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Introduction

An Orientation to Environmental Education and the Handbook

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Although the field of environmental education (EE) has a history of over 40 years—and much longer if forerunners such as nature study, outdoor and conservation education are included—it has received considerably more attention in recent years as contested notions of environment and sustainability have become common topics of conversation among the public, the subject of media interest, and the focus of much political debate and legislation. Systemic linkages between environment, health, climate, poverty, development, and education have become more widely accepted as the years have passed. Therefore, this handbook was developed at an opportune time to take stock of and consolidate what we know and don't know as a field, and to demarcate the limits of our (un)certainties. More specifically, the purpose of the handbook is not only to illuminate the most important understandings that have been developed by environmental education research, but also to critically examine the ways in which the field has changed over the decades, the current debates and controversies, what is still missing from the environmental education research agenda, and where that agenda might and could be headed in the future. Environmental education as a field of inquiry is conceptualized from a range of vantage points, including historical, theoretical and ethical perspectives; discourse, policy, curriculum, learning, and assessment are examined from an EE-perspective; and key issues are raised of framing, doing, and assessing the missing voices in environmental education research.

Characteristics of environmental education

Before discussing the structure, processes of development, and ways of engaging with the handbook, for those new to the field, we first offer a brief background on some conceptions and characteristics of environmental education.

An early (hence the sexist language) and often quoted (particularly in Europe and Australia) definition of environmental education states that:

> Environmental education is a process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality. (Martin, 1975, p. 21)

Following the establishment of the United Nations Environment Program, a workshop of environmental educators from UNESCO countries produced the Belgrade Charter which identified the goal of EE as:

> To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and prevention of new ones.

The notable addition to earlier conceptions of EE was an emphasis on action, which was reinforced in a later intergovernmental conference in Tbilisi. Besides developing critical thinking, problem solving and decision making skills in relation to quality-of-life issues, the Tbilisi Declaration emphasized that students should be "actively involved at all levels in working toward the resolution of environmental problems" (Tbilisi Declaration, 1978, p. 18).

AQ1 In the late 1980s new discourses or slogans of sustainable development and sustainability which emerged in international policy circles (IUCN, 1980) gave rise to education for sustainable development (ESD) and education for sustainability (EfS), which have come to replace environmental education as the dominant discourse in the most national policy arenas. However, the ambiguities and multiple interpretations of these terms have been the subject of much analysis and debate among scholars in the field. For a more detailed history of the field and some of the contested terrain of its formulation, see Gough (1997). In summary, the conceptions emerging from these conferences and promulgated in policy documents have been influential in shaping the discourse, conceptualizing the field and providing a source of debate on a range of issues for theory and practice—many of which are examined in the following chapters in this handbook.

Among many characteristics that have been identified as associated with environmental (or sustainability) education, we emphasize five characteristics on which there seems to be broad consensus—albeit with multiple interpretations—and which have important implications for conceptualizing and constructing research in the field. First, environmental education embraces normative questions as environmental issues are fundamentally normative or value-laden by nature, as Jickling and Wals point out in their introduction to Section 2 of this handbook. Second, the interdisciplinary nature of people-society-environment relationships compels environmental education to be interdisciplinary: a position which is explicitly articulated in the 'triple bottom line' discourse of sustainable development and sustainability referencing environmental, socio-cultural, and economic dimensions. Third, environmental education is concerned not only with knowledge and understanding, and attitudes and values, but also includes developing the agency of learners in participating and taking action on environmental and sustainability issues. Education traditionally equips students to understand, and at best conceptualize, problems, but rarely to enact solutions (Shawcross & Robinson, chapter 24). Fourth, the field encompasses education and learning that not only takes place within formal institutional settings but also within nonformal or informal public domain settings (Hart & Nolan, 1999). The boundaries between these settings, however, are beginning to break down, an issue we discuss in the final concluding chapter. Finally, environmental education has both a global and local orientation given that the scale of environmental issues ranges from the local to the global.

