

**Facilitating transformative learning for  
ecological consciousness through mindful  
design of ecologies of learning**

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*'When we try to pick out anything by itself, we find it hitched to everything else in the universe' John Muir*

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## Introduction

In this paper I will explore the ways in which transformative learning towards an ecological consciousness can be facilitated or invoked within the framework of a carefully designed ecology of learning.

In doing so I am in agreement with Stuart Hill, Steve Wilson and Kevin Watson when they write that transformative learning aimed at raising ecological consciousness 'will be much more effectively achieved if our particular approaches to teaching (and) learning are informed by ecology' (Hill, Wilson & Watson 2004).

I will seek to understand the processes, structures and practices that catalyse transformative learning as it applies to the expansion of our consciousness into what Edmund Sullivan and Marilyn Taylor call 'ecological consciousness' (O'Sullivan & Taylor 2004), and Fritjof Capra, David Orr and others refer to as 'ecological literacy' (Capra 1999, Orr 2004). How can the educator create an environment and an educational practice where the learner is stimulated to rediscover the deeper ecological self?

I do not intend to pose a hypothesis but merely to explore relationships: relationships between inner and outer worlds, between people in community, between the learner and the various elements of their ecology of learning. Relationships are the building block, the very foundation of ecology. In exploring why current models of learning fail to support ecological consciousness, and how an educational model that does might be developed, I need to examine these foundations closely.

In the process of this exploration, I will seek to answer the following questions:

1. How can an educator engage participants in such a way that transformative learning towards ecological consciousness occurs?
2. What experiences and activities can be used to facilitate this response?
3. What affect does the environment in which learning occurs have on the process of transformative learning?
4. How does one incorporate critical reflection into this process or give it intellectual meaning apart from, or connected to, experiential knowledge?
5. How does the learning community, as a part of the broader ecology of learning, facilitate (or inhibit) the transformative learning process?

I wish to position my ideas within a theoretical framework which considers education as part of a greater whole, and in which it plays a role of deepening and expanding the evolutionary experience of the human being. My perspective is both humanistic and constructivist, believing as I do that we 'all have the extraordinary coded within us, waiting to be released' (Houston 2004).

In my exploration I wish to look at transformative learning as more than just social critique. In this sense I refer to critique as helping learners to see how their value and beliefs might be 'ideological illusions' aimed at preserving a status quo that is 'alien to their collective experiences and needs' (Carr & Kemmis 1986). I want to go a step further to explore the ways in which transformative learning can be not only a process of dismantling the old, but also the catalyst for creating a whole new way of seeing and relating with the world and ourselves.

As such, I am most interested in those aspects of transformative education that O'Sullivan terms 'visionary', and the process by which human kind can develop an entirely new way of being. A way of being within a 'planetary consciousness' with social and organisational structures that integrate with our physical ecology, and a lifestyle that meets to the physical, social and spiritual needs of all (O'Sullivan 2000).

Through this paper I aim to develop my professional practice as an educator, as well as become a more skilled learner, hastening my own personal and spiritual evolution. The theoretical frameworks that I explore can be practically applied both to my profession and to the personal sphere of relationships and personal creativity, two areas where transformative learning can open life up to become a blossoming, a continuous inspiring journey of exploration and growth. Thus I follow Roben Torosyan who writes 'I teach both to change the world and to transform myself' (Torosyan 1999).

## **Part 1 - Understanding transformative learning**

Transformative learning is a process and as such can be compared to a journey. It is a process of rethinking, redesigning and recreating ourselves and our world-views, with the result that everything that we are connected to is also transformed as well. As Dean Elias states so simply and succinctly, transformative learning is 'learning that changes the nature of consciousness' (Elias 1997).

More specifically, my experience of transformative learning is most closely encapsulated by the writing of Edmund Sullivan, who puts a firm emphasis on connectedness as essential to the learning process. In O'Sullivan's definition:

Transformative learning involves experiencing a deep, structural shift in the basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and irreversibly alters our way of being in the world. Such a shift involves our understanding of ourselves and our self-locations; our relationships with other humans and with the natural world; our understanding of relations of power in interlocking structures of class, race and gender; our body awarenesses, our visions of alternative approaches to living; and our sense of possibilities for social justice and peace and personal joy (O'Sullivan and Taylor 2004).

O'Sullivan suggests that to achieve this 'we need to expand our horizon of consciousness to the universe itself'. The process by which this is to be achieved he calls 'integral planetary education' (O'Sullivan 2000).

As stated above I have chosen to use O'Sullivan's definition of transformative learning in my explorations here, however a brief discussion of other theorists is warranted.

John Mezirow, the father of transformative learning theory, sees transformative learning as 'a process by which critically assimilated assumptions, beliefs, values, and perspectives are questioned and thereby become more open, permeable, and better validated' For Mezirow, this process is primary rational and cognitive, catalyzed by a 'disorienting dilemma' which results in a process of self-examination and critical reflection (Cranton 2006, Mezirow 1991, 2000). As such its primary aim is ideological critique.

This rational approach has been built upon by several theorists, who suggest that the process of transformative learning is also dependent upon a range of other faculties, including imagination, artistic expression and receptivity. For Jungian theorists, Robert D. Boyd and J. Gordon Myers, transformative learning is a process of 'psychic integration and active realisation of their true being' (Boyd in Waithe 2006). John Dirkx posits a related theory of transformative learning that aims to nurture the essential self or soul.

Despite some theorists suggesting that these two definitions of transformative learning are oppositional, I agree with Waithe, Dean and Cranton in seeing them as

complimentary. In my view, both the critical and rational capacities of the conscious mind, and the imaginative and intuitive aspects of the unconscious are as essential as each other in evoking transformative learning, and agree with Taylor in appreciating the 'varying nature of the catalyst of the learning process' (Taylor in Waithe 2006). This process will be explored in detail later in this essay.

