

Social Ecology as Innovative Tertiary Environmental Education^{1 2}

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Introduction

Social ecology as expressed by the Social Ecology Centre, (Faculty of Agriculture & Rural Development, University of Western Sydney, Hawkesbury), is an emerging field of learning concerned with improving the quality of the interrelationships between people and between people and the environment. The essence of this 'improvement' is powerfully depicted by Albert Einstein, with this plea for people to widen their sense of compassion and concern to all life:

A human being is part of the whole, called by us 'Universe' a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest, a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty.

Social ecology then is concerned with recognising and transcending this 'optical delusion' of which Einstein speaks.

In 1992 the Social Ecology Centre will be offering, through the introduction of the Bachelor of Applied Science (Social Ecology) [B. App. Sc. (Soc. Ecol.)] program, a substantively new and different approach to environmental education at a tertiary level. The establishment of the B.App.Sc. (Soc. Ecol.) will provide for the first time learning opportunities in social ecology at undergraduate level.

This undergraduate course will compliment the range of postgraduate courses offered by the Centre:

Graduate Diploma in Social Ecology; Master of Applied Science (coursework); Master of Science (research); and Ph D

The purpose of this paper is threefold: (1) To explain the genesis of this innovative program through describing and reflecting on the underlying philosophical framework, the major course organising principles and the

proposed structure of the course; (2) To highlight the problematic nature of setting up a dialectical, non-disciplinary based program, within the present disciplinary structured, more positivistically aligned tertiary education system; (3) To foster wider awareness and debate in the (academic) community about the nature of environmental education in general, and more specifically to invite critique of the concept of this course.

The thinking underpinning the practice of social ecology

Before going on to describe something more of the focus of social ecology, it is important to note that my (or any) description will necessarily be limited. The following description then, of social ecology, is given within the context of two major provisos:

1. That this is how social ecology is described by me, at this point in time, given all that my life experiences and insights bring to my 'seeing' of social ecology. Others may offer different descriptions;
2. That the way social ecology is expressed at present, is seen to be dependent on the personal and shared histories of those involved, the range of enthusiasms and perspectives brought by this group, and the present and ongoing physical, cultural and political system within which social ecology is immersed. At other times social ecology may be expressed differently.

Within the context of these prefatory remarks, I suggest that for those interested in a definition at a pragmatic level, the description given of social ecology as focussing on improving the quality of relationships between people and between people and their environments may suffice.

This definition nonetheless offers only a surface description and does not provide a sense of the seemingly diverse, yet coherent (if viewed from a different perspective) range of intellectual, psychological, social and environmental antecedents of the present expression of social ecology, nor of the ongoing dynamic character of this field of interest.

I propose however that a closer examination of the two words composing the title - 'social' and 'ecology', will explicate something of the central area of interest of 'Social Ecology'.

The use of the word 'social' underlines the belief that it is people who make meaning. Meaning is viewed not as being out there in nature, or in the events themselves that we participate in. Meaning is understood to be a social construction, always sitting within particular cultural settings or domains of language, and that

... language, beliefs and world-view (or *Weltanschauung*) shape the 'meanings' possible in any particular human social group (White, 1989, p.49).

Thus a fundamental axiom of Social Ecology is that facts and values do not possess an a priori existence, independent of the ongoing human interactions that produce, sustain and alter our world. The theoretical underpinnings for this constructivist position come from the fields of neurobiology (e.g. Maturana and Varela, (1988)), sociology (e.g. Berger and Luckman, (1966) and Niklas Luhmann (1990)), cognitive psychology (e.g. Ernst von Glasersfeld (1987)) and philosophy (e.g. Heidegger (1956, 1966 and 1972) and Gadamer (1975)).

'Ecology', the second word of the title, in being derived from the Greek "oikos", meaning "house", and "logos", in this usage, meaning 'knowledge' or 'study of', highlights focus on the study of the household. There are two complementary emphases arising here. Firstly, ecology has from its early use in the scientific domain, denoted recognition of the interrelatedness of the extended biological household; the inter-dependent 'whole', biogeo-chemical world (i.e. Brewer, (1979), Kease (1981), Aust. Academy of Science (1981), Miller (1990) and so on).

