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Trends in Environmental Education: Implication for Science Teachers

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Abstract The urgency and interdependency of environmental and societal issues led many to believe that immediate actions are necessary to stem the tide of biodiversity loss, climate destabilization, resource overuse, and other concerns. This paper presented some benefits of Environmental Education (EE) to the students, schools and educators, larger society to include: improving academic achievement, breaking the indoor habit, fostering innovative teacher and conserving our natural resources. The challenge this paper presented to EE is to linked opportunities that promote a continuum of experience, as well as learning that incorporates outdoor education and hands on activities. Emphasis was given on teaching individual show to weigh various sides of an issue through critical thinking and this enhances their own problem-solving and decision-making skills. The paper also reviewed researched papers on trends in environmental education and illustrated within pedagogical purview, an education associated with significant life experiences anchored on the knowledge of the ecosystem and pursuing EE research that addresses the complexity of our changing world. The paper concludes by recommending that environmental education should be linked to broadly relevant social, ecological and economics trends. The paper advocated for further research on how environmental educators use research to inform practice, and the difficulties with attempting this direct application.

Keywords Environmental Education, Sustainable Development, Ecology

Introduction

Environmental Education (EE) is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment [1]. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions (NEA, 1990). The components of environmental education as posited by NEA (1990) are:

- Awareness and sensitivity to the environment and environmental challenges
- Knowledge and understanding of the environment and environmental challenges
- Attitudes of concern for the environment and motivation to improve or maintain environmental quality
- Skills to identify and help resolve environmental challenges
- Participation in activities that lead to the resolution of environmental challenges

Environmental Education does not advocate a particular viewpoint or course of action rather, environmental education teaches individuals how to weigh various sides of an issue through critical thinking and it enhances their own problem-solving and decision-making skills [2].

Figure 1 shows that Environmental Education has the power to modify the society and present better knowledge to its populace also in the same vein, Education can stand as proper solution to solve different sorts of problems exist in a society, therefore, education has a big role to play in saving our environment.

Figure 1: Environment dependant on Plants. Source: PJL Campbel

Our nation's future relies on a well-educated public to be wise stewards of the very environment that sustains us, our families and communities, and future generations. It is environmental education which can best help us as individuals make the complex, conceptual connections between economic prosperity, benefits to society, environmental health, and our own wellbeing. Ultimately, the collective wisdom of our citizens, gained through education, will be the most compelling and most successful strategy for environmental management.

The basic components of teaching and learning environmental education include: field investigations, learner centered education, group projects, problem based activities and interactive classroom sessions (Figure 2). In learning, the processing of knowledge also requires a problem solving orientation, a critical approach and an evaluation of knowledge. The ultimate goal of knowledge processing is that the learner can elaborate on applications of knowledge and she/he may also produce new knowledge using cognitive processes, rather than being a passive listener [3].

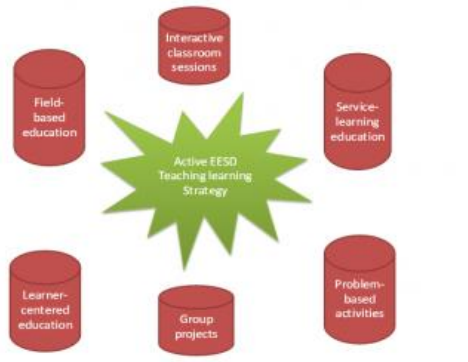

Figure 2: Components of Environmental Education [4]

Teaching students how to learn and how to develop their sense of curiosity are goals of educators in general and science teachers in particular. For instance, Biology, concerned with the wonders of life, offers many fascinating natural phenomena that provoke thought and stimulate curiosity. Students are likely to understand the natural world if they work directly with natural phenomena, using their senses to observe and using instruments to extend the power of their senses [5]. Novak [6] suggested that inquiry involves human beings in the struggle for reasonable explanations of phenomena about which they are curious. In order to satisfy curiosity, inquiry should involve activity and skills, but should focus on the active search for knowledge and understanding of unusual elements in the environment [7-8].

