

## Creating a learning environment for transformation: A case study of a course in sustainability leadership

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### The challenge of sustainability and the need for change and transformation

For over 50 years, scientists and other thought leaders have been trying to call attention to the degradation of the foundation of human civilization through unsustainable behaviour (Carson, 1962; Meadows, Meadows, Randers & Behrens, 1972; IGBP, 2004; Millennium Ecosystem Assessment, 2005; Stern, 2007; Intergovernmental Panel on Climate Change, 2007; Rockström et al., 2009). The 2012 *Living Planet Report* indicates that we are using 50 per cent more resources than the earth can provide and by 2030 even two planets will not be enough for human consumption levels (World Wildlife Fund, 2012). It is clear that change is needed on a large scale, and fast. Many agree that an entire paradigm shift is required to achieve what is needed (Meadows, 1999). Arguably this paradigm shift needs to be about not only the scientific foundations of what we know about the challenge but also about other 'soft' elements such as values, worldviews, and our individual and collective perceptions of the challenge and the possible solutions

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(Beddoe et al., 2009; Rees, 2010). Already in 1997 Vaclav Havel captured the paradox of this predicament.

Oddly enough, modern humanity seems to embody an essential inconsistency: While our capacity of cognition allows us to clearly see the dangers facing the human race, our ability or our readiness to combat these dangers in a truly resolute fashion and on a global scale seems very limited." (1997)

This leaves us with the need for urgent action and leadership to spearhead this action, engaging large segments of society towards these changes. How can such leadership for sustainability be developed?

## **Education for sustainable development**

It is commonly acknowledged, that education, formal or informal, is, as the United Nations calls it an "indispensable element for achieving sustainable development" (United Nations 2004, p.1). Whether formal or informal, it does not only teach us the facts of the current situation, but is also the process by which we make sense of the world and (sometimes subconsciously) construct and re-construct our ideas about how to interact in and with the world.

To this end, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has dedicated the period of 2004 to 2013 as the United Nations' Decade of Education for Sustainable Development (DESD). They define education for sustainable development as education that "aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions" (UNESCO, 2010). In this context, renewed focus has been put not only on *what* we need to learn and teach in the field of sustainable development, but also on *how* we learn and teach about sustainable development. Pedagogical methods such as lifelong learning, social learning, problem-based learning, dialogue education and transformational or transformative learning have been suggested as appropriate approaches to ESD. They hold particular relevance in light of the emphasis on development of new attitudes and skills, in addition to new knowledge.

While the UNESCO definition does mention the ability to act on decisions, the authors would like to emphasize the need for leadership, meaning the ability to spearhead change and engage others with it. Given the magnitude of the challenge we are facing, it is not enough to be able for each of us to make sustainable

decisions on our own and act upon them. We need leaders who can inspire this in large segments of society. Based on this, we will refer to sustainability leadership development from now on, rather than simply sustainability education.

The challenges of sustainability and societal transformation defy many commonly held assumptions entrenched in our current worldviews. Examples can be seen in any context, for instance in the view of nature as limitless while neglecting the earth's natural limits, pollution as a mere matter of economic externality, or the belief that leadership is based on hierarchical, positional power. Given this, it might be argued that sustainability leadership development, in pointing to the reality of the socio-ecologic condition and the different connotations of leadership it might hold, presents some 'troublesome knowledge'. A 'threshold concept' presents itself when we encounter this troublesome knowledge and find it in conflict with our current understanding. In their landmark article, Meyer & Land (2003) identified 'threshold concepts' as qualitatively different from other acquired knowledge because an understanding of the threshold concept requires an ontological and conceptual shift in the learner, as well as the risk to cross the 'threshold' of certain knowledge that may appear counter-intuitive because our common sense is compelling us see matters otherwise (Cousin 2006, p.4).

