

Handbooks of environmental education research: for further reading and writing

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Introduction

Credible, worthwhile and, inevitably, valuable international research handbooks gather an array of scholarly work sourced from a diversity of geo-cultural settings and varied intellectual perspectives. They offer compelling analysis of a field's past and prospects particularly in terms of the substance and sufficiency of its researches. Indeed, an authoritative handbook might be expected to affirm - as well as contest - particular frameworks of interpretation and explanation of research in the field, through critical conversations about not just what is possible but also preferred.

Leafing through this first international research handbook dedicated to environmental education we see a wide range of chapters and sections authored by leading and emerging scholars who seek to make a contribution to a field that is 'international' in its assumptions and implications but also 'global' and 'globalized' given what its publication will serve to legitimize and contest. Undoubtedly, the question of the nature, scope and reach of a large volume such as this is fraught with challenges and difficulties. From where authors sit, write and research, contributors variously illuminate or advance particular conceptions and constructions and expectations of programmes of inquiry. Even as others deliberately seek to deconstruct or broaden projects carried out in the name of environmental education research, usually as critical friends to such endeavours.

The chapters in Section 9 continue in this critical and reflexive vein. They invite readers to dig deeper and longer into the research cited and discussed, and of course, expected because of it. As noted in an accompanying chapter (Chapter 46), the handbook's sections provide a range of expositions and commentaries on various possibilities and limitations for environmental education inquiry. Given the diverse foci and framings for environmental education (Reid, 2011) however, these are not completely open: they foreground and require some forms and features of inquiry as much as they might seek to sideline or delegitimize others. The point is simple, there simply is no one right method, ontology or epistemology for all environmental education inquiry, but teasing out the adequacies and logic of the particular is no small task either.

A dynamic and critical diversity implies choice - not just because of 'requisite variety' (Hart, 2000) but because of a historicized sense of the field's workings, achievements and shortcomings. Equally, in this chapter, we acknowledge the contingencies and constraints in producing a coherent research handbook (in terms of its size, audience, coverage, etc.). Contributions can only ever partially represent the diverse sources, contexts and histories of what passes 'locally' or might count 'globally' as this particular field of inquiry, but also its trans-

geographical and trans-historical purposes, means and ends-in-view (Reid, 2009).

As noted in Chapter 46, this is partly because of the sheer plurality and dynamism of a relatively young interdisciplinary field like environmental education research. But it might also require recognizing that amid the diversity and wealth of its research objects, subjects and relations pursued by its researchers that, indeed, various inertias and dearths remain. Recent critical accounts of issues in environmental education research illustrate how this emergent stasis and gaps in the field relate to capacities, conceptual and procedural apparatus, contexts and priorities of those working in this field (Payne, 2009). They also raise the nagging question of whether the ends envisaged for this field of inquiry risk 'outstripping the means' (Reid, 2009).

Gage (1986, p.24) writes that the "road to a clearer understanding is travelled on paper. It is through an attempt to find words for ourselves in which to express related ideas that we often discover what we think." In this chapter, we focus on critical questions that illuminate where we might go in our further reading and writing of environmental education research, and how demonstrating reflexivity will be a core feature of such activity.

Digging over environmental education research

Reflexivity as a state of mind as well as a set of practices about the relations of research and knowledge generation involves addressing those ways of thinking and theorizing that are available (and valuable) to those participating in this research field. This reflexivity about research can be pursued taxonomically and programmatically, as well as critically and creatively for understanding and developing an active and engaging field of inquiry, particularly about its assumptions, knowledge bases, interpretations and (dis)continuities (e.g. Connell, 1997; Reid & Nickel, 2003; Dillon & Wals, 2006).

Whichever route is travelled, in the first instance it requires recognition of a commonplace assumption: that research is about making 'the world intelligible' to others and ourselves. In the second, in being in some sense 'answerable' to the world we inhabit, it may even mean attempting to 'make a difference' to that researched circumstance, context and, indeed, the 'world.'

Typically the first aspect has entailed preparing and publishing articles, commentaries and reviews of our research findings as well as considering our successes and failures at sense-making as part of furthering the open, public account of inquiry. Yet it is often concern for the second that eclipses the first, fuelling debate about the adequacies and challenges of doing environmental education research, rooted in, for example, questions about how one views the ethics and politics of the field's knowledge.

Thus in this handbook, for Leigh Price (Chapter 22), both assumptions relate to the claim that 'we need research to be useful to us' but in different ways. Price reminds us of the notion of researcher integrity: for example, are our research accounts (and their

production) truthful and faithful to theory and data, ourselves and audiences (public and specialist)? And, if so/as such, or not, from within and across which cultural constellations and framings (Lotz-Sisistka, 2010)?

That the particular cultures, discourses and priorities of environmental education research(ers) framed in different geo-cultural conditions might possibly be alien(ating) to others (researchers, participants, practitioners, funders, policy makers, partners ...) should not be passed over hastily though in developing this point. The broader frame of social research has been thought of as *about, of, upon* and *into* a subject, as well as research *for* and research *through*. In this volume, we can recognize aspects of this in the contributions by Gough (Chapter 41), Heimlich et al. (Chapter 26), Brandt (Chapter 27), Le Grange (Chapter 12), Bonnett (Chapter 7), and Jickling & Wals (Chapter 6), respectively. Such distinctions highlight that an emergent and dynamic environmental education research field remains relatively un-normalized even as it risks being destabilized by an overemphasis on definitional matters and practice. In other words, convergence is possible in research methods and framings even as it is not necessary in terms of philosophical groundings, projects or outputs, locally to internationally, be these now or then as well as into the future.

Why does this matter? Because as Lotz-Sisistka et al. (Chapter 19) and Shallcross & Robinson (Chapter 22) show - and the potential tensions between the two aspects demonstrate - environmental education researchers often hold to a distinction that sees them/us caught between sometimes complementary, sometimes competing aspirations about the value of research. First, that research contributes warranted knowledge that might help change local lifestyles and lifeworlds by, for example, resolving pressing environmental problems (a cultural role for research, or, research for the “public good”). Second, that research is in some sense, ‘disinterested’, seeking to understand the appeal, processes and outcomes of environmental education approaches and ‘interventions’ within a broader sweep of socio-cultural activity (i.e. a technical role for research, evidenced by “reasoning together” in critical, supportive and evaluative accounts of practice and inquiries into educational practice – see Biesta, 2007; de Vries, 1990).

Pursuing one or both roles is not exclusive to environmental education research, nor is it as straightforward as it seems particularly if we want research ‘to make a difference’. Reflexivity about this requires another set of recognitions about individual projects and the field more generally, this time in relation to a potential conceit that denies the possibility of exclusivity in this field of inquiry.