Objectives of the Study

The objective of the study is as follows:

- To identify the importance and the challenges of environmental management

- To identify the trends in education
- To determine the role of teachers in environmental education
- To create awareness on the dangers of environmental degredation.

Importance of Environmental Education

"Environmental Education provides important opportunities for students to become engaged in real world issues that transcend classroom walls. They can see the relevance of their classroom studies to the complex environmental issues confronting our planet and they can acquire the skills they'll need to be creative problem solvers and powerful advocates." [9].

Environmental education benefits students, schools, and our larger world [9].

Environmental Education Benefits Students by:

- Improving Academic Achievement**.** EE improves test scores by providing students with engaging lessons about the natural world that can be applied to all subject areas and grades.
- Breaking the Indoor Habit**.** The environment will be like the laboratory, EE offers an antidote to the plugged-in lives of today's generation, which is the first to grow up indoors. Children who experience school grounds or play areas with diverse natural settings are more physically active, more aware of good nutrition, more creative, and more civil to one another.
- Improving Student Health**.** Physical exercises are encouraged. EE gets students outdoors and active, and helps to address common health issues in children today, such as obesity, attention deficit disorder, and depression
- Supporting STEM**.** EE has a special unit in Science Teachers Association of Nigeria Journal, it offers an engaging platform for gaining and applying knowledge and skills in science, technology, engineering, and mathematics (STEM).
- Meeting 21st Century Needs. EE emphasizes skills essential for succeeding in tomorrow's world, such as questioning, investigating, defining problems, analyzing, interpreting, reasoning, developing conclusions, and solving problems.
- Cultivating Leadership Qualities**.** EE emphasizes cooperative learning with others, critical thinking and discussion, and a focus on action strategies with real-world applications.
- Improving Focus and Cognition**.** EE increases the ability of students to focus and improves their cognitive abilities. Children with attention-deficit disorder also benefit from more exposure to nature–the greener a child's everyday environment, the more manageable are their symptoms [10].

Environmental Education Benefits Schools and Educators by:

- Creating Enthusiastic Students. EE offers opportunities for rich, hands-on, real world and authentic learning across the curriculum. This relevance to students' lives engages and inspires them more than traditional pedagogy.
- Fostering Innovative Teacher-Leaders**.** EE gives educators the confidence to take students outdoor and to design more dynamic, interactive learning experiences that spark students' engagement.
- Addressing Academic Standards. EE offers an engaging way to meet the content and skills identified in Common Core State Standards in English Language Arts and mathematics, as well Next Generation Science Standards and C3 Framework for Social Studies.
- Saving Schools Money**.** When students investigate and take action to improve the environmental performance of their school buildings and grounds, they often cut costs in electricity, water, waste management, and more.

It is estimated that by 2030, the world population of 7 billion will demand twice as many resources as the planet can supply (The Economist). Meeting the needs of our global citizenry—ecologically, economically, culturally, spiritually, and more—requires understanding and creative problem solving. Environmental education equips

learners with the knowledge, skills, and motivation to address complex environmental challenges in the 21st Century.

Environmental Education Benefits the Larger World by:

- Fostering Healthier Schools**.** EE empowers students to lead the way in creating greener and healthier learning environments inside and outside their school buildings.
- Supporting Sound Decision-Making. EE ensures citizens are informed about sound science and equipped to make decisions that are critical to ensuring the world have the natural resources on which our economy and quality of life depend.
- Contributing to Sustainability**.** EE builds the knowledge and skills needed to address complex environmental issues, as well as take action to keep our natural world healthy, our economies productive, and communities vibrant.
- Conserving our Natural Resources**.** Higher levels of environmental knowledge correlate significantly with a higher degree of pro-environment and conservation behavior. The more people know, the more likely they are to recycle, be energy efficient, conserve water [11].