The history and purpose of the handbook

Once dominated by a small group of empirical-analytical researchers publishing in the Journal of Environmental Education, a relatively small circulation North American journal founded in 1969, there are now a number of journals across the world publishing research from a wide variety of traditions and drawing on multiple methodologies. Although still an emerging field, we believe—and the AERA Publications Committee clearly agreed—that the scope, sophistication and richness of the scholarship of environmental education warranted the production of a first International Handbook of Research on Environmental Education. This richness is reflected in the scholarship presented in the following chapters by a diverse group of international researchers who are both mindful and critical of various histories of environmental education research and the work of those who have contributed to their creation.

This International Handbook of Research on Environmental Education, following AERA's Educational Research Handbook guidelines, offers a current "state-of-the-art" assessment of the substance and robustness of the knowledge base derived from relevant areas of inquiry in this field and is intended to provide a foundation for advancing the thinking of scholars and students about future directions for environmental education research. It attempts to provide a comprehensive treatment of major current lines of research on environmental education and its close relatives (education for sustainability, sustainability education, and education for sustainable development) and to examine the relationship of environmental education research to educational research in general and educational research in particular that overlaps, intersects, or borders with environmental education (i.e. educational research focusing on science, social studies, health, development, social justice, citizenship, peace and conflict). However, as several section editors in their introduction make clear, any history of a field represents only a snapshot of the many histories that could be created and reflect the perspectives of those whose voices are included.

Contributions include philosophically and empirically grounded research (of all genres) that critically examines the conceptualization, discourses, policies, programs, processes, structures, and research approaches to environmental education in the broadest sense. The handbook attempts to be comprehensive by addressing histories, contexts, methodologies, ontologies, epistemologies, and literacies that help establish the knowledge base of research on environmental education at a meta-level, and identifies possible futures and future directions of environmental education research.

Over the years environmental education has been researched by scholars who bring a variety of disciplinary (and interdisciplinary) perspectives to the field, among them education and its sub-fields (e.g. educational psychology, sociology of education, curriculum studies), environmental and natural sciences (e.g. biology, ecology)

and environmental social sciences (e.g., environmental psychology, sociology and philosophy). One of our missions in this volume was to bring together divergent perspectives, methodologies, methods and findings of this broad community of scholars. Too often their work fails to cross borders and expand the horizons of those working in contiguous fields.

Contributors were encouraged, as much as possible, to make explicit and critically examine the assumptions underlying their perspective or particular vantage point, and to address how these assumptions might shape their contribution. This reflexivity hopefully makes the text more transformative in that contributions have been written in such a way that we hope you, the reader, can engage with the text meaningfully, allowing you to distill your own lessons learnt and to mirror them with your own assumptions, knowledge base, and experience. Inevitably, of course, section editors have brought their own ideas about what it means to operate at a meta-level or to be a 'reflexive writer' or to create a text that is 'transformative,' but we hope that this emphasis has produced a handbook that is neither a 'show-and-tell' text, nor a collection of 'best-practices' (nor viewed as the definitive work on environmental education research). Rather, we intend for the book to do justice to this still evolving field with, as Annette Gough states in her introduction to the first section, its somewhat "fuzzy boundaries" and multiple "interpretations of its foundations and documents." We also hope that the handbook is engaging, and that it invites and inspires readers to participate in reflecting on their own interpretations of these newly created, as well as past, textual documentations of the field and in determining future directions of 'the' field.

The process of development of the handbook

A handbook of this size and scope obviously entails a long and elaborated process of gestation and production. An outline of this process can help reveal the strengths and limitations of the final product. First, an extensive process of consultation and collaboration with numerous experienced and new environmental education scholars around the world preceded the development of a proposal for the handbook. A series of meetings were arranged and held in 2006 and 2007 at international environmental education research conferences on three different continents (2006 and 2007 meetings in North America of the Ecological & Environmental Education SIG at the AERA annual conference and the research symposium of the North American Association of Environmental Education conference, the World Environmental Education Congress in South Africa, and the Invitational Seminar on Research in Environmental and Health Education in Switzerland). These meetings led to an agreed need for and vision of a handbook on environmental education research and helped identify the editorial team, a supporting advisory group and potential contributors. The Ecological & Environmental Education

(now the Environmental Education) SIG was particularly central during these times to the development and support of the handbook as it was envisaged from early on to be an AERA publication. Meetings were then held with the AERA Publications Committee to discuss the idea of the proposed handbook before a formal prospectus was developed. Discussions of potential inclusions and issues being faced were held and reports on progress were presented each year at the business meeting of the Ecological & Environmental Education at the AERA annual meeting throughout the development process.