Secondly, concern with the extended household as being essentially interrelated, reflects a reciprocal concern for recognising ourselves as integral co-defining beings of the 'household'. This recognition gives rise to paying attention to our involvement in the household: our personal and professional lives; the relationships constituting our social networks (including the technology arising within these); and our (personal) relationship with the environment (see for example, Stapleton (1964), Albury (1983), Clark (1989), Casti (1989)).

This discussion of the two words composing the title 'Social Ecology' immediately reveals the inherently dialectical nature of 'social ecology'. That is, that on the one hand, there is acceptance of the 'reality' of the understandings arising from the field of ecology; the interrelatedness of life within the extended household is assumed as taken-for-granted knowledge. Yet on the other hand, the understanding that our knowing of the world (and therefore, the coming into being of such areas of interest, as ecology) is shaped by our physical structure, the historical, social and cultural dimensions of the situations we are immersed in, and by our own personal histories of being, is also strongly upheld.

This dialectic, from my perspective, finally begins to distinguish the essence of social ecology. Social ecology for me, only exists in its dynamic fullness as it upholds the tensions emanating from within these seemingly conflicting positions regarding the nature of reality.

The maintaining of tensions in regard to a range of areas of focus, is, I would suggest, a further characteristic integral to social ecology, as it is expressed at Hawkesbury. Social ecology is a concept, a way-of-being, or a discipline, which arises in its' present form through ongoing contesting or grappling with the various meanings as interpreted by those involved.

This contesting itself can be understood as emerging from, and being sustained through the staff, students, and others involved, holding a range of ideological positions. However, the fluidity of these ideological perspectives needs to be recognised. A reciprocal relationship exists between these and the discourse. I suggest that through the ongoing interactions or discourse forming social ecology, these ideological perspectives will themselves have the potential to undergo subtle transformation.

An example of a creative tension arising from differences between ideological positions is the attitude to the concept of 'ecology'. Some staff view 'ecology' primarily as a metaphor for community/organisational development, while others express interest in ecology from the perspective of recognising the interrelatedness of all life:

"For nothing in the world exists, lives and moves of itself. Everything exists, lives and moves in others, in one another for one another.." (Moltmann, 1985, p.11).

The name 'Social Ecology' was chosen by the staff in 1987, as it was felt this title accurately signified the essence of the focus of the Centre. While the decision to label the work 'social ecology' was in one respect, an independent labelling, not designed to specifically tie the Centre to similar trends occurring in other places, this decision also reflects the influence of a range of writers. In particular, the influence of people like Gregory Bateson, Anthony Wilden, Murray Bookchin and Arne Naess is acknowledged.

Social ecology, science and imagination

Science as generally understood, involves rigorous and systematic inquiry processes in the production of knowledge. The Macquarie Dictionary (1987), for example, defines science as:

the systematic study of man and his environment based on the deductions and inferences which can be made, and the general laws which can be formulated, from reproducible observations and measurements of events and parameters within the universe...

In acknowledging the interrelatedness of all reality (ourselves and our perceptions included), social ecology recognises that particular systematic methods of inquiry will yield particular deductions, and therefore that the "scientist" is actually constructing that knowledge which s/he considers to have discovered. As Maturana and Varela (1987) phrase it: All doing is knowing and all knowing is doing (p.27). Science then, from this perspective, may be understood as an inquiry process involving the continuing interplay of the phenomena of the world (in Cartesian terms, the world of reality) with the consciousness of the inquirer (the 'subjective' mental world, from a Cartesian

perspective). Within this broader meaning, science is conceived of as a cultural development in world history, and as a personal imaginative commitment of the individual or group.