In summing up this brief overview, I would like to quote Joanna Macy when she says:

...things do not produce each other or make each other happen, as in linear causality. They help each other happen by providing occasion or locus or context, and in doing so, they in turn are affected. There is a reciprocal dynamic at play (Macy 2007).

When we apply this to our understanding of transformative learning, we give it an ecological dimension based on relationship and the interdependence of elements. We position transformative learning within an ecology of learning.

## **Part 2 - Understanding our ecology of learning**

Every one of us is 'interconnected to the systems of nature, society, and thoughts that surround and flow through us' (Briggs & Peat 1999). Capra describes this as 'the complex webs of being and knowing that underpin life' and I have come to understand it as an ecology of learning.

Our ecology of learning is the context in which we learn, including the influences and assumptions we develop from our social background, and the resulting fears, motivators, barriers and needs that result from these assumptions. Our ecology of learning is both a social and philosophical structure and a series of relationships with ourselves, our community and our environment.

Hill, Wilson and Watson write that the study of ecology of learning is constructivist in nature, acknowledging how previous life experiences have shaped us. The result is that each individual has an entirely unique ecology of learning (Hill, Wilson & Watson 2004). We are a product of our context, yet we maintain agency, or free will.

In his writings on transformative learning, Mezirow discusses what he calls 'meaning structures' which is another interesting way of thinking about an ecology of learning. Meaning structures are essentially frames of reference, based on a person's cultural

context and experiences, which determine how a person behaves and how they interpret the world around them (Mezirow, 1991).

Force field analysis, developed by Kurt Lewin, is another useful concept for understanding an ecology of learning. Force field analysis is a framework that looks at all the factors (or forces) that affect a person in order to fully understand them, and to interpret their behaviour, emotions and reasoning (Smith 2001).

Our ecology of learning is not always conducive to the development of ecological consciousness, in fact most of us who have grown into adulthood within the modernist paradigm have ecologies of learning that have given us a sense of separateness from the natural world.

Most people today see life as differentiated and fragmented; 'modern life is... considered to exist in discrete spheres or compartments, such as family life, work, social life and so on' (Spretnak 1999). Even learning is strictly divided into departments and disciplines, which are not always logically connected in the mind of learners. The connection between ecology and economy is one example. The result, David Orr argues, is that generally speaking even the most highly educated among us are 'without any broad integrated sense of the unity of things' (Orr 2004).

This perception of fragmentation is affecting our world fundamentally, as it leaves us without an understanding of the feedback loops, or strings of consequence, that are set off by our actions. Richard Tarnas puts it beautifully when he writes that our objective civilisation has become a force of destruction 'in a world too intimately interconnected to accommodate such a titanic juggernaut so out of balance with the whole' (Tarnas 2007).

This problem is compounded by society's reluctance to question or critique this paradigm, due to an entrenched reverence for the ideal of objectivism. Objectivism assumes that there is one truth and that this truth is discovered through observation; truth exists in and of itself, independent of the individual's perspective or worldview. Having convinced itself that it has discovered truth, our society tends to be largely uncritical of its underlying assumptions (Spretnak 1999).

In contrast, ecological consciousness goes 'beyond subject and object' (Christie 1992) because it considers everything that exists to be part of a whole.

## **Part 3 - Understanding the process of transformative learning**

Many writers, including David Kolb and Kurt Lewin, have described the process of learning as cyclical or spiral-like in nature. Action research learning, designed by Kurt Lewin, involves a spiral of steps, 'composed of a circle of planning, action and fact-finding about the result of the action' (Smith 2001). David Kolb's learning cycle is similar and has also been highly influential (Kolb et al. 1984).

The process of transformative learning is also cyclical in nature, and to my mind consists of four key processes: the catalyst, critical reflection, meaningful dialogue and finally a breakthrough that may, if allowed, catalyse further transformative learning. This process is explored in detail in the following pages.

### **A. The catalyst**

Depending on the individual and the specific context or ecology of learning that they find themselves in, the catalyst for transformative learning can be one of several things, including:

- A 'disorientating dilemma' or crisis that create a temporary sense of meaninglessness, disconnection, fear or loss of security (Mezirow 1991);
- An alternative perspective expressed passionately by another that lead the learner to question the objective nature of truth;
- What Freire refers to as 'coded situations' being photos, film, narratives etc (Freire 1993);
- Story-telling or the sharing of imagery or experiences;
- The humour of a trusted individual which may jolt us out of a negative outlook that is impinging on our ability to see things clearly;
- The experience of a loving and safe space where it is okay to explore other options and the possibly unpleasant emotions this may evoke;
- Archetypal dilemmas that awaken a new way of being within the learner;
- Strategic questioning that compels the learner to consider options that had previously not thought of;
- Problem solving situations where learners must develop and design a solution for themselves;
- Individual or group visioning processes that create a renewed sense of hope through the conception of a new or previously unforeseen possibility or future;
- Activities that encourage right-brain or non-rational, imaginative brain function, such as art, music or drama;

- Experience or experiential learning that stimulate new or rarely accessed neuromuscular pathways, releasing brain chemicals that promote different spatial or bodily awareness; and
- Meaningful interaction with the natural world and the sense of wonder and interconnection that this engenders.

A skilled educator can learn to use these catalysts through the thoughtful design of an ecology of learning, discussed further in the latter part of this essay.

