
The end of ESD... the beginning of transformative learning – emphasizing the E in ESD¹



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Abstract

Sustainability becomes particularly meaningful to citizens when they are given the opportunity to infuse it with meaning in their own everyday lives. What we need to look for in education is to create conditions, arrangements between teachers, students, schools and their communities, and to design learning processes and curricula that are consistent with both principles of good education and of some of the core ideas underlying sustainable development. In this presentation I will unveil and illustrate some ideas of teaching and learning that begin to do this. Although the focus of the presentation will be on higher education, the main premise applies to all levels of education: ESD is viewed as a catalyst of educational change that will allow for more meaningful, existentially relevant and transformative learning to emerge in our schools and universities. It is suggested that quality education and a more sustainable world are two sides of the same coin. A number of suggestions for reframing teaching and learning are provided.

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Introduction

In this paper sustainable development is not seen as an end or goal but as one of several inputs or drivers for transformative learning. While there is a constellation of ideas as to what sustainable development might entail, the lack of consensus about the implications of an exact meaning in variable contexts prevents global prescriptions. Forcing consensus about an ill-defined issue such as sustainable development is undesirable from a deep democracy perspective and is essentially 'mis-educative'. Deep democracy offers a way of thinking about difference, as opposed to consensus. Democracy, from this perspective, depends on differences, dissonance, conflict, and antagonism, so that deliberation is radically indeterminate (Goodman and Saltman, 2002). The conflicts that emerge in the exploration of sustainable development, for instance the inevitable tensions between the three P's (People, Planet, Profit) or the three E's (Efficiency, Environment, Equity), are prerequisites rather than barriers to higher learning. Universities in particular have a responsibility in creating space for alternative thinking. They have a profound role to play in developing students' so-called dynamic qualities or competencies. They will need these qualities to cope with uncertainty, poorly defined situations and conflicting or at least diverging norms, values, interests and reality constructions.

The development of these dynamic qualities and related competencies sets higher education apart from institutions that provide training and conditioning, and makes the prescription of particular lifestyles or codes of behaviour or convergence towards a particular set of privileged values and interests problematic, as it stifles creativity, homogenizes thinking, narrows choices, limits autonomous thinking and minimizes degrees of self-determination.

In this paper we will focus on these dynamic qualities, and the kinds of learning processes and university structures that are conducive for their development.

Sustainable development as autonomous thinking and systemic change

In a postmodern world, pathways towards sustainable universities are unlikely to develop without friction, controversy, and conflict. After all, we live in a pluralistic society, characterized by multiple actors and diverging interests, values, perspectives, and constructions of reality (Wals & Heymann, 2004). The ill-defined and uncertain nature of working towards sustainable living and the complex

and contextual nature of higher education itself, does not allow for universally applicable recipes for implementing sustainability in higher education. University boards cannot rely on the exclusive use of economic incentives, rules, standards, and regulations to enforce sustainability in higher education. At the same time, reliance on the instrumental use of education, training, and communication to promote or even force one particular view of sustainability, is problematic as well, particularly in higher education where critical and autonomous thinking should perhaps be emphasized the most.

When recognizing that sustainability is an ill-defined concept that derives meaning in a specific context with the involvement of multiple stakeholders, an important question is raised as to how one deals with the inevitable tension between the divergence of interests, values, and worldviews on the one hand – and the need for the shared resolution of issues that arise in working on sustainability in higher education on the other. Pluralism of thought, when applied constructively, can be a driving force for reaching solutions to sustainability issues in higher education. It is this pluralism of thought that can lead to creative solutions to complex challenges. Higher education has a responsibility in cultivating such pluralism. This means that are universities should be wary of the trap of standardization, mainstreaming, and of privileging economic perspectives over others.

Stephen Sterling maintains that the nature of sustainability requires a fundamental change of epistemology, and therefore, of education. He writes:

Sustainability is not just another issue to be added to an overcrowded curriculum, but a gateway to a different view of curriculum, of pedagogy, of organizational change, of policy and particularly of ethos. At the same time, the effect of patterns of un-sustainability on our current and future prospects is so pressing that the response of higher education should not be predicated only on the 'integration of sustainability' into higher education, because this invites a limited, adaptive, response... We need to see the relationship the other way around—that is, the necessary transformation of higher education towards the integrative and more whole state implied by a systemic view of sustainability in education and society (Sterling, 2005, p 50).

