



A Vision for the Future

Contextual Learning: Education for Sustainability

A Focus on Three Domains:
Environment, Economy, Society

"Everything is connected, interrelated, and dependent in order to exist."

Lakota vision of the universe from the National Museum of the American Indian, Washington
D.C., 2005

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Where We've Been: Environmental Education in Washington State

Washington State has a rich history of environmental education. Since the early 1900s, the state has developed landmark environmental education efforts which have served as models for the United States, ranging from one of the first outdoor schools in the 1920s to a nationally recognized Environmental Education Assessment Project in the 1990s. Washington State has benefited from the dedication and hard work of many environmental educators and natural resource professionals who recognized the importance of a deep, holistic understanding of our total environment, our place in it, and our responsibility to it.

Where We're Going: Need for New Direction in Environmental Education

Today, because of the rapidly changing and interconnected world that our students are encountering, it is time to broaden environmental education to education for sustainability, a more comprehensive view of the world that includes the natural, physical environment as well as the social constructs of culture, society, governance, and economics. The quality of life for all people, now and in the future, will ultimately depend upon the individual's comprehension of the interdependency of environmental, economic, and social systems, and of how individuals understand their role in an interdependent world.

Education for sustainability frames an integrated, interdependent view of the world. This broad view takes into account environmental stewardship, economic viability, and social justice. The goal of education for sustainability is to develop the capacity for society to meet the needs of today while assuring intergenerational equity - that is, creating opportunities for a hopeful future.

Environmental education needs to be comprehensive and as such needs to include the values that Americans as local citizens hold dear. A focus on jobs versus the environment places an emphasis on *issues* rather than an *understanding of the systems that underlay and drive those issues*. This view of systems interconnections needs to be the basis for a new vision for environmental education. That vision rests in the concept of education for sustainability.

Businesses, communities, municipalities, and government agencies all are interested in sustainable development. The agricultural community knows that if they do not protect soil, prevent erosion, reduce fertilizer waste, and eliminate water contamination of the very groundwater that supports their crop production, their enterprise will not valid over time. Science and technology have together, over the last 20 years, given society powerful tools to address many issues of sustainability. A focus on understanding how systems operate promises to increase the knowledge of actions and policies needed to move in the direction of sustainability. We want our students to be able to face the future with sustainability in mind so that their future is secure, prosperous, and guided by a sense of purpose.

When environmental education focuses solely on issues such as the Spotted Owl, and political debate is all that occurs in classrooms, the knowledge to understand those issues is lost. Students need the opportunity to explore questions such as, "Why is it that I should not dump used motor oil into my backyard?" and "Why is it good to recycle?" These questions need to be understood in terms of the systems that those issues encompass. Students need to know and understand how water cycles from air to surface water to ground water and how local water is obtained. Students

need to know and understand the societal impacts on and responsibility for water as a vital resource. With knowledge of water systems, students are able to view their actions in a context, not just of laws, rules, and disagreements, but in terms of the knowledge of how the natural systems that support and sustain them operate.

Defining Education for Sustainability

Sustainability is a broad construct that usually refers to a concern for intergenerational equity, an idea that can be traced to ancient Greek, Chinese, and Native American cultures. The organizing premise is that when sustainability has been achieved, the current generation will be able to meet its needs without jeopardizing the ability of future generations to meet their needs. In the field of ecology, sustainability refers to the capacity of an ecosystem to sustain interdependent forms of life by balancing the rate of resource removal with the rate of resource regeneration. In the broader context in which the term is used today, sustainability refers to the balance among the human systems that influence and are influenced by the natural environment. Sustainability represents an ideal that will be achieved when human impacts have been balanced, reversing overconsumption and gross economic injustices that deprive future generations of the ability to meet their needs. (After Nolet, 2007)

Sustainability education builds opportunities for interdisciplinary, collaborative, student-centered, inquiry-oriented, and technology-rich learning. Education for sustainability provides students with opportunities to gain skills, knowledge, character, and the vision to be productive citizens who contribute to a more sustainable future.

Sustainability is a process, a way of thinking, a balance. While it is considered by some to be a complex and difficult concept, within the proper context it can be understood by even the youngest students, as evidenced in this definition from a class of first graders. Sustainability means: "*Thinking not just about yourself but about the world and everything in it, on it, and around it - taking care of these things for the future. Everything is connected.*"

- Room Eight First Grade Students, Geneva Elementary, Bellingham, WA

The systems approach to understanding how the world works includes inputs, outputs, and transformations of both constructed and natural systems and the interplay between these systems. Describing how humans are affected and in turn affect both constructed and natural systems is a goal of education for sustainability. One result of formal education is that students graduate without knowing how to think in whole systems, how to find connections, how to ask big questions, and how to separate the trivial from the important. Now more than ever, we need people who think broadly and who understand systems, connections, patterns and root causes.

-- David Orr / Earth in Mind

Three Domains of Education for Sustainability: Environmental, Economic, and Social Systems

The three domains that are addressed in education for sustainability are ecologic/environmental, economic, and social/cultural. Each of these domains has subsystems. A systems thinking approach is essential to explore the interconnectedness among these domains. We often try to come at sustainability from one direction based on our own predisposition - from an ecological viewpoint, an economic viewpoint, or a social/cultural viewpoint. To successfully engage in education for sustainability we must consider all three domains together in our thinking. Education for sustainability is about learning to make and understand the connections and interactions between these three complex domains of systems. (Adapted from Keith Wheeler)

Thus, education for sustainability can be thought of as education for environment, economy, and society: a broader systems approach to educating students on how the world works in three interconnected domains.

