Freshman Geography: Environmental education through secondary social sciences

David A. Peters

University of Oregon


Introduction

Hunched over electronic media all day, humanity’s most obese generation ever continues its detachment from nature. Childhood exploration, formerly undertaken on foot, horseback, or bicycle, is all but forbidden, while kids are carefully transported, over basically the same distances, in vans with televisions and GPS sensing. Richard Louv’s \textit{nature deficit disorder} has gone pandemic. All notions of frontier have gone digital. Our individual senses of space and place are lost, our collective connection to the earth disregarded. These conditions do not bode well for the future.

Re-establishing a healthier relationship between humans and nature, halting environmental degradation, and establishing sustainable communities and economies will take concerted efforts on many fronts. Public schools have the unique authority, opportunity, and resources to lead their communities toward greater environmental awareness, participation, and stewardship, and they have an imperative responsibility to do so.

While policy initiatives and promising language promoting environmental education (EE) have been in place for decades, many schools still do not provide an opportunity, let alone an emphasis, for EE. Opportunities for environmental leadership are available to schools on a number of fronts, from design and construction, to energy efficiency, recycling programs, food systems, transportation, and perhaps most obviously, through curriculum and instruction.
Most K-12 environmental education curriculum has been concentrated in the biological or earth sciences. A broader approach for EE, explicitly incorporating the social sciences—Geography, History, Economics, Sociology, and Civics—would benefit student learning at the secondary level.

The primary focus of this paper will be to discuss current EE practices in secondary schools, as well as emphasize and demonstrate the potential of geography as the ideal platform for environmental education in the social sciences. Using local and National Geography Standards, fundamental geo-spatial concepts, no-budget field studies, and basic GIS technologies, the freshman geography teacher has the latitude and the tools necessary to foster greater environmental awareness and participation in students.

**Terms**

*Environmental education*

Environmental education (EE) fosters awareness and appreciation of the interconnection between humans and the natural environment, and promotes sustainable behaviors and practices. EE opportunities may come from any number of sources including school curriculum, summer camp, outdoor work or recreation, family travel, or through exposure to a broad array of civic, non-profit, or private EE programs.

*Environmental science*

Environmental science is an academic field which uses the physical and biological sciences to study the environment and ecological processes.
Environmental studies

Environmental studies incorporate an interdisciplinary social science approach to the study of how humans interact with the environment.

Geography

Geography is the study of the earth, its physical features, and the relationships between humans and the environment.

Sustainability

“…development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Brundtland, 1987)

Background

Before the 1970’s, environmental education represented little more than naturalist philosophy and literature. In western philosophy, Rousseau (1762) was among the first to stress the importance of connecting children’s educational experiences to natural environments. Naturalist, transcendentalist, preservationist and conservationist writers and activists kept the discussion active through the late nineteenth and early twentieth centuries. These efforts did little to slow the widespread exploitation and destruction of natural environments everywhere, however. By the 1930’s, environmental catastrophe, in the form of the dustbowl, finally brought farmers and policy makers in the U.S. together to discuss environmental costs associated with certain kinds of development, and to establish sustainable practices that addressed long-term economic and environmental
needs. With the modern environmental movement emerging in the late 1960’s, environmental education opportunities, resources, and policies would begin to expand.

At the international level, environmental education would advance in the 1970’s through the United Nations groups like UNESCO (U.N. Educational, Scientific, and Cultural Organisation), and UNEP (U.N. Environment Programme). These efforts culminated in the 1978 Tbilisi Declaration:

“Environmental education is a learning process that increases people’s knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action.” (UNESCO 1978)

The Tbilisi declaration further defines:

The components of environmental education are:

1. Awareness and sensitivity to the environment and environmental challenges

2. Knowledge and understanding of the environment and environmental challenges

3. Attitudes of concern for the environment and motivation to improve or maintain environmental quality

4. Skills to identify and help resolve environmental challenges
5. Participation in activities that lead to the resolution of environmental challenges (UNESCO, 1978).

