

Transformative learning and long-term behaviour change in education for sustainability

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Introduction

The aim of this research was to consider the long-term affects of transformative learning on learners' lifestyle and behaviour, with specific reference to ecologically sustainable behaviour.

The goal of education for sustainability is to inspire people to change their way of using resources and relating to the environment and to ensure that this change is sustained. Various theories exist as to how this is best achieved including transformative learning, community-based social marketing, advertising and other forms of mass communication. From anecdotal accounts, and personal observation, transformative learning appears to have a profound impact on the learner, however there is little evidence to show that this impact results in sustained behaviour change.

Transformative learning involves rethinking and recreating ourselves and our world-views, with the result that everything we are connected to is transformed as well. As Dean Elias states, transformative learning is 'learning that changes the nature of consciousness' (Elias, 1997). Edmund Sullivan wrote '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' (O'Sullivan and Taylor, 2004). John Mezirow sees it as 'a process by which critically assimilated assumptions, beliefs, values, and perspectives are questioned and thereby become more open, permeable, and better validated' (Cranton, 2006).

Transformative learning experiences, by definition, are supposed to lead to change in not only the way a person sees the world, but also in the way they behave. According to Mezirow this change is so profound that learners cannot retreat to an earlier position. He writes that transformative learning "is irreversible... we do not regress to levels of less understanding" (Mezirow in Taylor, 11). Kegan is in agreement when he writes, "each successive principle subsumes or encompasses the prior principle... The new principle is a higher order principle (more complex, more inclusive) that makes the prior principle into an element or tool of its system" (Courtenay et al., 3).

This research was designed to inform the personal professional practice of the researcher and to provide a clearer rationale for the use of transformative learning methodology within education for sustainability more broadly, or, conversely, to provide evidence as to why other forms of communication, engagement and education may be more appropriate for achieving long-term behaviour change outcomes in the community with regard to sustainability.

This research came about out of a sense that our current ecological crises are at root deeply connected to our self-identity, world-view and resultant social and economic structures. Stuart Hill and Werner Sattmann-Frese puts this well when they write,

"...current dominant theories and practices of environmental education... are limited in their effectiveness... because they fail to provide a deep understanding of the unconscious emotional and psychosocial forces that prevent most people in modern societies from developing a coherent and stable sense of self. This self-deficit... manifests as experiences of disconnectedness from nature, as anthropocentric worldviews, and as destructive and uncaring feelings and behaviour towards the natural environment and human being (themselves and others)" (Hill & Werner, 1).

Research methodology

The research involved an open-ended survey delivered in an online format and focused on the personal experience of a small number of participants in recent courses and workshops delivered by the researcher in the course of their work as an educator for sustainability. The research revisited a small number of learners who have participated in workshops designed to elicit transformative learning and, after establishing whether such an experience had in fact taken place, asked them a series of questions about changes in their behaviour following the event.

The first part of the survey was designed to establish whether a transformative learning experience had occurred. To gauge this the following questions were asked. As a result of this experience:

1. Did you need to review aspects of your self-perception or worldview?
2. Did your way of looking at the world change in some way?
3. Did you experience a shift in the way you think or feel about the world?
4. Did you dramatically change your behaviour or lifestyle in some way?
5. Did you critically reflect upon or question the basic beliefs and values that you had previously taken for granted?

The second part of the survey was made up of multiple choice and open-ended questions designed to give some indication of the type and extent of behaviour change in various areas of the respondents' lives, including at home, in the garden and at work and in areas of resource use such as water, energy, biodiversity, waste and transport.

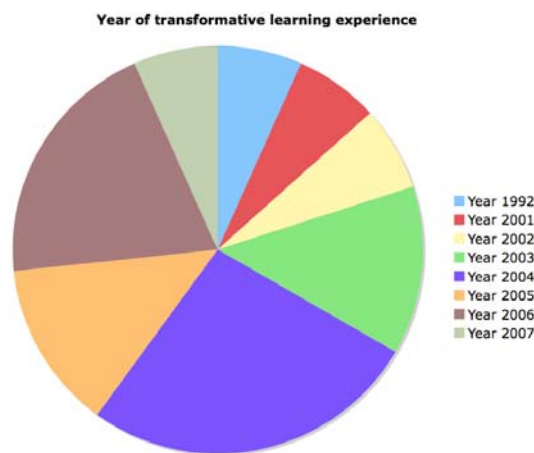
Data collection

Initially twenty-two responses were received. However, although the survey requested participants to choose a transformative learning experience that had occurred between five and ten years ago, some participants wrote about experiences that had happened more recently. As the aim of the research was to establish whether changes in behaviour were sustained over time, responses that focused on an event that had occurred within the last two years were left out of the analysis.

