



Environmental Literacy and Sustainability Values: A Content Analysis of EE Standards

Julie Singleton, Texas A&M University

INTRODUCTION TO THE AUTHOR AND THE RESEARCH CONTEXT

I am currently a clinical professor of science education at Texas A&M. The research reported in this article is a result of my dissertation research and literature review in the areas of environmental literacy, environmental ethics, connectedness to nature, sustainability values and the status of environmental education as a core subject. While working on my Bachelor degree in Earth Science, I became aware and concerned about the unsustainable lifestyles of modern people in a world with finite resources. After graduation, I began my career teaching science in a K-8 school in Houston, Texas. That spring, I supervised students at an outdoor environmental education camp and was amazed at the high engagement of my students. I decided that outdoor environmental education was the direction I wanted to take in my career. I later earned a Master's degree in Physical Education with a specialization in outdoor education and worked in outdoor settings with youth-at-risk. I found that outdoor experiences had a profound effect on the students' attitudes and behaviors. After participating in professional development in Science, Technology and Society (STS) and implementing this approach, my middle school students were engaged in several different environmental projects throughout our community. From aquatic studies, to tree planting projects to interviews with the petrol-chemical refinery plants along the Houston Ship Channel, my students were making a difference in their neighborhood. Over the years, I have come to the conclusion that teaching the facts about the environment does not consistently translate into sustainable behaviors and research on pro-environmental agency indicates knowledge about the environment is not enough to inspire behavioral changes. There is an affective component to caring about the environment that arises from connection and involvement with natural environments and local communities. Also, explicit reflection upon one's personal values regarding sustainability affects behaviors. I wondered if sustainability values were addressed in environmental education standards. The research presented is part of my exploration on how environmental education is addressed in high schools in the United States through state and national environmental education standards. These environmental education frameworks were compared to the Earth Charter, the international consensus principles of sustainability.

RESEARCH FRAMEWORK: MIXED METHODS CONTENT ANALYSIS

Content analysis is a research approach for analyzing text or documents for the presence, intensity or frequency of some characteristic. Generally, content analysis is applied in educational research to examine textbooks, but standards are foundational for textbooks, curricula and assessments. The most populous states, Texas and California influence textbook publishers. Examining standards can reveal the prevailing values and positions that underlie them. From a critical theory stance, it is assumed that interrogating texts can reveal traces of the dominant worldview and cultural influences embedded in the text, as well as what has been marginalized, or left out of the text. This mixed-methods content analysis examined and compared five state environmental education standards, two national environmental education guidelines and the Earth Charter for inclusion of sustainability values. The Earth Charter, which includes issues of social justice, democracy and ecological integrity, claims that sustainable communities are not viable without equity and ethical responsibility to the environment and to



one another. The state standards examined are from New York, Texas, California, Colorado and Wisconsin. The national frameworks are from the Advanced Placement Environmental Science Course Description and the North American Association for Environmental Education Guidelines. Data were generated through traditional quantitative coding, computer text analysis and the creation of document profiles through qualitative methods. Provalis computer text analysis tools, Wordstat 6.1 and QDA Miner 3.2 were used for processing the texts. All texts were analyzed individually and compared to the other documents within the context of an eco-values dictionary, which provided nominal independent variables. In addition, triangulation of hand-coding, computer text analysis and the qualitative profiles allowed cross-examination of the findings in an effort to increase the trustworthiness of the results.

FINDINGS AND IMPLICATIONS

Clearly the Earth Charter has a low similarity to all the documents analyzed. With the current political climate, international sustainability values as expressed by the Earth Charter would not pass through policy gatekeepers. State standards and national guidelines adequately address ecological integrity principles, but not environmental justice principles associated with flourishing, sustainable communities. The documents showed clear groupings based on the coding, computer text analysis and document profiles. The Advanced Placement Course Description (AP), California, New York and Texas standards grouped together and showed the least alignment with the Earth Charter. These standards are less concerned with ethics or values and more concerned with an ecological, scientific approach to environmental education and an inquiry approach to science education in general. The North American Environmental Education (NAAEE) guidelines, Wisconsin and Colorado state standards do include reflection on environmental values, issue analysis and environmental agency objectives. This group of standards was the most closely aligned with the Earth Charter, although the similarity was low. If experiences in natural environments are foundational to environmental literacy as the literature suggests, only the NAAEE and Colorado guidelines specifically include experiential, outdoor education approaches. The NAAEE guidelines, Wisconsin state standards and Colorado standards explicitly address examination of one's personal environmental values and using these guidelines for state standards would surely advance environmental literacy that is inclusive of environmental agency and sustainability values. But, Wisconsin and Colorado are not as highly populated as the other states in this analysis. The most populous states, Texas, New York and California do not explicitly address sustainability values. Environmental values and the integrated, transformative approach to environmental education supported by the literature are not explicitly addressed if state environmental education learning objectives are based on the AP course description.

Sustainable community is foundational for human survival. Transforming the non-sustainable ecological paradigm of modern society, of countries with the highest ecological footprints, would have a major effect on the quality of global environmental systems. Reflection on one's personal values related to the environment and sustainability, as well as nature connection, should be included in the goals of environmental education. Examining the content of educational standards, which reflect positions and power, is a starting point for effecting change in a standards-driven climate.