ecological importance of cultural and environmental commonality. The industrial consumer-oriented culture has not been sufficiently examined in university curricula. University teachers engaged in improving a consumer-based economy, rather than making 'the cultural patterns that are deepening the ecological crisis part of their curriculum and pedagogy' (Bowers, 2011, p. 182). Students are taught that nature can be managed under technological and economic control.

Bowers considered the ecological crisis to be linked to a crisis of cultural values and knowledge. Cultivating ecological intelligence is therefore central to university educational reforms (Bowers, 2011, p. 182). This ecological intelligence refers to a wide range of cultural practices; however, it is always ignored in university curricula. Although Bowers' criticism was based on Western culture, following the globalisation trend, economy-based culture is also observable in numerous Asian countries, in which sustainability in higher education has been narrowly explained as economic and technological development for guaranteeing national prosperity and sustainable existence. This is a global phenomenon that compounds ecological crises.

3. Deep ecology movement

Similar to Bowers' analyses, Naess (1995a) revealed that excessive consumption and waste are primary elements causing ecological crises. Naess and George Sessions formulated the principles of the deep ecology movement as the solution to ecological crises. The inverse of deep ecology is shallow ecology, which concerns economic growth and applied technology in the strategy of maintaining healthy environment. Human interest is dominant in managing ecological problems. Following scientific perspective of the world, the concept of shallow ecology regards all objects in the ecosystem as independent fragments. This notion is generated by anthropocentrism, in which humans are considered the rulers of nature. In contrast to shallow ecology, the concept of deep ecology espouses ecocentrism. Instead of humans as owners of the Earth, they are merely one of the inhabitants, in an equal position as other living or non-living beings. Drawing from gestalt thinking, the deep ecological concept asserts that all things on the Earth constitute a systematic wholeness, which cannot be separated as many individual parts, but that 'everything hangs together' (Naess, 1995b, p. 19). Humans cannot avoid identifying themselves with all living beings.

Naess asserted that, instead of the level of economic development, an ecologically sustainable development is a vital indication of a developed country. Based on his notion of deep ecology, Naess believed that human or nonhuman life has intrinsic value, which is independent of human purposes. All creatures in the ecosystem are equal, referred to as biospherical egalitarianism (Naess, 1995c), and human interference with the nonhuman world should be reduced as much as possible. Concerning human life, rather than a higher standard of living, Naess preferred richness and diversity of life. A higher standard of living is achieved through a high capacity of economic consumption, whereas richness and diversity of life derives from a simple mode of life with less desire. The deep ecology concept teaches that sustainability is related to human development and expands its territory towards sustainable development of nonhuman or non-living forms. Rivers, mountains, and landscape are aspects of human life that belong to the environment that humans rely on. Humans do not live merely in human society, but in natural ecological communities. The human requirement is equal to the requirement of other beings in the ecosystem. The biodiversity notion welcomes an existence with all beings in nature. Naess claimed that he did not regard deep ecology as philosophy, ideology, or religion, but as a social movement or action for which people strive (Naess, 2008). He envisioned that the deep ecology concept could enlighten people's ecological practices. Initiating acts for deep change of sustainable development first requires the deep ecology attitude as a key element. I further elaborate on Naess' account for developing a deep ecological attitude as follows.

4. Understanding the intrinsic value of interacting with nature

Improving sustainable development first requires clarifying nature and human relationship with nature. Nature is generally defined as a physical environment where humans' dwell. It provides useful materials or nourishment that humans require for life and propagation. However, because of industrial development, humans demand resources from nature that exceed vital needs. Capitalists manufacture products by exploiting natural resources and exchanging for more capital, and consumption is encouraged under large amounts of industrial production. Excessive extravagance is easily observed, accompanied by economic development, the human living standard is continually rising. However, human greed has led to severe exploitation of nature. Numerous biological species are on the verge of extinction because of loss of habitat or being caught in excessive numbers. Humans have gradually alienated themselves from nature. Instead of harmony, conflict exists between humans and other beings. Humans are rich in living materials, but poor in mind; they suppose a better life has been created, but what has been created is a distorted attitude to life.