## **B. Critical reflection**

If transformative learning is catalysed, critical reflection may result, however as John Dewey points out this does not always occur. A person may choose to avoid the process by abandoning the activity or situation that initiated it, or by indulging in fantasy. It is only when he chooses to courageously face the situation and his own fear of it that he begins to critically reflect (Dewey in Waithe 2006).

Some mention should be made at this point with regard to the concept of 'discernment' which Boyd and Myers posit as an alternative to critical reflection in the process of transformative learning. From my own perspective, I do not see that critical reflection need be only rational in nature, although I appreciate that this is the way in which it was originally conceived by Mezirow. In my definition of critical reflection I see both rational and imaginative faculties playing a role, depending upon the context and the individual or individuals involved.

Griff Foley writes that critical reflection aims to challenge people assumptions in order to bring about radical social change (Foley 1995); it has, as I see it, three distinct yet interrelated aspects. These are critical self-reflection, which examines our personal beliefs and underlying assumptions, critical reflection on others, including the guidance they give and in particular our ways of relating to others, and finally, critical reflection on external reality and the accepted norms or perspective that shape our view of community and environment.

Critically reflection may occur spontaneously or it may be built in to learning by a skilled facilitator, this later aspect will be further explored later in this essay.

## C. Transformative dialogue

According to Niklas Luhmann, human communities are structured around networks of communication. These networks involve multiple feedback loops, just like all ecological systems: conversations lead to further conversations and in the process meaning is amplified, evolved and distorted. A private conversation between two people can ripple outward, affecting much more than just the original speakers (Capra 1997). Thus, to Capra, the best way to catalyse change in communities is to facilitate positive conversations (Capra 1997), or transformative dialogue.

Many have explored this concept including Augusto Boal, who writes that 'oppression exists when dialogue becomes a monologue' (Boal 1992), Habermas, who writes of discourse as a means of helping learners 'test the truth claims' of various assumptions, (Carr & Kemmis 1986), Mezirow who writes of 'emancipatory discourse' (Dean 1997), Brookfield, who describes a process of 'purposeful conversation', and Paulo Friere, who sees dialogue as central to the process of conscientization. In my discussion I will focus on David Bohm's writings on dialogue.

Quantum physicist David Bohm believed deeply in the value of dialogue as a transformative process. Both quantum mechanics and traditional mysticism have as a fundamental tenant that our beliefs largely shape the reality of our lives, and as our beliefs are largely developed and refined through culture and communication, he posited that by creating a forum for a new kind of communication we can, as a group redevelop our cultural understandings and thus our social realities (Atlee 2003).

Bohm describes this process as revolutionary and creative, saying that during dialogue 'a new kind of mind begins to come into being, based on the development of common meaning...' (Bohm 1991). Participants 'suspend' their thoughts, motives and judgments, exploring and attempting to 'think together'. This results in greater understanding of the assumptions underlying their individual and collective beliefs.

Bohm suggests the following guidelines for dialogue:

- No group-level decisions will be made in the conversation;
- Each individual agrees to suspend judgment in the conversation;
- Each individual agrees to be as honest and transparent as possible; and
- Each individual tries to build upon each other's ideas (Bohm 1991).

This type of dialogue is fundamentally different to an argument or debate where each person listens carefully to the other in order to identify the flaws in their view. The aim of such a conversation is to be 'right'. Its fundamental tenant is objectivism and its ultimate result is a consolidation of each person's original argument and frame of reference. This type of communication is counter to the aims of transformative learning (Atlee 2003).

In contrast, the type of dialogue that promotes transformative learning is:

- Collaborative, with each participant working together to expand and possibly transform the understanding of themselves and each other;
- Receptive, with each participant genuinely listening to the others, open to revealing and reassessing the assumptions they have taken for granted;
- Joyful, with each participant anticipating that their view will evolve through the interaction;
- Equitable, with each participant sharing time with the others without dominating;
- Open-ended, with each participant suspending their beliefs in order to learn and letting go of the need to come to an objective conclusion;
- Connecting, with each participant seeking to find common ground with the others;
- Relevant, with participants agreeing on a topic that is important to all;
- Loving, with each participant respecting and validating the views of the others with the objective of enhancing the understanding of the entire group; and
- Truthful, with each participant trusting the others to listen without judgment;
- Humble, with each participant acknowledging the value of other perspectives, that combined together give a more whole view on reality (Atlee 2003)

One process of dialogue that I have used many times is the listening circle where participants take turns sharing their views on a topic. Various techniques can be used to make the listening circle more participatory and equitable without the facilitator needing to intervene. One such technique is to use a 'talking stick' (or other object) that is returned to the center after each participant speaks. When invested with a sense of 'sacredness' this helps promote respect and maintain the group's 'shared centre' (Atlee 2003).

Transformative dialogue does carry a risk. If, as Rogers & Roethlisberger suggest, you are willing to see life from another's perspective with judging it then 'you run the risk of being changed yourself'. You might see things his (sic) way; you might find that he (sic) has influenced your attitudes or your personality' (Rogers & Roethlisberger 1952). Thus transformative dialogue requires some level of bravery.

Equally important as group dialogue is the internal dialogue within the learner. In Boyd and Myers model of transformative learning, this dialogue 'between the conscious ego and unconscious parts of the psyche or self' is central to transformative learning taking place (Waithe 2006). Internal dialogue can be encouraged in various ways including the use of reflective learning journals and artistic expression such as painting or sculpture. In some groups, transpersonal dialogue is also possible, with participants addressing and listening to the aspects of self outside the narrow confines of their egoic selves.

