

Tertiary or Terminal: A Snapshot of Sustainability Education in Australia's Universities

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Abstract

Since the early 1990s the concepts of environmental education and education for sustainability have been acknowledged by many tertiary institutions. So, an indication of the effectiveness of sustainability education is to consider the extent to which it has been introduced. An appreciable number of universities world-wide have signed agreements that, at least in part, make them responsible for changing their curricula so that students in all disciplines will be educated about sustainability. In Australia several of the institutions of higher education have signed the Talloires Declaration, yet recent surveys of the Australian institutions show little indication that their curricula has been changed to include sustainability education. It appears that while there is wide-spread support for the idea of students being educated in sustainability, there is little progress on its implementation. Royal Melbourne Institute of Technology (RMIT) University (Australia) is a case in point and is used to outline the issues associated with large-scale curriculum change in a complex organisation. The experience suggests that those concerned about education and environment/sustainability need more than conviction and a vision to bring about change. A strategic approach, based on change management in organisations supported with staff development, is needed to implement these sorts of change.

The Context for Green Curriculum

There is clear justification for sustainability education for all students in tertiary institutions.

The general community has identified the need to take account of the impacts of our activities on the environment, as is apparent in 'Caring for the Earth: A Strategy for Sustainable Living' (IUCN/UNEP/WWF, 1991) and the United Nation's Agenda 21. Equally, the business community and professional associations see the need to take better care of the environment (for example Barbera, 1994; Cairncross, 1995; Royal Australian Institute of Architecture, 1995; and Schmidheiny, 1994). Clearly there is a rationale, and need, for graduates to develop 'literacy' in sustainability as part of their tertiary education.

Many students already have a broad environmental awareness when they come to tertiary institutions (Ridener, 1997), although this does not necessarily give them the ability to assess environmental issues and take action on them. To a degree, this deficiency is redressed by the incidence of specialised tertiary environmental programs, which is high and has been increasing (Cosgrove and Thomas, 1996; Wolfe, 2001). However, there have been calls for a better coverage of environmental matters, through the various conservation strategies, and sustainable development processes, that have emphasised the need for environmental education to have a higher profile at tertiary institutions (Victorian Government, 1987; Commonwealth of Australia, 1994). Specifically, policies for the development of environmental education at universities have been developed by the Australian Government, and some states (Environment Australia, 2000, NSW, 2002, Victoria, 1992). Despite this history, in 1998 the President of the Australian Association for Environmental Education was moved to reiterate the need for the development of environmental literacy:

"Universities need to find the ingenuity to blend all the disciplines so that we will increasingly see schools of business and economics teaching environmental awareness and education. ... If we continue to produce lawyers, business people, teachers, doctors, politicians, and other graduates while failing to create in them a high degree of environmental literacy, a university is not fulfilling the obligations it has to society." (Dingle, 1998; 3-4)

Nonetheless, some graduates have been receiving an environmental literacy through the specialised environmental programs, such as environmental science, environmental engineering, and environmental studies. However, these programs are often based in a single discipline, and are not intended to aid development of sustainability education for all students. Consequently, apart from the occasional course/subject that is often an elective, most tertiary students have few opportunities to participate in environmental education. Yet this is happening at a time when there is a growing interest in the need for environmental, and sustainability, literacy of all the graduates of tertiary institutions.

There has been increasing support from across the community for the implementation of environmental literacy and in universities (Thomas et al: 1999). At the international level this movement has been facilitated by the development of several initiatives aimed at the tertiary sector, (Kliucininkas, 2001; ULSD, 2001). Particularly well recognised is the Talloires Declaration which, according to University Leaders for Sustainable Development (2003) has been signed by over 290 institutions from 47 countries across five continents.

Importantly the institutions that sign this declaration commit themselves to operational activities and curriculum initiatives that lead to sustainable development.

There has been much discussion about the meaning of sustainability education: this issue is covered in Filho (2000); Thomas et.al. (1999) and (2000). In Orr's (1992) words, 'education for sustainability', contains several aspects:

- the need to accept the probability of survival of our species
- an attitude of care or stewardship - particularly an "...uncompromising commitment to life and its preservation" (p133)
- the knowledge necessary to comprehend inter-relatedness, of "...disciplines and of the disparate parts of personality: intellect, hands, heart" (p137);
- the practical competence required to act on the basis of knowledge and feeling.