Prior to the popularization of threshold concepts, another important perspective on learning was given by Schön (1983) with his concept of theories-in-use and the two levels of learning that he suggested. According to Schön we have theories-in-use that help us make sense of the world as mental maps (or mental models) of our reality. When we have misfits between this 'map' and a problem at hand, we can reconsider the issue on two different levels: we can re-define the problem or some tactics on how to achieve our solution, or we can question elements of our theory-in-use or the entire theory. Schön (1983) refers to single-loop learning when we focus only on redefining the problem or tweaking tactics to achieve our goal, and to double-loop learning when our own thinking becomes object of reflection.

Why is this relevant for ESD? An explicit link between the need for deeper, double-loop learning as defined by Schön and ESD has been given by Loeber, van Mierlo, Grin & Leeuwis (2007). They argue that such deeper learning is needed because we need to challenge common, tacit assumptions that are at the root of the worldview that is preventing us from seeing the current sustainability challenges and that, since theories-in-use differ from person to person, our capacity to learn collectively is impacted (*ibid*, p.87).

Following this line of thought, a view of learning environments as institutions that simply transmit new knowledge may be misleading or limiting, especially when it comes to subjects like sustainability leadership development. In order to

truly experience the type of threshold concepts necessary to develop sustainability leadership, there seems to be the need not only to *learn* but most importantly to *re-learn* or even to *un-learn*, that is to question some basic assumptions about how the world works and how social change happens.

Transformational Learning, in particular, holds promise in this regard, because it speaks to the deep underlying change in attitude that is needed to achieve this large-scale societal transformation.<sup>5</sup> In addition, some (e.g. Mezirow, 1991; Johnson, 2008) claim that transformative learning increases effectiveness by developing new mental models that are more capable of handling new and complex phenomena. Given the complexity of the sustainability challenge and the need for new approaches for dealing with its implications, transformational learning appears to be a promising approach.

The remainder of this chapter will focus on this particular pedagogical approach first in theory, followed by a case study of a course called Advanced Societal Leadership within the Master's in Strategic Leadership towards Sustainability programme, where it will be discussed how the aspects from the theory are incorporated into a traditional university course.

## **Transformation learning**

The traditional definition and concept of transformational learning is simple and intuitive: transformational learning is a process by which previously uncritically assimilated assumptions, beliefs, values, and perspectives are questioned and thereby become more open, permeable, and better validated (Cranton, 1994, 2002; Mezirow, 1991, 2000a). Together, these create our mental models – what Schön (1983) calls theories-in-use. According to Johnson (2008), mental models are constructed frameworks through which we analyse our everyday experiences. They help us to sort incoming information and experience and to make meaning, creating the basis for our perception, analysis, understanding, and behaviour. Essentially, humans think and act through their mental models.

For many years, the dominant approach to learning has emphasized informational input through lectures, workshops and training programmes. This approach or worldview is based on the assumption that knowledge creates change. Trans-

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<sup>5</sup> One study claims that in fact what is need is restoration, rather than or in addition to transformation, as the basic ethics and mental models required are there but "were submerged as horizons of significance over the adult life course. Restoring these learnings grounded the participants [in the study] so they could withstand the disorienting aspects of transformation and remain open to threatening new knowledge (Lange 2004, p.135)."

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formative learning, by contrast, is directed at changing the mental model used by a learner, rather than adding more information to the models being used. While research on how mental models develop and change is limited, some studies on transformational learning do give insight into this process (Mezirow, 1991; Kegan, 2000).

According to Mezirow (1991), mental models change (and we will argue that leadership develops) through 'disorienting events' which can be broadly described as events that lead us to question the effectiveness or usefulness of the model we are currently using. Because our current model is incapable of handling the event, we become disoriented and struggle to find a new model that will better handle the situation we are facing. One could say that our tried-and-true way of making sense of the world no longer works in the context of this new experience (Cranton & Roy, 2003) and so we begin the process of questioning or critical self-reflection which allows us to find, create or adopt new mental models.

In this moment of questioning, most people feel a need to seek input from others or engage in discourse. As we hear different ideas and new perspectives from our social, work or family connections, we begin to see the possibility of thinking in a new way (Mezirow, 2000b). A study by McCall, Lombardo & Morrison (1988) shows that to be most effective the transformative learning process should occur in real time. Immediate reflection or guidance whenever a disorienting event occurs is likely the most effective way to constructively change a mental model (McCall, Lombardo & Morrison, 1988). Torbert (2004), similarly posits that practicing one's leadership means to be in a constant interplay between action and reflection.