A challenge for all of us in a higher education system that is part of the un-sustainability problem is how we can address the problem from within by analysing

learning levels and learning responses. Sterling offers possibilities for deeper and transformative learning. Sterling writes that “the process of sustainable development or sustainable living is essentially one of learning, while the context of learning is essentially that of sustainability” (Sterling, 2005, p 52).

Longing for Kindergarten

What makes higher education higher than other educations? Or what does higher education need to do in order to be labelled ‘higher’? It can be argued that the qualification of ‘higher’ has little to do with the quality of the learning that takes place in most universities. After all, the academy remains notoriously stubborn in changing its unidirectional, hierarchical and essentially reproductive approach of teaching. Most professors are still there to ‘profess’, while most students are still there to absorb it all. The same holds true for the way the content of most universities is structured. ‘Content’ is still organized in disciplinary ways both in research and in education. By often failing to approach our problems holistically, we tend to create new problems while we attempt to resolve the old ones. As our problems become increasingly complex, our ability to effectively respond to them diminishes. Ironically, the ‘lower’ we go in education the more real-life-oriented and experiential it becomes. Robert Fulgham once said “wisdom is not at the top of the graduate school, mountain, but there in the sandbox”. He illustrates this in his infamous ‘All I Ever Needed to Know I Learned in Kindergarten’ illustrates this.

Most of what I really need to know about life, I learned in kindergarten. These are the things I learned: Share everything. Play fair. Don't hit people. Put things back where you found them. Clean up your own mess. Don't take things that aren't yours. Say you're sorry when you hurt somebody. Wash your hands before you eat. Warm cookies and cold milk are good for you. Live a balanced life. Learn and think, draw and paint, sing and dance, play and work a little everyday.

Take a nap every afternoon. When you get out into the world, watch for traffic, hold hands, and stick together. Be aware of wonder. Remember the little seed in the plastic cup. The roots go down and the plant goes up, and nobody really knows why, but we are all like that.

Goldfish, hamsters, white mice, even the little seed in the plastic cup, they all die. So do we.

And then remember the book about Dick and Jane, and the first word you learned, the biggest word of all: LOOK. Everything you need to know is in there somewhere. The Golden rule, love and basic sanitation; ecology, politics and sane living.

Think of what a better world it would be if all of us, the whole world, had cookies and milk about three o'clock every afternoon, and then lay down with our blankets for a nap. Or if we had a basic policy in our nation, and other nations, always to put things back where we found them, and cleaned up our own messes.

And it's still true, no matter how old you are, when you go out into the world, it's best to hold hands and stick together.

Source: Fulgham, 1986

Fulgham's memories of what he learnt in kindergarten illustrate the possibilities education offers for moving towards a more sustainable world, but also make painfully clear that the education system from kindergarten onwards appears to be eroding these possibilities as we move 'up' the ladder and, some, eventually end up in university. David Orr even goes further by suggesting that by failing to develop some of the values Fulgham refers to and by failing to challenge some of the unsustainable lifestyle patterns, education in general is basically equipping us to become more effective vandals of the Earth, while those who educate for sustainable development and who are oblivious of this, are 'walking North on the South bound train of globalisation' (Orr, 1994; 2003).

So let us return to kindergarten and explore why kindergartens offer more for moving towards a more sustainable world than many of our universities². Kindergartens ideally are or can be places where young children live and learn, explore boundaries, in a safe and transparent world without hidden agendas. Kindergartens are places where conflict emerges everyday and is used as a 'teachable' moment. Kin-

² Of course it can be argued that we, like Fulgham, romanticize kindergarten. Not all childhood experiences in kindergarten are good ones (see for instance Polakow, 1992). All we try to do here is to make the point that in moving towards higher education, we seem to regress in both the content and process of teaching and learning.

dergartens today are multi-cultural places where kids with different backgrounds all come together and get to know each other as they are, not as they are portrayed by others³. Kindergartens are also places where different generations meet and interact (children, parents, grandparents). They are often located in the heart of the community. There are no dumb questions in kindergarten and there's always time for questions and questioning. The life-world of the child forms the starting point for learning, not a disciplinary problem. There is room for exploration, discovery and multiple ways of expressing oneself. It's a place filled with energy. And there are some basic rules, principles, and skills needed to function in an organic whole.