These key elements are also the basis of environmental education, expressed in its broad sense, and of environmental literacy (Thomas et.al., 2000). Importantly, specifically related to the element of 'heart', recent discussion relating to education 'for sustainability' indicates the need for a focus on values and environmentally ethical activity to be an integrated component of the curricula (Sterling, 1996).

To achieve this literacy and environmental understanding the broad pedagogical models for the incorporation of have been worked out. As identified by Dyer (1996) and Woods (1994) they are, in summary:

- the inclusion of the coverage of some environmental issues and material in an existing course of the program;
- having a separate course that deals specifically with environmental matters;
- integrating environmental issues and discussion into all courses so that environmental understanding is developed in the context of the discipline, the program, and the course material.

In programs where there has been an attempt to introduce environmental discussion the first two approaches appear to have been used, while the latter has usually been reserved for the specialist environmental programs; although Klaschka (2001), in arguing for the adoption of sustainability education, also argues for the integration of environmental understanding in science programs. The advantage of the subject/course-based approaches is that they are relatively easy to introduce, provided staff feel comfortable about working outside the strict boundaries of their disciplines. The disadvantage is that students can interpret the environmental material, and its messages, to be 'in addition' to their core (disciplinary) studies, and therefore not as important.

To support these models, curriculum structures and materials are required. These materials are readily available (for example Alvarez and Kyle, 1998; and Second Nature, 2002), however, they do not seem to have been widely used. We can speculate on the reasons for this. For example, the key issues may be academics' limited knowledge of the availability of these materials, how to use them, and why their engagement with sustainability education is important.

Even with the flexibility of curriculum models and the availability of support materials, we still see little indication that the majority of graduates have the sort of education, or literacy, outlined by Orr (above). Consequently, from this point I will focus on some institutional issues that could be inhibiting curriculum change, and how they may be

overcome. I briefly consider the results of recent surveys to assess the extent of sustainability education, with a focus on Australia, and the barriers to curriculum change. Then I discuss the key areas that need working on to assist the expansion of a green curriculum.

The Extent of Green Curriculum in Australian Universities

A recent survey of Australian tertiary institutions by Carpenter and Meehan (2002), with a low response rate of ten, indicated that for the majority of universities environmental management was not a key activity. For most of the institutions, the specific teaching and research activities of the universities were connected to environmental principles. However, at a deeper level, only one made a specific reference to 'greening' the curriculum.

A parallel but unrelated survey with responses from 21 institutions (slightly more than a third of all the Australian institutions) found considerable confusion over the concept of sustainability education (Thomas and Nicita, 2003). In part this may have been associated with Filho's (2000) observation that the concepts of sustainability and sustainable development are contested. His investigations indicated that people in the institutions sampled in his study thought:

- sustainability is too abstract, or too broad
- institutions have no personnel to deal with sustainability
- sustainability demands substantial resources that institutions either do not have or can not justify
- sustainability lacks a scientific basis.

Nonetheless, at the time of our survey in late 2000, the majority of responding institutions said education related to sustainability was covered in their curricula. This is a good start, however, only a small minority replied that sustainability education was included in all disciplines. The results indicated there was a general appreciation that sustainability education has a clear place in tertiary curricula, but only a handful of Australian institutions had done so or were working to that point. This was a different picture compared with the number that was including sustainability education in the curricula of specific departments or disciplines.

Subsequently, a web-based survey and a written questionnaire survey was conducted by Bekessy and Burgman (2001) to gain an understanding of the environmental practice in Australian universities and a selection of international universities. They specifically sought information about the institutions' operations and curricula and concluded "that most universities in Australia and elsewhere in the world have moved significantly towards sustainable practices in recent years." (p2). Regarding the curriculum, a slight majority of Australian institutions responded that the extent to which courses addressing sustainability within their institution was either 'quite a bit' or 'a great deal'. Responses related to the integration of environmental knowledge, values and ideas into courses across institutions, however, indicated that participation was at a low level; less than a quarter indicated 'quite a bit' or 'a great deal'. If the confusion that was apparent in the 2000 survey (above) still exists, this level of participation could be even smaller. Further, as an adjunct to the limited curricula coverage of sustainability, Bekessy and Burgman (2001) found that funding to students or departments, as an incentive to take or offer environmental studies, was generally low.