Following assessment responses were left out of the final analysis as follows:

- One response was obviously a joke, as it included several sexual remarks
- Two responses related to a transformative learning not connected to sustainable living
- Four responses were too recent to be of value in assessing long-term behaviour change

The remaining fifteen surveys that were included in the analysis were as follows:



Literature review

It appears there has been little research into the ongoing impact of transformative learning on learners' behaviour, particularly with specific reference to sustainable living. However one study, conducted by researchers at the University of Georgia, suggests that transformative learning does indeed influence the long-term behaviour of learners.

The study, , interviewed fourteen HIV positive adults who had been involved in a previous "study of the centrality of meaning-making in transformational learning" (Courtenay et al., 1), to see whether they "had maintained 2 years later their perspectives of making meaningful contributions through service to others, or if the advent of protease inhibitors would have resulted in their reverting to previously held... views of the world" (Courtenay et al., 1).

The study found that, as predicted by Mezirow and others, "...the perspective transformation proved irreversible..." (Courtenay et al., 6) and also suggests that the transformation continues, and that the learner has "not necessarily reached an end state. Development is continuous and is more than change over time; it is change in a positive direction, toward a more complex, integrated, inclusive, and tolerant perspective" (Courtenay et al., 3).

This aligns with the findings of my own research where a number of respondents indicated that their learning was experienced as a journey within a complex context. Much of adult learning is a layering process where the learner builds up a view of the world through piecing together a range of perspectives, knowledge and experience over time. This will be discussed further.

The researchers state that they could find no other "empirical studies focusing on the stability of perspective transformations" (Courtenay et al., 3), as neither could I.

Findings

The study found that five of the fifteen respondents experienced transformative learning as a result of attending a short or long permaculture design course, three more had attended unspecified courses or workshops and one had watched a film that caused them to think critically about their behaviour. Most interestingly, four respondents, over 25% of the sample, cited meditation or awareness practice as the cause of their transformative learning experience. This would suggest that knowledge accumulation is far from the only way to learn, and perhaps not the best way. One participant cited a direct experience of nature as the catalyst for the transformative learning experience but this response could not be included as it was too recent.

The catalyst for learning

In terms of specific catalysts for the transformative learning respondents cited working with respected or renowned leaders or teachers, or those with direct experience, a new experience and the stimulus of imagery, graphics or diagrams. Others mentioned commonality or resonance with others who shared their goals or values, challenge, direct observation or experience of phenomenon and perseverance with a new behaviour (in this case meditation). Still others cited encouragement by a mentor, moving through pain and a strong desire for self-awareness as the catalysts for change. One mentioned having a realisation of scale: "that whatsoever I'm doing is basically being replicated a billion fold across the world!"

For one respondent cognitive dissonance played a major role in catalysing their learning. Speaking of customers of a business they were working in that generated a lot of waste they wrote "seeing the way that customers (just like me, as a customer of all kinds of businesses) – though in a sense 'responsible' – could so easily and naturally dissociate that responsibility... i.e. the diffusion/dislocation of accountability struck me and became a wake-up." This led to "a new kind of awareness of hypocrisy, or simply contradiction." The same respondent spoke of "seeing the relationship between the parts and the whole, and my choices now and the world at large."

Cognitive dissonance, i.e. when behaviour is not in alignment with attitudes and values (Patrick, 5), is an interesting aspect to consider and raises the question: does transformative learning support learners to act in accordance with their values? The research suggest that it may, with one respondent writing,

"...the most significant thing was about alignment of my day-to-day choices and my life lived with my values and ideals. (Definitely it led me to think explicitly about values.) This alignment (... thoughts, words and deeds all moving in the same direction, dynamic consistency) came to the foreground because of the heightened awareness of hypocrisies – mine and others..."

In all cases the catalyst was an experience or combination of experiences that was able to touch the learner in a profound way. One respondent wrote,

"I remember just arriving and sitting in a little circle... and all the facilitator did was ask me why I had come, what had brought me here. I cracked. Suddenly months of despair that I'd been

harbouring inside and not allowing to surface just flooded out of me. I think it was partly due to leaving my normal environment, sitting with a bunch of strangers, yet feeling really safe to express whatever my truth was in that moment. These sorts [sic] of outbursts continued in different ways throughout the retreat, but always in sharing circles. Sometimes they involved recounting stories, sometimes using objects as metaphorical props.”