So does this mean our universities should become more like Kindergartens in order to contribute the creation of a more sustainable world? Yes and No. 'Yes' in that the learning processes and learning environments need to become more authentic, inspiring, and driven by existential issues. The rigid disciplinary structures that block more systemic and holistic ways of looking at the world need to be broken down. 'No' in that there will still be a need for disciplinary knowledge as the resolution of existential issues may still require such knowledge.

Higher education can play a pivotal role in turning society toward sustainability. In order to do so it must rediscover and teach indigenous and ancient truths, generate new concepts and ways of thinking, and we must inspire students with a hopeful vision. Certainly the principle of intergenerational responsibility is at the heart of formal education from – from kindergarten through tertiary education. The assumption of human culture has been that the beauty and bounty of Earth would be transferred across generations, that the process of education would transfer the values, skills, and knowledge to survive and thrive in the cultural and natural systems of which we are a part. Universities have had, in the modern world, a pivotal position in defining education for this task. Yet certain core ideas embedded in disciplinary thinking and the practice of those ideas are increasingly problematic. Hence, a challenge to higher education is to reconsider its disciplines, its institutional practices, and, indeed, its mission to account for economic and human development that is sustainable.

Sustainability as Transformative Social Learning

Exploring sustainability in higher education can be seen as a process of simultaneous individual and institutional confrontation and self-confrontation

³ We are not referring to private kindergartens and head start programs designed to track children and reduce diversity in order to 'excel' academically at a very young age.

in order to arrive at a better understanding of both the potential significance of sustainability for both the institution and for oneself. Adopting such a position means putting emphasis on the process and its facilitation. This brings us to the need for facilitated cultivation of pluralism and conflict in order to create space for social learning in moving towards contextual sustainability in higher education. The process of determining how to become sustainable as an institute of higher education as undertaken by a group can be viewed as a particular manifestation of social learning. Social learning here is seen as a collaborative re-framing process involving multiple interest groups or stakeholders (Vandenabeele & Wildemeersch, 1998). Through discursive dialogue and cooperation between people positioned within different configurations or frames with regards to the key issues involved such learning can be intensified and lead to change. Hence, social learning can be viewed as an intentionally created purposeful learning process that hinges on the presence of alternative constructions of reality.

If indeed the exploration of sustainability in higher education involves the reconciliation of diverging norms, values, interests, and constructions of reality then the innovation process should be designed in such a way that differences are explicated rather than concealed. By explicating and deconstructing these differences it becomes possible to analyze their nature and persistence. This is an important step since it helps to improve both the dialogue between the stakeholders involved and to identify strategies for utilizing conflict in the social and individual learning process.

The promotion of sustainability in higher education requires more than consensus in the present, but rather requires a dialogue to continuously shape and re-shape ever-changing situations and conditions. A dialogue here requires that stakeholders involved can and want to negotiate as equals in an open communication process which views diversity and conflict as the driving forces for development and social learning (Kunneman, 1996; Wals & Bawden, 2000). As Wals and Heymann (2004) point out elsewhere, such dialogue rarely spontaneously emerges, but requires careful designing and planning. Sustainability can and perhaps should be a highly contested concept and the potential differences in interests and possibilities can be significant, especially when there are significant power imbalances within a university.

Sustainability in higher education can be regarded as both as the collaborative creation of an ever-evolving product and as an engaging creative process involving a variety of different actors. Moving towards sustainability as a social learning process has up until now received less attention than concepts of sustainability as expert (pre)determined and essentially teachable products (Wals & Jickling, 2002). One

question to be raised is: How can academia help develop all-round personal capabilities that generate positive but often unanticipated outcomes? This is a question related to determining the kind of competence that is needed to contribute to sustainability and academia's role in developing such competence amongst all its staff and students. With Raven and Stephenson (2001), we agree that competence here does not refer to getting the job done effectively, after all there is know consensus about what 'the' job entails, but rather to making an effective contribution to society by going beyond boundaries and by influencing the systems in which the competence is developed. From this perspective, sustainability can, at the institutional level, be viewed as a catalyst for systemic institutional and organizational change.