Imaginative knowing is mentioned here to highlight awareness of the role of the imagination in shaping development in scientific inquiry. As the philosopher Suzanne Langer so eloquently puts it:

But between the facts run the threads of an unrecorded reality, momentarily recognised, wherever they come to the surface ... the bright, twisted threads of symbolic envisagement, imagination, thought - memory and reconstructed memory, belief beyond experience, dream, make believe, hypothesis, philosophy - the whole creative process of ideation, metaphor and abstraction that makes human life an adventure in understanding. (Langer, S. (1942), pp. 236-237).

In social ecology then, recognition of the context of science is emphasised. This context is interpreted broadly, incorporating both:

1. The pursuance of the scientific inquiry process in the context of our western society existing as it now does (i.e. health, transglobal communication, lifestyle etc. implications) as an artifact of scientific inquiry; and
2. Science as a personal/social imaginative expression of human life.

Conversely, science is also seen as an artifact of our modern western society. 'Science' as it has been generally understood, illustrates the emphasis given by our society to a particular tradition in thinking. This may be termed the "rationalistic tradition", whereby specific styles of consciously rationalised thought and action are thought to be worthwhile, sensible or 'rational' (Russell and Ison, 1991). This rationalistic tradition is based on the belief that the world exists as a 'fixed reality', 'out there', and that it may with increasing accuracy be 'known' by applying 'rational' understandings to it. While not wishing to foster irrational or fuzzy thinking, social ecology is committed, along with Winograd and Flores (1987) to expanding this concept of rationality, and

developing a new ground of rationality - one that is as rigorous as the rationalistic tradition in its aspirations but that does not share the presuppositions underlying it (p. 8).

So rather than seeing scientists involved in the task of 'discovering' the properties of the 'real world', the contextual view of social ecology promotes

interest in examining how it is that our science (the questions we ask, the experiments that we are involved in etc.) constructs the particular realities, rationalities and scientific or natural laws that we consider we have "discovered".

Social ecology and the nature of environmental problems

"Tis but a part we see and not a whole". Alexander Pope.

Our present ways of thinking and acting are considered from a social ecology perspective, to have brought us to a place where we now recognise ourselves as being embedded in interlocking environmental and social dislocation or 'problems'. It appears our society has attempted to "fix" what it recognises as environmental problems, by assuming that:

1. 'Problems' represent a mismatch between what is scientifically known and technically feasible, and what is current practice;
2. The world in which "we live" is a fixed reality and that by applying rational understanding we will increasingly gain accurate knowledge of it.

However, often there is no recognition of the way possible understandings of material and biological phenomena (observable to the senses) come into being through the products of the intellect (thoughts, beliefs, memories and so on). This is essentially both a biological and social process.

As Robert Pirsig (1991, p. 329) puts it:

Our scientific description of nature is always culturally derived. Nature tells us only what our culture predisposes us to hear. The selection of which inorganic patterns to observe and which to ignore is made on the basis of social patterns of value, or when it is not, on the basis of biological patterns of value.

The perspective taken in Social Ecology is that 'environmental problems' are not amenable to a 'quick-fix' solution, as they are not separable from their social and cultural contexts. Usually however, attempts to "fix" problems rest on our "implicit understanding that we can understand them (problems) by constructing an ever more detailed picture of them as distinct from ourselves as problem formulators" (Fisher, 1990 p.67). Thus progress towards more equitable and sustainable ways of living and learning which take into account the role of us as 'observers', (or problem formulators) constructing the particular 'problems' that we become aware of, depends on the development and promulgation of ways of learning which are both 'learner centred' in their

process and oriented towards 'complexity' in their focus.

Major organising Principles of the B. App. Sc. (Social Ecology)

The course aims to develop critically reflective practitioners who are able to reflect both on their own theories of 'action', and their practice contexts and who will, in situations involving interrelationships between people and the environment, be able to create changes which are believed to be improvements.

The course has as its objectives a set of four spirally interacting areas of competency development.

1. *Inquiry Into Complex Situations*: Emphasis here is on graduates developing the skills which would enable them to:
 - (a) reflect on the ecological patterning (context, structures, processes, relationships, systemics) involved in the dynamics of evolving situations;
 - (b) explore the inquiry process as a reflection of their personal and cultural "windows" on the world;
 - (c) demonstrate an expansion in their ways of seeing and knowing by drawing on major intellectual traditions (i.e. systems thinking, hermeneutics or social anthropology);
 - (d) utilise an interplay of imaginative and more rational modes of knowing in their learning.