Challenges for Environmental Education

As we enter a new century and millennium**,** environmental educators must come up with new knowledge and techniques that address the demands of a constantly evolving social and technological landscape, while ensuring that environmental education stays relevant to the needs and interests of the community Baines et al [12]. These challenges to environmental education require that we re-examine the way we do research and train environmental professionals and educators, as well as the way we communicate environmental information to the general public. The challenges are as follows [13]:

Education Reform

During the past twenty years concern has grown across the country regarding the quality and relevance of education to the needs of society and the demands of a changing economy and world order [14]. Reform efforts of varying types and degrees are evident in every state. Components of the reform movement include: constructivist thinking and conceptual understanding, cooperative learning strategies, interdisciplinary approaches, problem-solving and higher-order thinking skills and processes, the use of authentic assessment, and recognition of the value of multicultural education. These have been, for the most part, positive steps in the right direction [15].

But some national movements, initially imposed by state legislators and then seized upon by the education community itself, are for standards and state-wide testing. What does this mean for education in general, and specifically for EE? The activities of the past few years can be described as "frenzied" as state education agencies have been, with the help of teacher organizations, busy generating lengthy lists of what children should know in the various disciplines and developing tests to determine how much of it they actually do know [16].

The challenge here is that, first is that few of these state-wide standards include EE, and fewer still have included EE in the tests– assuming that the tests are valid in the first place. But if EE is valuable, it should, like other educational programs, be treated the same way. EE standards, and questions dealing with EE, should be– must be– included in the standards and testing programs across the nation [17].

Educators will therefore be challenged to teach children for "meaning and understanding", and not simply coach them to pass the test [1]. Many of the state-wide tests are, generating a lot of needless anxiety on the part of children, their teachers, school administrators, and parents– for political, rather than sound educational reasons thus, getting past teaching "to pass the test" is one of the first major challenges [13].

Assessment of Learning

We simply have to find better ways of determining if and when learning has taken place. We have made significant progress in assessing learning; authentic assessment has the potential for quite accurately measuring learning outcomes in very meaningful ways.

Early Education and Support Division (figure 2) and the new Project Learning Tree and are environmental education program that has made significant progress in this area, but there remains a long way to go. The techniques are there, but (once again) we must strive to break our old habits [18].

Whose Job is it?

The way we plan today for public education on the environment will have dramatic effects on the future quality of life [1].

Subjects in our school have been compartmentalized, each of its own distinct part, Mathematics, English Language, Turkish Language, Biology, Chemistry and so on. The challenge here is that, in most schools where it is believed that EE is truly interdisciplinary, the position taken is that all teachers should teach EE, no matter what subject they are assigned to teach. That sounds good. But in reality, when something is everybody's job it turns out to be nobody's job.

For EE to be successful at the elementary level, not only is teacher preparation crucial, but EE concepts, activities, etc., must be built into the curriculum itself. This is not a new idea; John Dewey in 1914 proposed a core curriculum that focused on the environment. In Dewey's curriculum, reading was taught using books with environmental themes, science looked much like what we now call EE, math was taught using environmental problems, etc.

At the secondary level, REAL team teaching needs to be practiced. The real team teaching here means that various subject matter specialists need to be in the classroom together, each adding his/her perspective to the exploration of the environmental topic under discussion. This does NOT mean that the science teacher presents his point today, the social studies teacher tomorrow, etc. Rather, all are in the same classroom interacting with each other and with the students at the same time [1].

The EE curriculum must, moreover, be carefully designed and made available to all teachers so that each will know what the others are teaching at each grade level. It should be sequential, with each succeeding year's EE concepts and experiences building on the previous year's work, much like the "spiral curriculum" recommended by Jerome Bruner many years ago [2].

One of the current trends within environmental education seeks to move from an approach of ideology and activism to one that allows students to make informed decisions and take action based on experience as well as data [19]. Within this process, environmental curricula have progressively been integrated into governmental education standards.

Education plays a crucial role in raising awareness of environmental challenges and shaping the attitudes and behaviours that can make a difference. A recently released Trends Shaping Education Spotlight looks at the role of education in both preparing and providing our citizens with the skills needed for a sustainable and productive future.

