

EDITORIAL

The theme of the 1996 conference - *Learning for Change* - is an ambiguous notion that can be interpreted in more than one way. The concept of change itself - central as it is to educational responses to socio-ecological dilemmas - is not only complex, but political, and different authors understand the ways in which change come about, differently.

The papers collected here either illuminate such different conceptions of change, or comment on them, or reflect the trends and developments in environmental education which are often interpreted as 'change'. Several of them do all three.

In the first contribution Fred van Staden describes the emergence of a participatory orientation in forestry extension work, a field traditionally associated with behaviourist theories for changing others according to technical experts' understanding. The author outlines problems with this orientation, but contradictions in his treatment of 'participation' indicate that the more favoured notion is also not escaping a rationalist view of change as linear, controllable process in which others' participation becomes an additional step or technique.

Looking through a post-modern lens, Firth then challenges the simplified versions of change not only inherent to behaviourism, but also in the critical theory underpinning 'socially critical' environmental education - and much of the rhetoric accompanying the promotion of the participatory turn. Focussing on the 1995 theme *Progress and Paradox*, Firth highlights flawed models of rationalist change and the need to give greater recognition to complexity. (His paper has been considerably shortened for editorial purposes.)

Winter & Reddy take as departure point another recent local and international trend in education, towards 'constructivist' learning theories. There is a great need for a review of the constructivist orientation as it is generally applied in environmental education - often as little more than a procedure establishing what learners know, before proceeding with one's 'intervention' to improve on that knowledge. Winter & Reddy do not articulate this view, but their paper does reflect a view of change as the rational result of an intervention, as does the research design, which assesses teachers' conceptions before and after a module is taught. The authors alert us to the need to be aware of the social

context which learners bring with them to a classroom.

The next paper goes further to highlight the importance of context, history and complexity in understanding teachers' involvement in environmental education. Paul Hart purposefully uses a very different research methodology - narrative. His focus is not so much the change brought about by the researcher in the teachers, but "to explore the relationship between teacher and researcher understanding" and "between a particular form of inquiry and professional development". The narrative approach, he claims, allowed the researchers to develop powerful cooperative relationships with teachers and find common ground ... in contrast to a constructivist orientation which at times appear to be no more than an attempt to move the other parties to one's own ground, by surveying the grounds they currently stand on.

True to the narrative approach, Hart's story is also a good illustration of environmental education as practised in the Canadian curriculum.

Taking the topic of teachers and professional development further, Ian Robottom questions *tips & tricks* and *train the trainers* 'provisions' which ignore "the idiosyncrasy of the professional dilemmas encountered by teachers of environmental education". He, too, emphasises context and complexity. Elaborating on environmental education and the Australian curriculum, recent curriculum changes and ways in which these might affect the practice of environmental education, he casts centralised curriculum control as a threat to critical community-based education.

The most recent centralised curriculum change in South Africa is the Outcomes-Based Education Framework. Hughes, while touching on the role environmental education may play in the realisation of OBE, puts the spotlight on assessment. The success or otherwise of new forms of assessment, she claims, is dependent on individual teachers, but also critically on the availability of generalised guidelines provided by research. A research institution such as the one from which Hughes writes is no doubt poised to take a lead in such research.

Janse van Rensburg's contribution confirms the widespread nature of the view that research has an essential role in developing education policy. It

points, however, to some of the more problematic dimensions of large-scale surveys - such as the tendency to privilege the empowerment of the research institution - as well as to the limitations of the popular participatory action research approach in an academic context. Policy research can benefit from combinations of the strengths of various methods. Clearly all research methods have the potential to contribute to or stifle transformation, and researcher disposition and orientation to change will play a vital role in how potentials and pitfalls materialise.

In the final input O'Donoghue introduces an academic exchange programme in which students' learnings around trends in educational research methodology, science - and environmental education

reflect many of the shifts (e.g. towards participatory research and education, and constructivism) and dispositions to change outlined above.

The selection of papers in this volume is based on reviews of their suitability for an academic publication, and on how closely they relate to the conference theme. However, we also wished to reflect current conceptual developments in environmental education, including local ones. The reader will thus find papers of varying quality, but also an interesting overview of the multiple trends co-existing, mingling and commenting on each other in the various contexts in which academics with environmental concerns are responding to quests for educational change.

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