The variety of learning catalysts points to the importance of recognising and planning for a diversity of learning styles when designing transformative learning experiences.

Immediate changes

Respondents all cited a range of dramatic changes that occurred in their lives following the experience, in keeping with Mezirow and other theorists’ writing on the subject. Of interest to the research project is that almost all respondents speak of these changes in the active tense; as one respondent put it, “I put the teaching into effect immediately.”

Changes implemented by the group were broad and ranged from personal actions such as making compost, recycling rubbish, growing vegetables and installing rainwater tanks... to community activism such as volunteering in community projects and setting up community gardens, deciding to become a permaculture consultant and teacher, debating with others about climate change and the need to conserve water and becoming more politically active. One respondent wrote that the experience “has opened up a whole new life for me.”

Others spoke of the change in their lives as one of increased consciousness. One respondent wrote of a change in her perception of truth and success, writing “suddenly it became ok to pay attention to subjective experiences, instead of thinking it was a virtue to over-ride them in pursuit of externally validated "achievements" such as good exam results or sporting wins.” Others spoke of increasing awareness of their immediate environment, the action at hand and the importance of this concentration and focus. Two respondents spoke of experiencing greater patience, clarity, calm and tolerance of others as a result of this increase in awareness.

This increasing self-awareness points to a link between inner and outer reality. Of interest here is that the respondents who spoke of becoming more conscious were mainly those whose transformative learning experience arose out of their meditation practice. One wrote that they felt “a sense of clarity, calm, expansiveness and love for all... presence and awareness.” Another that their transformative learning experience had “led to a greater emphasis on what's going on 'within' – giving much closer attention to my thoughts and feeling life.” This emphasis on awareness is reflected in the assertion by Arjen and Blaze that “transformative learning emphasizes [sic] learning for being, alongside learning for knowing and learning for doing” (Arjen and Blaze, 107).

It seems that this new found awareness and tolerance opens up a space for change to occur. One respondent who cited awareness practice as a catalyst for transformative learning wrote,

“I felt relief, relief that I wasn't holding all the grief and fear and despair inside anymore. With that relief came a great lightness... I was able to articulate and own the bits that had been overwhelming and paralysing me, and in revealing them and allowing them to be heard, I was able to look at them with (a) more constructive and empowered headspace. And I was able to feel more compassion towards myself because I actually had created the energetic room for self-empathy. I also had increased spaciousness towards other people, being able to listen to and respond to their stories and experiences.”

This discussion of space is important. As Arjen and Blaze suggest,

“...education for sustainability, above all, means the creation of space for transformative social learning. Such space includes: space for alternative paths of development; space for new ways of thinking, valuing and doing; space for participation minimally distorted by power relations; space for pluralism, diversity and minority perspectives; space for deep consensus, but also for respectful disagreement... and differences...; space for autonomous and deviant thinking; space for self-determination, and... space for contextual differences” (Arjen and Blaze, 107).

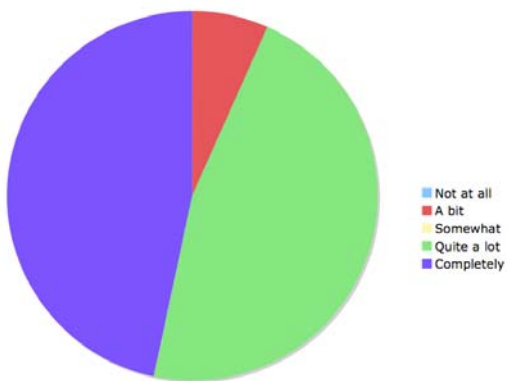
This space could be thought of as a field of supportive influences that allow the learner to grow into a fuller, more mature perspective, referred to by Edmund O’Sullivan and others as “ecological consciousness” (O’Sullivan and Taylor).

Did transformative learning actually occur?

