Sustainability in
the Curriculum Project

Macquarie University

Contents

Foreword

This booklet is a collaborative effort. It was supported by a small amount of funding from the Macquarie Learning and Teaching Competitive Grants awarded by the Provost in 2008-09. Based on an original idea by Wendy Goldstein from the Graduate School of the Environment and in discussion with Leanne Denby from the Sustainability Office, a plan was devised to obtain views about sustainability in the curriculum from various areas of the Macquarie campus. These are presented in the form of five short papers making up section 2 of this publication. Much of the contextual work and organisation was done by Mary Lynne Pidcock from *Transition* – a business consultancy with a focus on sustainable futures; the editing was completed by Alison Cameron from the Learning and Teaching Centre; Ian Solomonides was the original grant holder.

Sustainability, particularly environmental sustainability and sustainable development, has never been higher on national and international political agendas. In turn, Macquarie University, in fulfilling its social and humanist obligations ,should attempt to develop graduates who have capabilities aligned with the principles of sustainability. Section 1 introduces the reader to some of the principles of sustainability which include *environmental protection, social justice, economic well-being,* and *diversity.* The section then explores the contexts for sustainability in education and focuses on the place of sustainability in the strategic direction of the University.

Section 2 presents a collection of papers from authors around the University. The first paper by Peter Petocz from the Faculty of Science suggests that despite the overwhelming drivers and imperatives, sustainability is somewhat marginalised in the curriculum. This is in part due to the understandings different stakeholders have of the concept. Peter explores these understandings from the point of view of students and teachers and argues that in building capability for sustainability we need an integrated approach with sustainability understood as justice. As such it needs to move beyond a few interested academics.

Grant Jones from the Graduate School of Management describes curriculum development work under the Institute for Sustainable Leadership and the emergence of the first Masters degree in Australia with a focus on sustainable leadership. Taking an action research methodology the curriculum development work was itself a learning experience for the teachers concerned, enabling *interconnectivity* and *futurist thinking* – both important components of sustainable leadership. Grant concludes by pointing out that '... *because business has the capacity and dynamism to be entrepreneurial, then one focus for that entrepreneurship would be to develop a wider sense of responsibility.'*

Verna Rieschild from the Faculty of Human Sciences applies her linguistic expertise to the metaphors we hear about sustainability before turning her attention to the curriculum, suggesting that the syllabus as a curriculum instrument is critical in setting the scene and tone for authentic student learning. In order to make the most of this and to act sustainably we need to incorporate more holistic approaches to developing content and agency in the curriculum. Through a more reflective approach to teaching and learning we may be able to incorporate a number of competences for sustainability if we are not doing so already.

Stephen Chen from the Faculty of Finance, Business and Economics offers advice for those wanting to incorporate sustainability into the curriculum and outlines two choices: theory centred or issue centred. As a case study he describes a course in Michigan in the USA, highlighting some of the contextual factors at play, before looking at three generic pedagogic issues that should be considered in the sustainable curriculum: *theory, teaching practice,* and *resources.*

In the final paper from Faculty colleagues, Erika Techera from the Faculty of Arts reflects on curriculum review and reform and suggests that, despite statements encouraging the develop of sustainability as a graduate capability, this will only happen if sustainability is embedded across a wide range of units. Whilst all Faculties have a rich and varied range of disciplines through which sustainability might find a focus, '… *the challenge is to retain flexibility in the concept whilst incorporating content and methodologies in our teaching and learning.'* Erika finishes by pointing out that the promotion of sustainability and its integration into education is a positive challenge for us all to face and act on.

The booklet concludes with references from the chapters and a set of links to other resources that the reader may find useful.

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Section 1: Setting the Scene

Introduction: Why 'Sustainability'?

The Graduate Capabilities Framework at Macquarie University includes 'sustainability' as one of its four guiding principles. Students who study at Macquarie will be expected to demonstrate the graduate capabilities that relate to this principle: a commitment to continuous learning, creativity and innovation, and being socially and environmentally active and responsible (Macquarie University, n.d. b).

Sustainability is best understood within the context of Sustainable Development and was first defined by the World Commission on Environment and Development (1987) as follows:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs

There are many ways that sustainability can be further clarified. For the purposes of this document and to frame the discussion which it is intended to elicit, the following definition accepted by Macquarie University is used.

Sustainability aims for a balance between the principles of:

- **Environmental protection:** To the best of our abilities, negate the impact of our activities upon the environment to maintain or enhance the integrity, quality and quantity of existing biodiversity. This includes ensuring efficient use of resources.