Responding to Demographic Changes

Obviously, planning for environmental education must take into account significant demographic changes, let's consider the United States as an example here,. What are those demographic trends, and how will they most likely affect the nature of environmental education? First, minority populations dominate population growth; the number of non-Hispanic whites is expected to begin declining in the third decade of this century. Another noteworthy demographic change, in addition to greater cultural diversity, is that the number of aging but active baby boomers will increase over the next several decades. A third important societal shift concerns the nature of the family—namely, changes in its traditional constitution and in the amount of time that family members spend with one another [20-21].

An increasingly diverse society, larger numbers of older Americans, and family life that is geared around schedules rather than free time all have important implications for environmental education. Clearly, environmental education must be of interest to, and available to, diverse audiences.

The challenge here is that designing programs for diverse audiences is not an easy process. It involves much more than mere linguistic translation, although language is important. It requires the involvement of the potential audiences in program design. Moreover, programs must be designed to be sustainable within the communities they seek to involve.

Demographic changes in the United States in the 21st century will dramatically change the potential audience for environmental education. If environmental education keeps pace with this changing audience, the overall environmental movement will benefit by staying relevant to future generations and by inspiring individuals to take action to conserve natural resources and protect the environment. Lessons learned in the United States may well prove useful in the growth of environmental education in other countries as well, particularly those concerning materials and programs that effectively reach ethnically and culturally diverse populations.

The urgency and interdependency of environmental and societal issues led many to believe that immediate actions are necessary to stem the tide of biodiversity loss, climate destabilization, resource overuse, and other concerns [11, 22]. Environmental education (EE) can engage people of all ages to make informed decisions about these and similar issues, and to undertake actions appropriate to their local context [23-24]. With application in urban and rural contexts, and drawing from natural and social science, EE is a multidisciplinary, interdisciplinary, and transdisciplinary field [25-26].

This study coalesce and review research across the field in a similar spirit of the above mentioned disciplines, my intention was to look to the trends of EE research, based in the field's past, but not rooted so firmly as to stifle innovation. Furthermore, the study is to explore directions for EE research, grounded in the field's history and influenced by broader societal trends. This article presents only the beginning of that dialog and is intended to open the conversation around how we might conceptualize future trends for research in this diverse field

In the past, EE research has focused on pathways to engagement with environmental issues through such areas as curriculum, which promotes the integration of EE into formal schooling [27]; character development, leadership, and other life skills, which may result from EE programming [28]; significant life experiences leading to interest in environmental action and career choice [29-31]; variables associated with proenvironmental action conservation behavior [33-34]; and evaluation to address the effectiveness of EE initiatives in formal and informal settings [17]. These traditional questions find themselves enmeshed in new, some-times complicated, movements of politics, ecological change, theory, academic dis-ciplines, and political economy [26, 35]. In many senses, the field is maturing to what Low and Altman [36] described as the move from 'theory development' to 'theory consolidation,' from which we can derive lessons for practice.

To build the capacity of the field and help unify what, at times, can seem to be divergent voices, EE researchers and practitioners have become increasingly interested in considering where the field is situated in light of today's cultural, technological, social, and political contexts [37]. This reflexivity, critical to producing relevant scholarship, may also help prepare researchers to pursue agendas that inform emerging environmental and societal trends. To this end, numerous EE researchers have suggested potential agendas for research in EE and related fields (e.g. Fleishman et al. 2011).

Summaries of EE research in the 1970s [38], 1980s [39] and 1990s [40] provided insight into themes, settings, audiences, and methods of interest throughout the late twentieth century. The twenty-first century has also seen a number of efforts to articulate and focus research in EE. In 2005, Lucie Sauvé reviewed 30 years of EE literature and identified 'currents' by which EE could intervene in the human relationship to the environment [41]. In describing the 'problem-solving current,' Sauvé (2005, 16) asks:

Must environmental education be fundamentally oriented towards problem-solving? Must environmental education necessarily engage learners in action projects aimed at solving a problem? Or is environmental

education a preparatory phase for action? … considering the state of our world, would it be unethical to conduct environmental education without focusing on concrete problem-solving?