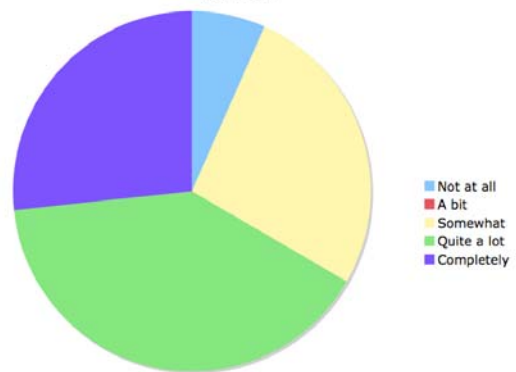
Responses to the questions designed to ascertain whether transformative learning had actually occurred are detailed in the pie charts that follow. In all but one case, respondents answered in the affirmative. In one case the respondent answered in the negative when asked whether they had been caused to critically reflect upon or question their basic beliefs and values. After consideration it was decided to retain this participant’s responses as they had met all other criteria for having experienced transformative learning.

Due to these varied responses a question has arisen as to whether transformative learning experiences can differ in their intensity and whether this has a bearing as to how greatly they affect an individual’s behaviour and perspective following the event.

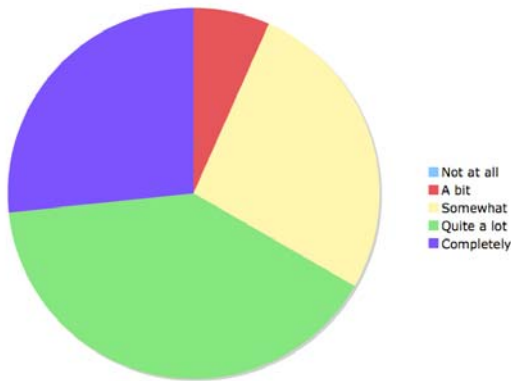
Percentage of respondents who had to change the way they look at the world in some way as a result of the transformative learning experience



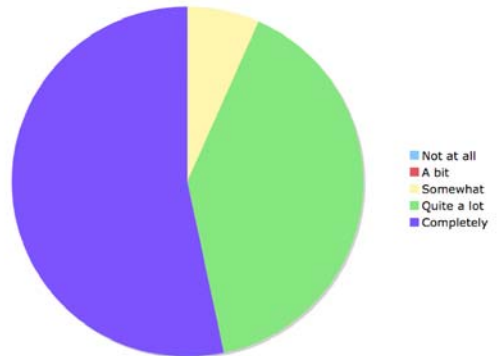
Percentage of respondents who had to critically reflect upon or question the beliefs and values they had previously taken for granted as a result of the transformative learning experience



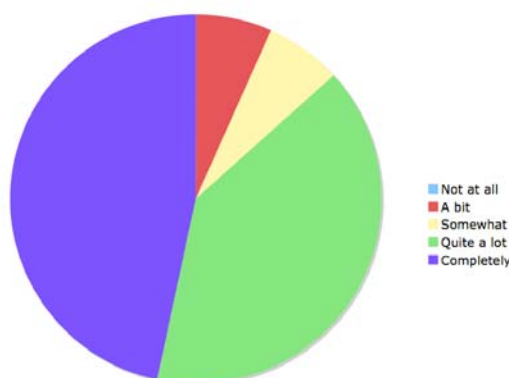
Percentage of respondents who had to change their behaviour or lifestyle in some way as a result of the transformative learning experience



Percentage of respondents who experienced a shift in the way they think or feel about the world as a result of the transformative learning experience



Percentage of respondents who needed to review aspects of their self-perception or worldview due to the transformative learning experience



Emotional response to the transformative learning experience

Respondents' feelings in relation to the transformative learning experience were varied and included a sense of cohesion or validation, elation, depression, a feeling of opening up of new ideas and possibilities, a sense of being part of a group, empowerment, excitement, overwhelm, relief, enthusiasm, growing confidence, happiness, vulnerability, nervousness, shock, anger, frustration, calm, sadness, joy, freedom, release, 'an epiphany' and enlightenment.

Some of these experiences fit neatly into Mezirow's description of transformative learning, with respondents undergoing a process of emotional upheaval, while others appear to have been far less earth shattering. Of those whose experience was emotionally intense one wrote,

"During the experience I felt elated and as if everything I had learned previously was finally coming together into a cohesive whole. After the experience I was very depressed for about a year as I came to realise the enormity of the challenges ahead."

While another wrote,

"I felt shocked at the overwhelming immensity of the problem. I felt shocked that it had been kept a secret from the public for so long. I felt shocked that those who have had access and the ability to divert this problem have chosen to ignore it at the quite possible expense of billions of human lives and the extinctions of so many plants and animals."