Environmental/Ecological:

Environment and ecological systems includes the interactions between the biotic and abiotic components of both constructed and natural systems and the interactions and influences between the two that create a network of interactions. Sustainability includes stewardship of ecological systems.

Economic:

Economic systems include the economic opportunities that open gates for the flow of energy, materials, and information in constructed systems. A consideration of sustainability includes a viable economy in which people are able to work and have their basic needs met.

Societal/Cultural:

Social systems include the rules, laws, and workings of governance to regulate, protect, and provide for civilization. Placing an emphasis protecting the commons (natural commons such as air, water, and soil, as well as human constructed commons such as radio waves and the Internet) and the distribution of resources is an important aspect of the social system. Such rules include Environmental Impact Statements, shoreline and growth management plans, urban agriculture, and major laws such as Clean Air and clean Water Acts. This system also includes the cultural values and norms of a society and the quality of life indicators that we use to define and measure our well-being.

Education for sustainability provides students with opportunities to engage in complex problem solving from multiple perspectives. It provides opportunities for students to gain deep understanding of the interdependence of ecological systems, economic systems, and social systems. Both complex problem solving and deep knowledge of interconnected systems of the world will be required to develop sustainable solutions to human challenges that build hope for the future.

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Education for Sustainability

Selected Resources

Education for Sustainability

Second Nature's vision of a healthy, just and sustainable future The critical role of higher education in achieving that vision Our vision of higher education leading the way in educating for sustainability.

<http://www.secondnature.org/efs/efs.htm>

Education for Sustainability

Even the most casual reading of the earth's vital signs immediately reveals a planet under stress. In almost all the natural domains, the earth is under stress -- it is a planet that is in need of intensive care. Can the United States and the American people, pioneer sustainable patterns of consumption and lifestyle, (and) can you educate for that? This is a challenge that we would like to put out to you.

<http://www.gcric.org/edu/pcsd/toc.html>

Education for Sustainable Development Toolkit

The *Education for Sustainable Development Toolkit* is an easy-to-use manual for individuals and organizations from both the education and community sectors. This resource addresses the potentially powerful alliance of school systems and communities working together to reach local sustainability goals. Together they can reorient existing curriculums to create locally relevant and culturally appropriate education.

<http://www.esdtoolkit.org/>

Education for Sustainability Societal Sea Change

See Change: Learning and education for sustainability.

<http://www.scoop.co.nz/mason/stories/PO0401/S00038.htm>

UNESCO Education for Sustainable Development

The overall goal of the DESD is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behavior that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations.

http://portal.unesco.org/education/en/ev.php-URL_ID=27234&URL_DO=DO_TOPIC&URL_SECTION=201.html

Sustainability: The Best Investment

Sustainability is a world-class educational media package now available for sponsorship. Aimed at the global teenager, the project is officially supported by UNICEF, UNDP, UNEP, UNFPA, WHO and UNESCO.

<http://www.global-vision.org/sustainability/education.html>

Association for the Advancement of Sustainability in Higher Education

A membership-based association of colleges and universities working to advance sustainability in higher education in the US and Canada.

<http://www.aashe.org/>

Education for Sustainability Links

<http://john.huckle.org.uk/>

Education for Sustainability

The e4s site provides teachers with lesson planning materials on the sustainable use of water, textiles and timber resources and issues surrounding waste management. There are free online teaching resources as well as ideas to generate classroom activities including printable worksheets. Different parts are suitable for students in the 5 -16 age range. The interactive activities require

the shockwave plug-in, this can be downloaded from the site. The 'links' section is extremely useful giving contacts to many potential additional resources.

<http://www.chemsoc.org/networks/learnnet/w-edsus.htm>

Embedding sustainability into the Curriculum of Scotland's Universities and Colleges

A report by John Forster Associates, 2006

http://www.sfc.ac.uk/publications/JFA%20Final%20Report_sustainability.pdf

Facing the Future: People and the Planet

Develops young people's capacity and commitment to create thriving, sustainable, and peaceful local and global communities.

<http://www.facingthefuture.org/>

Vermont Education for Sustainability Project

Learning that links knowledge, inquiry, and action to help students build a healthy future for their communities and the planet.

<http://www.vtefs.org/>

Sustainability Education Handbook for K-12 teachers

Teacher's Guide to State Standards & Sustainability Concepts.

<http://www.urbanoptions.org/SustainEdHandbook/StandardsWhole.htm>

Education for a Sustainable Future

Creating Curriculum that Encourages Interdisciplinary, Life-Long Learning.

<http://csf.concord.org/esf/>

Center for Sustainable Systems

CSS develops life cycle based models and sustainability metrics to evaluate the performance and to guide the continuous improvement of industrial systems for meeting societal needs. We promote sustainability by developing these tools and knowledge in collaboration with diverse stakeholders so that better informed decisions are made. It is the vision of CSS and the University of Michigan to be nationally and internationally recognized for creative and effective teaching and research in systems based approaches to sustainability.

<http://css.snre.umich.edu/>

National Museum of the American Indian

NMAI is a new museum that focuses on the spiritual and cultural heritage from the First Nation Peoples of the Americas.

<http://www.nmai.si.edu/>