3. ACTIONS AND OPPORTUNITIES: A NORTH AMERICAN PERSPECTIVE ON UNDERGRADUATE BIOLOGY EDUCATION FOR SOCIAL AND SUSTAINABLE DEVELOPMENT

ABSTRACT

This paper provides an overview of North American efforts to address social and sustainable development in undergraduate biology and teacher education. Progress has been uneven as non-governmental organizations (NGOs) rather than national policy are primarily responsible for infusing sustainability education into all levels of learning. Higher education addresses education for sustainable development (ESD) in several patterns: offering academic programs with sustainability emphases, using ESD as a co-curricular theme, greening of campus and curriculum, creating new courses on sustainability itself, and injecting ESD units or modules into individual courses. U.S. teacher education programs lag in the introduction of ESD topics due to decentralized control over education, existence of few official standards for ESD, and optional national accreditation of teacher education programs (they are state accredited). Changes in pedagogy are needed to facilitate integration of ESD. Common approaches are those that engage students in studying a complex problem of local to global importance from multiple perspectives, and may include active civic engagement. Two models, the SENCER approach and Problem based learning (PBL), are discussed.

KEYWORDS

PBL, Case Studies, AASHE, NGOs, SENCER, Education for Sustainable Development, ESD

INTRODUCTION

Education for Sustainable Development (ESD) is a global-level response to awareness of the interrelationships among climate change, injustice, population growth, overuse of resources, and the deterioration of the environment. The UN’s Decade of Education for Sustainable Development has accelerated actions and awareness of ESD around the globe. Unlike the longstanding environmental education movement emphasizing conservation, education for sustainable development addresses the “triple bottom line” of creating a socially, economically
and environmentally sustainable world. How this plays out in colleges is expressed well in the description of the minor in sustainability at Emory University (2010).

... we acknowledge the issue of sustainability as one of the most theoretically and practically complex questions of our times. Involving far more than simply turning off lights or recycling bottles and paper, sustainability has implications for how we eat and drink; how we treat the land, sea, air, and atmosphere; how we approach health and well-being on an interspecies level; how we produce and consume goods; how we distribute the benefits and costs of that production and consumption; how we derive the energy to maintain both those economic enterprises and our everyday lifestyles; and how we assess and rethink the proper balance between profit, politics, wealth, and the common good. The challenge of sustainability is its profoundly crosscutting nature; none of these questions may be answered without consideration of the others.

This paper provides an overview of Canadian and U.S. efforts to address education for sustainable development in undergraduate biology and teacher education.

THE OVERVIEW OF ESD IN CANADA AND THE U.S.

Context of Education and What that Means for ESD

In the United States and Canada there is at present no oversight of the content of education at the national level, no national curriculum, no unified approach to schooling. Each of the 50 U.S. states develops its own standards, assessments and teacher education requirements for primary and secondary education. The 10 provinces and three territories of Canada are similarly controlled (Council of Ministers of Education, 2008).

To complicate matters in the U.S., every school district creates its own curriculum to address the state standards. Higher education is even more variable lacking national or state oversight of curriculum, as is common. Instead, each program and each individual professor creates curriculum. Because of these decentralized organizational structures, a national, top down approach to integrating ESD into education is not feasible in the U.S. and Canada.

Actions and Opportunities Supporting ESD at the Federal Level – U.S.

In 1996 President Clinton’s Council on Sustainable Development (PCSD) produced the well-thought-out plan “Education for Sustainability: An agenda for action.” Having only an advisory role and due to lack of funding, the PCSD was dissolved in 1999.

In 2008, President Bush signed the Higher Education Sustainability Act (a part of the Higher Education Opportunity Act) into U.S. law to provide federal funding to the Department of Education for grants “to support research and teaching initiatives that focus on multidisciplinary and integrated environmental, economic and social elements... to integrate sustainability curricula in all programs of instruction” (Higher Education Opportunity Act of 2008, p. 122). An examination