Seven others wrote of a similar emotional progression, experiencing one set of feeling during the experience and another after. One such respondent writes,

"(At first) I felt vulnerable, but willingly. I felt safe and held by the group of people around me... because of their mutual sharing and honesty, and also the integrity of the facilitators and the space they created. I felt extremely hot too, like the physical experience of boiling over. Immediately afterwards I guess I was relieved... lighter... importantly, I felt more fully present, because prior to the experience, my head was so full and body so tense that there was little room for me to take in much more stimulus. I guess you could call that 'ease' and 'arrival'."

Overall, most participants noted some kind of emotional reaction to their learning and this is significant if some kind of action is to result from the experience. According to philosopher Paul Hawken, in order to create change "the most important step to take is to feel." In Hawken's view, unless we are able to feel, "our courage and reverence and will are locked up in paralysis." He sees this paralysis as "a sign of unexpressed grief" and emotion as "a sign we are sensitized [sic] to the world around us." He writes, "the enormity of what is passing away is almost unspeakable..." Such a prospect can "freeze us in our tracks" (Hawken in Boyce, 47).

Cognitive response to the transformative learning experience

The changes respondents experienced in their thinking were generally towards a more holistic way of conceptualising the world and their relationship to it. One respondent wrote "I became more wary of my impact on the planet and that my actions can affect the larger whole." Another wrote,

"I started to look at relationships and connectedness between seemingly disparate things, more holistic thinking. I came to realise I was not alone in questioning the status quo and started looking for solutions rather than mulling over problems."

This finding follows Sterling who suggests that transformative sustainability education helps the learner "to see things within a whole system and to deal adequately with messy or complex situations" (Martin, Dawe and Jucker, 63).

Many respondents indicated that they felt more empowered and solutions focused following the transformative learning experience. This contrasts with well-known situations where an information overload has led to feelings of overwhelm and apathy. One respondent wrote, "I became more positive about the future and that I could be a part of the necessary change that we and the planet are going thru [sic]."

Many respondents also became more critical of their own and other's actions. One wrote, "...my thinking has been altered immensely. I view people and people's actions very critically and gauge their worth by the impact their actions have on the natural environment." Another wrote that they now have "greater vigilance" around both "thoughts and decisions". Others wrote "I have increasingly listened to what I really think rather than what the "consensus" says is normal" and "since the experience, I've spent more attention on what I really feel, not what I tell myself to feel."

The practical result of this learning experience in the short-term

When asked about the practical results of these perspective shifts many demonstrated greater awareness of the impacts of their actions and modified their behaviour accordingly. One wrote,

"I am acutely aware of the ecological footprint that humans are leaving on the planet and the ways in which they are doing it. That is, the way in which human actions affect the earth and the webs on life that are all interconnected... when I see products I think of what they are made of e.g. natural or synthesised, what... processes where used, how energy efficient or intense it is to make, was slave or cheap labour involved... could we keep on making this product forever..."

Almost all respondents indicated some change in behaviour, many of them dramatic. In relation to the way they did things at home one participant wrote, "first I took all of the carpet out of the house, put it on the lawn and got rid of vacuuming and mowing in one fell swoop." Another wrote,

"I have become obsessive in reusing everything at least twice or more whenever possible. We have a bin in place where we separated items for composting, worms-food and rubbish. This has encouraged a whole family involvement, so the children learn positive habits as they are growing. We became a home-ed'ing family, which allows for exploring nature more fully."

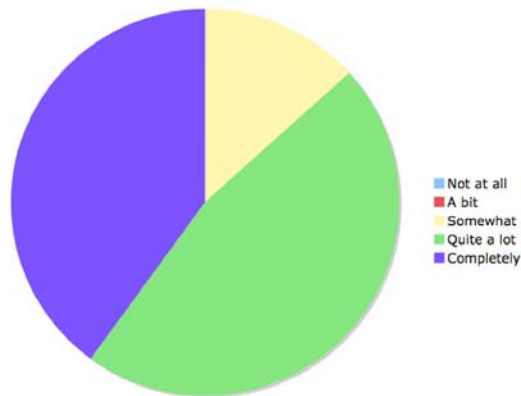
In their activities in the garden, where they interact most directly with nature, most respondents indicated more holistic thinking and increased awareness of and ability to be present to the natural environment. Respondents used phrases such as "we have become more aware", "more using five senses in the garden", "a greater sense of mindfulness to all things... and the greater sphere of life that exists in the garden" and "increased ability to observe the local environment." This seems to indicate a move towards "ecological consciousness."