So how is transformational learning and a shift in mental models related to leadership development? Cook-Greuter (2004, p. 277) defines leadership development as "supporting people to transform their current way of making sense towards broader perspectives", her definition thus being clearly linked to transformation. This broader perspective is one that can incorporate more complexity and includes higher self-awareness than the one before (2004). The link between the capacity to critically examine one's own thinking and leadership development is empirically supported by research based on Cook-Greuter's theoretical framework (Torbert, 2004; Rooke & Torbert, 2004).

A study by Ready (1994), asked executives to identify their most important learning experiences as leaders. He concluded that "to develop leadership capacity one must be presented with challenging opportunity and must be ready and capable of acting on it. The lessons gained from this opportunity will be leveraged considerably when the individual is offered honest, thoughtful, and timely feedback on his or her performance. In addition to opportunity and feed-

back, the person must have the time and capacity to reflect on this feedback, to internalize it, and to transfer the lessons learned to day-to-day behaviours” (Ready 1994, 27).

Based on the above, effective approaches to creating transformative learning experience for leadership development in ESD, seem to point to the need for disorienting or challenging experiences, honest feedback, critical reflection by the individual and opportunities to test new mental models and behaviours. Educators must therefore create environments where tacit assumptions can surface, where individual and collective mental models can be made explicit and where one can take a risk in challenging them. What would it take for an educational environment to be conducive to challenging one’s own assumptions?

## **The need for safe space**

Many scholars in the pedagogy field refer to the importance of creating a ‘safe space’ for learning, which seems especially relevant in the case of transformational learning for sustainable development, where one might be asked to question and change some of the more profound mental models of how our society operates and our role in this. So what is a safe space? A comprehensive literature review on the notion of safe space has been carried out by Barrett (2010) who summarized the concept of ‘safe classroom’ as follows: “a metaphorical space in which students are sufficiently comfortable to take social and psychological risks by expressing their individuality (particularly their thoughts, beliefs, opinions, experiences, and creativity)” (2010, p. 5). For Holley & Steiner (2005, p. 50) it is a space that “allows students to feel secure enough to take risks, honestly express their views, and explore their knowledge, attitudes, and behaviours”.

Upon review of literature on the subject of a ‘safe space’ for learning and challenging one’s own assumptions, trust seems to be a common denominator. Grin & Hoppe (1995) deem trust and reciprocity as pre-conditions for double-loop learning, whereas Vella (2002)<sup>6</sup> explicitly mentions trust in the five principles she lists to build a safe space:

- trust in the competence of the design and the teacher
- trust in the learning objective and their relevance
- allowing small groups to find their voices

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<sup>6</sup> It is important to note that the author uses anecdotal evidence without referring to studies on any assessment of positive impacts of the mentioned components.

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- trust in the activities and their progression
- creating a non-judgmental environment.

The following section will describe the Advanced Societal Leadership course and discuss the ways in which these elements have been incorporated in the course design, reflections from learnings along the way, as well as remaining challenges.

## **Case Study: Advanced Societal Leadership Course in the Masters in Strategic Leadership towards Sustainability**

In 2004, The Blekinge Institute of Technology launched the international, trans-disciplinary Master's in Strategic Leadership towards Sustainability (MSLS) (see also Waldron & Leung, 2010). Each year the programme welcomes approximately 50 students from 20 different countries. It aims to attract early- to mid-career professionals, and has welcomed participants spanning a 40-year age range from a vast array of personal and professional backgrounds. This 10-month (60 ECTS) programme aims to develop leaders who will be able to address the ever-increasing sustainability challenge. It combines a robust scientific framework for planning and decision making toward sustainability (known as the Framework for Strategic Sustainable Development, or the Natural Step Framework), with the personal and organizational leadership skills needed to energize large-scale societal change (for more information see Missimer & Connell, 2012). The Advanced Societal Leadership Course (7.5 ECTS) occurs in the second learning period (out of four), following an introductory course (15 ECTS), which includes a personal leadership thread focused on providing skills such as feedback, active and deep listening, presentation skills and others.