The conceit is to pretend that a text about research, whether authored at some distance from an abstracted object of inquiry or closely and intimately involving those researched (including via the possibility of self-study), is ever ‘ours’ alone. Of course it is never so (just like language). Neither are the uses and ends to which research is put even if the authors believe these to be compelling, useful and exact(ing). In each instance we have to recognize that environmental education researchers and their research programmes, practices and outcomes, are historically, geographically, and culturally interwoven into a dynamic web of (sometimes dense, demanding, cooperative, transient) articulations and negotiations of a field of inquiry - including amongst the research community, its paymasters and publics.

As we discuss this further in Chapter 46, we focus here on a few examples. Consider Liddicoat & Krasny (Chapter 28), who state “nature study ... has been a cornerstone of our field for nearly a century” (p. X). Some readers will press the question of which other cornerstones can be identified or imagined as present and absent in the interdisciplinary and shifting landscapes (and histories) of environmental education. Related questions include who decides and determines the cornerstones? And, are all such ‘cornerstones’ - and by extension, ‘border markers’ – permanently emplaced or moveable, literally if not metaphorically, when it comes to delimiting the field? While not to forgo that this is a research handbook, what then is the role of research in this and how might a handbook best represent these tensions and shifts: is all research assumed to be part and parcel of these decisions and determinations - leading, following or mirroring contemporary trends, for example - or might some of it (which?) remain somehow separate?

Such arguments are not new and have been rehearsed before in other ways. Some employ philosophical inquiry, others action research, and of course there are yet other ways to address these matters. Their crux is about furthering our awareness of continuity and discontinuity, and hence the flux and co-evolution of a/this research field, particularly when framed by a logic of research objects, subjects and relations. In other words, what counts - and from/for whom - is neither static nor fixed: as to the field’s interests, resources, narrations, self-understandings, repressions and relations (e.g. Reid & Nickel, 2003; Scott, 2009).

Acknowledging flux and co-evolution invites a questioning of what we have become accustomed to as environmental education research, including within the pages of this handbook. The argument goes, if we are to self-consciously continue and perhaps think and act otherwise in light of such recognitions and shifts, we might also have to confront or suspend the ‘comfort of the familiar’ in this field (its range of research purposes, questions, languages, discourses, and framings). This is because, as noted in Chapter 46, reflexivity entails both critically and creatively engaging the field and its *doxa* and *illusio* to make deeper and richer sense of how environmental education researchers can seek critical guidance, challenge and inspiration for their inquiries and programmes of research particularly through recourse to a handbook.

Barratt-Hacking et al.’s (Chapter 35) commentary on researching with children, for instance, might stimulate curiosity about views and practices as to the co-generation of knowledge in this field, including attending to the intersubjectivity of researchers relating to their fellow human beings (i.e. ‘self-in-relation to the other’, see Davies, Chapter 38). They regard these as lacunae in this field particularly as these relate to matters of the principles, theories and practices associated with the role and positioning of children-as-researchers, exploring whether this is because of the prevailing assumption that ‘children are ‘always Othered’ as they are the least powerful participants in research’. They also raise the question of the potential disparities in research accounts if these are always presented in linear formats, contrasting this with the experience of research processes that are layered, iterative and reciprocal between researcher/s and researched. Finally, they discern another prospective gap concerning researcher ethics and codes of practice. In this field, these remain largely predicated on adults-as-researchers privileging ‘adult’ understandings of research methods, tools and methodologies, including as these relate to ethical, rigorous and appropriate practices.

They are not alone in advocating further deliberation and development of our thinking and practice in designing and conducting ‘better’ environmental education research. Along with Stevenson and Robottom (Chapter 37) on action research and environmental education, Bradbury-Huang and Long (Chapter 36) engage similar lines of critique to Barratt-Hacking et al., although there ‘the Other’ is argued to be the practitioner. Bradbury-Huang and Long press that research objects in environmental education research must not be solely understood in terms of conceptual development and congruence but rather in terms of the presumption of liberatory action. And instead of suggesting divergence in the two aspects noted above, participatory action research affords the possibility of revitalizing socially-valued (contra individualistic?) research and stakeholder partnerships, particularly towards achieving a modicum of ‘sustainability’ through democratically-inspired purposes, means and ends-in-view.

Stepping back then, noting early childhood education considerations (e.g. Davis, 2009) are also making ‘inroads’ into environmental education research, perhaps these chapters will suggest where genuine innovations are to be had in how inquiries in the field are conceived, designed and conducted, particularly in light of such critiques? Maybe some researchers will need to reimagine what it is to be childlike in the way their inquiries are framed and conducted, particularly if an intergenerational aesthetic, ethic and political warrant presses down, reflexively, normatively and critically on ‘(re)positioning’ the field’s future in rapidly changing local-global circumstances and contexts (Payne, 2010).

Offering “bright line certainties from the fog of life”? Research as inevitably complicit in abstraction

As illustrated above, one of our major intentions for this chapter is to begin a process of annotating the handbook’s text in relation to some of its research intertexts and metatexts. Our direct request is that with this chapter, readers reflect on the conceptualization and language of the research discussed throughout this handbook, particularly as to its aims and claims, key concepts and theorizations, reasoning and registers, analytical and expressive moves, if not the organization and patterning of ideas and examples in constructing scholarly argument. Actively doing so, we believe, puts the field in a stronger position for critically (re)engaging the debates (e.g. Robottom & Hart, 1993) and claims made about the achievements and shortcomings of this field of inquiry over time, and as these relate to local, national and international levels.

Thus to critically engage implications for the field, rather than, say, simply reading these off from various chapters, some readers will note that a range of contributions are written as if the *audience* is not that of researchers but environmental educators or the field of environmental education alone. See, for example: Kyburz-Graber (Chapter 2) on ‘socio-ecological approaches’; N. Gough (Chapter 3) on ‘thinking globally’; Le Grange (Chapter 12) on ‘the politics of needs and sustainability education’; Arenas & Londono (Chapter 16) on connecting vocational and technical education with sustainability; and Barnett et al. (Chapter 31) on the teacher professional development and student outcomes in relation to the use and potential of geospatial educational technology development.

Equally there are contributions of a less abstracting type or style that are written as if research and practitioner communities might embody a particular *relation* to each other. Typically, it may suggest being indifferent, critical, or a champion towards the other in terms of a specific principle, theory, perspective or practice of environmental education. See, for example: Greenwood (Chapter 8), on place-conscious education; Bai & Romanycia (Chapter 9) when applying Buddhist principles to education, ethics and ecology; Olvitt (Chapter 10) on environmental ethics as processes of open-ended, pluralistic, deliberative inquiry; and Stevenson & Robottom (Chapter 37) on critical action research by practitioners to develop environmental education practice and theory.