Naess argued that life quality exists in situations of inherent value, rather than adhering to an increasingly higher standard of living (Naess, 1995a). This inherent value is independent of any consciousness of interest by a conscious being. How can this intrinsic value be compatible with nature? In addition to the basic requirement for life, nature possesses remarkable power that supports human spiritual growth. Writers or artists obtain their inspiration from nature. Mountaineers enjoy walking amidst a beautiful landscape in nature. Nature has the power to comfort or inspire people's minds. In addition, nature exercises by means of a regular pattern. Human bodies work well when following this natural pattern and are not independent of the rule of nature. Sustainable development must be considered according to human requirements and nature as a whole where humans' dwell. Naess suggested that the ecology movement is 'a movement from being in the world to being in nature' (Naess, 1995b, p. 27). Naess' concern is not limited to the human world, but encompasses all beings in the ecological environment of Earth.

Naess raised the notion of self-realisation for exploring human intrinsic value. This concept is unrelated to accomplishing individual economic achievement or social position. Students are not educated for responding to consumerism with personal success and happiness in the aim of self-realisation. Rather than obtaining material advantage, self-realisation relies on 'relaxing from striving' (Naess, 1995b, p. 29) and is not self-centred (Bragg, 1996). For Naess, self-realisation is the inherent human capacity for embracing other beings in the self. This notion is close to what Buddhism calls compassion, which refers to care for all beings without requiring any benefit. Naess stated that 'the higher the self-realisation attained by anyone, the broader and deeper the identification with others' (Naess, 1995d). Instead of the minimal self, the Self in Self-realisation is the great Self. Naess held the interdependent view of looking at self with others. Our identification with others can occur when we recognise all beings are in oneness. The inner self becomes broader and deeper after identifying with others. What Naess referred to as a 'deep ecological attitude' (Naess, 1995e) requires this practice of identification. Naess therefore suggested the view of gestalt thinking, according to which 'the whole is greater than the sum of its parts' (Naess, 1995f, p. 241). All beings comprise the whole in an ecosystem. The gestalt notion breaks through the modernist subject-object dualism in viewing nature and inspires *spiritual interchange* (Devall, 1995) in encounters with nature. The notion of the self is expanded by identifying with others. This selfless open mind can accommodate everything in nature. When humans engage in harmonious interaction with nature, sustainable development is ensured.

5. Curricula for sustainable development

Regarding curriculum implementation, education for sustainable development is far more than teaching knowledge and principles related to sustainability (UNESCO, 2012b). Based on Bowers' reflection of the cultural roots of higher education and Naess' suggestion of a deep ecological attitude, I explore notions of higher education curriculum in this section. I begin with curriculum practices with the aim of sustainable education.

5.1 Aim of sustainable education

Regarding the aim of sustainable education, I refer to the description in UNESCO's document.

Education for sustainable development (ESD) is education for the future, for everyone everywhere. ESD enables everyone to acquire the values, competencies, skills and knowledge that are necessary to shape sustainable development. ...ESD creates active and ecologically responsible citizens and consumers who are prepared to address the complex global and local challenges facing the world today. (UNESCO, 2012a, p. 16)

According to this text, ESD guides learners to obtain necessary values, competencies, skills, and knowledge in facing current environmental challenges. Its final goal is to cultivate an ecologically responsible citizen who acts in green ways in their daily life for ecological sustainability. Hence, it is essential for learners to search for their intrinsic values in nature, an exploration that can motivate their green attitude and support their harmonious interaction with nature. Bowers indicated that higher education has been governed by market logic that conducts students to develop a minimal self (or ego-self) and to be a winner in free market competition. The notion of a minimal self is merely a narrow sense of personal growth (Devall, 1995) that emphasises individual survival; however, it causes humans spiritual loss. Students must seek intrinsic value rather than material value. According to Naess' suggestion, self-realisation is a self-realisation of all beings. Similarly, an ecologically responsible citizen is the citizen of an ecological community who assumes responsibility for the life of all beings. This thinking could guide university curricula in an alternative approach. The following section provides some suggestions for university curricula in practicing sustainable education.