Perhaps the most apt description of the power of transformative dialogue is by Tom Atlee, who sees dialogue as a 'shared exploration towards greater understanding, connection or possibility' (Atlee 2003), and evocative of ecological consciousness. He writes:

Dialogue can at times be truly magical, dissolving the boundaries between us and the world and opening up wellsprings of realisation and resonant power. In those rare, deeply healing moments of dialogue in its most ideal form, we may experience the wholeness of who we are (beyond our isolated ego), listening and speaking to the wholeness of who we are (deep within and beyond the group around us (Atlee 2003).

## **D. Breakthrough**

If all goes well, the transformative learning process described above will eventually result in a breakthrough that expands the consciousness of the learner. But how does the educator know that this has occurred?

Various writers have described this aspect of transformative learning. Rogers writes that when learners can see the relevance of learning to their own situation 'the sense of release, and the thrust of forward movement is astonishing' (Rogers on Torosyan 1999). David Wright describes this forward thrust as a bodily experience, a feeling, while Mezirow compares it with Kuhn's concept of paradigm shift (Mezirow 1991, 2000). Something happens that changes you and the way you live your life.

Paulo Freire's description of the process of 'conscientization' and Abraham Maslow's 'peak experiences' are two further concepts that describe this breakthrough. Maslow describes peak experiences as 'transient moments of self-actualization' (Maslow in Frager & Fadiman 2005), that is they are times in a person's life when they experience themselves as whole, integrated and connected in a healthy way to the people around them. According to Maslow, when peak experiences are especially powerful, the sense of self dissolves into an awareness of a greater unity, or ecological consciousness.

My own experience of this breakthrough aspect of transformative learning, as it relates to education for ecological consciousness, is that it is characterised by:

- A bodily experience that is both physical and emotional, often catalysed by experiential learning that connects theoretical and practical aspects;
- A sense of realisation and recognition; a deep sense of integration and the 'rightness' of what has been learned;
- An understanding of the practical application of the new knowledge and how it relates to existing cognitive frameworks and behaviours;
- Awareness and presence, of being in the right place at the right time;
- A sense of place that results in a sense of responsibility, belonging and connection;
- A clear perception of cause and effect and the consequence of individual and group actions;
- New ways of being in the world and relating to each other and our environment; communal interest; and
- A new or renewed sense of wonder in the natural world and each other.

A participant at a recent workshop that I ran wrote of her experience thus:

Looking at a bunch of food products that we might find on any supermarket shelf, and examining their whole lifespan in light of these ethics, the group soon found how seriously out of whack common food choices are with these apparently simple ideas. A confronting moment, certainly, when we stop to think about just where our chip packets might end up, or how the fish were farmed to make those frozen fillets. Yet also, it's an empowering moment, as we realise the rippling power of our day-to-day actions. Making new choices, not only do we cease to support those practices that do not support life, but we also give momentum to the life-enhancing options that are growing in their place. (Anonymous, 2008)

However, not all transformative learning break through will be a pleasant experience for the learner. The educator must be prepared to support participants when they find themselves confronting difficult or challenging emotions such as grief, anger or fear (Macy 1998).

The result of this process of transformation fundamental changes the individual, producing what Waithe refers to as a 'new self'. Waithe describes this new self as characterised by qualities of 'heightened empathy, sense of responsibility, relational awareness, interactions, and sensitivity' and stresses that these are expressed as changed behaviors (Waithe, 2000).

#### **Part 4 - Transformative learning for ecological consciousness**

Systems theorist Fritjof Capra defines ecological consciousness as an awareness of 'the fundamental interdependence of all phenomena' and the fact that we as individuals and societies are 'embedded in (and ultimately dependent upon) the cyclical processes of nature' (Capra 1996). This view stands in contrast to the scientific reductionism of Descartes and Newton that currently dominates our culture.

Ecology is the study of the relationships that interlink all life forms including our selves. Ecological thinking therefore sees reality in terms of the relationships between elements and the context in which these relationships occur. Life is, as Capra writes, a 'network of phenomena that are fundamentally interconnected and interdependent' (Capra 1996). This way of seeing the world is sometimes referred to as systems thinking.

If this is the nature of the reality in which we live, then we need to be aware of this in formulating solutions to the problems of the modern age. Capra writes, that the more we look at today's problems, 'the more we come to realise that they cannot be understood in isolation. They are systemic problems, which means they are interconnected and interdependent' (Capra 1996).

Hence, in order to address these problems, there needs to be a shift away from the reductionist, fragmentary worldview that is current hegemony, to a view that embraces an understanding of interconnection: an ecological consciousness. Rachel Lauer describes the experience of ecological consciousness when she writes about

'the fifth way of knowing'. She says that people in this stage:

...tend to perceive in small and large wholes embedded and unfolded. They tune into sources of knowing revealed by eliminating the split between observer and the observed, by resonating with the larger rhythms of the universe, by appreciating the unity and ecological wholeness of humankind and the rest of the world (Lauer, 1997).

To embrace ecological consciousness can create a sense of belonging and meaning for learners, and freedom from the feelings of disempowerment and alienation that many experience. It means that, as Darryl Reaney writes, 'we need no longer regard ourselves as accidental irrelevances in a mechanical universe but as participating co-creators of what I like to think of as a numinous work of art' (Reaney in Hames 1997). Education for ecological consciousness is thus pedagogy of empowerment.

## **Part 5 - A learning ecology for ecological consciousness**

Our current learning ecology supports our current assumptions and beliefs but what happens if we change this learning ecology?

The design of learning systems (ecologies of learning) is widely recognised as a key factor in facilitating transformative learning; it follows therefore that the educator can encourage transformative learning for ecological consciousness by designing ecologies of learning that reflect the principles of ecology. In discussing this in the coming pages I will look at three factors: the physical and psychological environment, the learning community and the role of the educator.