There are also contributors who reflect on the form, sufficiency, quality and extent of knowledge and evidence for an *argument*. For example, some note unargued assumptions in environmental education and its research by offering evaluative comments about their strengths and weaknesses; others discuss the plausibilities, support, gaps, leaps, (in)consistencies, and other alternative or equally compelling arguments in practice and scholarship. Examples to note here include: Berryman & Sauv  (Chapter 13), on the language and discourses of education, environment and sustainable development; Stevenson (Chapter 14) on ‘tensions and pretensions’ in critically and civically engaged policy scholarship; and, in distinguishing between propositional and experiential knowing, Bradbury-Huang and Long (Chapter 36), and Payne (Chapter 34). Lee, Wang & Yang (Chapter 18) illustrate this concern too in writing on the relative lack of empirical studies of environmental education in China when compared with practice publications and policy statements; as do Gonzalez Gaudiano & Lorenzetti (Chapter 17), on revitalizing the counterhegemonic challenges to the empirical-analytical tradition in environmental education research internationally and in Latin America. We also note Gonzalez Gaudiano & Lorenzetti argue for being more inclusive and pragmatic in the choice of research topics, to better respond to the priorities of the field ‘instead of clinging to theoretical approaches’.

Reading and writing research within unsettled, dynamic constellations

Taking another step back in our reading and writing, we also acknowledge that this contribution sits alongside wider calls within these pages for critical attention to the processes and infrastructures, and the resources and products, of research in this field.

Paul Hart’s Introduction to and Summary of Section 7 on *Philosophical and Methodological Perspectives* are lucid exemplars of such work. Hart highlights what is variously habituated and deconstructed as research practice in this field. As Hart shows, to carry this call forward in the research community requires careful consideration of the availability of and constraints on various modes, logics and outcomes of research in the various instances of this field. This question of availability, presences and absences, visibilities and invisibilities in research and knowledge orientations and dispositions serves to open up discussion as to how these are embedded within particular constellations of the field’s resources and capacities, not just its research subjects, objects and relations, as noted in the examples above. Elsewhere contributors and section editors variously argue for similar foci of

attention: to what is (being) lost or found, silenced or articulated, privileged or renounced, binarized or intersected, actioned or desired.

For instance, Shallcross & Robinson (Chapter 22) argue for multi-modal methods to environmental education research because these should embrace and integrate different modes of representation. They argue that multi-modal research proves more congruent with reality than only a textualized representation of research and reality. In effect, for Shallcross & Robinson, it demands research that includes visual methods not only as a supplement to written text accounts but increasingly on its own merits (see, for example, www.audiovisualthinking.org). Thus Shallcross & Robinson make the ‘representation’ case for greater and more sophisticated use of stories, vignettes, units of engagement and analysis, pictures, diagrams, graphs, visual tapestries, performances, scripts, fictions and ‘fact’ions.

The possibilities that visual methods in environmental education research afford to inquiry raise wider questions of how readers and viewers of research approach an array of research challenges associated with the ‘crisis of representation’ and non-textualized accounts of research (see also Payne, Chapter 34). For example, visual methods can (re)open questions about traditions, options and decisions about research design and representation that ‘word and/or number’ forms of research may appear to suggest are relatively settled. These include questions of: verisimilitude, censorship and copyright, appropriation of reality, positioning of data and research/researched/researcher, and loss and gains to be had from the transformations and representations of data and theory in conventional (or less so, perhaps including ironic and playful) modes.

Russell & Fawcett, in introducing Section 8, relocate and reconfigure such concerns to questions of the ‘moving of margins’ in environmental education research and, indeed, the quest for, and question of, what is being researched and represented (see also Payne, 2005). They position them beyond familiar questions of marginalization, inclusion and identity politics to note issues of intersectional analyses and intersubjective approaches. But, they caution, researchers must never lose sight of the particular and transectional in all these latter modes, such as issues concerning various waves of theorizing and experiencing gender and its analysis. (‘Generating a gender agenda for research in environmental education’ is also raised by Annette Gough, in Chapter 41). Thus Russell & Fawcett also invite critical reflection on how age, employment status, income, family, body form (such as the health-at-every-size discourse and fatness studies) are visible in environmental education research accounts, and whether these aspects are also fertile ground for inspiring innovative research in this field.

Finally, we note some contributors and section editors invite readers to reflect on the ways modes and logics of inquiry are variously identified, selected, positioned, invested in, developed, and applied. As Hart puts it in his Introduction to Section 7, “attention to the effects of one’s own arguments and explicit discussion of those effects is prerequisite to all subsequent research activity including problems of ethics, relations between researchers and researched, problems of analysis and representation of findings and problems of the production of discourse” (p.X). Thus, as part of the wider call of this handbook, Hart argues there is a need to get ‘clear about our onto-epistemological assumptions ... to deepen our engagement, to be more conscious of multiple layers of meaning, to critique our own interpretations and representations’.

This is a point which Berryman and Sauv  (Chapter 13) echo, quoting from Price’s (2005) paper on ‘social epistemology and its politically correct words’, to state:

“Different cultures will provide different language resources, different histories, different geographical potentials, constraints and evocative imagery; thus the same phenomenon, mobilized by people from different cultural, geographical, and historical heritages may have significantly different characteristics.” (Price, 2005, p. 95)

Taking these examples together then, in our view one of the principal achievements of this handbook has been the attempt to revisit challenges presented as the ‘harder to reach varieties’ of research thinking and practice (Reid & Scott, 2009), and related questions about the field’s development in relation to its narrative flux and continuity as surfaced through reflexivity about the ‘knowledge’ that a truly international collection can more assertively flag. As the quote and illustrations above show, this often includes in relation to the ‘ecological ontologies’ and geo-cultural/historical epistemologies of the field, and its intergenerational prospects, in what is unavoidably now, following the insights of Lyotard (1984), a globalizing discourse of environmental education research and its ‘knowledge conditions’.

Reading between the lines

Readers of a thoroughly critical, worthwhile and valuable handbook then should imaginatively be invited textually and reflexively into identifying issues and tensions in what is uttered, refuted, affirmed, supplemented, relied upon, presupposed and sought as worthwhile research and knowledge generation. They should also be able to identify how these tensions are often consequential to certain (a priori) assumptions or judgements expressed in the initial framing and conceptualization of that which is being represented locally, culturally, regionally, internationally or globally as valuable, worthwhile or useable knowledge in, of, with and for the field.

Critical questions emerging from this declaration or invocation of tensions to be dealt with include the sociolinguistic aspects at play in the field of inquiry as raised by Price above, even as we might also note those chapters that are positioned within perhaps familiar and Northern ‘psy’-focused frames (such as psychological research on (epistemological) beliefs, identity, learning theory, locus of control, verbal commitment to intention, personal responsibility, affect – Heimlich, Mony & Yocco, Chapter 26). To be sure, others set out to challenge these presumed frames (given for example, ecophenomenological, socio-ecological, and eco-political concerns) or work from other geo-cultural, onto-epistemologically ethico-political and geographical places or normatively reflexive configurations within the empirical and theoretical landscapes to which environmental education is mapped (culturally, historically, politically, philosophically), as illustrated below.

