MICHAEL J. MAPPIN AND EDWARD A. JOHNSON

1

Changing perspectives of ecology and education in environmental education

INTRODUCTION

> We have specifically directed our attention toward the problem of gaining insight into the educational issue raised by the play of charge and counter-charge, as individuals and groups accuse each other today of using schools in order to indoctrinate young people.
>
> (Nagai 1976: 109)

One of the major challenges facing environmental education today is the growing public attention and concern that education has become blurred with advocacy and that the environmental content in environmental education is no longer based on sound frameworks of natural and social sciences. These concerns are not new but have become more controversial, affecting the future of environmental education within schools.

The concerns over advocacy generally focus on debates about the purpose and teaching approaches found within environmental education curricula, programs, and resources. Debates over purpose are based in part on rapidly changing academic perspectives and public expectations of what constitutes "good" education. Controversy comes about when diverse interest groups involved in environmental education cannot agree on the purpose of education. In the absence of general agreement, the purpose is determined by the dominant interest groups of the time and may not be clearly or explicitly stated.

The concerns with content generally focus on debates about the role of natural or social sciences, humanities, ethics, and religion within environmental education. Given the complex nature of the debates and wide range of perspectives, it is becoming increasingly difficult for educators and the public to differentiate between education and advocacy. This chapter provides an overview of the educational and public debates over advocacy within environmental

1

education and examines how changing perspectives of education and
ecology within environmental education contribute to the academic
and public concerns of advocacy.

ENVIRONMENTAL EDUCATION AND ADVOCACY

Taken at face value, the term environmental education must first be
concerned with education and second with content about the
environment . . . We must, I will argue, be sure that we are educating
rather than advocating a particular environmental view. (Jickling 1991:
170–171)

What is the distinction between education and advocacy in environ-
mental education? And why should it matter? By definition, education
can be taken to mean the development of the mind's capabilities and
character through acquisition of knowledge and abilities to assess and
evaluate this knowledge. Advocacy, on the other hand, infers the act of
pleading a cause, or encouraging someone to support, speak, or write
in favor of a particular behavior or action. Advocacy moves toward
indoctrination when *content* is taken to be self-evident or true (tenets,
dogma, or doctrines), the *intent* is to have students believe content
regardless of evidence to the contrary, and teaching uses *methods* of
unquestioned authority or coercion (Nagai 1976; Winch and Gingell
1999). Advocacy and indoctrination also imply a "right way" to act or
behave, based on *a priori* values or beliefs, stifling reasoning and under-
standing. The next two sections consider the educational and public
concerns over indoctrination and advocacy within environmental edu-
cation, focusing on three components of education: the purpose
(intent), place (content), and practice (method).

Educational concerns

Concerns over environmental education and advocacy are not new. In
1974, Tanner identified the major issues concerning environmental
education as the appropriate *purpose*, *place*, and *practice* for environmen-
tal education in schools. Concerns over *purpose* raised questions about
the scope and definition of environmental education. The issue of *place*
questioned whether environmental education should be an integrated
discipline on its own, or inserted and infused throughout all curricula in
order to build an environmental ethic, similar to building an ethic of
democracy (Tanner 1974). Also, should environmental education be
more than science or conservation education and include political,

social, philosophical, religious, and moral implications? The issues of *practice* explored the merits and shortcomings of three teaching approaches when dealing with controversial issues, i.e., "Hands Off," "Soapbox," or "Balanced Exposure" (Tanner 1974: 91). Although tremendous effort and progress have been made in addressing these issues through educational research and practice, the concerns over the purpose, place, and practice of environmental education persist. Over time, the concern over *education* has become as important as the concern over *environment* within environmental education (van Weelie and Wals 2002).