A call for contributors was widely distributed in September 2007, including to participants at the above conferences and members of major environmental education professional associations around the world. Proposals were invited for either: (1) a section that focuses on a broad research topic or issue and included a number of chapters addressing that topic or issue; or (2) individual chapters on a specific research topic or issue. Contributions were sought of conceptually and/or empirically grounded research (of all genres) that critically examined the conceptualization, discourses, policies, programs, processes, structures and research approaches to environmental education (and education for sustainable development or sustainability). Eleven potential areas were identified by the editors, in consultation with a group of editorial advisors, to provide some guidelines for contributors as to possible topics and issues for both section and chapter proposals (and provide an approximation of the envisaged size and scope of the handbook), but other topics or issues identified by contributors also were invited. These eleven were not envisaged as necessarily representing the final structure or sections of the handbook and in fact the final structure was reduced to nine sections. These eleven (now nine) areas were organized within three broad themes of: Conceptualizing EE as a field of inquiry; EE curriculum, teaching, assessment and learning: Processes and outcomes; and Issues of framing, doing and assessing EE research.

Interested contributors were invited to forward detailed abstracts (500 words) of their proposals. Over 80 individual chapter proposals and three proposals for whole sections were received. Proposals were submitted from authors on six continents with approximately equal numbers from Australasia (all but one from Australia), Europe and North America. Six proposals each were received from Africa (all from South Africa) and Asia, but only two from South America. Unfortunately, many of the submitted proposals were very specific and focused on individual studies that were more suited to journal articles than to a broader chapter within a handbook of research. A first review of proposals by the editors identified 39 individual chapter proposals that were considered possibilities for expansion of the abstract into full papers. Additional contributors, who had not submitted proposals, were then identified who either were known and respected for their scholarship in particular areas within the tentative handbook framework or could address evident gaps.

Invited proposals focused in particular on the two sections in which there was a lack of proposals, namely *Analyses of EE discourses and policies* and *Research on learning processes in EE*, which were not surprising given that these are areas that researchers have noted as receiving limited attention in the field (Rickinson, 2001; Stevenson, 2006). In two other sections there was also a lack of individual proposals but we were fortunate in receiving section proposals for which the section editors invited contributors. These were *Environmental conceptions, philosophies and ethics that situate the environmental in EE research* (subsequently renamed *Normative dimensions of environmental education research*) and *Methodological issues in doing research* (subsequently renamed *Philosophies and methodologies of environmental education research*). These two sections focused on conceptions/philosophies of education and environmental ethics in the first case, and philosophical and methodological conceptualizations of approaches to environmental education research in the second. The absence of individual proposals in these two areas of inquiry was perhaps more surprising, although the number of scholars working in them is relatively small.

After considering these invited contributors and addressing overlap with and among the submitted proposals, the initial list of 39 individual submissions was reduced to 26 and complemented with 16 invited chapters, including those invited by the three sets of authors who submitted section proposals, in addition to chapters authored by one or more of the editors. All three section proposals were accepted after the editors' discussion and negotiation with the submitting section editors. Section editors were invited for the remaining five major sections (with individual handbook editors co-editing several of these sections), with the four handbook editors serving as editors for the final section. Contributors were selected on the basis of the quality and appropriateness of their submissions for a handbook on research, as well as, particularly in the case of invited contributors, their past research contributions to the field; the result is a mix of well known senior and a number of both mid-career and promising emerging scholars, as well as a range of diverse cultural contexts in which these scholars are working.