Some of the most dramatic changes in respondents' behaviour were in their professional lives. One wrote, "I applied for and was granted part-time work for a short period. When it was no longer allowed I resigned." Another "I began making an epic commute each day by bike and train, reduced hours in paid work until I resigned and became a fulltime dad/gardener." This respondent's aim was to "reduce wage dependency and build self-resilience." Yet another "immediately switched to part time work and dedicated more time to working in the community."

The dramatic impact of the transformative learning experience on respondents' work life is in alignment with the way in which such an experience seems to bring a more holistic perspective to the learner. With working life so embedded in the hierarchical social systems that are largely responsible for the devastation to our environment it is not surprising that so many respondents sought to withdraw themselves from it.

When questioned as to what extent they felt that these profound emotional, intellectual and behavioural shifts were connected with their transformative learning experience 87% indicated that it could be attributed 'quite a lot' or 'completely' to the experience. The remaining 13% attributed the changes as being 'somewhat' connected to their transformative learning experience.

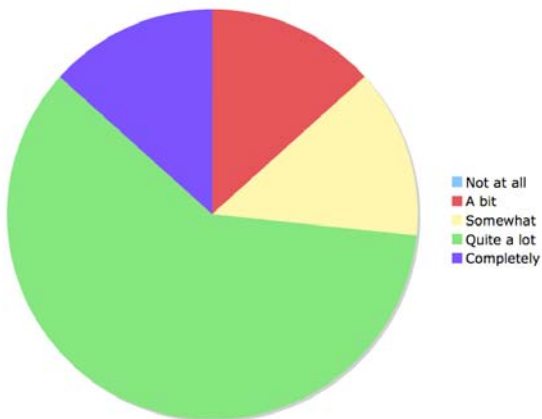
Extent to which participants thought these initial changes could be attributed to the transformative learning experience



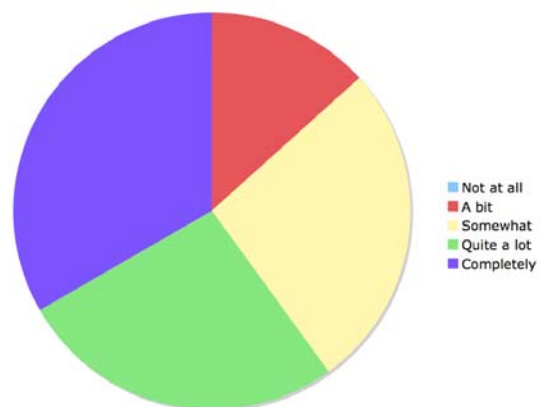
Changes to respondents resource use

When questioned about how the transformative learning experience had changed the way in which they used resources in their day-to-day lives all respondents indicated some level of long-term reduction to their ecological impact in all of the five areas of waste, energy, water, transport and biodiversity. The pie charts below summarise response in this area.

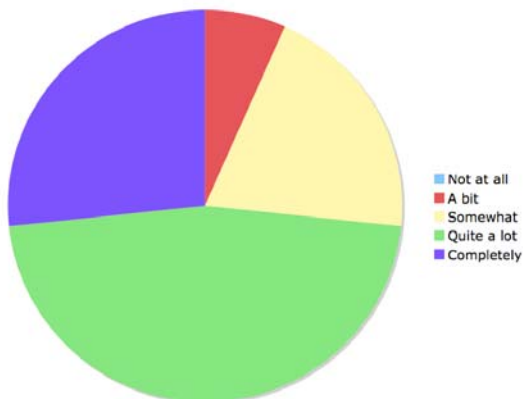
Percentage of respondents who have made long-term reductions in energy use



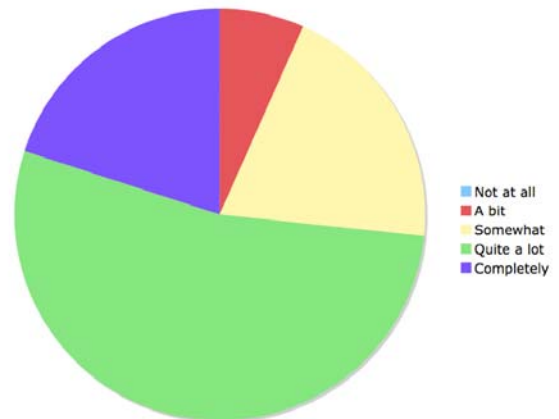
Percentage of respondents who have made long-term reductions in their transport impacts



