Ecocentric Education

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Introduction: What Is Ecocentric Education?

Ecocentrism has roots in environmental philosophy, which questions the conceptual dichotomy between humans and the environment, acknowledging nonhuman species' right to flourish independently of human interest (Naess *1973*). Generally, ecocentrism refers to a planet- and nature-centered as opposed to the human-centered (anthropocentric) system of values. Inspired by this philosophy, ecocentric education focuses on intrinsic values of the ecosystem, environment, and individual living beings and habitats in environmental education (EE) and education for sustainable development (ESD).

Originally, ecocentrism has played a large part in how environmental education was conceived. In part inspired by *The Limits to Growth* publication (Meadows et al. *1972*), EE attempted to develop the necessary skills to address the challenges and foster knowledge, attitudes, motivations, and commitments for the protection of the environment, as expressed in the Belgrade Charter (UNESCO-UNEP *1976*). Ecocentrism in this type of environmental education applies to all types of environmental problems, from climate change to biodiversity loss, and is relevant for fields ranging from sociology, political science, and economics (as they explore social, political, and economic causes of climate change, for example) to conservation biology. Ecocentrism dictates that a truly inclusive and lasting rationale for biodiversity conservation ought to maintain the recognition of the intrinsic value of all species (Piccolo et al. *2018*), including humans and ecosystems.

Indeed, ecocentric thought has inspired many initiatives across the world granting legal status and protection to rivers or mountains, as well as to certain species, based on Earth jurisprudence (Burdon *2014*). Earth jurisprudence is a philosophy of law and human governance that is based on the idea that humans are only one part of a wider community of beings and that the welfare of each member of that community is dependent on the welfare of the Earth as a whole. Ecocentric thought stressed the duty to protect biodiversity for its own sake as well as for ours – we ought to conserve biodiversity not only because it is right for us but simply because it is right (Piccolo et al. *2018*). In relation to climate change, ecocentrism is opposed to technocratic, neoliberal, and "ecological modernization" values stressing solutions that address the root causes of climate change (Bailey and Wilson *2009*).

Often, ecocentrism is mentioned in close connection with another concept, ecological justice, otherwise known as eco-justice or ecojustice (Schlosberg *2004*), a concept that refers to justice between all species (Shoreman-Ouimet and Kopnina *2015*). Ecological justice supports nonhumans' entitlement to their living environment and condemns human-induced extinction as a moral wrong

(Cafaro and Primack *2014*). Ecojustice refers to the need to provide justice for nonhuman nature (concurrent with social justice for humans). It seeks the creation of legal frameworks to uphold the "rights of nature." It needs to be noted here that the rights view of nature, as well as the concept of animal rights, faces the question regarding the boundary of moral concern (Sun *2018*). One of the discussions within the larger field of environmental ethics is where is the boundary of the moral community lies – with individuals within the species, the species, or larger "wholes" such as ecosystems or habitats (Kopnina and Gjerris *2015*) and how ought we to treat the objects of moral concern near the boundary (Sun *2018*). For example, within animal rights theory, the issue of predation is controversial as animal rights appear to require or permit interfering in nature to prevent predation (Kapembwa *2018*). Ecocentric education tries to reconcile all levels of moral consideration of nonhumans, stressing that these various perspectives basically critique anthropocentrism and support recognition of intrinsic value attributed both to nonhumans (Waldau *2013*).

Since ecocentrism and ecojustice require values change, as well as knowledge, skills, and motivation to achieve this change, ecocentric education has many purposes, applications, and methodologies. A number of questions, discussed in this encyclopedia entry, as well as open for future research, start to emerge. What is the prevalence and characteristics of ecocentric education? Does EE/ESD positively influence environmental knowledge and attitudes in school children and help develop competencies and skills necessary for the transition to a sustainable society in students of higher education? What are the most effective forms of EE/ESD taking environmental sustainability as an ultimate goal? How can context-specific studies of EE/ESD contribute to the scholarship of social change that contributes to environmental sustainability? In response to these questions, and in order to outline directions for future research and practice, different existing types and new and emerging ideas in relation to ecocentric education will be discussed below.

Existing Types of Ecocentric Education

First, it is important to point out that no distinct school, department, or didactic strategy entitled "ecocentric education" presently exists. Ecocentric education is related to inspiring education for biological conservation applied in Western contexts (e.g., Norris and Jacobson *1998*) or in other countries such as Africa (Goodall *2015*). Most akin to ecocentrism is deep ecology (Naess *1973*), thus education for deep ecology literally by that name started developing in the early 1990s involving outdoor experiences (LaChapelle *1991*) and inspired for recent initiatives (Glasser *2004*). So-called post-humanist education (e.g., Bonnett *2013*) has embraced not just humanism but also biophilia, or love of all life (Wilson *1984*).

