

Sustainability and Values Assessment in Higher Education

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Education for sustainable development

The challenge of planetary sustainability is an urgent and complex issue for which appropriately trained experts and decision-makers are largely lacking. Higher education has been expanding rapidly in this field across a variety of disciplines including in the natural and social sciences, law, governance, international relations and even business, creating new challenges for assessment. In addition, the concept of sustainability includes an ethical dimension that has traditionally been seen to be difficult to assess. This short chapter reviews some of the complexities of sustainability as a subject for teaching and research in higher education, as well as some preliminary work on possible ways forward in the assessment of its values component.

Education for sustainable development at the university level faces a number of challenges, regardless of the discipline within which it is taught, which spill over into its assessment. The first is to define sustainability. There are multiple definitions, none of which is completely satisfactory. In fact, one of the advantages of the term, at least in a diplomatic context, is that everyone can read into it what they want, and that makes it easier to reach agreement. But what is a diplomatic advantage can be an assessment nightmare. How do you assess the understanding of a concept that is defined so loosely?

When the term sustainable development is used, it is also then necessary to have some common understanding also of what constitutes 'development'. Is it the 20th-century concept of helping the 'underdeveloped countries' to rise out of poverty and become modern economies? Does it only refer to economic development, as is commonly understood, or are there other dimensions to development? Does development equal growth? In the latter case, is development antithetical to sustainability, which can imply achieving a steady state, or even 'de-growth' for over-consuming societies? For many, the term sustainable development can constitute a contradiction in terms.

Despite these terminological and conceptual challenges, we have under way a UN Decade of Education for Sustainable Development (2004–2014), and many educational programmes at all levels. At the primary and secondary levels of education, the focus is more on education for environmental responsibility, sustainable consumption and responsible living. At the tertiary level, not only does teacher training need to include sustainable development education, but there are all the disciplines from scientific and technical to high-level decision-making that require education in the relevant understanding and skills necessary to achieve sustainable societies. Agreeing on the content to be taught and the capabilities and competencies to be developed and then assessed is a challenge because of the diversity of approaches and requirements. Nevertheless, it is possible to identify some key components of any higher education programme in sustainability.

Sustainability

Sustainability requires a systems perspective, providing an overview of how all the parts of the human and natural systems of the planet fit together and interact, and identifying the emergent properties of such complex systems, where the whole is more than the sum of the parts. The geographical spread is from local to global. Sustainability also requires a long-term view, since the range of time frames goes from the quarterly report in the corporation and the two- to five-year electoral cycle for politicians to decadal changes in the climate system and even processes operating on geological time scales. There may be great inertia in the large-scale systems that stretch out the time between cause and effect, or that link impacts across the planet. Sustainability challenges run across all of these scales in time and space.

Sustainability is also about dynamic processes, not a target to be reached but a balance to be maintained in space and over time (Dahl, 1996). It is traditionally defined as including economic, social and environmental dimensions, but many also add an additional dimension that can include institutional, cultural and/or ethical factors. Too often these dimensions (or pillars) have been treated separately and additively, with the environmental dimension dominant for scientists, and the economic dimension given the most weight by economists and politicians. In academia, as in government, it has been hard to break down the barriers between disciplines, and to get economists, for example, to collaborate with environmental scientists. Increasingly, however, it is acknowledged that sustainability in policy and action can only be obtained by integrating all the dimensions, and this is one of the challenges that has been set by the United Nations Conference on Sustainable Development (Rio+20) in Rio de Janeiro in June 2012 (United Nations, 2012).

Values and sustainability

Despite at least 40 years of international policy-making and action on sustainable development (even before the term was coined, when it was still called ecodevelopment), the world has continued on an increasingly unsustainable path. What are we missing? Most sustainable development education has emphasized scientific knowledge of the bio-geo-chemical systems of the planetary biosphere, and intellectual knowledge of the human economic and social systems and their challenges. But it is obvious in many contexts that intellectual understanding does not easily lead to changes in behaviour or lifestyle. Education also has to work at the level of motivation and emotional commitment, and this is more difficult both to implement and to assess. This may require challenging a person's basic assumptions and culturally determined preconceptions, for instance whether humans are naturally and inevitably aggressive and competitive, or whether education can bring out a higher potential for altruistic and cooperative behaviour (Karlberg, 2004; Novak and Highfield, 2011; Wilson, 2012).