The *purpose* of environmental education has changed from its scientific base in natural science and conservation to a more social and political perspective. Historically this change in purpose is characterized in the education literature as a change from education *about* and *in* the environment to education *for* the environment (Lucas 1980). Education *about* the environment is generally understood to include nature studies, ecology, conservation, and environmental issues. Education *in* the environment is considered more as an approach to education, using the natural and built environments as objects of study. Education *for* the environment implies application or creation of knowledge for social, civil, and political action. The education literature noted that education "for something" could easily lead to advocacy to advance particular behavior, policy, or ideology. For example, Robottom and Hart (1993) point out that the dominant environmental education perspective of the 1980s was to promote environmentally responsible behavior or behavioral change as the primary goal of environmental education (e.g., Hungerford and Volk 1990). Educating for pre-determined behavioral change was deemed antithetical to education. In the 1990s, education *for* the environment (e.g., Fein 1993) was criticized for becoming an instrument for social change rather than an outcome in and of itself (Jickling and Spork 1998). A similar criticism was raised when "education for sustainable development" policy documents were being developed by national governments as an outcome of Agenda 21 (Jickling 1992; McClaren 1993). In this case, it was argued that education was being used to support particular policy outcomes (i.e., sustainable development as interpreted by each government). Education for a particular purpose could no longer be considered educational (McClaren 1993). However, other authors note that the use of "for" simply explains the purpose of that particular education, which varies according to audience and needs, and nothing more (McKeown and Hopkins 2003).

The second major concern focuses on the *place* (where and how) environmental education should be delivered in schools. Historically,

4   Michael J. Mappin and Edward A. Johnson

environmental education has been considered more an approach rather than a discrete subject. Consequently, there has been greater focus on inserting and infusing environmental education across the curriculum (Simmons 1989) rather than developing an integrated or interdisciplinary subject. Some authors would argue that the infusion approach is the most effective way to proceed, as "all of education is environmental education" (Orr 1994: 12). However, others have argued that infusion has led to a notion that "everything and nothing is environmental education" and this approach contributes to perceptions of advocacy and activism (Knapp 2000).

In most cases, environmental education appears as an add-on or infused into science curricula and is taught predominantly by science teachers using teaching resources that are mostly science based (Simmons 1989). However, environmental education's place in the science curriculum and science teachers' role in environmental education have been questioned by environmental educators throughout the 1980s and 1990s because science was perceived to limit or constrain the scope of environmental education (e.g. Lucas 1980; Robottom 1993a). Reflecting this changing view, the focus on the environment present in environmental education policy statements of the 1970s (e.g., Belgrade Charter and Tblisi Declaration) shifted to a focus on the social or civil in the policies of the 1990s (e.g. Agenda 21) (McKeown and Hopkins 2003). The shift prompted a change in content focus from ecology, resource management, or preservation of natural environments to a social, political, and economic focus. There was also a shift to make the science curricula more socially relevant by linking science content to environmental issues (e.g., Gough 2002; Hart 2002). As part of this process, it has become apparent that there is also an increasing gap between scientific and environmental educators' interpretations of ecology. Interpretations of ecology within curricula and resources have moved from a basis in scientific concepts, theories, and empiricism to value-laden ecopolitical and ecophilosophical concepts, adding to the advocacy debate over content.

The third major concern is the *practice* and role of educators in environmental education. For example, Jickling (1991: 171) described differences between education and training in environmental education. Education was described as "the acquisition of worthwhile knowledge and understanding" and training as the "acquisition of skills and abilities." Jickling argued that environmental education must reach beyond training for action and place more emphasis on worthwhile content, knowledge, and understanding. Otherwise, he noted, being

trained how to act without understanding why would lead to naïve problem solving, but not education. Disinger (1999) also cautioned educators that resources developed by government agencies and NGOs tend to focus on policies and mandates of their sponsors rather than on education as the primary outcome. In some cases, these agencies perceive schools as effective locations for advocating their message, policy, or mandate (Disinger 2001), using education as a social instrument in environmental policymaking (van Weelie and Wals 2002). This is reflected in the "plethora of advocacy-oriented documents and curricula which are presented as educational aids" (Hart *et al.* 1999: 116), where education is perceived by agencies outside of schools as a social strategy to achieve a particular policy (e.g., conservation, sustainable development, biodiversity). It is often forgotten or overlooked by educators and teaching resource developers that such education holds *a priori* values and can be perceived as advocacy, especially when the policy outcomes are implied as the only options available (McClaren 1993).