- **Social justice**: Provide the opportunity for equal employment, decent living and working conditions. Further consolidate the efforts of the international community in poverty eradication, promotion of full employment and decent work, gender equity and access to social well-being and justice for all (United Nations, 2007; cited in Denby, 2009).

- **Economic well-being:** Recognised as maintaining and/or improving the economic position of the University to the benefit of staff, students and the community, though not at the expense of other principles. 'Economic well-being is a crucial element of human well-being because most aspects of well-being in modern human society have to be purchased, including food, water, shelter, health care and many forms of recreation' (Department of the Environment, Water, Heritage and the Arts, 2002; cited in Denby, 2009).

- **Diversity:** 'Diversity in this context covers gender, age, language, ethnicity, cultural background, sexual orientation, religious belief and family responsibilities. Diversity also refers to the other ways in which people are different, such as educational level, life experience, work experience, (disability and impairment), socio-economic background, personality and marital status' (Australian Public Service Commission, 2001; cited in Denby, 2009). It involves recognising and appreciating the value of individual differences. This includes recognising that individuals learn by different means, therefore diversity in learning and teaching styles is essential.

The University aligns itself with this definition, recognising that:

- Sustainability is both a journey and an end point, aiming for a balance between social justice, environmental protection and economic growth.

- Sustainability requires challenges to people's thinking and practices on a continual basis in order change mindsets and build better relationships between people, and between people and their environment.

- Education plays a key role in change towards sustainability and the University is in a position to provide this through operational examples of best practice, educational activities and research direction.

- Issues associated with internationalisation, ethical practice, equality, health, climate change, planning and development, resource use, diversity and biodiversity are all intertwined and linked to sustainability.

- The active engagement and participation of students and staff is encouraged and considered integral to the successful implementation of initiatives for change.

Figure 1 Sustainable Development

It is at the centre, where there is a balance between the four principles outlined above, that sustainability is evident.

The goal of sustainable development is an unending quest to improve the quality of people's lives and surroundings and to prosper without destroying the life supporting systems that current and future generations of humans (and all other species on Earth) depend on. (Parliamentary Commission for the Environment, 2004: 14)

With the critical challenges we face associated with climate change, depletion of the earth's finite resources, social and economic poverty and inequity, population growth pressures and environmental degradation, on a scale unprecedented in history, the call to action is becoming louder. The time remaining to effect meaningful change and reverse current trends is becoming shorter.

The need for action is therefore immediate and education providers have a responsibility to encourage actions and attitudes that will protect the planet and give current and future generations the chance to meet their needs and lead sustainable lives.

The need to embed sustainable practices in all aspects of our lives, in particular in the realm of education, has moved from an aspiration to an imperative.

Specialist Context: What is 'Sustainability in the Curriculum?'

'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 organisation change, of policy and particularly of ethos' (Sterling, 2004)

Education for sustainability is primarily about *approach* and *attitude* and demonstration of the values and principles we expect to see in our students. It may also require the addition of sustainability content to existing units.

The *approach* required is an holistic integration of environmental, social and economic factors which impact on the issues under consideration. The most basic issue under consideration is the nature of the way we live on our planet, and how we access and share its resources now and in the future.

The *attitude* to be adopted is one of reflective and critical thinking, which examines societal and personal values, approaches to life and living, and our relationships with people and the planet that supports all life.

It is based on recognition of the complexity and challenges inherent in adopting an interdisciplinary and systemic approach to curriculum development. It requires a critical assessment and review of current ways of learning and teaching, many of which are based on disciplinary specialisation and hierarchical frameworks separated from other areas of expertise and endeavour.

Purpose: Why a Booklet?

This booklet is designed to encourage discourse within the academic community of Macquarie University, with regard to embedding sustainability in the curriculum. It is designed to re-invigorate the discussion and consideration of the ways by which educating for sustainability can become an integral guiding principle in the design and delivery of all academic courses offered at the University.

The booklet proposes the view that universities have a special role to play in educating for a sustainable future because of the significant influence they exert on the development of the leaders and decision-makers of tomorrow. It is in universities that research is undertaken, that information is exchanged, that innovation is nurtured and that values and ethics are examined and refined. It is therefore appropriate that universities adopt a position of leadership in working towards sustainability.

Strategic Context: How does this Initiative fit into a Broader Context?

The International Context –UN Decade of Education for Sustainable Development

The United Nations has declared a *Decade of Education for Sustainable Development*, from 2005 – 2014.

With UNESCO as the lead agency, the goal is to integrate the principles, values and practices of sustainable development into all aspects of education and learning. The aim is to encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations.