This insistence on reflexivity, about framing, methodology and their normativities, throughout the handbook’s pages invites us to critically engage the ways we speak of and to the various networks of research and researchers that contribute to and challenge environmental education inquiry. Be that in terms of understandings, scaffoldings, negotiations, proprieties, characterizations, narrations, positionings,

attestations, intentions, stories and expectations (interests and desires), ... the overarching point is, be it in practice and/or theory, there will always be many ways of engaging and doing research in this field, and we do a disservice to the field to maintain otherwise. As Hart argues (*ibid.*), acknowledging - even celebrating this critically - is key for the further development of the field given pressing questions of 'academic credibility, competition/cooperation and critique/reflexivity'. It also directly translates into the gravity of historicizing tasks such as literature review (including original not just secondary texts), particularly if one is to demonstrate criticality and creativity in relation to the qualities and value of work in a scholarly field.

Thus, as any brief consideration of chapters will show, despite some of the strengths of the handbook noted above, on occasion, some contributors do seem to resort to a descriptive and informational tone about environmental education and its research. (For example, Zint (Chapter 29) on program evaluation starts by outlining the features of 10 behavioural outcome evaluations, and then concludes by stressing the importance of meeting evaluation systems and standards, or tying evaluation goals to models of competence, behaviour, capacity, etc. At the same time, others articulate a plethora of established and emerging perspectives on research from a range of backgrounds and settings. These are now most typically marked by the qualifier of a 'critical' this or 'post-' that. (Thus, in contrast to Zint, Leigh's response to Shallcross & Robinson (Chapter 22) highlights the reductionism inherent in much social world research, e.g. in preparing and selecting an interpretation of data, reducing explanations to that of textual explanations alone, or offering an interpretation as a description when the truthfulness of either is unequivocal.) Whatever the configuration or pattern though, these too also invite considerations of what is under-represented - and perhaps by extension over-represented - in the methods, methodologies, epistemologies, ontologies, research questions, strategies and programmes of the fields.

In other words, accompanying all perspectives - qualified or not, as subtext or not - are biases, assumptions and challenges about the goals, traditions and practices of inquiry taking place, or are possible, in this field. For instance, as noted in Chapter 46, Lotz-Sisitka et al. concede that tabularizing traditions of research, thematic areas, and theoretical influences (their Tables 1 and 2) may speak little to the 'thicker' interpretive aspects of context or the standing of exemplar studies identified therein.

Globalizing the research imagination?

The challenge here (again, often expressed through reference to reflexivity) is how writers in environmental education research might better account for the 'heft' of the thematics, niches or provenance to their inquiries, be that within or beyond the interests (and even lives) of those working in the local research community from which the research arises, or of which it is intended to illuminate. Reflecting on such matters opens up (once again) a space for critically discussing the interests and positionings of environmental education researchers in the past, now and for the future. Indeed, we deliberately flag our interest in how this handbook, at a meta level of representing and legitimizing the field in an 'internationalized' and globalized way, also portrays a wider 'critical theorization of knowledge' and its value(s) and

integrity (and usefulness to different interests) in a rapidly changing and fluid/mobile postmodernity. And there can be no doubt that, alongside for example the contemporary interest in 'place', that notions of cosmopolitanism, mobility and fluidity will be worked into the language and discourse of environmental education research. The challenge will be how such notions are reworked in ways that advance or enhance the critical reflexivity and normativity of the field and the various layers of meaning and representation of the field's 'global' knowledge interests. In other words, the broader politics, economy and globalization of knowledge production interpenetrate this field, even as we create and maintain our own (Kenway & Fahey, 2009). If another research imaginary is pursued then, will it be one that avoids an enduring anthropocentrism and social/cultural centredness often found in the Anglo-Northern/affluent conceptions and constructions of environmental education research, views about sustainability, or places and even relations with nature, by extending into the socio-ecological or ecocentric that discerns and reveals through inquiry various 'justices' with a difference or otherness, be they social and/or ecological according to variable circumstances, contexts and geo-historical/cultural interests and aspirations.

More immediately and circumstantially, following Hart, this normative and ethico-political questioning of centredness, contexts of inquiry and ends-in-view of knowledge generation through research might follow an epistemological line of debate, such as in relation to the partialities and particularities of our 'given' norms, narratives, constructions, models, and the 'rhythms' and 'regimes' of truth. But also, it could be in terms of the roles and forms of the knower/s and the (un)known/s, and the orders and facets of knowledge we are drawn (or perhaps aspire) to in and for this field.

For example, when we consider the meta level requirement for critical theorizations of knowledge generated and/or produced in, through and by environmental education research, an open question raised by Price is whether the vantage point of critical realism is the natural successor to poststructuralism in environmental education research. Given how other knowledge theories such as postpositivism as applied to empirical-analytical approaches have been critiqued and reworked through the short history of environmental education research (e.g. Connell, 1997), does each theorization or knowledge vantage point, as the way many framings occur, only make sense in reaction to its 'logical predecessor'? (As with postmodernism, by grasping the roots and limits of modernist theory and analysis?) Put differently, do/must we contrarian-like only define ourselves (in/through research and representations in handbooks) simply by what we are opposed to? If so, does this automatically lead to the much-maligned 'dialogue of the deaf', even as there is some felt need for the field to have a degree of narrative continuity, notwithstanding internal critique and reflexivity?

Equally, at a 'micro' level concerned more directly with agential ways of knowing, seeing and doing, what might we make of the lack of attention to research on the role of emotion, control beliefs, attributions, willingness and self-esteem, as identified by Zeyer & Kelsey (Chapter 20) in this field? Zeyer & Kelsey raise whether teachers and learners are being charged with addressing 'environmental depression and ecological passivity' as well as feelings of being overwhelmed or hopeless, angered, shamed or bored during 'education', not just environmental education. For Lundholm et al. (Chapter 24), contributing to a research agenda in this area requires expert and

collaborative inquiries that attend to the value-ladenness of environmental issues, students' conceptions of values in subject matter and in relation to themselves, as well as students' emotions and values as part of the learning process. Both chapters underline the importance of clarity about working assumptions in scoping such research: for instance, when the voice of the learner is severely neglected in curriculum development and research; when learning is understood to be multi-modal and interactional (i.e. leaky and messy rather than mono-modal or transmissive); and, when experience and emotion are understood to be as important to the mediation of students' learning as questions of curricular context or programme planning.