### **The importance of relationship**

Relationships form the basis of the ecological consciousness we are trying to evoke in learners. As such they should be built into all aspects of the learning experience, creating a situation where learners, including the educator, are interconnected both with each other and with the learning environment.

Martin Buber 'relationship educates' (Buber in Dean 1997). This will resonant with any self-reflective person who has experienced the manner in which personal relationships push their self-imposed boundaries and challenge them to evolve as a person.

Many theorists refer to relationship in their discussions of transformative learning. Waithe suggests that throughout the learning process 'relationships, both internal and external, enable him or her in making meaning of the experience'. Boyd and Myers state that discernment leads to 'contemplative insight, a personal illumination gained by putting things together and seeing them in their relational wholeness' (Boyd & Myers in Waithe 2006). Kasl and Yorks also highlight the significance of relationships in the process of transformative learning (Kasl & Yorks in Waithe 2006).

John Dirkx, in his discussion on soulful learning suggests that by exploring our own subjective experience 'we paradoxically come to see and understand the self as bound up in its broader relationships with the other... We connect... with these broader aspects of our world'. His thesis is that 'soul beckons to a relationship between the individual and his or her broader world' and 'our emotions and feelings are a kind of language for helping us learn about these relationships' (Dirkx 1997).

Hill suggests that an 'ecological framework' such as this allows us to explore the 'complex expressions of and relationships within and between the self, society, nature, and the cosmos...' (Hill, 2004). Many techniques can be utilised the emphasise and draw attention to the relational aspects of learning, including the games and group processes described in Joanna Macy's book *Coming back to life: practice to reconnect our lives, our world* (Macy 1998).

## **The importance of diversity**

An ecological learning environment would value diversity and relatedness above all else, however as Capra points out, diversity is only valuable if 'there is a vibrant network of relationships... (and) a free flow of information through all the links of the network'. Without this network of relationships communications is impossible and the group will be at best fragmented and at worst violent (Capra, 1994).

## **A. The learning environment**

In order to promote ecological consciousness, the learning environment must have the characteristics of ecology. The design principles of Permaculture and biomimicry, can both be useful in addressing the range of considerations that need to be taken into account in the design of ecological learning environments, as both systems use the principles of ecology as the basis of design.

Natural ecology itself can provide the ideal learning environment for the development of ecological consciousness. David Orr writes of an educational revolution that results in the re-connection of people 'with their own habitats and communities'. In this revolution the classroom 'is the ecology of the surrounding community' and the pedagogy is simply a process of engagement with nature (Orr 2004).

A cultivated natural ecology can be just as effective in evoking ecological consciousness. Capra describes the learning environment of a garden:

In the garden, we learn about food cycles and we integrate the natural food cycles into our cycles of planting, growing, harvesting, composting, and recycling. Through this practice, we also learn that the garden as a whole is embedded in larger systems that are again living networks with their own cycles. The food cycles intersect with these larger cycles – the water cycle, the cycle of the seasons, and so on – all of which are links in the planetary web of life... Through gardening, we also become aware how we ourselves are part of the web of life, and over time the experience of ecology in nature gives us a sense of place. We become aware of how we are embedded in an ecosystem... (Capra 1994).

My own experience concurs with this. A participant of a recent workshop commented that something magical happens when people and put their hands in the earth. She writes 'breathing in the smells of soil and plants, our powers of observation are heightened and honed. A cross-pollination of ideas takes place...' (Brown 2008).

Where natural ecology cannot be practically used for learning, ecological principles can be utilised in the design of both the architectural and landscape elements of the learning environment. Orr addresses this directly in his article *Architecture as Pedagogy*, in which he posits that there is a 'hidden curriculum' embedded in the constructed environment. Such a hidden curriculum can be highly effective in the development, or otherwise of an ecological consciousness.

An ecological learning environment is more than just the physical environment. Gozawa writes about creating a 'field of mutuality' where learners feel supported, 'all voices are heard', people 'listen deeply', and all can 'disagree with warm hearts'. She later describes the way in which learners and facilitator 'become the field of mutuality' through acceptance of the 'beingness' of all participants as they are. She writes that if the field 'does not allow the beingness of all learners... then those that are excluded have no choice but to assimilate, aggressively resist, or withdraw into passivity' (Gozawa 2000), all responses that are counter to the aim of transformative learning.

John Dirkx, points out that 'an environment that is cold and sterile, or that is cluttered, messy, and arranged haphazardly can reflect itself in the soul of the group'. He recommends an environment 'rich with metaphor, story, images, art, music, film and poetry' and suggests that, 'unlike the ego, which prefers logic, predictability and order, the soul thrives on open spaces'. By this I assume him to mean openness to spontaneous, creative expression.

Ecologies are interdependent systems where elements develop and grow freely within the confines of the relationships between them. As such, an ecological learning environment allows for 'self-directed learning'. Merriam and Caffarella define such an environment as one in which 'learning is initiated and carried out by learners themselves' (Merriam and Caffarella in Waithe 2000). Thus an ecological learning environment allows for learners to grow in their own direction and at their own pace.

### **The importance of experiential learning**

It is essential that the ecologically designed learning environment provide opportunities for experiential learning. By this I mean that the learner must be able to engage with the environment, to form relationships with it and to participate in it as part of the ecology that it is.

The meaning of experiential learning needs to be defined as it relates to this discussion. I am not referring to the sort of learning that is sponsored by an institution in order to provide the student with practical experience in the professional field they are entering. Rather I am discussing experiential learning as a process of active participation and interaction with the learning ecology, in such a way that they form and reinforce meaningful physical, emotional and psychological relationships.