The Decade of Education for Sustainable Development breaks down the traditional educational scheme and promotes:

- interdisciplinary and holistic learning rather than subject-based learning;
- values based learning;
- critical thinking rather than memorising;
- multi-method approaches: word, art, drama, debate etc;
- participatory decision-making;
- locally relevant information rather than national. (United Nations, undated)

The Australian Context
Living Sustainably - Australia's National Action Plan for Education for Sustainability

The Australian Government's Department of Environment, Water, Heritage and the Arts (DEWHA), as part of its contribution to the Decade of Education for Sustainable Development, released the second National Action plan for Education for Sustainability in April 2009. Living Sustainably – Australia's National Action Plan for Education for Sustainability builds on the foundations laid in the original national action plan released in 2000.

The principles of education for sustainability listed in this report are presented in Box 1.

Education for sustainability is based on the following principles:

Transformation and change
Education for sustainability is not simply about providing information but involves equipping people with the skills, capacity and motivation to plan and manage change towards sustainability within an organisation, industry or community.

Education for all and lifelong learning
Education for sustainability is driven by a broad understanding of education and learning that includes people of all ages and backgrounds and at all stages of life and takes place within all possible learning spaces, formal and informal, in schools, workplaces, homes and communities.

Systems thinking
Education for sustainability aims to equip people to understand connections between environmental, economic, social and political systems.

Envisioning a better future
Education for sustainability engages people in developing a shared vision for a sustainable future.

Critical thinking and reflection
Education for sustainability values the capacity of individuals and groups to reflect on personal experiences and world views and to challenge accepted ways of interpreting and engaging with the world.

Participation
Education for sustainability recognises participation as critical for engaging groups and individuals in sustainability.

Partnerships for change
Education for sustainability focuses on the use of genuine partnerships to build networks and relationships, and improve communication between different sectors of society.

Box 1 (DEWHA, 2009: 9)

Strategy 2 of the *National Action Plan* is listed as **Re-orienting Education Systems to Sustainability**.

One of the stated objectives is:

> education for sustainability is integrated into all university courses/subject areas and campuses are managed in a sustainable way (DEWHA, 2009: 21).

This places universities as central players in the nation's efforts to create a sustainable future for all Australians.

Learning for Sustainability – NSW Environmental Education Plan

The New South Wales Government's most recent plan, *Learning for Sustainability: NSW Environmental Education Plan 2007-10* (the 2007-10 Plan) was released in October 2006 and is currently being updated (NSWCEE, 2006).

While the name of the 2007-10 Plan puts 'Environment' centre stage, the scope is broad and the outcomes at each level are interdependent. This is illustrated in Figure 2.
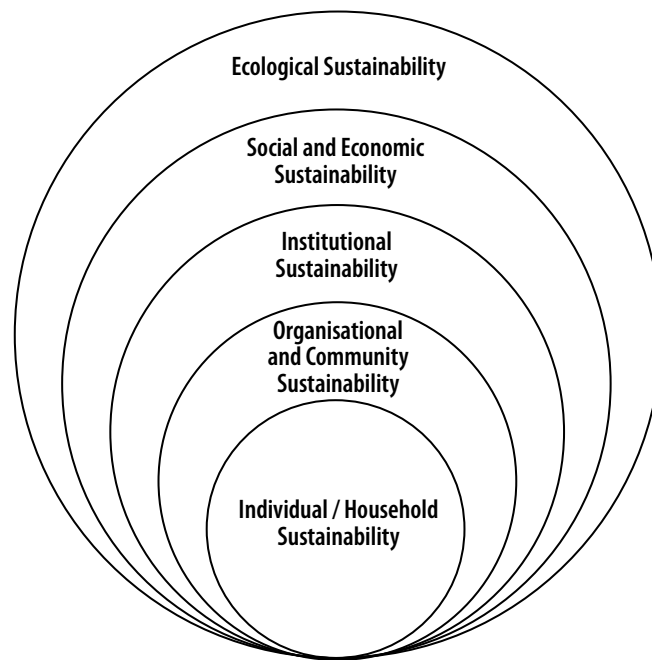
Figure 2 The scope and influence of education for sustainability (NSWCEE, 2006: 12)

The Plan's vision is to achieve:

> Effective and integrated environmental education that builds the capacity of the people of NSW to be informed and active participants in moving society towards sustainability (NSWCEE, 2006: v).

The basis of success of any sustainability initiative is a changed mindset which manifests in changed behaviour at an individual personal level.