Fundamental to this is an acknowledgement that sustainability is an ethical concept, aiming for justice and equity for all humanity at present and for future generations. The Brundtland Commission definition explicitly gives absolute priority to the elimination of poverty (WCED, 1987). Values, beliefs and ethics are a key driver for successful education for sustainability. Values make it possible to judge behaviour that benefits society. The individual operates on a spectrum from egotistical to altruistic, infantile to mature, base impulses to cooperative. In society this is expressed as power-hungry, seeking status and social dominance, versus conscientious, egalitarian, communitarian (Shetty, 2009). The latter values generally contribute to greater social good and higher integration. More than a decade ago the World Summit on Sustainable Development acknowledged the importance of ethics to sustainability in its programme of implementation (United Nations, 2002, para. 6). The

question then is how to incorporate values into sustainable development education and assessment.

Values-based assessment tools

There has been extensive work on indicators of sustainability across its environmental, economic and social dimensions (Hak et al., 2007), but little to extend these assessment tools to cover the ethical foundations for achieving sustainability (Dahl, 2012).

To respond to this need, a European Union FP7-funded research project in 2009–2011 explored the development of indicators and assessment tools for civil society organization projects promoting values-based education for sustainable development (Podger et al., 2010; Burford et al., 2013; Podger et al., 2013). It brought together academic researchers from the University of Brighton (UK) and Charles University Environment Centre (Czech Republic) together with the Alliance of Religions and Conservation (ARC, UK), the Earth Charter Initiative (Sweden/Costa Rica), the European Bahá'í Business Forum (EBBF), and People's Theatre (Germany), with the collaboration of the International Federation of Red Cross/Red Crescent Societies (IFRC). These organizations are all involved in education at the level of values and ethics. The project looked for indicators that could measure the changes brought through these educational activities, and thus make values-based change more tangible. It was important that the project was led by the partner organizations, not the researchers, to avoid any imposition of a particular set of values. The organizations defined what values were important to them and what they wanted to measure, such as implementing values or spiritual principles. The researchers then helped to define assessment methodologies and indicators for the organizations to select and test in their projects, followed by a joint evaluation and sharing of experience. The indicators that were developed and tested were then shared more widely, leading to a final conference in December 2011 presenting the results of the project (ESDinds, 2011).

There were two major outcomes of the project. First, it helped the organizations to crystallize their own values. Some were explicit values in their charter or mission statement, others were implicit and only revealed through interviews with staff and participants. The researchers also reviewed different approaches to the definition and classification of values in the academic literature. Hundreds of terms for values were identified, but with little consistency, with wide variations in usage across different organizational contexts and disciplines, and difficulties in controlling for cultural bias. The project therefore adopted an empirical approach, letting each organization define its own values using terms that were meaningful in their own context. This process provided each organization with a common values vocabulary that it could use in its own activities, and ensured internal consistency within each assessment case study.

The project then selected a few broad values: unity in diversity, trust/trustworthiness, justice, empowerment, integrity, and respect for the community of life (the environment). These abstract concepts were not themselves directly measurable, but there was wide agreement on how they were expressed in various situations, such as in interactions among members of a group, attitudes or feelings expressed by individuals, or actions undertaken in implementation of a value. For example, within the general theme of trust and trustworthiness, 12 indicators were identified that reflected an atmosphere of trust (such as a safe space for sharing feelings or opinions, lack of gossip or back-biting, treating others with respect), a further 14 indicators covered the perception and presence of trust, 16 expressed actions that build and maintain trust, and 15 related to living by ethical principles as a foundation for trust.

The project narrowed down the lists to a common set of 166 indicators for attitudes or behaviours that reflected these values, as defined within the organizations, such as ‘everyone has their place in the team’, ‘conflicts are resolved through dialogue’, ‘work is viewed as a form of service’, or ‘decision-making takes into account the social, economic and environmental needs of future generations’ (ESDinds, 2012). These indicators had more general relevance than the vocabularies for values used in the different organizations and communities of practice. The same indicator might be useful for more than one value, or might measure what was expressed as different values in distinct organizational contexts. What was important was that the indicators as selected by the users were understood consistently within a particular project or organization.

A variety of measurement techniques were identified for use in the field. Some imagination was required to find techniques that were appropriate for indigenous school children in Mexico, former child soldiers in Sierra Leone, university students or business executives. Usually a combination of indicators and methods allowed for some cross-checking for consistency in results.