Perhaps a bit more controversially, as at times ecosystem-based ethics are contrasted to individual species' or individuals within the species in terms of importance, education for animal rights (e.g., Ortiz *2015*), attitudes to animals (Grant and Jungkunz *2016*), and animal welfare education (e.g., Gorski *2009*) trace their roots in ecocentric tradition. These types of education typically focus on unity between ethical (e.g., the inclusion of nonhumans in moral concerns) and environmental sustainability (e.g., more pragmatic ways of dealing with environmental problems) (Kopnina *2011*, *2012*, *2014a*, *b*, *2016*; Kopnina and Meijers *2014*). More holistic values and understandings, such as "education for wonder" (Washington *2018*) have recently emerged.

Environmental education and education for sustainable development have attempted to develop critical ability in students to address sustainability challenges, yet little of it was devoted to the discussion of concrete ecologically benign models of production (Webster *2007*). In terms of education that takes ecocentric values into account in order to advance pragmatic sustainability aims, such as addressing largely wasteful production and consumption processes, the so-called closed-loop

(circular) production frameworks, Circular economy, and Cradle to Cradle are helpful. These circular frameworks are based on understanding and appreciation of nature's ability to use "waste as food," and basically avoid endless make-use-waste cycles of industrial production (McDonough and Braungart 2010). What differentiates circular production from conventional recycling and the concept of eco-efficiency is that these frameworks attempt to reach beyond minimizing damage (e.g., as recycling can be seen as a form of downcycling, and eco-efficiency can make "bad" things, like fossil fuels, last longer) but eliminate damage altogether (McDonough and Braungart 2010). Emphasizing possibilities for decoupling of resource consumption from the economy, circular frameworks stress eco-effectiveness and goes beyond conventional sustainability tools and approaches. One of the central premises of circular production is that products should be conceived from the very start with ecologically informed design and the intention that they will eventually be reused (rather than merely recycled with the loss of quality), as either "technical" or "biological" nutrients. The circular economy requires a radical re-evaluation of the methods of production toward the goal of a waste-free system. Advancing these aims, one of the largest promoters of a circular economy, the Ellen MacArthur Foundation, stimulates the possibilities inherent in a transition from today's predominately linear "throughput" economy to a circular or "roundput" economy (Webster 2007).

Natural restoration, also in cities and industrial processes, to support both human and nonhuman flourishing, are the basic principles of circular frameworks that inspire ecocentric education with practical goals in mind. Circular economy education, pioneered by Ellen MacArthur Foundation (https://www.ellenmacarthurfoundation.org/resources/learn/higher-education-resources), and Cradle to Cradle education, pioneered by C2C Product Innovation Institute (https://www.c2ccertified.org/education) provide practical guides to students and practitioners considering alternative forms of production. Product Innovation Institute, for example, has web-based education program and teaching materials for designers, architects, but also other interested students developing practical product design strategies to create Cradle to Cradle Certified products that support the circular economy.

It is worth noting, however, that these frameworks and their applications in education have been criticized for greenwashing (e.g., Kopnina 2018), as they tend to be over-optimistic in promising absolute decoupling and suggesting a possibility of continuous production without any environmental damage in order to serve further advancement of economic development (Washington and Twomey 2016). Many purportedly "sustainable" products support the Jevons paradox or rebound effect (Greening et al. 2000) promising businesses and societies new sources of wealth through immense savings and clever designs. The rebound effect can occur in which nominally "sustainable" companies employ smart marketing selling even more products, in effect stimulating more consumption (Greening et al. 2000). While optimistic in intention, and avoiding conventional talk about "minimizing" human impacts, "zero footprints," "banning" harmful substances, or "reducing" energy use, often times circular frameworks are subordinated to optimistic techno-solutions based on economic growth scenarios (https://www.businessgreen.com/bg/sponsored/2123874/industry-cradle-cradle-natural-world). Critics have noted, however, that in doing so, the dream of absolute decoupling of products such as food, clothes, and shelter from material demands of seven and a half billion consumers excuses continuous production that is essentially unsustainable (Rammelt and Crisp 2014). In teaching practice, this translates not into ecocentric education, which circular frameworks could, at least in theory, support, but into education about production – once again – in the service of an economy (Kopnina 2017). This leaves room for further thinking about circular systems and teaching that simultaneously address production and consumption challenges and root causes of unsustainability – population growth and increase in material demands (Meadows et al. 1972).

Ecocentric education does indeed benefit from practical production-focused tools provided by a circular economy and C2C education but does need to retain its focus on benefits that go beyond conventional economic growth, which might have caused environmental problems in the first place. Also, ecocentric education does need to retain its ethical focus on ecosystems and nonhuman beings, not just in terms of side-benefits of more "circular" production. This needs to remain a central focus of its effort to educate citizens that are concerned about and motivated to address environmental problems, as the original aim of the Belgrade charter has stated (UNESCO-UNEP *1976*).