The Role of Further and Higher Education

Global initiatives

The crisis we face is first and foremost one of the mind, perception and values; hence it is a challenge to those institutions presuming to shape the minds, perceptions and values.
(Orr, 1994: 27)

The UN Decade of Education for Sustainable Development calls for integration of sustainability into all levels and aspects of education. The extent to which this call has resulted in change is the subject of some debate. What is needed is more than 'rethinking education plans or curricula. Ultimately, learning for sustainability has implications for the core of the institutional culture, influencing decisions, management procedures and research actions of the further and higher education sector' (Tilbury D et al., 2005: 1).

At an international level, an early commitment to sustainability in higher education was made in 1990, now known as the *Talloires Declaration* (n.d.). It is a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities.

Other declarations include:

Year	Declarations & Charters	Organisation	Signatories
1990	Talloires Declaration	ULSF	310
1991	Halifax Declaration	Consortium of Canadian institutions, the IAU and the United Nations University	20
1993	The Kyoto Declaration	IAU	N/A
1994	COPERNICUS University Charter for Sustainable Development	Association of European Universities	291
2001	Luneburg Declaration	GHESP	N/A
2002	Ubuntu Declaration	11 international higher education organisations	N/A
2004	Agenda 21 (particularly Chapter 36 [Education, Public Awareness and Training])	UNESCO	Global sustainable development agenda to set into place a range of activities designed to implement sustainability. It advocates a holistic approach to environmental education.
2008	Sapporo Sustainability Declaration	G8 University Summit	Declaration outlining the responsibility of universities to contribute toward the attainment of sustainability, and the specific actions they must undertake to fulfil that responsibility. It recognises 8 principles concerning the role of universities in global efforts to attain sustainability.

Box 2 Outline of Most Significant Declarations (Tilbury et al., 2005: 19)

Australian initiatives

Australia has made the specific declarations set out below

Year	Declarations & Charters	Organisation	Signatories
1993	Swansea declaration	Association of Australian Government Universities	
2001	Australian Universities Ecological Development (UAED) Charter	National Union of Students	This charter is similar in content to the Talloires Declaration and provides a strong framework to guide sustainability within Australian Universities.
2006	AVCC Policy on Education for Sustainable Development	Australian Vice-Chancellor's Committee (now Universities Australia)	Declares a commitment to Education for Sustainable Development, and acknowledges the leading role played by universities in furthering the goals of the UN DESD.

In 2005, leaders from government and university sectors, implementing initiatives for learning for sustainability, came together at *Macquarie University for the University Leaders Sustainability Forum.*

The objectives of the Forum were:

- To assess trends and progress in Education for Sustainability within higher education in Australia.

- To identify current Education for Sustainability initiatives and examples of best practice taking place in NSW and Australia.

- To establish opportunities for linking with international initiatives in this area.

- To determine priorities for advancing Education for Sustainability within Australian universities.

The final report is available at: http://www.aries.mq.edu.au/pdf/USLF_Forum_Final_Report.pdf

Macquarie University

The strategy for Macquarie University is set out in Strategic Direction: Partnership and Performance 2008 – 2012 (Macquarie University, n.d. c). It lists 'Organisational Sustainability' as one of five key areas for focus during this period.
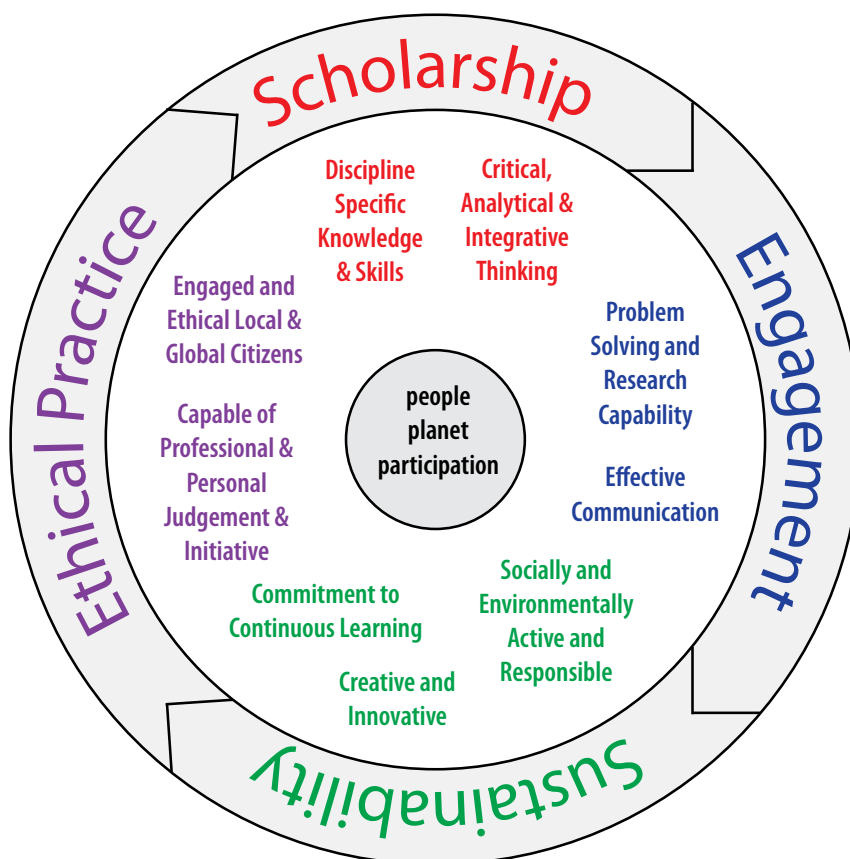
Review of progress toward attaining key outcomes is undertaken by the Australian Universities Quality Agency (AUQA). Its first progress report was released in January 2009, and a review visit was undertaken in May 2009.