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 (Lijmbach et al., 2002) and differences (Olson & Eoyang, 2001), space for autonomous and deviant thinking, space for self-determination, and, finally, space for contextual differences. This observation reminds us of John Dewey's views on education and democracy, almost a century ago, when he argued that education should realize a sense of self, a sense of other, and a sense of community; it should create space for self-determination as individuals and/or members of groups exercise greater degrees of autonomous thinking in a social context (Dewey, 1916).

Creating Space for Learning

What are the implications for curricula in higher education when acknowledging the ill-defined nature of sustainability and the merits of taking a more participatory, democratic, pluralistic, and systemic approach to sustainability? Some emerging tasks of higher education are: to help students learn how to appreciate the differences between particular worldview perspectives on sustainable living, to help them learn to achieve systemic competencies in their application, and in particular, to help them learn how to facilitate discourse which allows others in their professional and personal networks to do the same.

Here we will turn to earlier work that has addressed the above question in quite some detail (Wals and Bawden, 2005).⁴

⁴ The section below comes from (or has been adapted from) Wals and Bawden 2005, specifically from pages 38–46.

Integrating sustainability pre-supposes the re-thinking of institutional missions

The integration of sustainability will never lead to anything fundamentally new if the institution is not prepared to re-think its academic mission. This mission debate should involve all actor groups in the university. It should lead to the re-formulation of the aims and objectives of teaching and research programmes and it should result in a commonly accepted strategy at the macro-, meso- and micro-level. Only then mission statements can become more than a public relations tool.

It is no use crying over vague definitions

It should be admitted that the ambivalent nature of the concept of sustainability can be a major conceptual impediment to those who like to work with crisp and clear, narrowly defined concepts: 'Tell me what it is and I'll teach it!' It should also be realised, however, that this vagueness has an enormous canvassing and heuristic capacity if it is systematically and systemically used as a starting point or operational device to exchange views and ideas. These ongoing discussions may generate fruitful working hypotheses for the concrete formulation of curricula, study-programmes, subject matter content and didactical arrangements.

Sustainability is as complex as life itself

The concept of sustainability is related to the social, economic, cultural, ethical and spiritual domain of our existence. It differs over time and space and it can be discussed at different levels of aggregation and viewed through different windows. Hence, a curricular review in terms of sustainability integration is per definition of an interdisciplinary, systemic and holistic nature. It concerns cognition, attitudes, emotions and skills. It does not lend itself to unilateral, linear planning or a reductionist scientific paradigm and thus involves the systemic integration between theory and practice into systemic praxis.

Teaching about sustainability requires the transformation of mental models

Teaching sustainability presupposes that those who teach consider themselves learners as well. Teaching about sustainability includes deep debate about normative, ethical and spiritual convictions and directly relates to questions about the destination of humankind and human responsibility. In this way it differs from a modernist and positivistic way of thinking. It incorporates notions of the

possibility of the finiteness of human existence and trust in human creativity at the same time.

There is no universal remedy for programmatic reconstruction

The inclusion of aspects of sustainability in academic programmes is very much culturally defined. Also it is closely tied to the academic history and curricular tradition of the institution concerned. Consequently, there is no *panacea* for curricular reform. Some institutions will choose to add on to existing programmes, others will opt for a more revolutionary approach. The decision about the most desirable reform approach is time and space specific and can only be taken in an open and communicative process in which all actor groups play their own, respected roles.

Programming sustainability demands serious didactical re-orientation

- Sustainability requires a focus on competencies and higher thinking skills
- Sustainability requires a foundational appreciation of holistic principles, critical system understandings, and practical systemic competencies.
- Sustainability requires an early start, i.e. well before students enrol in universities (from kindergarten through high school)
- Sustainability requires critical reflection on one's own teaching
- Sustainability requires self-commitment and taking responsibility
- Sustainability requires empowerment of learners by enabling them to work on the resolution of real issues that they themselves have identified
- Sustainability requires appreciation and respect for differences
- Sustainability requires courage ('Dare to be different')
- Sustainability requires creativity as there are no recipes

Integrating aspects of sustainability cannot be realised without thinking very critically about the re-structuring of didactical arrangements. This re-orientation requires ample opportunity for staff members and students to embark on new ways of teaching and learning. For this to happen they have to be given the opportunity to re-learn their way of teaching and learning and to re-think and to re-shape their mutual relationships. These new didactical arrangements pre-suppose a problem orientation, experiential learning and lifelong learning. The following shifts

in educational orientation are proposed (van den Bor et al., 2000; Wagner and Dobrowolski, 2000):