In the United States, the 1970 Environmental Education Act, signed into law by President Nixon, represented the first major federal initiative to promote environmental education. After twenty years of inconsistent funding, uncertain leadership, and bureaucratic shuffling, the Act was resuscitated as the National Environmental Education Act, and signed into law by President G.H.W. Bush (Public law 101-619, Nov. 16, 1990). This law uses very direct language in recognizing the increasing threats to the environment caused by humans, the importance of environmental education in promoting healthy and sustainable long term communities, and acknowledging the imperative role the government plays in promoting EE through enhanced funding, programming, and policy. The 1994 “Goals 2000: Educate America Act” (Public law 103-227, Mar 31, 1994) promoted EE indirectly through expansions in geography education. The “Geography for Life: National Geography Standards 1994” provide a major platform for EE through their eighteen standards, which have become the foundation for recent geography reform.

Environmental education at the turn of this century experienced another surge of progress. In 2002, the United Nations General Assembly declared that the decade from 2005-2014 shall be “Decade of Education for Sustainable Development”. The first decade has produced volumes of new research and resources from universities, international associations, and other organizations. Much of the leadership behind international EE progress comes from the same grass-roots groups who have led at the local level.
The North American Association for Environmental Education (NAAEE) is supported by state-level chapters in almost every state, including the Nebraska Association for Conservation and Environmental Education (NACEE). These groups provide funding and support for green initiatives, teacher in-service training, and lobbying at federal, state and local policy levels, all designed to promote and enhance EE opportunities and resources. Their work has impacted federal, state and local curriculum standards and has contributed to substantial progress in the field.

In summary, there has been a tremendous amount of discussion on environmental education from the grassroots to international level. The movement has produced a wealth of resources for teachers. Given the history and recent policy influence of the EE movement, one would expect to see significant evidence of progress on the front lines of EE—the public school classroom.

**Current Practice**

Recent research and experience shows that EE may not be having as much of an impact at the classroom level as advocates would have hoped. Several school districts in Nebraska, Colorado, Minnesota, Iowa, and Kansas were studied to determine the relative availability of *secondary elective environmental education* in either the science or social science departments. Scope and sequence outlines of science and social science requirements were compared across the districts, along with numerous local and state curriculum standards. The school districts averaged about 25,000 students each, were located in middle class suburban communities with populations between 100,000 and
500,000 people, with major universities nearby. Data was collected and compiled from
the following school districts:

1) Lincoln Public Schools, Lincoln, Nebraska
2) Omaha Public Schools, Omaha, Nebraska
3) Millard Public Schools, Omaha, Nebraska
4) Kearney Public Schools, Kearney, Nebraska
5) Lawrence Public Schools, Lawrence, Kansas
6) Shawnee Mission Schools, Kansas City, Kansas
7) Minneapolis Public Schools, Minneapolis, Minnesota
8) Des Moines Public Schools, Des Moines, Iowa
9) Poudre Public Schools, Fort Collins, Colorado

Research in each of the school districts revolved around the following questions:

1) Does the district offer an environmental studies or environmental science elective?
2) How many schools consistently fill at least one section of this elective?
3) In what curricular areas does your district provide the most environmental education?

Further research focused on the geography standards for each district. These were
compared and evaluated as to the degree in which environmental issues and relationships
had been incorporated into the standards. Table 1 shows the results on the major research questions from each of the districts.

Table 1: EE Survey Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LINCOLN</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>OMAHA</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>MILLARD</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>KEARNEY</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>LAWRENCE</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>N/A</td>
</tr>
<tr>
<td>SHAWNEE-MISSION</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>MINNEAPOLIS</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>DES MOINES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>FORT COLLINS</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

Findings

None of the nine school districts surveyed offered any environmental studies as an elective in the secondary social sciences.

Eight out of nine school districts “offered” at least one elective environmental science course. This meant that if enough students enrolled in the elective to fill a section, it would be provided. The most common elective offered and provided in the sciences was the College Board’s AP Environmental Science. None of the eight districts that offered the elective reported more than one school that consistently filled even a single section of the environmental science elective. Most districts reported the tendency for the curriculum to be driven by a single teacher at a single school. Some districts offered the elective every other year, and several consultants described how the course had basically gone inactive.
Finally, and anecdotally, most consultants, when initially asked, were not aware of any particular areas in their departments that held strong EE components. The Discussion section of this paper will describe why the existing freshman geography class is the obvious and immediate platform for environmental education.