Sustainability as a core value and guiding principle in curriculum development

Macquarie University's learning and teaching values, principles and priorities, specific goals, strategies and targets provide the benchmarks for becoming a world-class university. Sustainability in the physical, social and cultural environments is listed as a principle and enabler to guide the implementation of the University's values as articulated in the Learning and Teaching Plan (Macquarie University, n.d. a).

In August 2008, Macquarie University released the Review of Academic Programs White Paper (Macquarie University, n.d. b). The White Paper established the graduate capabilities framework illustrated below. This lists the capabilities students are expected to experience and demonstrate during their time at Macquarie. (Macquarie University, n.d. b:6)

As one of four principles guiding the capabilities, sustainability must be an essential element in the curriculum offerings of the University.

Actions to embed sustainability into the structure of the University are currently facilitated by Sustainability@MQ with the support of various action groups and Departments (Denby, 2009). This is illustrated in Figure 3.
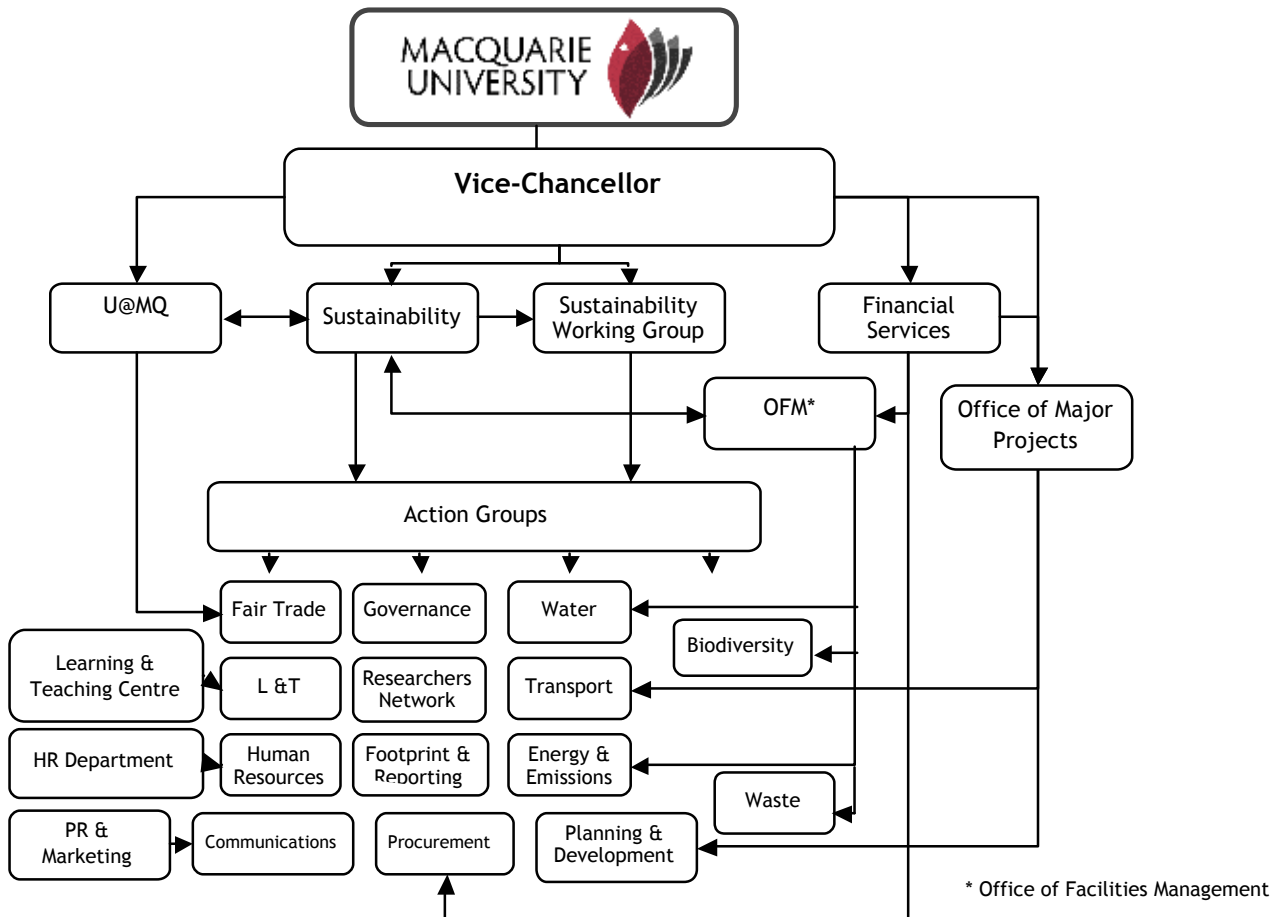