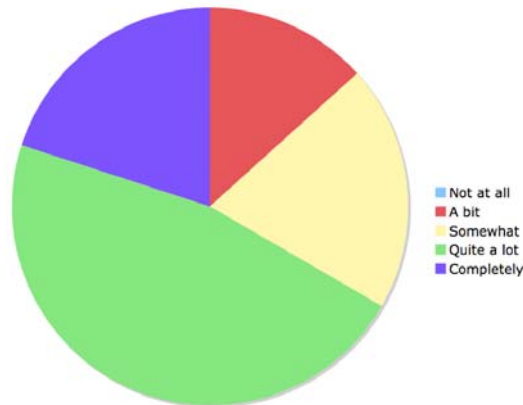
Percentage of respondents who have made long-term reductions to their ecological impact in terms of conservation or increase in biodiversity



Percentage of respondents who have made long-term reductions in waste creation

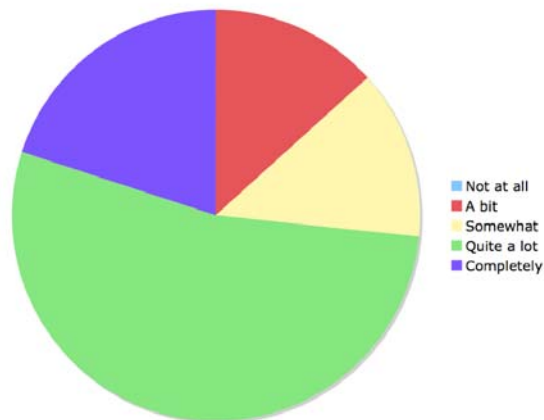


Percentage of respondents who have made long-term reductions in terms of their impact on our water resources



In contrast with the immediate perspective shifts of the transformative learning experience, when questioned as to what extent they felt that these long-term behaviour changes were connected with their transformative learning experience only 70% indicated that it could be attributed 'quite a lot' or 'completely' to the experience, with only 15% indicating that the changes were 'completely' the result of the experience. Whereas in the previous instance no respondents indicated that changes could only be attributed 'a bit' to the experience, here 15% chose this option.

The extent to which respondents felt that these long term changes could be attributed to the transformative learning experience



This result could be explained by the fact that learning is a process: any transformative learning experience is followed by others that are of more or less significance to the learner. Several comments by respondents emphasised this ongoing learning process and the difficulty of identifying any particular experience as the catalyst for change. Instead they seem to speak more of a journey of learning where transformative experiences function as cross roads or turning points along the way. One respondent wrote, "I am still learning and... I am also still struggling with the perceived challenges." Another said "It is difficult to pin down one experience when there is a constant exposure to information and learning."

One participant commented on how the transformative learning experience had catalysed learning in a wholly different area of their life, writing, "Some of the negative affects in the area of thinking is [sic] worrying about the almost unimaginable effects, the global devastation that we are heading towards. This worrying has then been a catalyst to gain more healthier coping skills and mechanisms to deal with my new awareness." This speaks of an ongoing process of change that one respondent referred to as "the path of transformative learning". This same respondent spoke of the research project itself being a catalyst to learning, writing "this survey has helped me to format and recognise clearer [sic] the areas that my experience has effected [sic] me and how I have changed and acted on my profound experience as a result."

For others, the transformation was unrelated to resource use. This was particularly the case where transformation was catalysed by meditation or awareness practice. One such participant wrote,

“...as a result of bringing a greater sense of wellbeing, increasing my patience and acceptance of the problems of the world, this transformative experience has probably reduced my consumptive behaviour by lessening anxiety and compulsive consumeristic [sic] behaviour. I also felt a real increase in my work ethic – though perhaps not necessarily in relation to changing the environment via permaculture and gardening and bush regen which I have always done... my work ethic has actually come back towards inner work and social connections rather than being 'out in nature' as I think I have more of an acceptance of how things are – and a greater patience and trust in slower processes being beneficial – rather than needing to do everything immediately from a sense of fear and anxiety.”