- from consumptive learning to discovery learning
- from teacher-centred to learner-centred arrangements
- from individual learning to collaborative learning
- from theory dominated learning to praxis-oriented learning
- from sheer knowledge accumulation to problematic issue orientation
- from content-oriented learning to self-regulative learning
- from institutional staff-based learning to learning with and from outsiders
- from low level cognitive learning to higher level cognitive learning
- from emphasising only cognitive objectives to also emphasising affective and skill-related objectives

Focussing on sustainability provides a wonderful opportunity for accessing higher learning (epistemic development) and new ways of knowing (the paradigmatic challenge) precisely because the concept is (a) so slippery and open to different interpretations, and (b) so complex (involving ethical, moral, aesthetic and spiritual issues as well as the more conventional technical, economic, social and cultural ones). In other words, serious attempts to integrate sustainability into higher education brings academics into whole new pedagogical worlds - experiential, epistemic, and systemic.

Process anchors for integrating sustainability⁵

Many educational strategies have been suggested to meet the challenge of sustainability. Alblas and his colleagues (1995), for instance, suggest strategies based on high relevance to the learner, problem solving, reflective enquiry, dialectical connection between theory and practice, and collaboration between specialists of theory and practice. They put a heavy emphasis on: a) intellectual skills that are relevant to the discussion of controversial issues in situations of social conflict, b) a deep involvement of the learner in the issues at stake and c) the inclusion of diverging interests. With an implicitly social-constructivist approach, they stress the importance of students' beliefs, ideas, and conceptions. I will list eight criteria

⁵ In describing the process anchors and content anchors for integrating sustainability we make use of and build upon earlier work published in the AFANet publication that form one of the pillars of this paper (van den Bor et al. 2000). Much of this section can be found in Wals and Dreyfus (2000), which in its turn builds upon Wals et al. 1999. We wish to acknowledge the contributions made by Art Alblas and Marjan Margadant of Utrecht University and of Amos Dreyfus of the Hebrew University of Jerusalem.

that have been derived from environmental education research in the Netherlands (Wals, et al., 1999).

1. Total immersion

Learning by doing, discovery learning, hands-on learning or experiential learning all have in common that the learner becomes immersed in a multi-sensory way in a learning process that is fundamental enough to have a lasting impact on the state of mind and being of the learner. A learning experience becomes fundamental when the whole person becomes part of the learning experience (i.e. head, heart and hands).

2. Diversity in learning styles

People are not all alike. For agricultural and rural development education to contribute to meaningful learning experiences, educators will have to recognise and be sensitive to the various learning styles and preferences that can be found in a single group. It is unlikely that one particular learning and instruction technique will be appropriate for all involved in a learning process.

3. Active participation

To become involved in something requires active participation in a dialogue with co-learners and teacher-facilitators. It is through this active participation that the learner develops a sense of ownership in the learning process, its content and its course. Through dialogue, the development of ideas in a social setting, the learner can express his or her feelings or thoughts and become exposed to the feelings and thoughts of others. This confrontation is essential for meaningful learning to take place.

4. The value of valuing

In high quality education for agriculture and rural development the development of values and meaning coincide. The motivational and affective aspects of learning should be given equal attention. The process of valuing should at least have the following components or steps (Brugman, 1988):

- Putting in words what is found to be important with regards to the subject at stake (explicating personal values).
- Putting oneself in the positions taken by others with regards to the subject at stake (taking on multiple perspectives).

- Comparing one's own personal values with those of others to recognise commonalities and differences (confronting and relating personal values).
- Investigating and discussing the relationship between personal values and corresponding behaviour (or the lack thereof) (validation of personal values).
- A prime objective of following these steps is to develop in the learner a system of values and valuing which is characterised by flexibility, openness and pluralistic respect (i.e. respect for well-argued alternative values).

5. Balancing the far and near

A contemporary curriculum should reflect a society that increasingly demands the integration of environmental and other global issues. At the same time, such a curriculum should be rooted in the life-experiences of the learner. Inevitably, meeting both criteria will cause some friction. After all, issues of sustainability and development, for instance, are not always existentially relevant. How can we expect someone to take interest in problems that seem physically, socially and psychologically remote? Or, more specifically, how do we design learning activities that move students from passive detachment to active involvement in sustainability issues without having them feel overwhelmed or powerless?