William Scott, the founding editor of Environmental Education Research, addressed the 2007 World Environmental Education Congress, reflecting on the 30 years since the world's first intergovernmental conference on EE (Tbilisi, Georgia (USSR), 1977) [24]. Scott suggested critical directions for EE research over the next 30 years. He argued that:

> … we need greater openness to new cultures … and more understanding across cultures about who we are and what we know, and a stronger research focus on under-standing the relationship between sustainability, society and learning … as an environmental education community, we need to reach out to other researchers and users of research, and especially to policymakers … because they need to know more about the significance of what environmental education researchers do, and … because we need to work with them if we are to make a significant contribution to resolving the issues the planet faces.

In 2006, Alan Reid and William Scott reflected on the first 10 years of Environmental Education through a special issue titled, 'Researching education and the environment: retrospect and prospect.' They asked authors to recommend research foci and approaches for future work, and distilled the responses into a list, including an increased attention to ontology, epistemology, and theoretical approaches; dominant educational and environmental discourses; the relationship between EE, education for sustainable development (ESD), and other related fields; an interrogation and exploration of the relationship between theory and practice; and relationship between race, culture, and power, and its influence on EE and EE research; among others [42].

In 2010, the Journal of Environmental Education published a 40th anniversary edition focused on a prospective and retrospective of EE. Hungerford's [43] epilogue called for EE to focus on improving overall environmental quality and on the learner. He said that the tension between EE and ESD must be given continued attention. Hungerford emphasized that current efforts in the field are '… making strides towards actualizing the fundamental meaning and structure of this discipline.'

Sections of the International Handbook of Research on Environ-mental Education, edited by Stevenson, Dillon, Brody, and Wals, also focus on the direction of a future EE research agenda. Editor and author Stevenson emphasizes the need for research in understudied areas, such as worldviews and belief systems linked with individual identities; the contexts in which people live and work; people's emotional responses to education/learning and the environment; language and discourse; and social learning [44]. Stevenson extends these areas to practice suggesting that researchers ask what meaning people construct related to environmental issues and encouraging researchers to think pedagogically from the student/learner perspective. This suggestion resonates with Rickinson, Lundholm, and Hopwood's [45] emphasis in their book, Environmental Learning: Insights from Research into the Student Experience, which presents case studies that emphasize learners' perspectives on environment and call increased attention to learner needs in designing and implementing EE efforts.

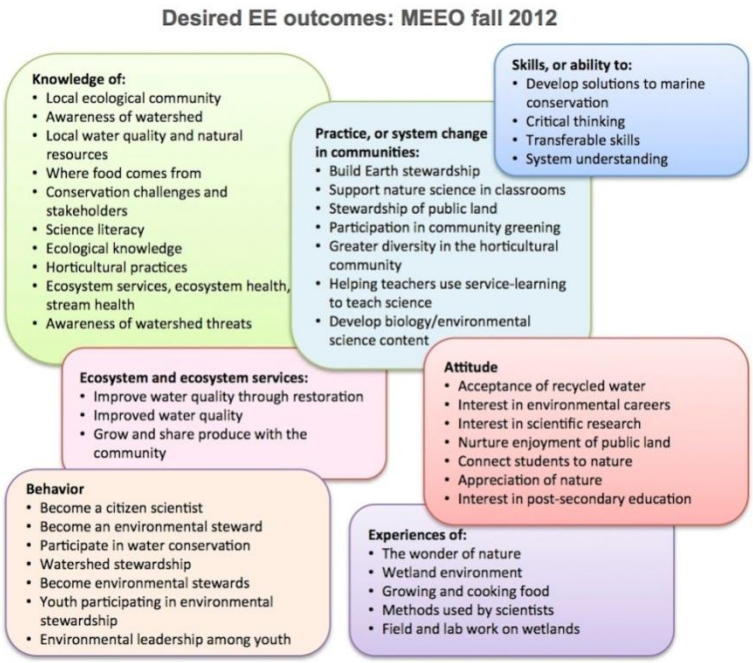

Figure 3: Interactive Learning [46]