The educators' role in environmental education is also criticized for values they are and are not developing in students (Kelly 2001). Within environmental education literature, educators are advised to be value-free or value-fair in their presentations and development of resources (Disinger 2001). The value-free approach is based on the notion that any personal, religious, or political value position deemed controversial should not be dealt with through schools, but through family, church, or state (Kelly 2001). The intent of the value-fair approach is that all perspectives to a particular issue should be presented to students, so that students can develop their own perspective. It can be argued that this approach promotes relativism, wherein all perspectives can be interpreted as valid and equal. Therefore, other authors note that educators should communicate and share their personal perspectives with students by taking a "committed impartiality" approach to controversial issues (Fein 1993; Kelly 2001). In other words, educators should clearly express their personal views, but still present all perspectives and model how they have assessed and evaluated differing perspectives themselves. As one might expect, any of these approaches, interpreted or handled poorly or with perspectives left out either through error or omission, can lead to major concerns over indoctrination.

Public concerns

In 1997, the Independent Commission on Environmental Education (ICEE) released a white paper entitled *Building Environmental Literacy for*

the Next Century, pointing out that: (1) environmental education was needlessly controversial; (2) factual errors were common in teaching resources; (3) costs, benefits, and tradeoffs in environmental problems were not addressed adequately; and (4) many environmental science textbooks had serious flaws, with superficial coverage of topics and mixing of science with advocacy (ICEE 1997; Salmon 2000). The ICEE report focused primarily on content issues and recommended placing greater emphasis on acquisition of natural and social science knowledge, the integration of science, social science, and humanities, and the development of K-12 content standards for environmental studies (ICEE 1997; Disinger 1997). The report was criticized for its overemphasis on developing scientific literacy and lack of emphasis on developing knowledge and skills in civics leading to responsible citizen action, a primary goal of environmental education (Holsman 2001).

In 1996, *Facts, not Fear* by Sanera and Shaw questioned environmental education resources for misuse of facts and for scaring children with misinformation (Sanera and Shaw 1996; Sanera 1998). The book in turn was seriously criticized for its use of flawed research methods (Courtenay-Hall 1998; Simmons 1998) and overemphasis of science (Bowers 1998; Smith 1998) as part of a political and ideological attack on environmental education (Holsman 2001). As *Facts, not Fear* showed, the public debate on environmental education was becoming increasingly politicized. For example, during the reauthorization hearings of the National Environmental Education Act in the United States a representative of the US Environmental Protection Agency, the agency responsible for grant administration, was questioned for using funding under the Act to "brainwash students with environmental teachings" (Education USA 2000). This debate highlighted the differences in public support for environmental education, as was noted years before by Tanner (1974). This intensity of concern with advocacy in schools is likely a reflection of the ebb and flow of liberal and conservative perspectives on public policies and expectations for education at any given time.

The major concern in both education and the public with environmental education has been over educational process and the content of environmental education. In public debates, educators are perceived to lean "away from advocacy" when focusing on knowledge acquisition and processes and to "lean toward advocacy" when focusing on particular values, behaviors, and actions as outcomes (Jickling 2003: 24). Educators themselves hold a wide range of viewpoints on the role of science and advocacy in environmental education as illustrated through opinion editorials in the 1995–97 North American Association

for Environmental Education (NAAEE) newsletter, *Environmental Communicator*. Viewpoints range from perspectives that science needs to serve as a foundation to a view that science limits and constrains the intent of environmental education. Opinions also range from advocacy having no place in environmental education to advocacy as a fundamental component of environmental education.