2. *Enriching Consciousness*: This involves general intellectual and emotional development, with an increased understanding of oneself in cultural context, and in relation to others from different cultures.

3. *Collaborating With Others*: This involves graduates in:
 - (a) developing their ability to inquire into complex situations through a process of co-learning or mutual inquiry with others involved in the situation; and
 - (b) networking and developing their resource and support bases.

4. *Communication and Professional Skills*: Emphasis is on graduates demonstrating:
 - (a) skills in oral and written communication for a range of contexts and situations (for example in industry, government, educational institutions, professional reports, submissions, interviewing or leading groups);
 - (b) ability to communicate in ways that respect a range of value

- perspectives;
- (c) ability to mediate and seek resolution between the range of value systems present in any situation;
 - (d) skills in information retrieval and interpretation, goal setting and time management; and
 - (e) self-management skills and the ability to take control of their own learning and development.

The ecological world view of social ecology that regards reality as essentially integral (a 'whole' existing as a system of interrelations), has profound implications for our understanding of the way in which learning occurs, (and specifically for how graduates will develop the competencies as outlined above).

Growing out of an interactional understanding of the self and the environment, learning is viewed as:

1. An integrated process that involves the whole person, including intellectual, moral, spiritual, emotional and aesthetic sensibilities within an environmental/cultural context;
2. An interactive process where learners actively participate (through inquiry, exploration and reflection) in making better sense of their experience (and in understanding their own learning).

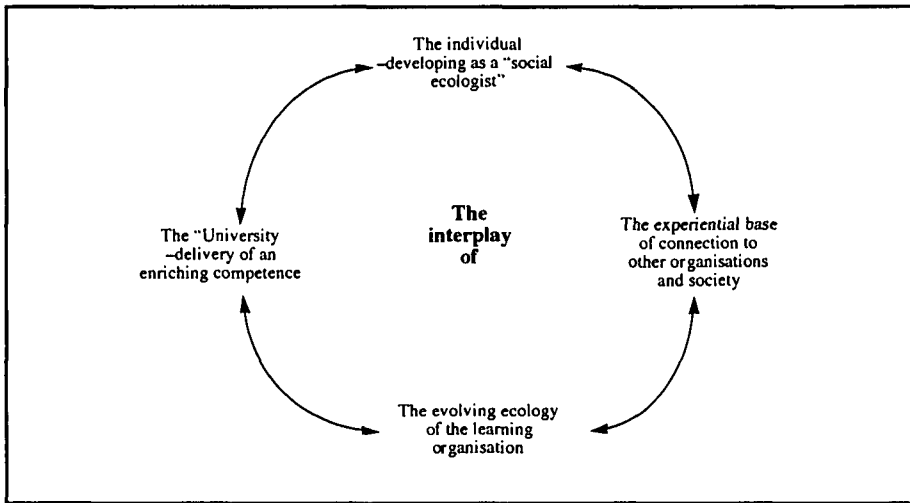
Consequently, for there to be congruence between the thinking underpinning social ecology (the theory) and the practice (the lived expression of the course), the following organising principles are recognised:

- (a) The relationships between staff, course members and the course is viewed as an "action researching system" (Bawden and Macadam, 1990), with the progressive improvement of the course arising from a process of systemic re-appraisal;
- (b) The roles of student and staff are replaced by those of colearners, with staff acting as facilitators and coinquirers;
- (c) The concept of a transmitted curriculum is replaced by an evolving 'co-curriculum', where the content and skill are not specifically defined, but within a broadly defined field of learning are jointly created by all participants;
- (d) Integrated assessment replaces separate assessment of 'subjects';
- (e) There is scope for a broad range of forms of expression ranging from formal report writing, charting and computer modelling, to more creative and artistic modes of expression.
- (f) Emphasis is on experiential learning involving projects beyond the classroom; and
- (g) The responsibility for managing learning is shifted from a structure of

"subjects, teaching, assignments and assessment" to being clearly seen to rest with the individual learner.