Little has changed over the past 2-3 years. While the number of Australian universities signing the Talloires Declaration has increased to eight (of a total of 38), even those that have signed this Declaration do not publicly indicate an interest in green curriculum. A survey of the universities' web sites in mid 2003 showed that few are taking action to improve the environmental management of their operations, while interest in a green curriculum that is across disciplines and the university is even less evident. The survey results are based on what the universities have emphasised on their 'home pages', and by searching for publicly displayed information using the key words 'green', 'environment' and 'sustainability'. Encouragingly the results show that well over half the universities offer subjects/courses related to environmental literacy, even if there is not an overall green curriculum for the university. Also about half indicate that there are staff members interested in environment/sustainability, and that related projects and activities have been undertaken. Importantly the University of New South Wales has indicated its support for a green curriculum (across the university) by making available a booklet 'Education for sustainability' for use in many discipline areas, and the University of Newcastle has a 'Sustainability Teaching Grant' to encourage curriculum development.

The results also indicate that the term 'sustainability' has been incorporated into the activities of most universities. However, there is little indication that the underlying principles of sustainability have been understood or implemented. Rather, 'sustainability' is likely to be used to promote a different idea. As an example, in 2002 RMIT released 'Dissolving the Boundaries: Building a Sustainable RMIT, Strategic Plan and Direction to 2006'. The web site for 'A Sustainable RMIT' notes that:

"RMIT University is committed to building a socially, economically, culturally and environmentally sustainable organisation which continues to serve the people, businesses and organisations in all the communities in which we operate, according to their needs and aspirations."

However, the emphasis in the strategy is on 'Building a Sustainable RMIT' for economic outcomes. Environmental matters are barely acknowledged.

Clearly the results of these recent surveys indicate that the adoption of sustainability education, that will empower all tertiary students in Australia, is at a low level. This suggests there are still substantial barriers evident in the Australian tertiary system, and it is more than possible these barriers are also operating at institutions internationally.

Experiences at RMIT University

Since 1996 two attempts have been made to introduce sustainability education at RMIT. The first used the 'lever' of interesting staff in the coverage of waste minimisation (see Thomas et.al., 1999). On the basis of working with the staff of four programs of different disciplines and involving three faculties, a strategy for introducing curriculum change was developed. This strategy did not include the development of specific materials, as it was apparent that staff who were generally interested in waste did not find difficulty gaining access to relevant materials. Rather, it focused on working with the supports provided by the institutional (RMIT), educational, and professional/industry contexts, and establishing a process to work with staff and students. The outcome was that, without the resources to support staff and pursue the strategy across the institution the initiative has languished. However, using the waste minimisation study as a guide, a modest study of the development of environmental literacy within three programs, based in one multidisciplinary faculty, was attempted. The report of the project concluded:

"The Environmental Literacy Project demonstrated that the "diffusion model", in which already committed individuals are expected to change the entire culture of departments from the bottom up, is not going to work. What is also required, if RMIT is to fulfil the commitments it has made by signing the Talloires Declaration, is active leadership from the top, a new approach to staff development, and adequate resources to allow staff to integrate environmental content into their teaching material." (Findlay and Thomas, 2000; 8)

Again the initiative lapsed for want of sustained motivation for the staff involved. In both cases there was enthusiasm from the staff who were directly involved, but no opportunities were provided to expand that enthusiasm to the other staff of the programs through staff training/development. As a consequence the motivated staff were quickly caught up in the day-to-day demands of their programs. Even though the opportunity to broaden the curricula of the programs to include waste minimisation and to develop broader environmental literacy were not taken, some staff involved in the two studies did take the concepts into their own teaching and courses.

Development and Delivery of Sustainability Education Across the University

There are four main stages to achieve the conversion to a green curriculum:

1. Acceptance of the need to change the curriculum – this need has been demonstrated above
2. Access to information to be included in the green curriculum - if academics do not have access to information, they will not be able to include it in their teaching. However, there is no shortage of information from academic and popular sources.
3. Access to the educational ideas and models that enable the environmental topics to be presented in the context of environmental education - yet, examples of curriculum design are available to help academics through publications (eg. Institute of Environmental Studies, 1999) and web sites (University of New South Wales (2003), Second Nature (2002))
4. Processes for helping the academics to change themselves, and their curricula – this is where we have stalled.