The nature of experiential learning needs to be considered as to whether or not it will facilitate ecological consciousness. Sheldrake and Fox write that the problem with much experiential learning is that the learner is 'not making or growing things, but taking them apart' (Sheldrake & Fox 1996). They give the example of a botany class where students spend their time dissecting plants rather than growing them. Rather than promote an awareness of wholeness and connection, it gives the learner a sense of fragmentation.

However experiential learning has the potential to be very powerful as a means of evoking ecological consciousness, As Jean Houston writes, 'education that is hands-

on, sensory rich, and experience laden, which calls forth the whole mind... can develop our human potential and give us the tools to cope with whole system transition' (Houston 2004). This is perhaps because so many of us, 'up to forty-five percent', are kinesthetic learners, requiring sensory experience in order to learn effectively (Houston 2004).

My own experience bears this out with students invariably commenting positively on the experiential aspects of learning. Perhaps this is because experiential learning allows students to become, as Barry Law writes 'emotionally engaged, connected in some way and thus highly motivated' (Law 2003).

The fact that such learning 'sticks' is borne out by research undertaken at the University of California by neuro-anatomist Marian Diamond. Diamond shown that 'the human brain can change structurally and functionally as a result of learning and experience - for better or for worse' (Houston 2004).

## **B. The learning community**

The concept of a 'holon' is useful in defining a learning community. A holon is itself 'a whole and simultaneously a part of some other whole' (Wilbur 1995). Thus, within the greater ecology, each individual exists within their own community which is also an integrated whole, a living system. These communities are structured around networks, a pattern that is common to all life (Capra 1997).

The task of providing the conditions conducive to the development of such communities is an essential aspect of education for ecological consciousness. A participant in a recent Permaculture design workshop described the gradual formation of a learning community thus:

As the weekend unfolded... I began to understand how the whole workshop was designed and facilitated in accordance with... (ecological) principles. This was not the usual teacher-student situation that most of know only too well, but a vibrant circle of shared ideas – an integral learning community. Here, we all became learners alike – enlarging our understanding through each group member's unique perspectives and experience.

...I found myself reflecting on the interactions that had played out in the group – the variety of contributions and approaches to learning that each brought, and the particular roles assumed by each person. Looking through my new permaculture-coloured lenses, I began to see very particular and special places held by each member within our little social ecology (Anonymous 2008)

## The importance of working in groups

Working collaboratively in groups is fundamental to the development of an ecological consciousness, mirroring the interdependent relationships between elements in an ecological system. Jean Houston writes passionately on the value of group work for learning, arguing that 'working in groups helps eradicate one of the worst ills that afflicts *homo sapiens*: the tyranny of the dominant perception'. This sharing of perspectives enables what Houston calls 'transformational synergy', whereby we 'travel faster and deeper together than we can travel on our own' (Houston 2004)

Carl Rogers believes strongly in the self-regulating nature of learning groups and argues that the facilitator should take a back seat and avoid attempting to guide or control the direction the group takes (Foley 1995). Arnold Mindel agrees with this view describing a group's energy as a 'mysterious spirit' that 'cannot be completely controlled or predicted...' (Mindel 1992).

However groups can be intimidating as well as empowering. According to Dirkx learners want the group to support them in their learning, but there is also a strong fear of the capacity inherent in the group to 'obliterate the individual'. Educators need to be aware of this tendency when designing learning activities with groups.

A range of existential issues can arise in group work that challenge both facilitators and participants. These are summarised succinctly by Kieran Egan as follows:

- Identity – Who am I in this group? Where do I fit in? What kind of behavior is acceptable?
- Goals and needs – What do I want from the group? Can the group goals be made consistent with my goals? What have I to offer to the group?
- Power, control and influence – Who will control what we do? How much power and influence do I have?
- Intimacy – How close will we get to each other? How much can we trust each other? Can we achieve a greater level of trust? (Egan, 1992).

Egan suggests that a range of behaviours are produced in response to these problems that the educator should be aware of, including:

- Resisting anyone in the group who represents authority;

- Asserting personal dominance;
- Withdrawing, or 'psychologically leaving the group' in order to avoid emotional discomfort; and
- Forming sub-groups or one or two participants in which members protect and support one another. (Egan, 1992).

Nevertheless, when provided with the appropriate conditions, group work can catalyse transformative learning. Jeannie Cockell writes 'magic' happens in group work when 'the group becomes an interconnected whole... (and) people in the group are interconnected and authentic...' (Cockell 2005). In other words transformative learning occurs and the group becomes a community, a social ecology.

### **The importance of spirituality, soul and emotion**

Several writers write passionately of the importance of 'soul' in transformative learning. This is a slippery concept and one that needs defining for the purposes of this essay. By soul, I refer to the essence of the human being, the essential part that is free of fears and destructive habit patterns.

Of ecological consciousness Capra writes that it is ultimately spiritual awareness. The 'sense of belonging, of connectedness, to the cosmos as a whole' is in his view 'spiritual in its deepest essence' (Capra 1996).

Sheldrake and Fox argue that most contemporary education contains no spiritual, mythic or ritualistic element, and suggest that educators take account of the educational systems of aboriginal peoples that specifically emphasise ritual. (Sheldrake & Fox 1996). Although I agree that a spiritual element enriches the learning experience, I also think that our ecologies of learning are now so diverse that what one participant experiences as a meaningful ritual may be seen by another as farcical, absurd or disconcerting.

Dirkx also writes on investing the learning experience with soul, which he believes is nurtured through 'story, song, myth, poetry and the concreteness of our everyday experiences'. Dirkx suggests that 'constructivist, active, and experiential' forms of learning, characterised by 'uncertainty, ambiguity, contradiction and paradox', work particularly well to nurture soul. In his view, this requires a focus on the imaginative aspects of learning, which he suggests 'capture aspects of this world in ways not readily available through more traditional instructional methods' (Dirkx 1997).