5.2 Exploring sustainable forms of cultural practice

Bowers examined the industrial consumer-oriented culture in higher education (1993, 2011) and provided examples for university learners to explore various sustainable forms of cultural practice for developing ecological intelligence. First, he suggested that students listen to folk knowledge in their community for clarifying and improving upon this knowledge in curricula. Second, university curricula must 'promote an in-depth study of cultures that have developed a form of intelligence and metaphorical language that takes account of the sustainable characteristics of natural systems in their bioregion' (Bowers, 2011, p. 185). Aborigines possess more ecological wisdom than city residents do, and have an ecological intelligence of natural preservation. This consciousness of environmental protection is obtained from their traditions, as seen in their cultural rituals, poetry, or dances for deities. Ecological wisdom also exists in their indigenous language. Third, ecological wisdom can be learnt from earlier generations. Although we strive to obtain ecological knowledge from science or new technology, many ecological insights already exist in traditional culture, which are ignored or taken for granted. Certain conventional moral values consider environmental preservation, an intelligence that can be studied in university classrooms.

5.3 Developing an ecologically sustainable lifestyle

Maintaining a sustainable lifestyle is essential to sustainable education, but it is the most difficult aspect of education. A green lifestyle derives from an in-depth knowledge of ecology and nature. Nevertheless, university learners are governed by a consumer-driven lifestyle in the current industrialised society. A critical examination of students' previous experience is essential. This strategy assists them in detecting the ideology by which they have been controlled. Their thinking regarding the environment must move from anthropocentrism to ecocentrism, from individual survival to harmonious symbioses, similar to Naess' claim that 'everything hangs together'. Sustainable development must be accomplished using gestalt thinking (Naess, 2010). Enclosing ourselves will not achieve sustainability; an interactive being is the only being with ecological intelligence. Nature is an intelligent teacher for humans; however, it relies on whether humans perceive its profound doctrine. Wisdom derived from nature leads to a simple and natural lifestyle.

5.4 Interdisciplinary curriculum structure

In universities, the solution for ecological crises can be most effectively addressed using a cross-discipline approach. Bowers suggested that cross-discipline dialogues are essential. UNESCO assumes the same view, that interdisciplinary expertise is the optimal approach for supporting

sustainable development in education. However, the current curriculum structure in higher education is over-differentiated and cannot meet this requirement. Ecological crises cannot be solved using only one discipline. Students' understanding of ecology should derive from various learning resources, which promotes diverse viewpoints. In the university curriculum, general education may be an appropriate learning field for integrating various disciplines for learning sustainability. Sustainable education typically tends towards the sciences (such as ecological engineering, environmental resources, and ecological preservation) or social sciences (such as green economies, green societies, ecological education, or ecotourism). Most of these disciplines are valuable for ecological practice. However, humanities are a seemingly *null curriculum* in ecological learning. The disciplines of literature, history, philosophy, or the arts promote scant discussion on sustainable education. This is unfortunate because humanities provide critical pathways for viewing the intrinsic values of nature in culture. Humanities also help students experience rich intelligence in nature. The ecological crisis is built upon fallacious ecological knowledge. By contrast, learning in spiritual and cultural aspects can elicit positive attitudes towards supporting university learners to adopt a sustainable lifestyle.

6. Concluding

This study suggests how to manage the current ecological crises, and considers the educational purpose of supporting university learners to live a rich and diverse life. Naess noted that 'there is ecological sustainability if, and only if, the richness and diversity of life-forms are sustained' (Naess, 2008, p. 297). We live *in* nature and are part *of* nature; therefore, we should do something *for* nature. Instead of a large-scale environmental revolution, consistent practice in daily life is more influential for ecological change. For the purpose of sustainability, the intrinsic value concealed in nature, as shown in local or aboriginal cultural practices, should be compatible with economic value. For educating ecologically responsible citizens, sustainable education must facilitate university learners to renew their perspective of being a human in nature.

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