A balance needs to be struck between the far and near of these physical, social and psychological dimensions in order for empowerment of learners to take place. Empowerment here refers to the feeling that one, albeit as an individual or as a member of a group, can shape one's own life and environment. Figure 1 below shows that at the core of transformative learning this balancing takes place in an integrative way, leaping back and forth between the now and the then, the one culture and the other, the one geographical area to the other (global-local/North-South/East-West), and the one discipline and the other (i.e. beta-gamma).

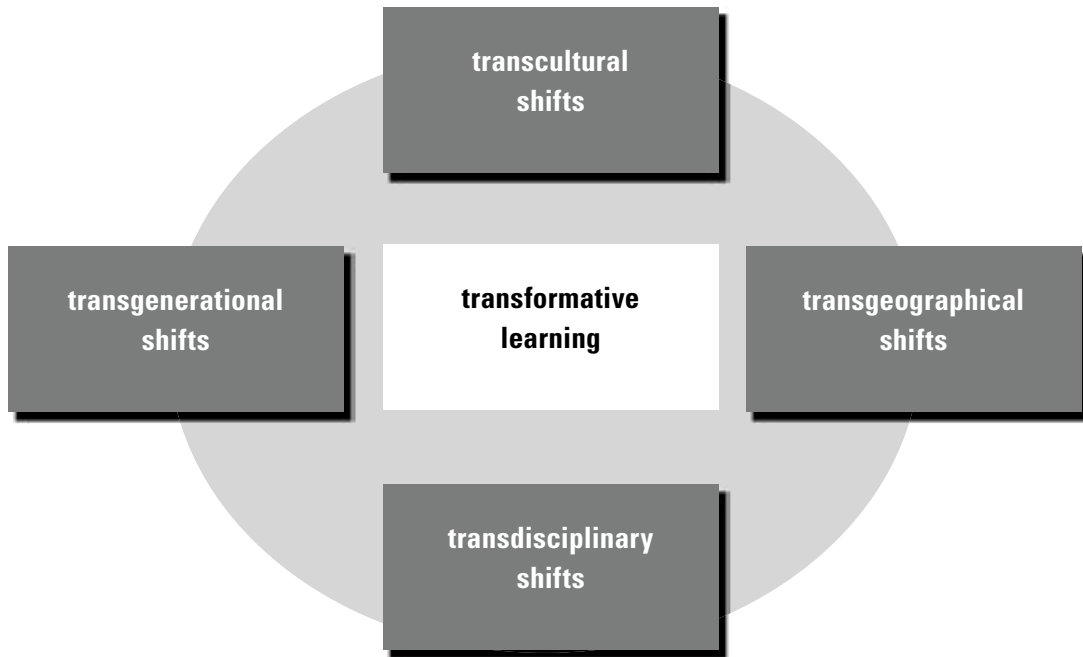


Figure 1 Four dimensions of transformative learning towards a more sustainable world

6. A case-study approach

Human development can be characterised by a double-edged sword with the 'objective' material conditions on one side and the subjective personal needs on the other. Both aspects are relevant for the process and content of education. The challenge is to find exemplary cases that do not only address subjective personal needs, but also address the need for a better understanding of more universal principles (Klafki, 1994). A case-study approach allows the learner to dig for meaning, as opposed to scratching the surface, by focussing on one concrete example for a longer period of time. Taking sufficient time to study a particular issue in-depth is essential and is preferred over studying multiple issues in a superficial way. The teacher needs to take an active role in stimulating learners to expand their boundaries of understanding by challenging them to look further and exposing them to alternative ways of looking at the same issue.

7. The social dimension of learning

The development of knowledge and understanding has both personal and shared elements to it. Social interaction allows one to relate or mirror his or her ideas, insights, experiences and feelings to those of others (see also the intercultural dimension in Figure 1). In this process of 'relating to' or 'mirroring' (Cassel & Giddens, 1993), these personal ideas, insights, experiences and feelings are likely to change as a result. This mirroring may lead the learner to rethink his or her ideas in light of alternative, possibly contesting, viewpoints or ways of thinking and feeling. At the same time (learning) experiences, which are shared with others, are likely to gain importance. This is not to say that personal experiences, which are kept to oneself, are insignificant. But shared viewpoints or ways of thinking and feeling give the learner a sense of competence and belonging to the community of learners.