Beyond some of the meta, meso and micro layerings of knowledge generated internally and 'within' the field that we have briefly introduced above, we might also note that by manifesting a diversity of views, perspectives and 'consciousnesses' about environmental education research, some contributors have offered their contributions to the research field largely from an 'outside in'¹ position, while others attempt to do so from the 'inside out' (Marcinkowski et al., Chapter 30 on environmental literacy assessments; Lowan, Chapter 44, on indigenous environmental education research, ...). There are also those who see their work as contributing to the 'in-betweens' of 'intersubjectivities', 'border crossings' and 'transdisciplinaries'². As such we are witness to a broad range of cultural and critical commitments and meta, meso and micro standpoints as to how objectivity and subjectivist points of view are expected, practiced, opened up or challenged for this field and via this handbook. These include and implicate those advocating research that gives life and space to perspectives variously self-defined by theoretical labels such as the phenomenological, post-positivist, liberal, critical, cultural and post-structural³, particularly when these are championed as able to address asymmetrical power gradients in research, such as between researchers and researched, and addressed through participatory approaches. Equally, it may also challenge the derivations of

¹ For example, Davies (Chapter 38), on how feminist post-structural perspectives can direct attention to normative cultural and pedagogical structures and meanings, acts and channels of power, and the 'common sense' of 'subjectification' and 'transgression' of existing research purposes and perspectives through, for example, simply, deeply listening and attending to the voices and sounds of 'others'; Peters (Chapter 40), on strategic research interests emerging from network analysis, and the emergent properties, intersections and tensions of 'ecosphy', ecology, economics, and sustainability, multidisciplinary pedagogies in environmental education given a green critique of neoliberalism and philosophical inquiries about emerging forms of learning in 'open knowledge economies' for public knowledge and public action; Bradbury-Huang & Long (Chapter 36), from management education and action research, the importance of relational epistemologies as a basis for participation and partnership that pursues collaborative ecological inquiry for sustainability; Barnett et al. (Chapter 31) on access to geospatial technologies in and outwith the classroom; and Dierking et al. (Chapter 33) on aggregating data and iterative and recursive analysis of informal science and environmental education programmes, experiences and evaluations.

² For example, Barratt Hacking et al. (Chapter 35) in focusing on children-as-researchers enjoying meaningful, relevant research involvement, integrity and independence, positive power relations and intergenerational forms of perspectives sharing and learning (i.e. different to research on and with children to by children, and adult-as-researchers of environmental education only); McKenzie et al. (Chapter 39) on methodologies for inquiry-based, relational, community-based intergenerational learning; Payne (Chapter 34), on the value of (normatively reflexive) ecophenomenological framings to our research and method assemblages, including for ecocentric theories of experience, education and scholarly inquiry.

³ For example, Bonnett (Chapter 7) on normative arisings given a Heideggerian frame for understanding our being in the world and hence the 'presence of nature' in environmental education; Jickling & Wals (Chapter 6) on liberal ethical perspectives in curriculum; Liddicoat & Krasny (Chapter 28) given a focus on significant life experiences; Russell and Fawcett (Introduction to Section 8), on non-anthropocentric research, fat studies, queer theory.

ideas from the literature predominantly rooted in one cultural context to the exclusion of many others legitimate and possible⁴.

Research that ‘marks a difference’?

This chapter then has become increasingly marked by opening up questions of how we (as authors/readers) train our attention on what researchers are prepared to talk about and prosecute as their political and theoretical projects in this field. We also want to open up a conversation on what is demarcated, sketched and/or fantasized as the historic and contemporary environmental education research field (see Davies, Chapter 38). Central to this work is the enduring challenge for researchers and the field, to even more carefully examine the status of knowledge in environmental education research as it is constructed and/or empirically qualified and elaborated and/or assessed/judged (implicitly and explicitly) as represented by the purposes, section thematics and sequencing, and specific chapter contents of this handbook.

Thus in both taking stock and looking ahead in this final section, it is timely to ask: will a twin track of traditional and innovative approaches to research allow each to redress the other in this field, such that a plural approach offers alternative and dialectic modes of thinking to our understandings of the issues? What sorts of knowledge reconciliations – in framings, approaches, perspectives and posing of research questions against enduring and intractable issues/problems in environmental education research - will help clarify some ends-in-view and the commensurabilities of the field’s purposes, means and such ends that might be more accessible as ushered in by the publication of this first international handbook? Thus, when some talk of theory-into-practice or practice-into-theory framings, without dialogue these are likely to remain incommensurable, particularly if viewed as taking place across postpositivist, interpretive, critical and post-critical forms of inquiry. The hard but necessary work is to keep talking to each other across such divides (see, for example, Peters, Chapter 40, on attempts to de-anthropocentrize theory and observation in cosmological studies).

A key issue in Section 8 on margins and marginalization speaks to this challenge too: on the status of indigenous ways of knowing in environmental education and its research. As researchers we have to continue to ask, on what ‘politics and ethics of ontologies of knowledge’ and their grounds are these ways treated as equally valid (or not) to Western scientific approaches? Is it that such a political ontology of knowledge (and concomitant epistemologies informing methodological deliberation and representational modes) are in some sense irrevocably different as the term ‘paradigmatic’ articulates, even when dialogue is possible? Might a monist epistemology (and methodological consequences) simply refuse such difference? Or a relational epistemology (and methodological implications) reinscribe them and thus suggest dependencies not just interdependencies? The point being, the logics of the

⁴ For example, Marcinkowski et al. (Chapter 4) on doctoral studies; or noting the first wave of national assessments in environmental education in US (Chapter 30), and then international assessments of environmental literacy in US, Korea, Israel and Turkey; and Hoeffel et al. (Chapter 23) from Brazilian sources on participation and participatory forms of research in developing country contexts when discussing research on disruptions to livelihoods, knowledges, participation in environmental decision-making, and autonomy in post-colonized regions of Brazil.

very terms of our ontological, epistemological and philosophical principles have effects not just on research design and objects, methodological persuasions or preferences, but also on adopting more reflexively normative positions and critical conversations about research.

Thus, while Zeyer and Kelsey (Chapter 20) can point to a sometimes hollow/empty ‘rhetoric of othering’ (Riggins, 1977) in student discourses to legitimize and position their actions and inaction we note, significantly, they also invoke post-ecologism (e.g. Blühdorn, 2002, 2011) as a concept since it offers them a critical interpretive frame for understanding still invisibly othered life in post-industrial societies (cf. Certeau, 1986 on ‘discourse on the Other’, and Russell & Fawcett, on the marginalization of other-than-human voices in research). To make this invisibility a little clearer, post-ecologism focuses on the normalization (and naturalization) of the paradoxical politics of unsustainability. We can only speculate as to the presence, or not, of this other in the many chapters of this handbook, yet its ‘reality’ and ‘truth’ are stark to many, notwithstanding the crises of meaning and representation prosecuted in our instance by the skeptics and deniers. Blühdorn’s thesis diagnoses structures and expressions of apathy, denial and scepticism of unsustainability as taking place within a series of simulative aspects of lifeworlds lived out within a post-ecological matrix, e.g. a mantra of reduce, reuse and recycle that no longer refuses or refutes a culture of consumerism. According to Blühdorn, this matrix impels a continued commitment to consumerism and hedonistic lifestyles, a persistent belief in technological fixes, and increasingly a dislike - and in some instances a disdain - for non-governmental actors (NGOs, social movements, and local green politics: e.g. as ‘idealistic troublemakers’). While somewhat inevitably, Blühdorn (2011) also asks serious questions of and about the role of democracy (and indeed social science inquiry and empirical insight/qualification) in terms of its and their normalization of the paradoxical and globally paralyzing politics of unsustainability.