As the name implies, the Advanced Societal Leadership course is about leadership on a societal level, which builds on the more personal skills-based leadership thread in the introductory course. The course has a dual purpose. The first is to gain a deeper understanding of transformational change for sustainability. Moving society towards sustainability requires a fundamental change, not just in how we do things, but also in how we see things. The course therefore focuses on understanding the kind of change needed and exploring tools that will facilitate this change. The second is to practice advanced skills that relate to leadership and engaging others for change towards sustainability. Being able to effectively engage and learn with others, on a personal level, requires team work as well as

feedback and self-reflection skills. Having introduced these skills in the previous course, they become the core of the practice in this course. The intended learning outcomes for the course are designed so that, at the end of the course the learner should:

- Be able to explain, discuss and reflect on transformational change and its relation to strategic sustainable development
- Be able to explain, discuss and reflect on some tools and concepts that can help achieve (transformational) change
- Have developed and delivered an educational experience
- Have practiced reflection
- Have practiced feedback
- Have practiced working in groups

The student assessments in the course are based on an exam, a group project that focuses on various tools and theories for transformational change, individual reflections essays, self-assessment of learner-set learning objectives and a group self-evaluation. The course itself is comprised mostly of student-led presentations, guest lecturers, discussion and dialogue sessions as well as supportive sessions (to, e.g., prepare them for their own project presentations). In the following, we will discuss how aspects of the course connect to the approach of transformational learning. It is important to note, however, that the course is only one part of the larger programme and that many of the successes and challenges are linked to the previous course and the programme as a whole.

So how is the opportunity for transformational learning created? How are safe space built on trust, disorienting events, honest feedback, critical reflection and opportunity to test new mental models incorporated?

### ***Safe space/Trust***

The creation of safe space and trust is a main focus for the teaching staff. At the beginning of the MSLS programme, this intention is explained and ground rules are established for respectful behaviour that might facilitate this. Considering the complexity of the societal transformation challenge, arguably there are no “right or wrong” answers. Thus there is a focus on dialogue as a “shared inquiry, a way of thinking and reflecting together” (Isaacs, 1999), which comes with the need of suspension of one’s own judgment and acknowledging that everyone’s voice

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counts and is needed. Both, creating non-judgmental environments and allowing groups to find their voice, are listed as essential elements for a safe space by Vella (2002).

In addition, it is made very explicit that everyone is here to learn – including the teaching staff. Considering the age range and breadth of experiences of the students, it is often the case that students have much more experience than the teaching staff in certain specialized topics. In addition, because the field of SD is complex, requiring life-long learning, it is appropriate to demonstrate that the ‘teachers’ are learners as well. At the same time, as Vella points out, learners need trust in the competence of the design and the teacher. As one might imagine, this ‘co-learning’ reality can present a challenge for both teachers and students. Transparency in where the staff expertise lies is the approach taken, (also known to contribute to building trust). It is explicitly stated that staff expertise lies in course design and learning process facilitation, and that the depth of knowledge in the many topics to be explored will vary among the staff. In quite practical terms, this is reflected by clarifying that staff can give guidance of how to prepare a peer presentation or an educational experience on a project topic, but that exploration of the topics is the domain of the students.

Trust is further enhanced by sharing the entire course design with the students, before they decide to take the course. The relevance of the learning objectives for their sustainability leadership development is made clear, as well as the rationale for the lectures, projects and evaluation criteria. Finally, students are asked to trust the process, even when it feels challenging.

Creating trust in the learning objectives and their relevance, as well as the activities and their progression, are two more of Vella’s points. In addition to the work of making the existing learning objectives relevant, students are encouraged to create their own learning objectives, which they can self-evaluate for part of their grade at the end of the course. Self-designed learning objectives must be relevant to sustainability leadership development, however students are free to design what is most relevant to their personal and professional development. This exercise is optional and students who chose to do so are encouraged to create a rubric for each learning outcome, so that they may have better guidance on what might be a 5 out of 5 performance versus 3 out of 5. Most of the self-assessed learning objectives are in the field of personal leadership development and range from practicing to listen, to facilitation skills.