## **The importance of imagination and visioning**

As a faculty, imagination gives us the power to envision and create a better future, however, according to Kieran Egan, the philosophical underpinnings of our western culture have taught us to under-value and even look down upon this important gift. Egan discusses how early philosophers, including Plato and Descartes, defined imagination as an inferior cognitive process to reason (Egan 1992).

In contrast, Egan describes how philosophers such as Alan White believe that imagination is what enables us to 'conceive of possibilities in or beyond the actualities in which we are immersed, and as such the key to our sense of freedom' White argues that that 'an imaginative person is one with the ability to think of lots of possibilities, usually with some richness of detail' (White in Egan 1992). In an ecological worldview, where everything is interconnected, such a person becomes the powerful creator of personal and social destiny.

By capturing the imagination of the group she is working with, an educator can harness this power to create a vision of new way of being and relating in the world.

## **C. The role of the educator**

The role of the educator is crucial in the process of facilitating transformative learning. According to Mezirow, the role of the educator is to assist the learner to assess their previously unexamined assumptions and the way in which the resulting beliefs, feelings and actions have shaped their lives. The educator then helps the learner to explore alternative ideas and to test their validity in reflective dialogue with their peers (Mezirow 1991).

Being an intuitive extrovert learner I prefer the use of metaphor in exploring the educator's role in transformative learning. Brazilian educator Augusto Boal tells the story of a chicken hatching, and how he as a boy tried to 'help' the chickens to be born by cracking the eggs open with a rock. This is an apt metaphor for a learner forced to emerge before they are ready, and is a common occurrence in all levels of our education system. A second metaphor, that of a small plant being nurtured by a gardener, takes as its basis the Latin root meaning of the word education: to bring forth that which is already within. The role of the educator is merely to nurture a process that is already occurring.

Thus the educator may be compared to a gardener, or as Belensky et al describe, as a midwife:

Midwife teachers are the opposite of banker teachers. While the bankers deposit knowledge in the learner's head, the midwives draw it out. They assist the students in giving birth to their own ideas, in making their own tacit knowledge explicit and elaborating it. They support their students' thinking but they do not do the students' thinking for them or expect the students to think as they do' (Belensky et al in Foley 1995).

Like a midwife, the educator establishes an environment where learners feel safe to birth their ideas. This is in stark contrast to Freire's 'banker' educator, who sees their role as being to deposit information into the mind of the learner (Freire 1993).

### **The importance of relinquishing control**

The educator as midwife needs to understand when to insist that the learner 'push' and when it is important that they relax and reflect. Mindel describes the process whereby the 'ideal facilitator does not have a program but follows the Ki, or energy of the group'. The educator does not need to invest their own energy into forcing transformation to occur, but relies on the group's natural energy to carry the process forward (Mindel 1992).

Carl Rogers also had faith in the group to find their own equilibrium and for the process of transformation to naturally unfold. By not attempting to control or direct the group's process he aims to create a sense of trust and openness that will allow people explore and grow (Foley 1995). As with all living systems the group self regulates and self organises.

As a result of these natural processes of growth and self-organisation, the spontaneous creation of 'emergent systems' occurs. Capra describes this as the process whereby an ecology evolves and adapts through the process of feedback loops. He writes that a facilitator can facilitate this emergence by:

*'...creating a learning culture, by encouraging continual questioning and rewarding innovation... leadership means creating conditions, rather than giving directions. Above all, facilitating emergence means building up and nurturing a network of conversations with feedback loops. The first step toward this goal might be loosening the designed structures and thereby creating more flexibility' (Capra 1997).*

Some educators may find this approach intimidating, as the loss of control it entails can elicit fear of appearing incompetent or of not getting their message across.

Cockell writes that as facilitators we 'want to plan well, but to leave room to respond to the particular group and situation. As a result, fear is something we live with...' (Cockell 2005). Overcoming this fear requires faith in the process of transformative learning.

### **The importance of presence**

In order to respond to the energy of the group the facilitator needs to remain firmly within the present moment and acutely aware of both their own feelings and of the feelings and dynamics of the group (Mindel 1992). Peter Senge et al. describe their exploration of the concept of presence and how they ultimately came to see it as 'consciously participating in a larger field for change' (Senge et al. 2004). In other words presence is all about remaining in a state of ecological consciousness.

### **The educator as catalyst**

The educator does not however play an entirely passive role in the process of learning. Wilmer Waithe writes that armed with an understanding of the catalysts to transformative learning, 'practitioners can... integrate them into the learning environment and assist learners in understanding how they are able to construct meaning from such experiences' (Waithe 2006). David Wright agrees, writing that he feels it is his responsibility as an educator 'to ask questions and set up opportunities for students to question themselves and the occasion deeply and fully' (Wright 2000).

One highly effective way of catalysing transformative learning is through strategic questioning developed by Fran Peavey. Peavey writes that

Strategic questioning is the skills of asking the questions that will make a difference... it involves a special kind of question and a special kind of listening... strategic questioning is a process that may change the listener as well as the person being questioned. When we open ourselves to another point of view, our own ideas will have to shift to take into account new possibilities, and new strategies for resolving problems (Peavey, 1994).

In order for strategic questioning to be effective, the questioner must practice what Peavey calls 'dynamic listening', that is listening not just to the words but to the feelings and motivations that underlie them (Peavey, 1994).

### **The importance of trust**

In order to develop the relationships that will transform the group into a social ecology, the facilitator must create an atmosphere of trust, or as Rogers writes, to make the situation 'psychologically safe' for group members (Foley 1995).