In figure 3 above, the knowledge of the ecosystem and conservation challenges are cardinals to environmental education. Practice or system change in communities help build stewardship and help teachers use service learning to teach science. Skills or ability to develop solutions arising from marine conservation and other environmental issues are important to environmental education. Ecosystem and ecosystem services are geared towards improving water quality. Attitude in scientific research and appreciation is key in environmental education [1].

How you behave, your environmental stewardship, leadership among your mates should be geared towards conserving the nature. Experience of the wonder of nature is so scintillating that you cannot help but to admire and work towards conserving it [47].

In a nut shell, all these environmental components (Knowledge, ecosystem, practice, skills, behaviour, attitude, experience) are interwoven to achieving a conducive environment for us and the future [48].

The Anthropocene Park

According to Kopkina [1], there are at least two reasons why we should educate students to protect the environment: first, for our own human sake (as we need natural resources); and second, for the sake of nature itself. In regard to the first point, while publications about high interdependency of all species [49], empirical evidence of mass extinctions shows that a purely economic approach to biodiversity conservation is inadequate [50]. Empirical evidence also shows that humans can be largely sustained by monocultures, implying that some biodiversity is dispensable, because no negative side effects for people ensue when they are gone [51-52]. In his book *Do We Need Pandas? The Uncomfortable Truth About Biodiversity,* Thompson [53] suggests that we should stop worrying about functionally useless species, and should concentrate on those species that future human generations really need. This view overlaps with the second scenario, which would allow for *some* elements of nature to be preserved for future human generations. Propagating the view of eco-centric conviction that non-human lives are important is "rooted in misanthropy and distrust of humans." Marvier [54] argues that conservationists should respect different pluralistic perspectives and motivations:

> People are motivated to protect nature for a wide variety of reasons. Some want to sit in meditative repose in the cathedral-like silence of a forest. Others feel deeply that all creatures have an equivalent moral claim to existence. And some want to shoot animals and put their heads on the wall. . . .
> Why are people who love the diversity of plants and animals and habitats so afraid of a diversity of approaches that would result in compromise rather than strict policies?

Cafaro and Primack [14] and Miller, Soule, and Terborgh [55] have voiced their concern that plural approaches to nature conservation will lead to abandonment of protection of species not instrumental to human well-being. Crist [48] articulates this future vision:

> In contrast with many of my colleagues, I do not necessarily foresee a world that collapses by undermining its own life-support systems. It may instead turn into a world that is molded and propped by the strengths advanced industrial civilization has at its disposal: the rational-instrumental means of technical management, heightened efficiency, and technological breakthrough. It is possible that by such means a viable "civilization" might be established upon a thoroughly denatured planet. What is deeply repugnant about such a civilization is not its potential for self-annihilation, but its totalitarian conversion of the natural world into a domain of resources to serve a human supremacist way of life, and the consequent destruction of all the intrinsic wealth of its natural places, beings, and elements.

Is this scenario acceptable? Crist's [48] vision attacks what some academics have lost out of sight—the case of utter injustice embodied in human supremacy that runs through this trend.

> Human supremacy has ensconced widespread indifference toward the plight of nonhumans and their homes; it ignores, and keeps itself ignorant of, the question of *their* reproductive rights, as individuals and as species. The dominant culture thus seems unable to grasp the moral evil of erasing wild Nature just to accommodate more and more of people to live, *all at once*, on a planet occupied as a resource satellite.

Empirically speaking, we may find this scenario closer to what we observe rather than "doom and gloom" or "bright future for all" varieties. This scenario is disturbing not because of the inevitable destiny of Malthusian proportions, but because it presents what philosopher Zizek [49] would call "the soft apocalypse" in which intrinsic wealth of natural places is lost. We may thus ask ourselves: is this the future we want our children (let along offspring of other species) to live in? this scenario however, calls for ethical considerations in regard to nature.

