

ENVIRONMENTAL EDUCATION: RELEVANCE AND CHALLENGES

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Abstract

Sustainable development has become the dominant environmental, economic, political and social issues of the 21st century, yet its broad infusion with engineering education programmes remains a challenge. Environmental issues affect every part of our life and are an important part of the news stories presented on television and in newspapers and magazines. Thus, the concept, information and issues are rudimental to be useful now and in the future. This paper discusses the importance of environmental studies and challenges for sustainable development, the need for their widespread inclusion in engineering education, and impediment to change. It is the writer's view that, there is the need for teachers and students to join forces to create a new area of academic emphases on the basics and background of environmental problems and the attention of student should be redirected to issues on lifestyle and consumption that, cumulatively, have profound consequences for society and nature.

Environmental studies are the academic field which systematically studies human interaction with the environment. It is a broad interdisciplinary field of study that includes the natural environment, built environment, and the sets of relationships between them. While distinct from ecology and environmental science, the field encompasses studies in the basic principles of those two fields of learning as well as the associated subjects, such as: ethics, policy, politics, law, economics, philosophy, sociology and other social aspects, planning, pollution control, natural resources, and the interactions of human beings and nature. This includes the study of the environment, and the solution of environmental problems. Environmental education provides an integrated, quantitative, and interdisciplinary approach to the study of environmental systems. Environmental studies incorporate more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality.

Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, and biological

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processes. Environmental scientists bring a system approach to the analysis of environmental problems. Key elements of an effective environmental scientist include the ability to relate space, and time as well as quantitative analysis.

The best hope for learning to live sustainably lies in schooling. It includes experiencing the natural environment; learning how nature sustains life; nurturing healthy communities; recognizing the implications of the ways we feed and provide for ourselves; and knowing well the places where we live, work, and learn. Teachers are in a prime position to be able to weave these basics throughout the curriculum at every level and stage of the Child's educational career.

Whether they start with an environmental issue or with fundamental ecological principles, teachers can nurture the knowledge, skills, and values essential to sustainable living.

A variety of teaching strategies are particularly appropriate for fostering sustainable living. Teachers promote interdisciplinary instructional methods that are age-level appropriate; actively engage students in learning in and out of the classroom; involve them in long-term projects; and create an atmosphere of purposeful conversation and reflection about complex issues.

Relevance of Environmental Education

Environmental studies enlighten us, about the importance of protection and conservation of natural resources and indiscriminate release of pollution into the environment. At present a lot of environment issues, have grown in size and complexity day after day, threatening the survival of mankind on earth. Environment studies have become significant and environmental science came into being as a substantive, active field of scientific investigation in the 1980s and 1990s driven by:

1. The need for a multi-disciplinary approach to analyze complex environmental problems.
2. The arrival of substantive environmental laws requiring specific environmental protocols of investigation and
3. The growing public awareness of a need for action in addressing environmental problems.
4. Environment issues being of international importance.
5. Problems cropped in the wake of development.
6. Explosively increase in pollution.
7. Need for an alternative solution, to save humanity from extinction and need for wise planning of development strategies.

As an important criterion and a very relevance issue, Nigerian government and other private organizations developed some certain strategies highly tighten to environmental studies for attaining sustainable environmental management. These includes:-

- Directory of Major Environmental Researchers in Nigeria (1998).
- Mobilizing Communities Towards Combating Desertification in Nigeria (in English and Hausa) (1997)
- Facts and Issues on the Desertification Convention: A Reference Note for Government and Citizen Awareness (1995).
- Environmental Awareness Training Manual (1995). Soil Erosion Prevention and Control Manual (SEPCOM).
- The Challenge of Sustainable Development in Nigeria (1992).

As a result of the fact that environmental studies has been seen to be multidisciplinary in nature so it is considered to be a subject with great scope. Environment studies not limited to issues of sanitation and health but it is now concerned with pollution control, biodiversity conservation, waste management and conservation of natural resources. This requires a critical examination hence, in creating new job opportunities for the Nigerian youth. The opportunities in this field are immense not only for scientists but also for engineers and biologists. There is a good chance of opportunity to find a job in this field as environmental journalists.

Importance of Environmental Education

1. Environmental studies help to maintain ecological balance by providing a basic knowledge of environmental systems and their processes. By giving information regarding the changes that take place due to anthropogenic factors. It also helps to gain a skill of using techniques to analyze various environmental systems and the effect of human activities on that system.
2. Environmental studies apply economical methods and concepts to issues of the environment, management, environmental policy analysis. Environmental studies includes diverse area such as property rights, economic instruments for pollution control, and cost benefit analysis management applications with environmental policy.
3. Concepts from environmental studies can be applied to the study of agriculture and the design of sustainable production systems.
4. The study of physical, biological, chemical and social processes that form the basis of the problem of environment provide skills necessary to raise the questions and too often obtain answers to some of the environmental problems from which our planet is facing today.

Challenges of Environmental Studies

Environmental studies programmes are bombarded by the requests and demands by students, departments and faculties of tertiary institutions for new courses and curriculum emphases. Environmental studies was less a child of science or concern about the proper management of aquatic and forests than eruption of concern about health, nature, and the quality of life in a social movement anchored academia.