Figure 3 Macquarie University Governance Structure (Denby, 2009: 12).

Vision for 2020

'Macquarie University is ecologically sound, socially just and economically viable in all of its activities.'

This means:

- As an institution we function as a sustainable community, embodying responsible consumption of energy, water, food, products and transport;

- We actively support sustainability in our local community and region;

- Macquarie students leave the University prepared to contribute as working citizens to an environmentally healthy and equitable society;

- Macquarie University has a reputation for being the place to learn, to work and to connect with the local and global community; and

- We actively seek to meet the changing social, environmental and economic conditions as part of the global effort to reduce the impact of climate change upon the environment.

We will reach this through embracing the following principles:

- Global social and community awareness;

- Staff, student and community participation;

- An inclusive campus community;

- Accepting shared responsibility;

- Demonstrating best practice and leadership;

- Open and transparent processes;

- Utilising the precautionary principle;

- Innovation and creativity; and

- A whole systems approach to change.

(Denby, 2009: 14)

Conclusion to Section 1

By declaring a Decade of Education for Sustainable Development from 2005 – 2014, the United Nations has highlighted the powerful role that educational institutions have in building knowledge and skills, in influencing attitudes and in developing leadership to create a more sustainable future.

National and State Governments in Australia have, after wide consultation, responded by developing strategic plans to promote education for sustainability.

Macquarie University has nominated sustainability as a key focus area of strategic endeavour. The inclusion of sustainability within the framework of the graduate capabilities, together with the recognition of sustainability as a principle and enabler to guide the implementation of learning and teaching values, is evidence of the serious intention to pursue this key focus area.

Embedding sustainability in the curriculum is an essential next step to realising the graduate framework and the learning and teaching plan. This booklet makes the case for action and illustrates, through contributions from academic staff members from each of Macquarie's four faculties (see Section 2), how sustainability can be incorporated into units and programs.

It is designed to assist, support and encourage the realisation of the University's Vision.

Section 2: Faculty Perspectives

Introduction

This section contains contributions which present different perspectives on sustainability in the curriculum, from members of the University staff.

They are written to elicit response, to inform and encourage discourse and to offer different ideas and approaches to embedding sustainability in the curriculum.

The contributions are conceptual in style and offer possibilities to the reader about what sustainability in the curriculum is and how it could be applied.

Thinking about Sustainability in Statistics

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Introduction

We are currently in the middle of the United Nations *Decade of Education for Sustainable Development* (2005–2014). The goal of this initiative is 'to integrate the principles, values and practices of sustainable development into all aspects of education and learning' by utilising a continuing educational effort to 'encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations' (according to statements from the UN's ESD website, UNESCO, 2009).

Back in 2002, in proposing the *Decade of Education for Sustainable Development*, the participants at the Johannesburg Earth Summit made it clear that sustainable development should be located in all educational and disciplinary domains, making statements (United Nations 2002) such as: 'education is critical for promoting sustainable development' (article 116) and recommending to 'integrate sustainable development into educational systems at all levels of education in order to promote education as a key agent for change' (article 121).

Far from being integrated into educational systems, sustainability has until quite recently been perceived as the domain of environmental educators. At the tertiary level, several Australian universities have set up groups with a specific focus on sustainable development, such as Macquarie's *Graduate School of the Environment*, or the UTS *Institute for Sustainable Futures*. The process of moving sustainability to a more central position in university studies has been a long and as yet incomplete affair, despite the inclusion of sustainability on lists of 'generic skills' or 'graduate capabilities' at some universities.

