

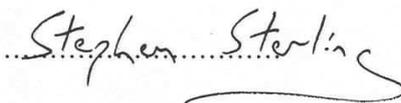
WHOLE SYSTEMS THINKING AS A BASIS
FOR PARADIGM CHANGE IN EDUCATION:
EXPLORATIONS IN THE CONTEXT OF
SUSTAINABILITY

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for the degree of PhD
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ABSTRACT

WHOLE SYSTEMS THINKING AS A BASIS FOR PARADIGM CHANGE IN EDUCATION: EXPLORATIONS IN THE CONTEXT OF SUSTAINABILITY

The main *research problem* is why education as a whole, and environmental and sustainability education in particular, are limited in their ability to make a positive difference to the human or environmental prospect by helping assure a more sustainable future - and what bases and qualities of change might lead them to become more transformative in this regard. The research takes a systems view of the subject matter, and five nesting contextual levels are explored:

1. the nature of what appears to be an emerging *postmodern ecological worldview* (PEW) and, by implication, the nature of paradigm change through learning;
2. the nature of *whole systems thinking*;
3. implications of 1. and 2. for change to the dominant *educational paradigm*;
4. the revisioning of *environmental and sustainability education*, seen as a subsystem of education as a whole.
5. the nature of *sustainability*, which provides an integrative and overriding context for the research.

The structure of the Thesis reflects these nesting levels.

The difference between 'systems as discipline', and 'systems as worldview' is elaborated, and the historical and current bases of a more encompassing *whole systems thinking* that reflects and articulates an emergent PEW and participative epistemology are explored. Whole systems thinking is presented as a critical syncretisation of the worldview of ecological thought (ecologism), of a co-evolutionary ontology, and the methodology of systems approaches. The PEW is seen as manifesting a third order of change which transcends and subsumes the antecedent yet still current cultural 'moments' of modernism (first order) and of deconstructive postmodernism (second order).

A key three-part model of paradigm and experience is developed alongside Bateson's theory of staged learning levels, and these models are discussed as a basis for understanding transformative learning beyond the limits of modernism and mechanism, of postmodernism and text, and building on insights from revisionary postmodernism, systemism, ecologism, and complexity theory. These ideas are employed to explore the difficulties, implications and possibility of intentioned paradigm change in education as a whole and in research paradigms. This discussion is then applied in more detail to the area of revisioning environmental and sustainability education, including implications for design and management.

Keywords: *postmodern ecological worldview, epistemology, systems thinking, whole systems thinking, holism, sustainability, complexity, paradigm and paradigm change, epistemic and transformative learning, educational change and management, educational design.*

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