Conflicting perspectives

The controversy within education and the public debates reflect the conflicting perspectives and priorities held by educators, society, and policymakers on what schools should teach, for what ends, and for what reasons (Eisner and Vallance 1974; Beyer and Liston 1996). Eisner and Vallance suggested that the intensity of conflict and difficulty in resolving conflicting perspectives represents a failure of groups to recognize each other's different concept of curriculum and, further, that education is constantly changing, reflecting broader social, political, cultural, and economic priorities of the time (Beyer and Liston 1996). These differing perspectives and changing public priorities inform and determine which purpose, place, and practice are valued at any given time (Eisner and Vallance 1974). It is likely that the conflicting perspectives and priorities arose in part because of a lack of curriculum, standards, scope, and sequence for environmental education until the late 1990s.

During the latter half of the 1990s, the NAAEE developed the *Guidelines for Excellence* for environmental education, as part of the standards movement in education. The guidelines help educators, agencies, and the public develop, assess, and evaluate environmental education programs and resources. However, by necessity, standards need to be framed around a particular educational perspective in order to establish assessment parameters and indicators. The NAAEE guidelines reflect the dominant perspective of environmental educators within the United States of "environmental literacy." Consequently, the guidelines were criticized for constraining and limiting innovation within the field by not incorporating multiple perspectives of environmental education (McClaren 1997; Wals and van der Leij 1997a, 1997b; Hart *et al*. 1999).

Thus, the distinction between education and advocacy in environmental education is much more complex than simply distinguishing between definitions and developing standards. The distinction must place the educational and public debates within the context of changing perspectives and content of environmental education. As noted by

Schubert (1986: 2), when problems are encountered in education, educators need to revisit "perspectives, paradigms and possibilities" of curriculum development in order to become better decision-makers in practice. Schubert noted that perspectives shape our vision of what education ought to be and frame what one accepts or rejects as worthwhile educational content. Perspective can also become ideology when the purpose, content, or approaches to practice are taken for granted as uncontroversial, or even self-evident, and other perspectives are deemed irrelevant or ill informed (Robottom and Hart 1995). For example, phrases or slogans generated from different perspectives of environmental education can be adopted uncritically as the primary purpose of environmental education by agencies or educators to support or amplify their message (Disinger 2001) (e.g. "facts, not fear," "education based in fact, not values," "from knowledge to action," "education for the environment"). The phrase "ecological education" has also taken on multiple and conflicting meanings with different perspectives, sometimes no longer compatible with contemporary concepts of the science of ecology. These slogans take on different meanings from their original sources (Lucas 1995; Jickling and Spork 1998) and become themselves part of the advocacy debate. In short, perspectives can become ideological when there are fixed unquestioned assumptions and *a priori* values of what is right/wrong, good/bad, or moral/amoral, thereby narrowing the conception of what environmental education should or ought to be (Scott and Oulton 1999).

CHANGING PERSPECTIVES OF EDUCATION AND ECOLOGY IN ENVIRONMENTAL EDUCATION

Environmental education has undergone rapid growth and change, not only in terms of purpose, content, and practice, but also in its underlying theoretical foundations or perspectives from research. Some education researchers consider environmental education a young field that still has contested perspectives of what direction it should or will take (Hart *et al.* 1999), while others consider the field to have a well-established framework (e.g. Roth 1997). However, perspectives regarding the purpose for environmental education range from a focus on acquiring disciplinary or interdisciplinary knowledge to changing attitudes, behavior, or values, constructing personal meaning through a reconnection with the natural world, and empowering students to change their world. Environmental education's traditional grounding in nature, science, and conservation has now expanded to

include emphases on individual or community-based action, personal spiritual or aesthetic understandings, and critical analysis of values, and natural and social systems (Hart *et al.* 1999).