The research uncovered a few other points of mention. First, the scope and sequence of secondary sciences and social sciences are very similar across district and state lines. Practically all freshmen in the districts surveyed were enrolled, often simultaneously, in geography and “geoscience”, both usually one-semester requirements. (Tenth grade world history, eleventh grade U.S. History, and twelfth grade government follow as requirements in social studies, most places surveyed.) Several consultants reported, with some frustration, the ever-evolving curriculum requirements in social science and science departments. And while a few schools claimed stronger EE practices and opportunities at the middle school level, at least partly due to greater geography requirements, other curriculum specialists discussed how the social sciences were faltering in the K-8 years due to schools’ increased focus on high-stakes test scores in other subject areas.

**Discussion**

In spite of the continued support from EE groups, progress on legislative fronts, substantial funding, and much research, environmental education at the secondary level remains a fringe element. There is clearly a large gap between the statements and goals of policy initiatives and current practices in schools. While most high school science
departments offer environmental science in their course catalogs, they rarely provide it in classrooms. Meanwhile, EE is barely on the radar of the social sciences.

Solutions to this problem are fairly simple and can be employed immediately. First, expand EE through existing geography curriculum, which in most cases already articulates the essence EE, and secondly, develop upper-level secondary social science environmental geography elective.

While it would be great to see sustainability missions integrated across all curriculum and culture in the public schools, freshman geography is the obvious place to start. Despite the wide range of approaches to freshman geography (physical, cultural, regional, thematic) that are employed across the region, most of these curriculum standards already clearly articulate a strong emphasis on the human-environment interaction and provide a wide berth for EE objectives.

In reality, geography has always been home to the most fundamental aspects of environmental education, most importantly, the relationship between humans and the earth. The geographer’s perspective takes all questions from the social and hard sciences, applies them to spaces and places, and studies their movements, impacts, and relationships over space and time. Geography engages students in real world problems and situations and teaches life skills that will help students cooperate and compete in the rapidly changing world around them.

The appendix provides six examples of geography lessons that employ broad EE objectives as well as fundamental geospatial concepts and national geography standards. These are provided as a means to enhance existing social science curriculum while incorporating EE. These lessons should help re-engage students with the natural world
around them, foster a sense of responsibility towards local and global environmental issues, and ignite a desire for further inquiry.

While the development of more elective opportunities across curriculum has traditionally been encouraged by schools, the more recent demands on budgets, student contact time, and teacher workloads have not necessarily made creating new curriculum any easier. However, support services, funding, teacher education, and other resources have been available to EE teachers for a long time, and these resources continue to improve. Social studies teachers everywhere have developed and implemented courses such as sports history, women’s studies, ethnic studies, and many other electives. As communities face mounting environmental challenges today, it seems that public schools should be doing at least as much to promote sustainable communities, with their culture and their curriculum, as they are promoting sports, music, the arts, or other programs of interest. The environmental geography course, incorporating economics, culture, literature, policy, and history, will engage students in real-world problems and solutions. Support for this type of curriculum will not only benefit student learning, but will lead to stronger communities through the increased awareness of and participation in local and global environmental issues. Through an environmental geography curriculum, students will also gain valuable career skills in geographic information systems (GIS) and technologies, which are in high demand across both private and government employment sectors.

What my experience in education has shown, and what this research has helped confirm, is that the relative success of any curriculum depends on the quality, enthusiasm, and commitment of the teacher. This study showed that nearly every district reported
having a single school where a particular teacher was successful at promoting the science elective and filling the necessary section(s). Just like the science teachers behind these exceptions, the strong freshman geography teacher, through quality, standards-based classroom activities, could likewise generate the student interest to fill an environmental studies elective. Schools will provide these electives, if there is student demand. The problem remains, simply, that few teachers or schools have taken the responsibility to lead in environmental education. Geography teachers can start addressing this problem immediately.

References


Merrick, Christy (2007). Standard Practice: Aligning EE resources to national and state curriculum standards. EETAP, Stevens Point, EPA publishing

Minneapolis Public Schools (2005), High School Geography Curriculum Map, Minneapolis, MPS publishing.


Omaha Public Schools (2010). 2010-2011 Compendium of Course Content Standards, Omaha, OPS publishing.


Rousseau, J.J. (1762). Emile: Or on education. Paris