There are a number of ways to create trust within the group. Roben Torosyan writes that two ways to build trust are 'to validate students' feelings as they are challenged, and to show them that I too face challenges and continue to learn from my mistakes'. He cites a teaching experience where circumstances led him to a point where he had to make a decision as to whether to stick to his original plan or to let the situation dictate the lesson. By going with the latter option he earned the respect and trust of the group who saw clearly that he was willing to put their needs before his own (Torosyan 1999).

Another key factor in establishing trust within the group is to for the educator to be, as Rogers suggests, their 'authentic self'. Such genuine engagement is crucial to allowing other participants in the group to also open up and reveal their deepest, and consequently least examined, assumptions and beliefs (Rogers in Foley 1995). This authenticity also allows the authenticity of the other, even when this is not conducive to your own comfort. As Hooks writes, in order to build community in the classroom we need to 'recognise the value of each individual voice' (Hooks 1994).

### **The importance of connecting**

As a participant in the social ecology, the educator needs to develop meaningful relationships with the other participants in the group. To do this requires that they connect with empathy and receptivity, learning to listen both to what is being said and to the underlying issues that remain unsaid. This active connecting facilitates the development of crucial relationships within the group.

### **The importance of modelling transformative learning**

The role of the educator is also, as many writers have noted, to model transformative learning and take on the task of continual learning and growth. Torosyan writes that if a facilitator remains aware they will find that opportunities for learning present themselves. For example, a learner's 'resistant' comment 'instead of being avoided, could be highlighted directly, and thus provide an opportunity to model critical reflection...' (Torosyan 1999). In modeling transformative learning, our teaching becomes intimately connected with our personal processes of spiritual and intellectual evolving, for as Rachel Lauer says 'in a transformational framework, everybody functions as a learner' (Lauer 1997).

## **The importance of understanding the learner**

In order to communicate with someone we must understand how to speak their language. Stuart Hill Wilson and Watson believe that both the teacher and the learner need to understand the other's particular learning ecology for effective learning to occur, otherwise 'teachers are in danger of acting as inhibitors rather than facilitators of personal transformation' (Hill, Wilson & Watson 2004). By understanding a participant's ecology of learning, we can create strategies that suit their particular learning style, philosophy and way of seeing.

## **The importance of reflection**

It is essential for facilitators to continually reflect on their own professional practice and to identify areas for improvement and change, as well as to create opportunities for learners to reflect and assimilate what they have learned. As Newman writes a key skill of the educator is to help people 'debrief their experiences', that is to 'talk out, think about, come to understand, and draw insight and conclusions from an experience' (Newman 1994).

## **Part 6 - Overcoming barriers to transformative learning**

There are several barriers to transformative learning for ecological consciousness that the facilitator should be aware of.

The first barrier is that the learner is so strongly identified with their beliefs and the ideologies of their culture that to question them is to literally question their sense of self. This will generally exhibit as strong and emotional resistance to new ideas and opinions that run counter to their views, even when a strong rational argument is presented (Spretnak 1999).

The second barrier is that the learner is in a position of power within the status quo that is being critiqued; that is, they are part of a group that occupies the higher echelons of our hierarchical social structure. A transformation of this hierarchy to the network structure of a social ecology poses a very real threat to their position of power and influence (Capra 1996).

The third barrier that I have identified is that the language used confuses or compounds the problem being addressed. As Habermas maintains 'all speech

implicitly presupposes the following of norms...' (Carr & Kemmis 1986). As facilitators we must be aware of the language we use and ensure that it does not reinforce the values of domination, hierarchy and fragmentation that we are attempting to move beyond.

On the basis of this understanding we can look to ecology for inspiration when choosing language and metaphors for learning. David Abram, in *Spell of the Sensuous* argues that our connection to ecology stems in large part from our ability to read and interpret the landscape, and that our loss of these faculties may have contributed in some part to our sense of separation. He writes

'...as we drive more and more of the land's wild voices into the oblivion of extinction, our own languages become increasingly impoverished and weightless, progressively emptied of their earthly resonance' (Abram 1996).

As facilitators we can assist learners to reconnect language with ecology through the type of language we choose, the way we speak and the metaphors we use to communicate concepts.

It is crucial to support participants in becoming aware of any barriers that may prevent them from opening up to ecological consciousness. One way to do this is to encourage learners to become aware of the sensations in their body, and of any tightness, anxiety or distress that arises in them when particular questions are asked or ideas discussed (Atlee 2003).

As Joanna Macy points out, 'to truly perceive all life as interconnected challenges many of our most automatic assumptions about what we are and what we need' (Macy 2007). As such it can be frightening and difficult, requiring the learner to be open, humble and brave.

## **Conclusion**

This paper has explored the way in which an ecology of learning can be designed specifically to promote the development of ecological consciousness in learners. The range of writers I have explored and the ideas they have inspired have taught me a great deal about myself and about my craft. In particular I have learnt that some

things happen only when they are left alone: like the flowers in springtime they will blossom only in their own time.

Deep Ecologist Arne Naess wrote:

Care flows naturally if the 'self' is widened and deepened so that protection of free Nature is felt and conceived as protection of ourselves... Just as we need no morals to make us breathe... (so) if your 'self' in the wide sense embraces another being, you need no moral exhortation to show care... You care for yourself without feeling any moral pressure to do so... If reality is like it is experienced by the ecological self, our behaviour naturally and beautifully follows norms of strict environmental ethics (Arne Naess in Capra 1996).

If we can but open up to this way of being, this identification with a deeper sense of self, then the development of a sustainability society, that elusive, seemingly unattainable ideal, will take care of itself. It too will blossom in its own time.

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