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Given the challenges of identity, curriculum diversity and questions about objectivity, it should not be surprising that there is wide spread concern, both within and outside environmental studies programmes about the quality and the rigors of the curriculum. Are the students receiving a sound undergraduate education? From observation, many environmental students have only a superficial knowledge of any field, and the least probing exposes their ignorance. If environmental studies is not a discipline, then what is it? It is believed that environmental education programmes are multi disciplinary in their composition and often in their pedagogy but many faculties should strive for more- that is, interdisciplinary in outlook and method. In this regard, Braddock et al (1994) emphasized the value of interaction among faculties in problem-solving projects, not just in the classroom.

Environmental problems are now recognized as belonging to a group of problems that resist purely scientific or technological understanding and solution. Although environmental problems are salient to many people, it does not necessarily translate into funding or political support for specific policies (Bosso 1996). Another theme that emerged was the relevance of scale (spatial and temporal) and context (ecological and culture). For example solution to environmental problem that may be appropriate at the local scale (or within a particular culture) may be inappropriate at a national or international scale, or in another culture.

Although such themes have provided some identity to environmental education programmes, the growth of knowledge and the proliferation of new fields and emphasis have exacerbated the lack of coherence in many curricula, sometimes causing a mushrooming, chaotic menu of unrelated courses, their number limited only by the size and energy of the colleges and faculties. Additional subjects in environmental curriculum in the need to understand global bio-physical process and global natural commerce and their environmental and social impacts have stimulated curricular growth.

The Impediment for Change

To combat multi-disciplinary illiteracy is to reexamine the objective and the content of the core curriculum. The core curriculum has always resisted definition and codification. A common solution is to cobble together a set of courses that respects the college/faculty's diversity of experience, training, values and worldviews.

These core topics supply a set of educational objectives.

- Student should understand the physics and chemistry of the atmosphere and hydrosphere and processes contributing to the pollution and degradation of air, water and soils. It is likely that more than one course would be necessary in these areas.
- Students should be able to use economic argument effectively as tools in solving environmental problems, and they should be able to articulate and critique the premises of neoclassical economics.

- Student should be familiar with the concepts of property, policy processes and tools, and the laws and regulations that affect land use, zoning, and private lands. They should also learn how government institutions and the political milieu affect the natural environment.
- Students should be exposed directly to the natural world through field courses, internships, or involvement in inter disciplinary senior-level projects or faculty research.
- Student should have the opportunity to develop sufficient disciplinary depth to equip them for graduate school or for a career. Appropriate subjects areas include conservation biology, ecological restoration, soil ecology, environmental policy, education, environmental toxicology, sustainable agriculture, planning and environmental or ecological economics. Among the skills that could be mastered in particular are environmental risk assessment, basic policy analysis, natural history, ecological and sociological field research methods, statistics, geographical information system (GIS), remote sensing and cartography and laboratory methods, hazard mitigation, interview and survey measurement.

The objectives alone however, do not completely define a core curriculum. A core curriculum must also familiarize students with the history of the relevant disciplines and of environmental studies itself. In addition, student should develop enough critical alumen to detect the subtle messages and premises in rhetoric of all kinds.

Conclusion

Environmental studies are defined by their curriculum, as long as curriculum lack coherence, environmental education is probably indefinable. At best, environmental studies major equip its graduates with an exceptional breadth and depth of knowledge, benefitting them, society and nature. Without curriculum depth and coherence, however, such programs can fail by any standard of academic excellence.

Environmental study helps us to find practical solutions to the present environmental problems. Since it is a comprehensive view of various environmental systems, we are able to analyze aquatic, terrestrial and atmospheric systems. The natural resources are depleted due to overconsumption by the ever increasing population. The resources are limited on earth but the methods of exploiting them are on the increase. This results in more environmental pollution. So, environmental education and training are the need of the hour to save our natural resources and biodiversity.

Recommendations

The relevancies and the challenges of environmental education have been identified. Below are some of the measures that could be taken for Nigerian educational system to join the league of engineering environmental education:

1. The core curriculum of environmental studies must introduce students to problem of scale, culture context, and complexity; student should learn, for

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instance, the environmental problems are multidimensional and that solutions that have worked in one context or scale will often fail in another. Hence, case studies and their histories are an essential component, not only because they are heuristic but also because there are few universal in this field of learning.

2. Interdisciplinary approach is possible only “when there is sustained interaction on a formal and informal basis between members of different disciplines. This interaction is important not only because of its social benefits but also because it leads to new ways of thinking about complex issues.
3. There is also the need for teachers and students to join forces to create a new area of academic emphases and background of environmental problems. Student’s attention on issues of lifestyle and consumption that, cumulatively, have profound consequences for society and nature. For example, an awareness of the amount of waste generated by the harvesting and transformations of natural resources helps student to understand the web of economic, social, political and ecological relationships in which they participated. The political implication of these programmes- that is their focus on the need for social change and on the methods for achieving such changes- distinguished them from their management oriented predecessors.

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