Environmental education has become education for *behavioral change* (environmentally responsible behavior), *personal change* (enlightenment), and *social change* (emancipation). These perspectives have been developed through different disciplinary lenses or conceptual frameworks that interpret education and the environment in different ways (Smyth 1995). These differences in perspective are reflected in the different priorities and values placed on natural or social sciences and the social objectives for environmental education. Each of the perspectives also draws upon and interprets the science of ecology in different ways in order to help shape its purpose, content, and practice.

Ecology has been part of environmental education throughout its history. Although it is often assumed that ecology has a well-established framework within environmental education (e.g., McKeown and Dendinger 2000), interpretations of ecological concepts can be quite out of date or no longer have the same meaning as in the science of ecology. Ecology has escaped its academic cage (Lambert 1966) and now encompasses multiple meanings and roles outside of science (Westoby 1997). Eco, ecology, and ecological terms have exploded throughout management, education, and popular literature (Wali 1995, 1999) and have taken on intended and unintended value-laden connotations, contributing to the advocacy debate.

Ecology is often equated with environmentalism or "ecological-like thinking" (Kellert and Golley 2000). This may be due to the historical trends of ecology using terms from everyday language to describe what appear to be commonplace phenomena (Lambert 1966). This is apparent in the growing environmental education popular literature, where notions of ecology may not be based in the science of ecology but on interpretations of ecological-like thinking in education (e.g., Hutchinson 1998). Not only are there misconceptions of ecological concepts among students (Munson 1994), but also there appear to be misconceptions and misinterpretations among program developers, authors, and educators as to the meaning of ecology. Many of us are using and teaching ecological concepts that are out of date, simply incorrect science, or not derived from science at all (e.g., ecosystem health). There appears to be an uncritical transition from the facts of ecology to analogies, metaphors, and symbols of ecology in education and nature writing (Phillips 2003) without an explanation of these new meanings. At times, metaphysical or philosophical conceptions of ecology, such as Deep Ecology,

are presented as an innovative advance or new paradigm in the scientific understanding of life (e.g., Capra 1996).

As educators, we need to take responsibility for becoming aware of the different perspectives of education and ecology (science) embedded within environmental education policy statements, standards, and resources. In doing so, we not only become more aware of our own perspectives, but also identify and clarify bias, value-laden messages, and inconsistencies between goals, activities, or contexts for learning (van Weelie and Wals 2002). It also helps us in not becoming "pawns in a struggle between contesting messages" (Hart *et al.* 1999: 116). However, it is difficult for educators in practice to work through the contradictory messages (Scott and Oulton 1999) presented by the wide variety of perspectives held for environmental education: e.g. empiricist, positivist, behaviorist, constructivist, interpretivist, critical, eco-feminist, postmodernist, to name but a few (Reid 1996).

Therefore, the next section focuses on three dominant perspectives of environmental education and discusses how each perspective shapes our understanding and interpretation of the purpose and practice of environmental education. The three major perspectives are: environmental education as behavioral change, personal change, and social change. Although presented separately, the three perspectives represent loose conceptual frameworks that overlap or blend in actual theory and practice (McClaren 1997; Roth 1997). Each perspective will be considered for its educational process and ecological content.

Environmental education as behavioral change

Environmental education through environmental citizenship, responsible environmental behavior or environmental literacy has its roots in the 1970s and dominated environmental education research and practice throughout the 1980s and 1990s (Palmer 1998; Rickinson 2001). This perspective is most familiar to educators in the United States through the development and evaluation of frameworks by educational researchers such as Stapp *et al.* (1988), Stapp and Cox (1974), Hungerford *et al.* (1980), Hungerford and Volk (1990), Disinger and Roth (1992), and Roth (1992). These frameworks focus on developing community investigations and citizenship participation by building environmental knowledge, environmental sensitivity and responsible environmental actions (Hungerford and Volk 2003).

Stapp's framework focused on the development of an environmentally educated, concerned and responsible citizenry through a