When we talk to colleagues or students about sustainability or sustainable development, we find that they have a range of ideas about the meaning of these words, and of the concepts behind them. The assumption that university academics and students share an understanding of these terms, and hence can integrate these principles into all areas of higher education, is not yet a reality. So let's have a look at the results of some recent research that investigated lecturers' and students' conceptions of sustainability. This research was carried out at Macquarie University by Anna Reid and myself, with the help of various colleagues. A few references can be found at the end of this discussion to published articles that provide much more detail about the research context, the methodology and the findings: this discussion will give only a broad summary.

Lecturers' understanding of sustainability

In 2003, as part of a project jointly funded by Environment Australia and Macquarie University (the ACTS project), a study was carried out to investigate lecturers' understanding of sustainability (and creativity, though I won't describe that aspect here). The study comprised a series of interviews, each around one hour long, with (14) university academics who were involved in teaching postgraduate students, asking them a series of questions about sustainability and their teaching. The research aimed to investigate the different ways in which lecturers in a variety of areas understand sustainability. Rather than supplying a definition from the literature or our own point of view as researchers, it allowed them to come up with *their own* definitions of the term, and explore their own thinking about sustainability, particularly in relation to their teaching context. The key interview questions were open ended: *What do you understand sustainability to be about?* and How do you include the ideas of sustainability in your teaching? These were followed by further questions depending on the participants' responses. The participants were aware of the range of questions prior to interview, and understood that their responses to the questions would be probed and that their responses would be confidential. For more information about the project, see Reid and Petocz (2006), but here we can move straight to the findings.

Views of sustainability can be described using three distinct conceptions. In the narrowest – *Distance* – conception, sustainability is approached via a definition (maybe a dictionary definition of 'keeping something going') but essentially to keep the concept at a distance and avoid engagement with it. In the broader – *Resources* – conception, sustainability is approached by focusing on various resources, either material (minerals, water, soil), or biological (fish, crops), or human (minority languages,

populations, economies). In the broadest – *Justice* – conception, sustainability is approached by focusing on the notion of 'fairness' from one generation to the following one, or even within one generation: the idea here is that sustainability can essentially only happen under these conditions. The terms 'narrow' and 'broad' are used to indicate an inclusivity in the ideas: people who understand sustainability in the sense of *Justice* can also talk about it in terms of resources, and are aware of the definitional aspects. However, this doesn't seem to work in the other direction: people who understand sustainability in the *Distance* sense seem not to be aware of the *Resources* or *Justice* viewpoints.

It is useful to look at a few quotes representing each idea about sustainability. The *Distance* conception can be seen in these statements by Ron and Theresa (pseudonyms, of course):

> **Ron:** *Sustainability just means that something can continue, that is literally all it means. … Well, it just means is something going to last or not. That's all sustainability means, and everything is either going to last or it's not going to last. Whether it is a relationship, or you know, literally it could just be a social dimension, 50% of marriages are sustainable in Australia.*

> **Theresa:** *I suppose it is somehow related to students being able to continue the skills, or use them or sustain them when they've graduated … it might be just keeping up your qualifications. Sustaining your abilities in the field, which would then involve you doing more study, reflection, more reading or whatever to keep it up.*

The Resources conception is exemplified by quotes from Patricia and Anita:

> **Patricia:** *Well, in general terms I would be thinking about natural resources, within the world's environment, so… oh and I guess when I think about sustainable development I also think about it in terms of say cities and housing and the way they're designed and whether those sorts of structures are designed in ways that minimise or maximise the pull on the resources that we've got. So driving to work today passing huge houses I think that that's not a very sustainable way to develop a city.*

> **Anita**: *I suppose in broad terms by sustainability I understand the idea that an awareness of resources and how one continues to produce something without using up the resources for the future. … I suppose again in broad terms, things like water, energy, coal, and fuel.*

And the Justice conception is shown in these excerpts from interviews with Kenneth and Leslie:

> **Kenneth:** *I suppose I tend to think of it more on the environment side, so I think about environmental sustainability, um, in keeping the earth in a state that we can hand it down to future generations, so that it is still liveable and that there are resources that are there for future generations to use … so to have a sustainable world as a whole we've got to have a look at the way those resources are distributed and make sure that everybody has got access to the things that they need.*

> **Leslie:** *I think most people would say that passing to the future generations, social and natural capital that allows them to do their thing unhindered, is the contrast to the unsustainable, which is running down social capital or running down particularly natural capital.… But I think that responsibility, the notion of an ethical responsibility to future generations is what I take to be at the centre of sustainability.*

These quotes illustrate three different ways of looking at sustainability, in the actual words of our own colleagues. Irrespective of any 'official' definitions, this is what lecturers at Macquarie think (or at least, this is what they thought in 2003). In thinking about sustainability, each of us can compare our own views with the views shown in these examples, and maybe find ourselves challenged by some of them.