In other words, if there is some kernel or skerrick of interpretive global ‘truth’ in the post-ecologism thesis, we might well ask, is it now time for environmental education research to inquire not only into questions of foundations and the effectiveness of environmental education but also into their shadows or counterparts and mirrors in a ‘post intellectual’ intellectual ‘climate change’ in universities governed by neo-liberal means of knowledge production within a new version of academic capitalism, as they are then governed, surveillanced/policed by its audit/managerial cultures (Apple, 2005)? Put otherwise, what is the ‘match’ or ‘fit’ of the current conditions in which research, as both the generation and now ‘production line’ of knowledge (and accompanying normative reflexivities, addressed above) and the changing nature of the ecologically problematic human condition, as suggested by Blühdorn’s view that the (global) politics of unsustainability have normatively been (epistemologically) naturalized? Indeed, do we (mis)recognize ourselves (Cooper, 2002) as environmental education researchers with a keen if not passionate interest in the field’s development when such a changing knowledge climate confronts the research endeavour: for example, what we can learn from ‘fast’ practice or ‘quick’ theory in research, other adjectival educations, and wider socio-political analysis of the nature and cultures we live with(in)?

The duties of research

There are significant risks in taking conceptual and discursive complexities and contradictions in a handbook at face value then (perhaps by somewhat blithely honouring instead of critically and creatively listening to and ‘interrogating’ diversity, alternatives and difference). Even to its critical friends, when research becomes a gathering of a field’s stock of knowledge, such an accumulation over time and space can appear one step away from intuiting only irrevocable contradiction and conflict, or disconnection and incoherence, be it in this handbook’s collection of researched knowledge, and by extension, the research field to which the handbook refers. To its detractors, it may be little more than evidence of the field losing sight of its bearings and foundations (e.g. why not (solely/primarily) prioritise engagement with and relevance to educators, practice and professional knowledge in a research handbook?). As in the case of the emergence of Education for Sustainable Development – not the subject of this handbook, although clearly of interest to some contributions – these pages could be considering the politics, priorities and pragmatics of what gets thought and funded as research about this aspect of the ‘adjectival educations’ and broadly, the ‘socio-ecological’ – environmental literacy, place-based education, environmental education, ESD, ...? While to its pragmatically inclined, talk of complexity, diversity and ambiguity might suggest a dereliction of duty.

As Chawla (2003, para. 1) commented on the *Alternative Paradigms for Environmental Education Research* publication from NAAEE (Mrazek, 1993):

In the decade since 1993, the urgency of achieving William Stapp’s goals for environmental education- of producing a knowledgeable, aware citizenry who is motivated to work toward the solution of environmental problems- has intensified, while by all evidence, the opportunities for children to know and care for the environment through community-based projects, field trips, and informal exploration of their neighborhoods appears to be steadily eroding under the pressure of tightening school budgets, the tyranny of standards-driven testing and teaching, sprawl, and parents’ fears of letting their children range freely. In this context, debates about one research paradigm or the other appear academic in a way that now appears to me out of touch with the contemporary reality of our need to know as much as we can about how to achieve Stapp’s goal by every research means and method possible. To the extent that the collection clarified the definition and use of different research approaches, it remains useful. To the extent that some contributions advocated one approach to the exclusion of others, they appear unrealistic.

Two decades down the line, will this charge apply to this handbook too? As an indicator, or case in point, we now offer a closer reading of the first section of the handbook, “*Part A. Conceptualizing environmental education as a field of inquiry*”, to consider the issues, before concluding the chapter.

When is history, history?

The first section of Part A of the Handbook concerns “Historical, contextual and theoretical orientations of environmental education research.” We note the

introduction to the section does not discuss to what these qualifiers to the orientations refer, nor how research spaces are created or how we conceptualise gaps and silences in the orientations of the field even as these are the themes of the section (such as by focusing on the ‘location’ and distribution of research topics, researcher and researched voices). However Annette Gough does draw on Hart and Nolan’s account (1999, p.41) of needs for environmental education research as well as her own conspectus (Gough, 1999, p. 153); to wit, it needs to:

- begin to address critical and feminist and postmodern challenges
- strive for more in-depth qualitative analyses, and
- move outside the academy and develop partnerships with schools and communities (Hart & Nolan, 1999, 41).

While as ‘guiding principles for research in environmental education’, Gough reiterates earlier points (Gough 1999, p.153), namely, to:

- recognize that knowledge is partial, multiple and contradictory;
- draw attention to the racism and gender blindness in environmental education;
- develop a willingness to listen to silenced voices and to provide opportunities for them to be heard; and
- develop understandings of the stories of which we are a part and our abilities to deconstruct them.

She also surmises that that the chapters in the first section display (p.X):

“a move away from the “longing for ‘one true story’ that has been the psychic motor for Western science” (Harding 1986, p. 193), and a recognition of the need to be aware of the historical, contextual and theoretical orientations to environmental education that inform and influence our work as researchers.”

The first chapter of that section, on ‘*The emergence of environmental education research: a ‘history’ of the field*’, offers a similar point of interest to this section, given its focus on how we write about research in and for this field. Again, given our interest above in probing questions of the narrative continuity of the field, notwithstanding the importance of an ‘internal and ‘external’ reflexivity at meta, meso and micro levels, intergenerationally, and geo-cultural/historically epistemologically, we also note Gough hasn’t discussed what a history is or might be, although she does chart changes in the orientation of environmental [sic. education?] research, or ‘EE research shifts’, via cataloguing key documents and events about environmental education emanating largely from international meetings, e.g. UNESCO, UNEP.

As noted above by Chawla, some environmental educators and researchers expect research to follow the lead of these documents and their definitions of the field of environmental education such that research focuses on the effectiveness of environmental education to shape human behaviours, actions and values, albeit largely within an individualized frame for response and action (e.g. Hungerford & Volk, 1990). Yet this focus and frame, Gough argues, has proven moribund. She charges it positions legitimate research largely within a positivist and/or postpositivistic fold, and once there, the key goal of environmental education has been the instrumentalized acquisition of responsible environmental behaviours. The

effect is that the fields of behavioural and social psychology become authoritative in framing the logics of pedagogical reasoning, practice and research. Yet following its critique by Robottom (e.g. 1992, 1993) and Hart (e.g. Robottom & Hart, 1993, 1995), amongst others, she states with approval:

“The argument advanced by Connell (1997, p.130) opens up space for legitimising all types of research methodologies where researchers “do what they do well and where methodologies are selected to meet clearly identified research needs, balanced with a clear understanding of the social, political and philosophical contexts in which they are located”.”