## ***Disorienting events***

Having established trust in the intentional design of the course, disorienting events can be introduced with less risk of students feeling threatened. In this case, it is interesting to note that the course deals with transformation on both a content as well as a process level. The readings for the course and the themes for the student projects explore ideas around transformational change on and individual as well as a collective level. The readings, for example, are clustered around main themes, spanning from a big-picture perspective on societal transformation, to insights from neuroscience on personal change and mental models, to systems thinking. The themes for the student projects cover theories such as Theory U, Complex Adaptive Systems, Chaordic Theory and many others. In this way, the content itself already holds potential for transformation as it might expose students to ideas and ways to think about the world, that they have never encountered before. The content itself might therefore be a disorienting topic.

In addition, from the beginning of the master's programme, the students spend a lot of time in group work with students from many different cultures and backgrounds due to the diversity of the participants. The project groups are intentionally arranged so that diversity is always present, creating another opportunity for a disorienting event. The students are supported in working intentionally and actively with differences in the groups through practical workshops and through project requirements (e.g., group evaluation criteria, where the groups need to design criteria to evaluate themselves and their success). This approach creates the possibility for experiencing differences as a learning opportunity and expanding their own mental model, rather than merely experiencing a frustrating process. As mentioned above, much effort is put into creating a non-judgmental environment from the beginning of the programme, including creation of pre-conditions for the class to trust one another using team bonding activities. This is based on the assumption that both Vella (2002) and Grin & Hoppe (1995) hold valid points when they state that trust and reciprocity are key components in moving to higher learning when confronted with a disorienting event.

## ***Honest feedback***

As described earlier, feedback is introduced and practiced in the introductory course. In the Advanced Societal Leadership course, feedback is incorporated in many different forms. This is reflected in the time taken to comment on written work, presentations and the exam. Of particular note is the approach to com-

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menting, as all feedback is intended to be formative to support further learning, rather than to give correction.

Students are also encouraged to give each other honest feedback. Within their project groups, they are required to design group self-evaluations (mentioned above), where they either assess themselves as a group, or the individual members of the group assess each other on criteria they have agreed upon at the beginning of the project. They are required to do the assessment as well as to discuss it with their team, before filling out a 'lessons learned' form together on both their project presentation and their group process. In addition, each project group is paired with a shadow group that will give them feedback immediately following their presentation. All feedback is framed as a learning opportunity, rather than criticism, creating opportunity for students to support each other through honest feedback throughout the course.

## ***Critical reflection***

Individual as well as group reflection is a core aspect of the course. Students write weekly reflection essays of 2000 words on any topic related to the course which they found meaningful, troublesome, provocative, or in some way worthy of personal reflection. To encourage deeper inquiry, beyond just describing an experience, staff add feedback using written comments. These comments are usually deepening questions, to invite the students to critically examine their own mental models and reflect on their own learning. The essays are not graded but are compulsory. The decision to forego assessment was based on a literature review and professional insights from the staff. A few key concerns were:

- Differences in assessing the level of reflection from one assessor have been found to be so large, that assessing reflection reliably was not feasible (Sumison & Fleet, 1996).
- It was found that it was indeed possible that reflection takes place but is not articulated in the text or that students might master a style of writing that suggest reflection without this actually being the case (Pee, Woodman, Fry & Davenport, 2002)
- There is a personal nature of things brought up in reflection writing and sharing these things with others, especially teachers who will assess this work, might make students uncomfortable or even keep them from reflecting honestly and openly (ibid, p. 583).

- Hargreaves (2003) argues that producing and assessing reflective work are basically two incompatible tasks. Since reflection is a rather personal process it is impossible and not advisable for the teacher to determine an outcome that is to be achieved and then “inspect” whether the student has done so.