The development of the student as a Social Ecologist, as depicted in Figure 1, is conceptualised as occurring through an evolving interplay between the individual, the university context, (resources and literature are included here) and the experiential base of the students connections to other people, organisations and society.

Figure 1 The Interplay of Learning



Outline of the course structure

Primarily, the B. App. Sc. (Social Ecology) course is structured around seven 'Inquiry Themes' spread over three years. These Inquiry Themes are each introduced within a prescribed period of the course, and having been introduced, they then continue for the duration of the course. (see Figure 2 showing an overview of the course with the sequence of Inquiry Themes). Students will progress through these seven Inquiry Themes in a sequential fashion, enrolling each semester in the designated Inquiry Theme(s), rather than in subjects, as in a traditional curriculum. Each Inquiry Theme is transdisciplinary in terms of the 'subject content', and further, each includes within its focus, emphasis on awareness of processes of learning (both for the individual and for the course as an evolving enterprise).

The Inquiry Themes focus learning to develop specific competencies within the broad competency areas, as described above. The focus of each Inquiry Theme is presented in summary form in Figure 3.

Throughout the course students engage with the foci of the Inquiry Themes, by being involved in projects which are jointly designed by

themselves and staff, to promote the development of specific competencies. Resources to assist the students in their undertaking of the project are provided in many forms. Workshops, lecture programs, laboratory sessions, field trips, student/staff interest groups, and learning packages (incorporating print and other media) will all be utilised. These resource inputs, student activities and projects, are structured more by the staff during the earlier stages of the course, and become less structured, and arising more from the individual students interactions as students proceed in the course.