Having completed the identification of chapter authors and section editors, a set of guidelines for both groups were developed. All chapters were peer reviewed with each section editor(s) serving a similar function to a guest editor of a special issue of a journal, by seeking two reviewers of each chapter and then providing feedback and suggestions to authors. One of the handbook editors served as liaison with the various section editors during this process.

The result of this process is that contributing first authors come from six continents (Africa, Asia, Australasia, Europe, North and South America) and 15 countries and their work is situated in formal (early childhood, primary/elementary, secondary, and post-secondary), non-formal and informal education settings. Thus, the research agenda

of contributors should be attentive to the diverse populations served by contemporary educational systems as well as to opportunities to engage individuals and communities in non-formal and informal learning contexts.

In addition to drawing on contributors from a diverse range of contexts, our initial intent was also to attempt to be deliberately expansive by including research from outside the field of education research as well as within. Unfortunately, we were unsuccessful in this endeavor for several reasons, and perhaps we could be viewed as being somewhat naïve in our ambitions. It speaks to the challenges of boundary crossing that scholars without a background in the literature of environmental education were uncomfortable in offering a contribution, although the accountability pressures in universities where chapters in edited or only publications within one's disciplinary count may also have played a role. We also arguably could be criticized for being insufficiently persistent in our efforts to identify and elicit appropriate authors from our outside our own networks and professional communities. Other limitations of this handbook, as with any other handbook of research, will be surfaced by readers and critics.

Structure of the handbook

Given the extensive number and diversity of the handbook chapters, readers will probably appreciate a brief overview of its organization in order to determine entry points for accessing writings connected to their own interests. The handbook is organized in three layers: parts (3), sections (9) and chapters (50). The parts are described below, while each section is introduced by its editors, offering the reader a way of identifying those chapters that may be of particular interest. The three parts are broadly intended to speak respectively to research on: (a) historical, theoretical and ethical foundations of environmental education; (b) the major dimensions of educational policy and practice (discourse, curriculum, learning, and assessment); and (c) issues related to methodologies, marginalized groups, and the strengths, limitations and gaps of extant studies. Stated another way, the sections have been organized to try to capture scholarship focused on the important place of historical and theoretical perspectives (Section 1), normative considerations (Section 2), and language and discourse (Section 3) in environmental educational before examining research in the areas of curriculum (Section 4), learning (Section 5) and assessment (Section 6). Methodological (and ontological and epistemological) orientations to this research (Section 7) and voices that have been marginalized from this research (Section 8) are then examined before concluding in the final section with an effort to distil from the previous chapters the meanings of the current characteristics of environmental education research, the strengths and limitations of the field, and possible courses for charting a research agenda for the future.

Part A: *Conceptualizing environmental education as a field of inquiry,* comprises three sections that examine

some of the historical, contextual and theoretical orientations which have shaped environmental education and environmental education research (Section 1); the normative dimensions of environmental education research, focusing on conceptions and philosophies of education and environmental ethics that situate the educational and the environmental in environmental education research (Section 2); and analyzes of environmental education discourses and policies (Section 3). Section 1, as the editor points out, provides a starting point for readers to consider "some of the theories, contexts and histories that have shaped the field," recognizing that the authors' theoretical orientations "inform, and have been informed by, contextual and historical perspectives that each author brings to their work" (Gough). Appropriately given the intellectual traditions currently shaping the field, these theoretical orientations span behaviorist, critical and post-structuralist approaches.

The editors of Section 2 argue that many, if not most, environmental issues are fundamentally normative (or value laden) in nature and that in considering normative issues, the task "is no longer a question of attacking false universalisms but of overcoming relativism and the fragmentation of the social" (Delanty, 1999, p. 3). They add that attention to normative questions is underrepresented in the research literature and tackling such questions implicitly involves uncertainty and risk. The contributors to this section examine normative dimensions of the key concepts of ethics and education (and schooling) and the relationships between them as the editors envisage the task is to re-imagine places for environmental and educational philosophies and ethics within environmental education research.