The indicators were tested in a wide variety of case studies as proof of concept: with the University of Guanajuato, Mexico (Earth Charter); Youth as Agents of Behavioural Change, Sierra Leone (Red Cross); Echeri Consultores, Mexico (Earth Charter); Lush Cosmetics, Italy (EBBF); People’s Theatre, Germany; a Muslim women’s group, London (ARC); and a financial services company, Luxembourg (EBBF) (ESDinds, 2012; Burford et al., 2013). The university project is particularly relevant to assessment in higher education, and will be used as an example here (based on ESDinds, 2010 and Burford et al., 2013).

Guanajuato University case study

The Environmental Institutional Programme of Guanajuato University (PIMAUG) is a cross-faculty initiative structured around six strategic areas:

1. Assisting students to develop a holistic vision of the environment;
2. Promoting sustainable resource use and waste management;
3. Diffusion of a culture of environmental awareness through a variety of media;
4. Interdisciplinary research;
5. Training in environmental issues through diplomas and master’s programmes;
6. Social participation and inter-institutional partnership.

PIMAUG has a peer education programme in which Guanajuato University students train to run workshops inspired by the Earth Charter for the other students. It sponsors and coordinates a number of groups, such as the responsible consumer student group, the waste recycling student group, the habitat student group (dedicated to reforestation), and the group of staff coordinators of the environmental management system in each administrative and academic unit. Many of the students who participate in these programmes do so as part of the compulsory service element of their courses, for which they gain university credits, while others do so solely out of a desire to volunteer.

The university team was asked to review the full list of indicators (ESDinds, 2012) to determine which were seen as being relevant for the work they were doing. All 14 draft indicators for *Empowerment* and all 11 for *Trust* were validated as relevant by the PIMAUG group. Also validated as relevant were 6 of the 19 draft indicators for *Integrity*, 6 of the 8 draft indicators for *Justice*, 9 of the 12 draft indicators for *Unity in Diversity*, and 10 of the 79

draft indicators for the value of *Care and Respect for the Community of Life*. Only one indicator from the *Care and Respect for the Community of Life* value cluster and nine *Empowerment* indicators (three head indicators and six sub-indicators) were taken forward to the assessment stage in the pilot project.

The following indicators were selected for assessment in the project:

- People/partners become aware of how their existing knowledge, skills, networks, resources and traditions can contribute to the project/organization/team. Their contribution is encouraged, and people/partners feel that their talents, ideas and skills have contributed to the outcomes of the project/organization/team.
- Workshop facilitators and participants are given autonomy and trust to fulfil responsibilities, at the same time receiving encouragement and support.
- Workshop participants are encouraged to express their opinion.
- The organization/team aims to provide all, especially children and youth, with educational opportunities that empower them to contribute actively to sustainable development.
- Individuals feel they are encouraged to reach their potential, and are provided with opportunities for personal growth.
- Individuals (a) develop programmes and deliver solutions on their own, and (b) have a sense of power that they can effect change.
- Work is viewed as a form of service (to the well-being and prosperity of all creation).
- People are given the opportunity to explore and reflect upon their own ideas and traditions, and then to develop their own vision and goals.
- People have identified their own responses to an issue, rather than just agreeing with the ideas of others.
- The project's activities/events produce an emotional connection to the community of life in participants.

A variety of assessment tools were used to collect data on the indicators, including:

- spatial and corporal surveys;
- semi-structured non-participative observation;
- focus group discussions;
- personal action plans;
- word elicitation – What/Why grid;
- key informant interviews.

The results fed back immediately into the work of the university team, with considerable impact.

As the university staff described it, the Earth Charter (ECI, 2000), which is a central focus of their work on sustainability values, is about transforming values into action. This is at the heart of the university's mission. The university already has good environmental measures, but there had been no way to assess the deeper dimension of the Earth Charter vision, and the degree to which its values were present and transformative. The selected indicators provided a way. They articulated deeply held aspirations and priorities which had not previously received systematic attention.

The PIMAUG team members found that the very act of reflecting on the indicators – even before associating them with specific assessment tools – allowed them to envisage new

connections between their current activities, potential new areas of work that could be developed, and strategic decisions that they would like to take. The results of the assessment were also useful to PIMAUG in helping them to understand the efficacy of their workshops, identifying the factors involved in genuine empowerment, and providing insights into how motivation could be translated into effective action.

The culture of PIMAUG experienced a change through the assessment project. The Earth Charter workshop leaders reported a greater sense of effectiveness as a result of a clearer and more precise focus on values in their workshop delivery. The personal impact of the indicators affected how a manager dealt with conflict, and generated a much more participatory approach in her work with volunteers. The unit developed a greater unity of vision, and participants in the focus group discussions reported having reconnected or been re-inspired in their work. Integrating the indicators into regular evaluation increased group insight into their own application of values and led to understanding success in terms of values in a practical way.