For us then, this opening chapter illustrates some of the key challenges and roles of a handbook in stimulating and demonstrating an historical consciousness of the field. For example, in terms of doctoral preparation and “learning the ropes”, we might ask which methods and methodologies are selected from, reproduced, criticized or extended, and on what grounds in the ‘histories of the field’ presented to its initiates? To whom will it matter if Gough’s ‘history’ falls short ‘of the present’, trailing out in the early 2000s (cf. Ferreira’s concluding chapter to Section 1), or if both Gough and Ferreira are bound (by handbook publication schedules, by critical interest, by availability?) to omit reference to recent collections such as David Zandvliet’s (2009) *Diversity in Environmental Education Research*?

Equally, if we take the ‘post’ demands of historical and material detail seriously, will it be important to note that a key driver in the development of the critical approaches identified by Gough and Ferreira was the gradual international access to and acceptance of ideas associated with the classbook and distance learning materials that arose from the Deakin-Griffith project for Masters environmental education students. Added to that might be the travel and exchanges amongst staff associated with that programme (by, amongst others, John Fien and Ian Robottom, and later, Noel Gough and Annette Gough), from Australia, and those heading there too, or finding solace in that material? While to note the devil in the detail, must we continue to ask which studies are actually reported and selected in constructing any particular ‘history’ or reader of the field, and thus whether those citations that make it to the pages of a handbook are not only intellectually but statistically representative of, say, the long tail of doctoral projects and grey literature associated with the field (cf. Marcinkowski et al., Chapter 4, in evidencing the work that can be seen to mark ‘shifts’ in environmental education research)?

A key challenge then is whether this research field will make strategic use of corpus and bibliometric studies. These approaches can help a research community trace and map concepts and sources and theoretical framings, methodological orientations and interpretive approaches/representations most often used in and across this field, be that within, say, a genealogical or geophilosophical framing, or those that relate to and incorporate strongly those traditional concerns of critical perspectives – class, gender, race (cf. Ferreira (Chapter 5 on ‘*What does a ‘history of the present’ have to offer environmental education?*’, and N. Gough (Chapter 3, on “*Thinking Globally ...*”).

Arguably another gap emerges not in the handbook’s ‘toolbox’ this time but in the uses to which tools are put. If we consider ‘post-post’ research in environmental education, as represented by the Special Issue of *Environmental Education Research*

on post-critical inquiry, there is a range of philosophical and pragmatic issues to consider. The collection, edited by Paul Hart (2005), was initiated by an essay from Marcia McKenzie, with responses from a range of researchers, and a coda by the essay author. Hart's editorial (pp.396/7) notes that:

“In recognizing both the constructed and real aspects of the phenomena we study, post-post researchers are coming to acknowledge limitations of those forms of the posts that insist everything is a construct, an illusion that linguistifies ‘being’ completely. Such a stance, however, also eschews forms of naive realism where the reality of social structure is unquestioned.”

We note here that while McKenzie's (2005) call for better ends-means congruence in environmental education research echoes Robottom's and Hart's and Nolan's and A. Gough's earlier calls (amongst others), Hart's editorial to the collection provides a delicate rider to McKenzie's argument. Hart relays how Russell's (2005) response to the essay draws attention to how theoretical commitments write and shape not just our histories but also our experiences and sense of agency in being in the natural world via acts of environmental and outdoor education. Hart (p.396) also discerns something significant in Payne's (2005) response piece to McKenzie (2005), to the effect that:

“researchers must be clear about their theoretical stance which allows simultaneously for both the reality of our experiences/relationships with others and environments, as well as the socially produced character of our researchers' judgments about them. (p.396) ...

He adds:

“What this means for environmental education research, from the perspective of those researchers situated in the middle of ‘ambivalent post/neo colonial terrain,’ when social and environmental issues are in high relief, is perhaps not so much ‘working the ruins’ (poststructurally) as ‘working the theories’ (post-critically). ‘What matters’ in environmental education research are deliberations that involve the ethics of everyday activity as coupled with those social perspectives that work to reinstate agency beyond narrow anthropomorphism through more reflexive actions in education. Environmental education research, as a more critically reflexive process, could have many variants, a certain requisite variety perhaps, but characterized by promising orientations for reinstating agency, as a social construction embedded in geopolitical contexts and sociocultural historic spaces and places as sites for ‘situated learning.’” (p. 397)

Moreover, Hart's editorial sets out a careful line to steer between (beyond?) absolutist and relativistic philosophies for environmental education and its research, including:

“... in reauthorizing ourselves through practice rather than confession, researchers can demonstrate understanding of means of production, that is, be aware of the possibilities for appropriation and know the constraints of methodological techniques as well as the power relations of location and position. Although there is risk in assuming that epistemological authority must necessarily entail social/moral inequality of worth between research and participants, researchers know some things about participants that they don't

know (as they know things we don't). We must not, therefore, confuse positioning with morality and telling the self with decentering the self." (p. 399)

While in closing, Hart avers:

"All we are doing, as reflexive researchers, is to write in ways that reveal the limits of our knowledge, our political orientation and other dimensions of self, in ways that reveal the discourses that shape our work and open possibilities for thinking about our work as we get on with it." (ibid.)

We draw on Hart extensively here because his work foreshadows many of the themes we have wanted to discuss in the concluding part of this chapter. For example, Chapter 3, by Noel Gough, on "*Thinking globally in environmental education: A critical history*" like Kyburz-Graber's before him on "*Socio-ecological approaches to environmental education*", enact this reflexive sensibility even as their chapters are primarily about environmental education rather than research *per se*. Indeed, Gough draws out implications for "the blind spots that might still remain in the vision of even the most culturally sensitive scholars" (p.X). Focusing his account around reflections on the sociology, culture and anthropology of scientific knowledge, Gough's conclusion resonates with the tone and intent of Hart's commentary:

"... 'thinking globally' in environmental education research might best be understood as a process of constructing transcultural 'spaces' in which scholars from different localities collaborate in reframing and decentering their own knowledge traditions and negotiate trust in each other's contributions to their collective work. For those of us who work in Western knowledge traditions, a first step must be to represent and perform our distinctive approaches to knowledge production in ways that authentically demonstrate their localness. We might not be able to speak – or think – from outside our own Eurocentrism, but we can continue to ask questions about how our specifically Western ways of 'acting locally' (in the production of knowledge) might be performed *with* other local knowledge traditions. By coproducing global knowledge in transcultural spaces, we can, I believe, help to make both the limits *and strengths* of the local knowledge tradition we call Western science increasingly visible."

In direct contrast to the style of the other chapters in Section 1, Marcinkowski et al. (Chapter 4) write on "*Selected trends in thirty years of doctoral research in environmental education in the U.S.*" They use content analysis to report a series of clusters and structures of interest in the dissertations the researchers have audited. As we comment on Table 1 in Chapter 46, here readers may want to ask themselves whether the patterns and gaps Marcinkowski et al. discern extend to other geographical and linguistic regions, as well as whether the findings are best represented in tables given the availability and power of graphical visualizations? For this chapter though, we invite readers to consider whether a key question for further research raised by their results is how the trends relate to the actual drivers and structures of doctoral studies? For example, the graduate schools and traditions from which theses emerge, the expertise accessed and supervision experienced by the doctoral students, the demographics of the researchers (gender, age, career histories, ...), and the networks sought and within which they participate(d) then and as post-

docs. These can all have subsequent or structural implications for the future of research and professional development in this field (cf. Nikel et al., 2010).