As the programme is based on the idea of creating a safe space for the students to take risks and challenge their assumptions, it could be counter-productive to then create a potentially unsafe space by putting a grade on their reflection. The learning objective is specifically phrased as “having practiced” reflection rather than having achieved some specific level of it for this reason.

The other opportunities for reflection are during group dialogue sessions, which are scheduled three times during the course. Here the students and staff reflect together on insights from the readings, course projects, as well as on their implications for sustainability leadership. The two-hour dialogue sessions, framed by an opening question, are intended to deepen and anchor their learning. In this way students can move from collecting new knowledge, challenging their assumptions, reflecting on their perceptions personally and finally collectively converging on new insights.

### ***Opportunity to test new mental models***

Finally, essential to transformational learning is the opportunity to test new mental models. Testing new ideas is natural in a learning environment and since many of the students take a year off from their careers to come to the programme in search of new approaches, one would expect students to find these opportunities regardless of the course design.

Even so, the staff intentionally designs ways for students to test and play with their new mental models. Testing new mental models on a cognitive level might be as simple as an exam question asking students to apply a new mental model to a past event, including reflection on what and why their approach might be different now. One clear opportunity to use these models is in thesis research projects, which immediately follow this course.

Part of the power of transformation relates not only to a cognitive new knowing, but to the implication on personal leadership development and the work that needs to be done for the transformation of society. So how is this intentionally prompted and how is cognitive knowing connected to more practical implications? Where is the opportunity for students to think about how this manifests

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practically? Both reflection essays and dialogue sessions provide places in which staff can pose questions directly such as, “*What implications do these theories and concepts carry for our practical work as sustainability leaders?*” or “*What do we intentionally want to commit to taking forward from this learning and practice over the next few months?*” In that sense, the staff might only indirectly create the grounds for testing by prompting thinking and inquiry, as well as encouraging students to integrate this new understanding into their lives practically.

## **Remaining insights and reflections**

### *The power of meaningful questions*

A theme that resonated through all of the aspects of transformational learning above was the power of meaningful questions. So much about transformation is related to asking simple but powerful questions at the right time and maintaining a safe space for the answers that might emerge. In fact, a powerful question can be a disorienting event in itself. The focus on questions and the ability to ask the right questions at the right time is also a skill incorporated into the course work. The inherent complexity of the sustainability challenge means that leaders often do not know the answers, a situation in which graduates of this programme will find themselves. As life-long learners, perhaps the best thing with which they can be equipped is the ability to ask good questions. Clearly, even the staff might not always have the answer, making it necessary to live in these questions together.

### **Challenges**

The course is not without its challenges from a staff and institutional perspective. First, it is very time and energy intensive. In a climate of academic downsizing, it continues to be hard to argue for why this intensity of input is necessary, as the course does not lend itself to economizing.

The necessity for summative assessment of student work, which implies that on some level there is a right and wrong answer, can be a challenge. This becomes a paradox to hold when at the same time emphasizing that often in complex issues there is no right answer. Biggs and Tang point out in discussing the rationale for assessment that “the two most outstanding reasons are for formative feedback and for summative grading” (2011). There remains the challenge of having to provide a summative grade in the best way to conform with

institutional requirements and to support learning. Summative grades can cause students to focus on grading criteria instead of intended learning (Biggs & Tang, 2011) and hence distract from the formative feedback or undermine the non-judgmental environment. The grading structure tries to reinforce the emphasis on the value of formative feedback by having the task which most closely resembles a traditional summative grading exercise, namely the final exam, be worth less than half the course grade at 40%. Five percent of the total grade comes from individual self-established objectives. 15% comes purely from completion of individual reflection essays giving so as not to distract from the feedback. For the group project 35% is given for the project and presentation and 5% is based on the group's self-established criteria. There is still an opportunity to find an ideal balance of providing grades for completion along with self-established grading schemes and instructor provided grades.

Despite the intentionality put into giving feedback, there is room for improvement particularly noticeable in peer feedback. It remains challenging for students to give honest and relevant feedback to one another. This creates the risk of superficial or overly positive comments which might miss opportunities for deeper learning.