The ESDinds project concluded with an international conference, ‘Making the Invisible Visible: An Emerging Community of Practice in Indicators, Sustainability and Values’ (16–18 December 2010, University of Brighton, UK), to present the results of the project to a wider audience, including educators, businesses, civil society organizations and social enterprises (ESDinds, 2011).

Implications for assessment in higher education

Sustainability education should aim to create an understanding of systems processes, both in the natural systems that determine planetary capacities and limits, and in the human systems that need to be managed to achieve sustainability. For the latter, ethical perspectives are an important part of human decision-making and choices of behaviour. The morality of sustainability (what is right or wrong) can have scientific dimensions (releasing carbon from fossil fuels into the atmosphere will acidify the oceans and destroy coral reefs) and humanistic/religious/spiritual dimensions (do unto others as you would have others do unto you). The science helps to provide a bridge between the abstract moral imperative and specific responses in terms of policy (for organizations) and behaviour (for individuals). The ethical dimension is one with high leverage. Behaviour driven by an internal ethical motivation will have a wider and more lasting impact than behaviour imposed by laws or regulations, and is much more cost-effective. These are strong reasons to include this dimension as a specific focus in educational programmes at all levels, hence the importance of assessment of educational results in terms of ethics and values.

Many universities are trying to ‘green’ their campuses and operations in an effort to show that they practise what they teach, and to attract motivated students. But that is only the material reflection of what should be a much deeper level of institutional and individual commitment to and transformation towards a sustainable future. Periodic surveys including values-based indicators could document evolving attitudes and behaviours among staff and students, and identify gaps requiring focused attention. As faculty across all disciplines come to understand the implications of the sustainability challenge for their fields, they will naturally begin to reflect this in their course design, and in interdisciplinary collaboration. The act of measurement itself, and the accompanying dialogue, creates an awareness of values and leads to their cultivation and application. This was apparent even in an ethically oriented university sustainability programme such as the case study cited above.

Student assessment in specific courses can also include dimensions beyond the simple assimilation of facts. Have the students acquired the tools of systems thinking in terms of

processes and dynamic balance? Do they understand the complex interplay of natural and human systems, the risks of ignoring instabilities and tipping points, and the areas of leverage in human systems for maximum effect? Have they themselves formulated their own ethics of sustainability, which will be reflected throughout their lives? Has their education empowered and motivated them to use their newly developed potential to help solve some aspect of the sustainability challenge in their own field of endeavour? These are the kinds of questions that courses should address and that student assessment tools should aim to answer.

The experience acquired to date, including a decade of teaching sustainable development in higher education, suggests that including a values-based component raises the quality and impact of the educational process. The response, whether with graduate students or mid-career professionals in advanced studies, tends to be very positive. It helps to make what can be a large-scale, even depressing and de-motivating theme more immediately accessible and relevant at a human level, and suggests positive avenues forward.

Conclusions

This preliminary effort to assess the values dimension of education for sustainability has demonstrated that measuring behaviours or feelings linked to values in a scientifically valid way is possible. By agreeing to a common values interpretation within a programme or organization, the tracking measurements used can be given greater internal consistency and validity, generating indicators that can show the state of values or their change over time.

Indicators can make the values in a programme or educational activity more visible. When something can be measured, it becomes important. Values development can then be consciously encouraged or cultivated, making a programme or course more values-driven. Strong values are linked to more effective outcomes, so all human activity can benefit from stronger values.

The project discussed in this chapter used a variety of measurement methodologies that are sufficiently flexible to adapt to most situations (Burford et al., 2013). The approach can incorporate almost any values framework, as it is not prescriptive. The case studies showed that measuring desirable behaviours and values becomes positively reinforcing, and the partners are continuing to use the indicators in their work.

In higher education, it is clear that there is great potential to increase the values content of education for sustainable development, and to assess it in effective ways, both as the values are internalized in each student, and as they are externalized in programmes and activities. There is still considerable scope to develop practical assessment tools and procedures for use at larger scales than the small group or project activities used for the pilot projects.

With the explosion of sustainability challenges arising from climate change through food security to restoring social cohesion and transforming the economy, institutions of higher education need to be anticipating new careers and preparing students for them. In many cases, this will require overcoming disciplinary boundaries, and providing training that balances specialization and generalization. A values component will be essential in this, and new assessment approaches of the kind described here will help to put these new educational and research programmes on a sound footing.

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