Education for deep ecology

In terms of education, this position is often associated with education for deep ecology [2, 57-59]. Proponents of deep ecology often recognize alternative ecocentric values arguably present in "traditional" societies [12, 60]. Resituating EE and ESD within this alternative paradigm of abundant earth can act as a counter to the potentially overweening power of human superiority of the neo-liberal industrial age, which can be identified as a prime source of our current environmental predicament [2]. Such renewal of EE and ESD can help to bring to the foreground the idea of teaching and learning through a non-anthropocentric frame of mind that is open to the transcendent other, and thus to the fullness of what Bonnett [2] calls "truly environing."

Pedagogically as shown in figure 3, a return to education associated with significant life experiences, such as hiking in wilderness areas as a youth [58, 61-62]; as well as strategically significant education [63-64], action competence [65], social learning [66], and variations and combinations of those and many other pedagogical approaches developed in the past 40 years. Some of these pedagogical approaches have been disputed—for example, the belief that experiencing environment first hand is an essential component of engaging people in conservation has been

disputed by arguments that these education efforts have been informed by behaviorist socio-psychology models that assumed a linear causality between education experience and pro-environmental behavior [67]. Rather, the critics have argued that people's environmental behaviors are too complex and contextually dependent to be captured by a simple casual model [66].

While the pedagogical tools may be disputed, the choices are already in place. The ethical case for employing them for certain ends in this case, a deep ecology perspective needs to be articulated as shown in figure 3 in the way they have been in cases that are now taken to be morally granted, such as the need to promote gender and racial equality, and care about poor people in distant countries. This switch to considering moral responsibility toward other species still needs to be made both by the general public and by many/most education professionals.

If (at least some) environmental education practitioners agree with this position, they need to employ the ultimate instrumental approach. This "radical" approach could involve moral education, as well as affirmative action employing environmental advocates in order to give "voice" to non-human species.

Jickling's [68] observed that the relationship between education and advocacy remains a difficult one and his own experience with environmental advocacy for the wolves, educators indeed are given responsibilities for both guiding learning and engaging with radical questions on critical issues, as well as providing students with competencies to engage with such issues. Jickling asserts that advocating for the wolves can lead to advocacy of one chosen position, leading to a "mild form of coercion" (2005). A vibrant democracy, he continues, depends on participation. However, we may note that in the case of non-humans, this participation—other than through human advocates—will never be possible. Unlike the case of disadvantaged human groups, non-humans will never speak for themselves. Advocacy through eco-centric human educators might be the only form of defense these planetary inhabitants have against the threat of mass consumption (e.g., farm animals), abuse (e.g., medical experimentation), and extinction

The question of acting without knowing the trends and the future remains ambiguous. But we, as humans, as academics and educators, have the propensity to try anyway. Just as Ivan tries to warn the world about the Evil, if we see anthropogenically caused extinction as Evil, we should act to stop it. It will not be stopped by recitations of the limits of the Earth's resource capacity or by conventional rhetoric of combining social, economic, and ecological interests. "Saving the world," or at least some of its planetary citizens, is something we should be courageous enough to do, in front of the class within the closed walls, or out in nature, or whatever pedagogical tools afford us the possibility to do so, if we have a vision for the future and if we believe that we can influence it in any meaningful way, that is exploring every opportunity to see that we conserve our environment.

Conclusion

This study reveals that Education plays a crucial role in raising awareness of environmental challenges and shaping the attitudes and behaviours that can make a difference.

The paper reveals the importance of environmental education and the challenges associated to it. Teachers are the drivers of environmental education and their role is central to achieving any meaningful change. Empirical evidence of mass extinctions shows that a purely economic approach to biodiversity conservation is inadequate hence the call for a return to the ethical and indeed instrumental aim of (environmental) education to protect all biodiversity. The study indicates that achieve environmental sustainability is a collective task of all and sundry.

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