Barriers to Change: general experience

In some situations Alabaster and Blair (1996; 98) may be correct when they suggest that academic staff are "...often ideologically resistant to curriculum changes that emanate from outside the bounds of their discipline." However, from my experience most academics have expressed strong interest in sustainability education. Presumably, other considerations dissuaded them from developing this focus in their teaching. For instance, in the opinion of Cowell et.al. (1998) resistance to change can come from structural constraints, such as the financial and administrative difficulties of developing cross-departmental (usually cross disciplinary) initiatives. These authors have also identified many pressures faced by individual academics in an institution. Together with my observations of RMIT academics these pressures lead to a substantial list of barriers to change (Thomas et.al., 1999). Similarly, Dahle and Neumayer (2001) summarised the

factors they felt act as barriers to tertiary institutions actively implementing green actions as:

- a fundamental lack of interest and commitment towards green initiatives among administrators, staff and students
- a lack of financial resources and environmental education within the campus community (also identified by Kliucininkas, 2001)
- the organisational structures and the predominating culture of the university preventing the introduction of greening initiatives
- the lack of expertise, the lack of tradition
- a long period before the benefits of the efforts of change are seen
- a general lack of incentives and information on environmental issues
- misconceptions related to the topic 'sustainability'.

They also drew attention to: the need for institutions to have staff trained and competent in sustainable development; the need for all students to be provided with relevant sustainable development learning opportunities; and to the role of the 'campus culture' as being another key barrier to undertaking environmental initiatives.

In a recent review of experience in universities, Filho and Wright (2002) have grouped these barriers into the following categories: governance issues; issues of advocacy and leadership; communication; economic challenges; and policy inadequacy. The common threads coming from all these experiences can be summarised as:

- a lack of a culture that gives value or priority to greening/sustainability
- a lack of organisational and resource support for staff
- a lack of training for academic staff.

While the first two points may be in place, it is the last point that signified how committed an organisation is to curriculum change. This is emphasised by Rowe (2002: 86-87):

"... professional development opportunities for faculty seem to be a key component for success. Professional development is needed for faculty to learn about sustainability, to develop and refine their course revisions and to share and learn from each others' attempts these concepts into their courses."

Staff Development/Training

The importance of staff training, to develop awareness and the ability to incorporate sustainability education into curricula, also relates closely to the broader issue of an institution's culture and behaviour change. Specifically, for Lynton and Pareek (2000), training of staff is a fundamental aspect of the process of organisational change. Clearly training is very much part of the range of issues relate to Atkinson's point about facilitating change.

With a focus on universities, Dahle and Neumayer (2001) believe that the most important action for reducing barriers to these institutions adopting green approaches is to raise environmental awareness within their communities. In particular they see the need to help staff and students understand the benefits and importance of engaging with green practices. For staff development programs there have been many suggestions related to the details of the training component of an institutional change strategy. For instance, proposals from Filho (2000) include:

- in-service training on matters related to sustainability
- using working groups to identify and implement specific projects;
- developing networks within and across institutions to exchange ideas and experiences.

Similarly, Bird (1996) has outlined the training elements that levels of staff need, and suggests how the training could be delivered. A different approach comes from Wemmenhove and de Groot (2001) who emphasised the issue of student-activating approaches to teaching for sustainability.

Some universities provide staff training so there are experiences that we can draw on. For example Chameau (1999) outlines the strategies that Georgia Institute of Technology have developed to expand the capabilities of its academic staff members, so that they can establish close connections between learning in the classroom and the discovery that comes from research and practice in the environmental management of the campus. (See also Creighton (1998) and Kliucininkas (2001)). There is no shortage of suggestions and examples for how staff development can be undertaken. The deficiency seems to be the inability of universities to accept the need for these programs, and especially to implement them.

Overview

We have many reasons, from government, business and the community, to ensure that all students participate in green education. We already have a lot of material to guide us in this, as generally we have concentrated on the 'low hanging fruit' – assembling information about environmental issues (and social and economic issues); producing curriculum materials, and developing examples of sustainability courses. These have been essential stages.

However, in most institutions, currently we do not have the commitment to the curriculum and organisational change needed. To implement a green curriculum we need support from the top managers of the institution, and staff development (for awareness and support in the development of the detailed curricula. So we now have the much harder task of altering the system that directs curriculum; that is the institutions themselves.

Note

Parts of this paper use material presented in

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(the proceedings are available at <http://www.rhodes.ac.za/environment/>)

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