Figure 2 Course Overview Showing Sequence of Inquiry Themes

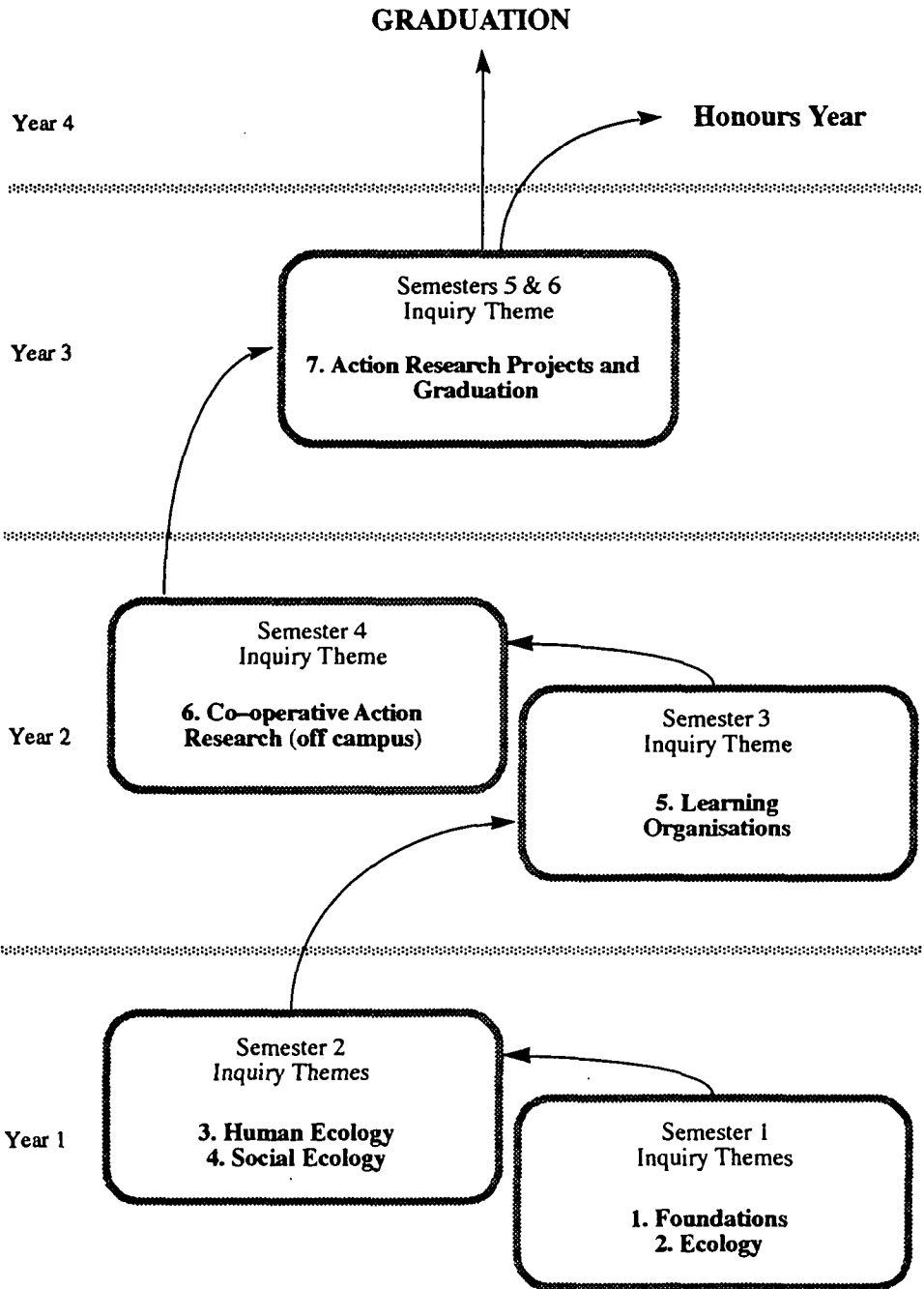


Figure 3 Inquiry Theme foci

	Inquiry Theme	Focus
1.	Foundations	Becoming 'at home' in the Social Ecology learning environment – exploring and representing complex people/environment situations and learning development.
2.	Ecology	Developing understanding of the fundamental principles of ecology and of the methods used to bring about ecological knowledge.
3.	Human Ecology	The notion of ecology is extended to a study of the patterning and process dynamics of human communities – exploration of the ways in which technological developments have given humans the dominant role in the world ecosystem.
4.	Social Ecology	On students integrating learning from the previous three inquiry themes to develop their understanding of social ecology as 'action for improvement'. A central question will be "What constitutes an improvement?"
5.	Learning Organisations	Organisations as 'learning organisations', which facilitate the learning of all members and which because of this are able to change without external intervention.
6.	Co-operative Action Research	Becoming involved in co-operative learning with an organisation or community – synthesising the competencies of observation, analysis and ecological modelling into desirable, feasible and collaborative strategies for change.
7.	Action Research Projects and Graduation	The development and consolidation of the students competencies as a social ecologist in their chosen initial career orientation (i.e. in environmental issues, complex organisations, and technology, or helping organisations).

In addition to the Inquiry Themes, three other salient features of the course are worthy of mention here.

1. Integrating Experiences

To facilitate social cohesion and student participation across the years, a 'Course Council' and 'Social Ecology Forum' will be initiated. The Course Council will be established to develop the vision of the course as a learning organisation and to develop practical measures to improve the learning.

The Social Ecology Forum will take the form of regular meetings, established to stimulate discussion of and reflection on, issues central to social ecology as a field of learning. For example, Social Ecology Forum sessions may include:

- presentation and discussion of a film on an environmental conflict;
- a joint meeting with a local organisation on an ecological and social issue; or
- attending a theatre performance with an environmental theme.

2. Supporting Experiences

Experiences to support learning, will be provided for those in need, through co-operation with the Director of Student Services, who is developing a project to provide improved learning support for people: of non-English speaking backgrounds; from lower socio-economic backgrounds; and mature age women attempting to re-enter the workforce.

3. The Assessment Process

The adoption of an integrated studies approach has implications for the assessment process. Instead of subjects being separately assessed, decisions on progression are based on a global or overall assessment.