We raise this because as broached above, a key mechanism for crafting, framing and constructing as distinct from neo-liberalism's 'producing' knowledge in this field now hones intergenerationally on a new ethico-political warrant concerning doctoral training and education. Doctoral researchers and their supervisors or panels variously reproduce, extend, or break with assumptions and practices of environmental education research. Again, corpus analysis and citation analysis can be helpful here in tracing the trajectories, clusters and ruptures in traditions, ideas and foci, as well as revealing the extant literature bases (\neq reading lists) available to doctoral researchers, their doctoral programmes and mentors (e.g. the national and international research journals, the within and across sub-disciplinary reading taking place – i.e. the sociolinguistics of research reading and writing).

As Nikel et al. (2010) note in reflecting on their doctoral studies undertaken in the UK as overseas students, a culturally reflexive turn invites us to move beyond asking what we study to also engaging how we understand and experience the layerings and intersections in doctoral work, often personally and not just professionally. These vary at different stages in the progress of doctoral work, and in their cases, often as 'outsiders becoming insiders' professionally as well as culturally during, and perhaps beyond, a doctoral stage. Again, noting the reflexivity trope above, this includes opening up discussions about the complexities of gender, identity, agency, power relations and career progression. Nikel et al. (2010) write on this in relation to those mundane, transformative or painful learning experiences and encounters that took place during their doctoral research processes as a vehicle for their own knowledge production and identity formation. And like Ferreira, they note this can lead to a productive, if not troublesome attempt to make visible the relations of power and the rationalities through which we are governed and govern ourselves as doctoral, emerging and more established scholars and researchers.

Conclusion

As we have shown in this chapter, environmental education scholarship and research are quite properly viewed as socially constructed and therefore open to discussion, contestation and change. Thus, for an international research community, a normatively reflexive account of its researches should be able to further our collective understanding of:

- (a) how and in what ways a research-driven handbook with a warrant and claim on being international represents and, therefore, partially (re)constitutes and legitimizes a 'report' on the status of knowledge in the field
- (b) the geo-cultural/historical contexts and conditions and ethico-political ontological-epistemological formations and social relations of individual and group intellectual/knowledge work and their 'identities' that non-Anglophone and Anglophone researchers work with/in, are ineluctably shaped by and inform/embody certain horizons/imaginaries;

- (c) the almost invisible emergence of normalized and naturalized post-ecological paradoxes and globalizing realities against and for with such normative reflexivity of the field would do well to reengage its debates and terms of reference as ends-in-view
- (d) the drivers, infrastructures, discourses, technics and experiences of research and research community around the globe
- (e) the challenges and tensions of increasingly abstracted, mobile/liquid and socially extended ‘knowledge/research’ networking, collaboration, internationalization, homogenization and prescription in a globalized *and* localized academy, and
- (f) the narrative fluxes, continuity(ies) (and discontinuity(ies)) of the field of environmental education research in retrospectively and prospectively working through the changing intergenerational and globalizing conditions of knowledge generation, value, integrity, usefulness within postmodernity’s productive/performative imperatives.

In other words, when we work through the issues and trajectories of research, researchers and researched as represented in this first *International Handbook of Research in Environmental Education*, we can understand the field is presented with direct challenges to its present and its future from the realms of sociolinguistics and geo-epistemology. Namely, can the ontology-epistemology-methodological triad also be normatively and reflexively framed in ways that more clearly, generously and effectively represent: i) the ‘simultaneous’ demands/imperatives or hopes/aspirations for local, national, regional and global interpretations, descriptions, representations and legitimizations in the next international handbook; ii) the historical and intergenerational nature of the way research occurs, is presented and legitimized as a condition and status of knowledge within the field’s narrative flux, continuities and discontinuities; and iii) research leading to that, as played out in journals/conferences, edited books, along the way?

Given this critical interest, it is perhaps of little surprise that some of the contributions to the handbook focus more on props and targets for readymade theories about experiences, motivations, dispositions, educations, learnings, ethics, identity, knowledges, affect, skills, behaviours, and actions. This is particularly clear when we consider what appears to count as their ‘determinants’ over the lifespan (e.g. reference to, or omission in such accounts of, youth, familial or kin factors such as: parents’ level of schooling, childhood significant life experiences, cultural traditions or values, everyday formal and informal, official and unofficial learning, mediating adults)⁵. Equally, there are others represented here, writing out of dissatisfaction and/or hope, who seek more compelling patterns or intersections of constructs, theorizations and projects in this field. Their accounts seem preoccupied with the need to clarify the normative and axiological ‘force’ and potentially positive (constructive) power of the field. These (critical) ‘values’ of the (reflexive) field are often argued by invoking a broader and richer frame that desires or anticipates environmental education and its

⁵ See Storksdieck & Brody’s helpful comments in the Introduction to Section 6 on the risks of confusing goals for evaluation (e.g. given demands for accountability) with research (e.g. to test hypotheses or build theory), seeking generalizability on inadequate grounds, and overconfidence in the methodological rigor and explanatory power of an inquiry and/or research design (e.g. in triangulation of findings and mixed methods approaches to data analysis, the units of analysis and attributions of effects, effect sizes and longevity, interactions and ‘intervening variables’).

research ‘making a difference’ (usually in terms of longed for outcomes defined ontologically, conceptually, pedagogically, behaviourally, culturally, politically, or socio-ecologically ...) to the environmental (and) educational challenges the peoples of this world do, and might, face⁶.

To summarize, as might have been expected, contributors to the various sections of this handbook offer diverse ways of thinking, understanding and evaluating the state of the field – discursively, philosophically, and normatively. In some senses discrete, in others continuous, only some of these ways can be reconciled with each other (e.g. methodological conservatism with radicalism? naïve relativist and critical realist conceptions of truth?⁷). And this is even as the ‘bandwidth’ and ‘needs’ of the field broaden and ‘intensify’ for environmental education research (see Hart, Section 7, Introduction, and the notion of requisite variety in research, and Chapter 46).

⁶ See, for example, Holdsworth et al. (Chapter 32), on the social and political constructs of neo-liberal capitalistic society, the limitations of a positivistic scientific worldview when linked to conserving existing institutional structures, and how their vision of sustainability education praxis requires attention to curriculum, organisational culture, staff politics, and disciplinary dialogue and sense-making, amongst others.

⁷ Bradbury-Huang and Ken Long open Chapter 36 with a Rortian (1999) epigraph that roundly rejects realism: “We cannot regard truth as a goal of inquiry. The purpose of inquiry is to achieve agreement among human beings about what to do, to bring about consensus on the ends to be achieved and the means used to achieve those ends. Inquiry that does not achieve coordination is not inquiry, but simply wordplay.” (p. xxv).

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