8. Learning for action

The argument for including action-taking and the development of action competence in education for agriculture and rural development programmes is threefold. First, one could argue that many people are overwhelmed by environmental, including social, problems as a result of their personal exposure to these problems, for instance, through the ever-present media. It is important to help learners explore environmental issues and to provide them with an understanding of the nature and complexity of these problems. However, education for agriculture and rural development should not be limited to this, for it then could easily feed feelings of apathy and powerlessness. It would be dangerous if education for agriculture and rural development would become a repetition of what many of us already know: the environment is in bad shape, our comfortable lifestyles make it worse and the complexity of sustainability issues makes them hard to solve (Monroe, 1990). By bringing in the action-taking component, students can, under certain conditions, begin to take charge of some of these issues and develop a sense of power and control.

A second argument for including action-taking in an education for agriculture and rural development project has its roots in experiential learning thought: one never comes to fully understand a problem with all its nuances and complexities until one fully immerses oneself in the problem, identifies all the players and begins to work within the 'force field' or field of interference towards a joint solution (Wals, 1994a). In other words, we may never really understand the problem until we start to actually implement some potential solutions.

Finally, it could be argued that without the ability and willingness to act it is impossible to participate in or, rather, to contribute to a democratic society. As Jensen and Schnack (1994) point out, a concern for the environment should be connected to a concern for democracy. Table 1 summarises the process anchors derived from Wals et al. 1999.

Conclusion

The question of the place of sustainability in the curriculum of higher education and of education in general is not one of integration but rather one of innovation and systemic change within our institutions that will allow for more transformative learning to take place. Transformative learning emphasizes 'learning for being', alongside learning for knowing and learning for doing. It requires permeability between disciplines, university and the wider community, and between cultures, along with the competence to integrate, connect, confront and reconcile multiple ways of looking at the world. In contribution I have provided a number of ideas to innovate teaching and learning in higher education which will, hopefully, lead to educational institutes deserving of the label 'higher'. Our search for a more sustainable world requires cutting edge new thinking that can break the cycle of un-sustainable knowledge creation and transfer, un-sustainable technological development and unsustainable consumption patterns tied to un-sustainable economic principles. At present most of our universities are still leading the way in advancing the kind of thinking, teaching and research that only accelerates un-sustainability. In order to break this pattern we need to question and reform deeply entrenched routines, structures and practices by taking advantage of the privileged position universities have in our society and utilising some of the brightest minds on the planet in finding ways to preserve, rather than to destroy, that very same planet.

Table 1. Some Process Anchors for Integrating Sustainability in Higher Education
(source: Wals et al, 1999, p.28; Wals & Dreyfus, 2000, p. 81)

Principle	Description	Examples
1. Total immersion	Fostering a direct experience with a real-world phenomenon	Observing and monitoring sustainability impacts Managing a specific site
2. Diversity in learning styles	Being sensitive to the variety of learning styles and preferences that can be found in a single group	Offering a variety of didactic approaches Reflecting on the learning process with the learner
3. Active participation	Developing discourse and ownership by utilising the learners' knowledge and ideas	Soliciting the learners' own ideas, conceptions and feelings Consulting learners on the content of the learning process
4. The value of valuing	Exposing the learner to alternative ways of knowing and valuing through self-confrontation	Giving learners opportunities to express their own values Creating a safe and open learning environment
5. Balancing the far and near	Developing empowerment by showing that remote issues have local expressions which one can influence.	Relating issues of biodiversity or sustainability to last night's dinner Showing examples of groups of people successfully impacting the local and global environment
6. A case-study approach	Digging for meaning by studying an issue in-depth and looking for transferability to other areas	Assigning different people to explore different angles of a particular theme and bringing the different angles together
7. Social dimensions of learning	Mirroring the learner's ideas, experiences and feelings with those of others through social interaction	Taking time for discussion and exchange Addressing controversy Stimulating flexibility and open-mindedness
8. Learning for action	Making the development of action and action competence an integral part of the learning process	Allowing learners to develop their own course of action and to follow through with it Studying examples of action-taking elsewhere

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