Finally, while creating safe space for students and opportunities that allow them to transform may sound easy on paper, in reality it is messy and sometimes painful, and not always successful in creating a safe space for everyone. Students enter the programme with different expectations and ideas, as well as different interests in or pre-conditions for transformation. The course design is not a recipe that will guarantee transformation for every student. Every year there are students who reject the approach to leadership taken in the programme, some who are not ready to question their mental models in this way, or some who simply do not trust the staff to lead them. This is partially moderated by the fact that the course is an elective and the students who choose to take it do so because they are genuinely interested personal leadership development. However, it continues to be a beautiful challenge every year to attune the course design to the current class, their situation and their needs.

As a closing thought, it remains to be said that the course was never created with the aim to be transformational in this way. The course continues to change every year as the staff continues to learn and grow as leaders in their own right, and while the transformational aspects have become stronger and stronger over the years, sometimes it seems due more to synchronicity than intentionality.

## **Conclusions**

In the context of the Advanced Societal Leadership course, offering both the source of disorientation and support in real time seems to serve the purpose of creating the conditions for students to have transformative learning experiences.

Barrett (2010) argues that there is little evidence of higher academic outcomes that can clearly be attributed to such safe space. This paper does not provide empirical evidence to the contrary. However, it is the authors' experience that the safe space is important, to students' sustainability leadership development and their ability to see complex challenges with a higher awareness of their own thinking and at times even a sense of personal empowerment, regardless of its measurability in learning outcomes. Whether or not this is captured in a grade outcome might actually be irrelevant for sustainability leadership. There is, however, anecdotal evidence of alumni of the programme who felt that the course significantly changed how they go about their work in the world.

In conclusion, the aspects identified in this paper seem to significantly aid in creating conditions for transformation to occur. There may be other factors, which have not been discussed in detail here, as well as others that might surface throughout the next decades of learning in this field. Finally, we would like to acknowledge that there is always a little element of magic present when transformation happens, which cannot be fully captured and described, something also concluded in an earlier paper (Missimer & Connell, 2012).

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## Questions and reflections

1. Comment on the impact of unsustainable behaviour on the degradation of the foundation of human civilisation.
2. Give meaning to the term *paradigm shift*, explaining why it's necessary with respect to increasing human consumption.
3. What paradox can be identified in relation to the predicament of late modernity, citing Havel?
4. In what way is leadership pertinent to this issue?
5. Evaluate the role of education in societal transformation.
6. What types of educational approaches are most appropriate for ecological sustainability?
7. Give meaning to the term *threshold concept* in relation to conflicts in understanding.
8. Give a personal example of when you have encountered a threshold concept represented by troublesome knowledge. How were you able to transform your understanding in order to accommodate this new concept?
9. Explain why double-loop learning is of value in altering our worldview. Cite one example of your own experience of double-loop learning. How was this different from other (single-loop) learning experiences?
10. What could the relationship be between transformative learning and societal transformation?
11. Evaluate the relationship between transformative learning, leadership, and changes in mental models.
12. Why is creating a safe space important for transformative learning?

13. Discuss feedback in relation to learning opportunities.
14. Evaluate the role of self- and group-reflection in helping students to develop their own mental models.
15. Can you give an example from your own experience of how a disorientating or disturbing event has served as the impetus for change in your life?
16. Give four examples of new ways in which you could integrate feedback more meaningfully into your learning process.
17. What role do meaningful questions play in transformative learning?

## **Questions and reflections**

1. Summarize Ateljevic's criticisms of the academy in your own words. In what ways does this criticism resonate with your own experience of higher education?
2. What do you think Ateljevic means by the masculine structure of the university? How does this contribute to oppression? Have you encountered this aspect of the university? How has it affected your learning experience?
3. The critical education scholar, bell hooks, identifies the university as being dominated by "white capitalist patriarchy". Do you think that these sorts of labels are relevant and useful? Does this match your experience of the ideological undercurrents of the university? Do you have a felt sense of the oppressive result of this ideological orientation?
4. What possible solutions might exist to this pervasive ideology of oppression? What active steps can we take to create university which serve an emancipatory purpose? What could you do right now to begin making this change happen?