New Directions in Ecocentric Education

In the past few years, environmental education and citizenship education has been more open to combining active citizenship with a new form of inclusion – that of nonhuman species. Education for ecojustice provides pedagogy of responsibility for teachers and teacher educators with the information and classroom practices they need to help develop citizens who are prepared to support diverse, democratic, and sustainable societies (Martusewicz et al. *2014*). This pedagogy might require engaging with a more "radical ecopedagogy" (Kahn *2008*) involving exposure of students to ideas inspired by environmental activism (Kopnina *2015*). Yet, this education still needs to take a deeper root both in society at large as well as in curriculum at all levels of education.

One productive way of addressing ecocentric pedagogy is through examining research and practice of teaching controversial, complex, or novel issues. Research findings delving into teaching practice of controversial environmental issues reveal that while teachers believed they should adopt a "neutral" or "balanced" approach, in the reality of the classroom, such an approach proved unsustainable and the teachers experienced significant difficulties in enacting their beliefs (Cotton *2006*). While it is assumed that in plural "democratic" education, students need to be aware of the nature of controversy, such as ethical or practical acceptability of genetically modified agriculture, and be able to see how arguments are constructed to sway opinions if they are to be fully scientifically literate, in practice such balancing remains difficult (Oulton et al. 2004). For example, while ecocentric education embraces unity between human and nonhuman interests through the concept of interconnectedness, it may also require examination of trade-offs between ecological and social justice (Shoreman-Ouimet and Kopnina *2015*). Similarly, exposure of ideas generated by environmental activists labeled "radical" in wider society (Kahn *2010*) may put educators in an uncomfortable position (Kopnina *2014c*), especially when the students espouse conventional values (Jickling *1996*). The ethical principles and didactic methods relating to the teaching of controversial issues may themselves appear controversial (Oulton et al. 2004). Teaching ecocentric values may indeed require a greater (self)examination of values by the teachers, and careful consideration of challenges associated with teaching in "mixed-opinion" classrooms. Also, teaching ecocentric values might involve discussing complexities and trade-offs in the questions of "rights" accorded to certain species at the "edge" of moral boundaries (Sun *2018*), for example in the case of invasive species or predators (Kapembwa *2018*). Finding the "right" or at least "efficient" way of teaching eccentrically inspired values or skills will doubtfully require further examination as to how democratic learning for sustainability can or should occur.

A significant development in educating ecocentric citizens is a newly established platform for ecodemocracy (https://ecodemocracy.net/) which will soon develop educational materials. This platform seeks to give political and administrative voice to ecocentrism. Ecodemocracy has as its aims representation for nonhuman nature in political processes and, more broadly, the halting of ecocide (Higgins *2010*) through theorizing and studying political power in relation to environment and animal/human divide (Grant and Jungkunz *2016*).

In ecodemocracy, a key mechanism by which representation for nonhuman nature could be achieved is the appointment of *human proxies* that represent nonhumans politically and legally within decision-making structures. The principle of ecodemocracy can operate at any geographic scale, from a local stakeholder group, through a protected area board, to an international alliance of governments. It could also emerge within traditional party-based politics. Thus, https://ecodemocracy.net/ attempts to develop teaching materials that would inspire, inform, and include both democratic, in a traditional, human-centered sense, and inclusive pluralism perspectives (Kopnina and Cherniak 2016) that represent nonhumans.

Conclusion: Looking into the Future of Ecocentric Education

Ecocentric education needs further development and integration within all levels – from primary schools to higher education, from institutions teaching technical skills through hands-on-projects to postgraduate philosophy departments. The expected societal and economic consequences of successfully integrated ecocentric education will be an environmentally sustainable and ecologically just society. Such a society requires further development, stimulation, maintenance, and monitoring of successful programs and their adaptation in the wider international context. Understanding how complex variables such as national and institutional context, ideology and ethics (e.g., ecocentric orientation), and pedagogical skills (e.g., didactic qualities) to ensure a sustainable future represents a high-reward objective. Further research and practice of ecocentric education need to focus on nationally contextualized studies along with the nexus of education, environment, and sustainable future by examining how a wide range of educational programs have influenced the students' worldview and raised particular moral concerns in relation to the environment and our common future. Future research and practice can focus on factors influencing larger societal and by implication teachers' and students' beliefs about the treatment of animals (Erlanger and Tsytsarev 2012) and the environment at large. Granted the strong impact of education and socialization on the continuous cultural reproduction of human-nature relationships suggests a rich and important research area for both environmental ethics and sustainability science (Spannring 2015). Ecocentric education promises to embrace both pragmatic/practical and moral/ethical aspects of (un)sustainability and our relationship with the living world.

Cross-References

. Circular Economy Education
. Conservation Education
. Cradle to Cradle Education
. Environmental Education
. Outdoor Education

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