Several respondents who were already actively living in a sustainable manner experienced transformative learning as a process that led to a deeper understanding, and the behaviour change that resulted was focused on other areas of life rather than resource use. One respondent wrote,

“(The) questions around waste, water, transport etc. were interesting because I didn't come to the transformational experience from an excessive or eco-ignorant place. If anything I was possibly bordering on fundamentalist deep green and needed to back off a bit in order to not put myself in the compost bin. The critical thing about my transformative learning experience is perhaps that it was focused at nourishing the self and connecting in a circle of other humans willing to feel and be real and acknowledge the state of the Earth, then to realise I was just one component of the whole and that taking care of myself physically and emotionally was as important a role in caring for the earth.”

Another respondent wrote of becoming aware of their own knowledge and value as a teacher, writing “I became conscious of the knowledge I already had and that I could take this knowledge and pass it on to younger people with the hope of nurturing more care towards the natural environment, to try to understand it and take up the challenge of action everyday toward that goal.”

Conclusion

Although this research has provided a strong basis for the validity of transformative learning as a means of developing ecological consciousness, it is clear that this process does not occur in isolation: learning is a life-long process where experiences and phenomena catalyse one another in a complex web of relationships where context plays a crucial role.

All respondents appear to be on a transformative journey that has led to varying degrees of behaviour change, however it cannot be stated categorically that one transformative learning experience has been the source of that change or whether this change has been sustained or increased in the long-term. It is not clear whether reduction in ecological impact increased over time as respondents put their learning into practice, or whether it was more pronounced immediately following the event with respondents becoming less and less committed over time. One comment in particular calls this into question:

“I must admit that the empowerment and energy flowed on for another month or so. And then a continuing but slightly diminished sense of momentum carried me through another year or two. But I didn't have or haven't used the tools to maintain that empowerment and clarity. Five years later I must admit I have a growing level of despair and paralysis looming inside me again. I think it would have been useful to have follow up and ongoing contact with the people in that group. And maybe half yearly/annually/or biannual gatherings to engage in those "despair and empowerment" processes again and keep the release continuing...”

This last suggests strongly that a supportive environment is required for learners to continue to learn, or indeed sustain the changes that have already occurred.

A number of findings stand out, most of which raise more questions than they answer:

1. Holistic thinking and ecological consciousness

Almost all respondents indicated that they had become increasingly aware of their impact on the environment, with many experiencing a “shift in thinking about the relationship of the individual to the whole”. This understanding of the interconnectedness of all life gives individuals the clarity to see that by jeopardising the environment they also jeopardise their own wellbeing.

Implication and further questions

Can we expect an individual to take up any action recommended in isolation from its context within the ecological whole?

2. The need to provide the right context or ‘space’ for learning

As indicated above, several participants noted that their transformative learning experience had not occurred in isolation, and was in fact itself catalysed by other incidents and circumstances that were occurring in their lives at that time. One respondent wrote, “...thinking about the other things happening at the time, the way for change was prepared perhaps by a whole combination of life factors – the books I was reading, places (I) was visiting and so on...”

Implication and further questions

Is it dangerous to assume that an individual can be influenced to change their behaviour when they are still immersed within the dominant consciousness of consumerism? Can behaviour change programs that ignore the current context in which an individual exists create lasting change?

3. The link between the inner and the outer

Several respondents commented on the link between inner life and outer actions, what one respondent called the “sense of fractality [sic] (as I am, others are, and as I am within, so I will create in behaviour).” There is a sense that when the inner life is in balance this translates into productive outer action. Illustrating this, one respondent wrote, “my thinking is more focused and present, in the now. I spend less time habitually reacting to situations, more time just observing them and consciously acting where appropriate.”

Implication and further questions

Is it possible for an individual to change their behaviour towards a positive life affirming lifestyle when their inner lives are chaotic, noisy and often self-destructive?

4. Barriers to transformative learning in education for sustainability

One respondent wrote “I think it would be interesting to explore the barriers that occur on the path to transformative learning e.g. the “shock” that can happen as a result of the learning experience that then leads to the many people I see around me in a state of “denial”.... and the possible coping methods... that could be identified in overcoming this “shock” of the new...”

Implication and further questions

One respondent wrote that they “spent years assimilating the experience”; how can learners be supported on the transformative learning journey. What pitfalls can lead to a slowing or cessation of the change process, and how can they be overcome?

Overall, it appears there is much research to be done to clarify these questions, to develop understanding and to build capacity within the education for sustainability community in the design and implementation of transformative learning.

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