The chapters in Section 3 focus on critical analyses of language/discourses and policies in environmental education as well as the intersection of these discourses and policies. These analyses include: deconstructing components of the discourse of sustainable development and education for sustainable development (ESD), the shifting and competing discourses of international and national policy contexts, the intersection of ESD discourse with other educational discourses (such as professional development, vocational and technical education) and discourses as policy and slogans.

Part B: *Research on environmental education curriculum, learning and assessment* consists of three sections: research on curriculum and pedagogical issues in environmental education (Section 4); research on learning processes in environmental education (Section 5); and evaluation of environmental education programs, materials and technologies and the assessment of learners and learning (Section 6).

Section 4 discusses environmental education curriculum research historically and methodologically and deals with such knowledge interests as learner participation in the curriculum process, cultural change through curriculum, and place-based environment-related education. In addition, some emerging new niches for environmental education research within the wider curriculum research landscape are mapped out.

Section 5 highlights the shift in research on environmental learning from a focus on knowledge, attitudes and behavior, particularly as outcomes of educational interventions, to processes of learning, especially those that recognize learners as active agents who respond cognitively and emotionally to their environmental education experiences. Chapters examine how learners make sense of their environmental education in formal settings, the power of landscape to link learners' place and identity, and calls for more transformative, more social approaches to learning. Collectively the section, in the words of its editors, offers "a set of models and theories of learning with examples of their implications for teachers and learners; … and, more importantly a sense that the field is moving towards broader and deeper views of the role of learning in empowering individuals to be reflexive and socially critical."

In the final section in Part B, the evaluation and assessment of goals and outcomes of environmental education are situated within the larger socio-cultural, economic, political, and environmental context in which environmental education takes place. The authors discuss a number of challenges facing evaluation and assessment, from taking a long term perspective of significant life experiences on learning outcomes, to the potential of geospatial technologies to play a transformative role in environmental education, to addressing the difficulties of determining attribution of outcomes across time, space and experiences.

Finally, the three sections in Part C: *Issues of framing, doing and assessing environmental education research,* address: philosophical and methodological perspectives (Section 7); issues of marginalization (Section 8); and gaps and future directions (Section 9) in environmental education research. In Section 7, a wide (but obviously not comprehensive) range of philosophical perspectives and methodological approaches (e.g., interpretive, critical and post-critical) that characterize the environmental education research field are presented with the intent of challenging "readers to look beyond their own perspectives" (Hart, introduction). As Hart argues in the section introduction, this focus signifies not only that EE research has a history of embracing diverse methodologies, but also that "the complex task of grounding environmental education inquiry in philosophical and methodological work must precede more practical tasks of fieldwork" and methods given that "the problems of educational research are philosophical in origin and substance."

Section 8 is concerned with the particular voices that have been at the margins of environmental education research. Authors examine how such issues as gender, race and colonialism (in contributing to the relative dearth of indigenous perspectives) fail to be addressed in most environmental education research and why they are important.

The section editors convincingly argue that social class and disability have received much less attention in environmental education research than in the wider education field and that sexuality "remains firmly at the margins" (Russell & Fawcett, Section 8 introduction). The final Section 9 of the handbook, whose contributors were the last to be identified (as explained in the section introduction), includes a critical analysis of the strengths and limitations of extant studies and identifies gaps in the field's present knowledge base and research approaches.

Engaging with the handbook

There were, of course, many other possible structures and conceptualizations of the field that might have been used for framing this handbook. No doubt some alternative organizational structures—both those which we considered and many which we did not even think of—will emerge as readers engage with the text. Others will engage less with the categorization of different dimensions of the field and more relationally with specific authors with whose work they are familiar, or wish to become familiar, or through responses to the language in titles. Some of these readings will lead to new conceptualizations and new contributions to the production of knowledge of environmental education from and about environmental education research. Primarily, however, our hope is that this example of global knowledge synthesis and production might serve as a catalyst for what we have already indicated was a guideline to contributors and therefore should resonate throughout many chapters in this handbook, and that is the notion of reflexivity. In other words, we invite and encourage readers to make explicit the assumptions underlying their own perspectives on environmental education research and to critically examine how these assumptions might shape their own current or emerging perspectives.

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