To provide an adequate commentary on students progression throughout the course, assessment will involve:

- validation of specific projects; formative observation by staff facilitators;
- formative document submission and interviews; and
- summative document submission and interviews.

For progression at the end of Phases 1 and 2, and graduation at the completion of Phase 3, there will be summative assessments, where students will apply for validation of their successful development, on the basis of an overall review of their work. This will take the forms of:

- (a) a detailed submission presenting their case, based on their progress in the four broad areas of competency development, and their learning arising from the specific inquiry themes completed at that time.
- (b) An interview with staff and peer representatives, that will consider the

progression (or graduation) submission and an oral presentation.

Dialectical transdisciplinary education within the contemporary university context

The B. App. Sc. (Social Ecology) as a program that integrates (and attempts to transcend!) learning from the perspectives of both the social sciences and environmental science, challenges the contemporary university context. The problematic nature of such an endeavour became apparent at a number of different levels (funding, assessment, the University calendar, and so on) and within a range of forums, from within our own faculty, to within the Academic Board of the University.

The Course appears to me, to generate conflict at two levels. Firstly, at the level of philosophy by challenging beliefs about 'reality' and how we (humans) "know" it. Secondly at a more pragmatic, but no less substantial level, the course challenges 'how things are done' at a University, and the existing structures for maintaining this "how". For example, at present universities are generally structured so as to promote study in disparate disciplinary areas (as sciences or humanities, or such groupings as physics, chemistry, biological or environmental science faculties, or more broadly as in categories such as faculties of Agriculture and Rural Development, Business Studies or Nursing). These disparate areas then receive funding according to formulae which assumes their existence as separate entities. The only alternative apparent for a transdisciplinary course, is for it to take refuge with one of the presently recognised categorisations of disciplinary areas. This of course is inherently a contradiction - but unavoidable within the present context! Further, to do so would mean continuing to subjugate an integral or university view (if we refer to the Latin 'universitas', meaning the 'whole') of reality, to the seeming orthodoxy of the contemporary expression of the university as a place which fosters excellence in learning about pieces of 'the whole'.

However, despite these difficulties, the B. App. Sc. (Social Ecology) has gained accreditation at the University of Western Sydney. Two major factors may be identified as having been significant in this accreditation process.

Firstly, this style of course has not come about in isolation. The Faculty of Agriculture and Rural Development within which the Social Ecology Centre is situated, has, for more than a decade, been focussing on a people-centred paradigm for rural development, based on an integrated, systemic, and experiential approach to education. The conventional approach of studying subject areas has been replaced by having students involved in problem based learning projects. Conventional approaches to assessment have likewise been replaced by students illustrating their learning through formative and summative assessment processes, as described for the B. App. Sc. (Social Ecology).

The Milperra campus of the University of Western Sydney also offers through its Diploma of Health Science a similarly integrated program. Further afield (both conceptually and physically) there have also been similar developments in 'transdisciplinary' or 'multidisciplinary' courses at Monash University (Graduate Diploma and Masters in Environmental Science) and at the Royal Melbourne Institute of Technology (B. Soc. Sc. (Socio-Environmental Assessment and Policy)).

Secondly, the staff at the Social Ecology Centre in preparing this course have received substantial support from academics both from across the University of Western Sydney (UWS-Nepean & Macarthur) and from other institutions throughout N.S.W. (Sydney University and the University of Newcastle).

The importance of such ongoing interactions and debate throughout the academic community is thus recognised more generally as being vital to tertiary institutions' ability to continue to consider the notion of 'improvement' to their endeavours in environmental education.

Notes

- ¹ As a relatively new member of the staff of the Social Ecology Centre, I am writing about a course that has come into being through many years of work by the staff of the Centre, and in particular, through the vision, tenacity and energy of Graham Bird.
- ² Some of the text has been extracted or adapted from the Course Assessment Document, the writing of which has been a communal effort, involving the staff group in general, and in particular the insights of Graham Bird, David Russell, Judy Pinn as well as myself.

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