And further, when participants were asked about incorporating sustainability into their teaching, their statements could be summarised using one of three distinct viewpoints. Some lecturers maintained a *Disparate* view, in which teaching and sustainability were seen as two completely unrelated ideas, with teaching focusing on the content of a subject and aiming to 'cover' a syllabus, while sustainability was something that should be 'done' somewhere else. Other lecturers presented an *Overlapping* approach, with relevant examples of sustainability being presented, when possible, in the context of helping students to understand the substantive content of their discipline. A few lecturers described an *Integrated* conception, seeing sustainability in all its guises as an essential component of their teaching and their students' commitment to their learning and discipline. Again, as we read descriptions of these approaches, we can make a comparison with what we do in our own teaching. We can consider the question of whether we should include notions of sustainability in our teaching, and if so, how might we go about the process. I will return to this point later.

Students' understanding of sustainability

It is also interesting to look at the views of the other major participants in higher education – the students themselves. Of course, it is our job as university lecturers to introduce the notion of sustainability to our students, but in that endeavour it is important to have some idea of their prior ideas about the concept. Another project that we carried out recently (2005), funded by the World Bank, investigated the views of students at Macquarie about sustainability (and also about creativity, ethics and cross-cultural sensitivity, but again I won't describe those aspects here). We carried out interviews with a total of 44 students, half of them (Australian) domestic students, half of them overseas students, mostly from south-east Asia, all of them studying business subjects at Macquarie or the International College of Management, Sydney (ICMS). Some of the interviews were carried out by e-mail, others face-to-face, both individually and in groups of two to four students. Students were asked questions such as: *How do you understand the idea of sustainability?* and *What role do you think sustainability will play in your future professional work?* Again, there were follow-up questions depending on the specific responses that they gave. For more information, see Reid *et al.* (2006, the project report) or Reid and Petocz (2008, the analysis).

Of course, we expected that students and lecturers would have a different range of ideas about sustainability – maybe the students' ideas would be more limited. However, the basic ideas about sustainability seemed to be well described by the same three levels of conceptions: *Distance, Resources* and *Justice*. Not surprisingly, the lecturers talked at greater length about their ideas, and for the most part, expressed them in more articulate language, although some of the students were surprisingly eloquent, and this is shown in the following quotes from students:

Representing the *Distance* view are these statements from Liz and Alex:

> **Liz:** Sustainability? Well, if I use the literal translation of the word, sustainability for, to me would mean, yeah, just longevity or something like being able to, sustainability, just being able to, you know, hang in there.

> **Alex:** Maybe for employee, being sustainable is just that, you know, staying with the company, and being loyal to the company. Now in the companies a lot of workers you know moving like every two three years from jobs to job.

The Resources view is apparent in this quote from Erica:

> **Erica**: So if you're a company that relies on coal sources for your energy then you can't say that that's a sustainable way of operating because at the end of the day the coal sources are going to run out. So it's not a sustainable way of doing something but if your energy sources are from the sun, then you could say well we, our operations are sustainable because we could practically keep doing this forever because the sun is always going to be, well, you know, you know it's going to be around for at least another million or so years.

Finally, the Justice view is shown in Tim's statement:

> **Tim**: Well, again it's, it's going to be very important because essentially, without managing resources optimally, and effectively, and without being able to reuse those resources. I mean, it's one generation that'll benefit and then every generation afterwards will, you know, suffer the consequences, you know, of our greed.

In some of these quotes we can see evidence of the specific business context that the students found themselves in, but some of the respondents were majoring in other disciplines while studying some business units. We should also remember that the business faculty represents about one-third of all the students at Macquarie (although the students we interviewed were volunteers, rather than being randomly selected). An interesting aspect of these statements from students is the fact that they show the same range of conceptions as their lecturers did. In terms of our goal of introducing the notion of sustainability to university students generally, there seems to be a long way to go with some of them, while others already seem to be well prepared to discuss the ideas in a significant way.

But what is sustainability in statistics (for example)?

The research described earlier gives us some insight into the ways that participants in higher education – students and lecturers – think about sustainability. There still remains the question of how to incorporate the notion of sustainability into learning at universities, and encourage the changes in ideas and behaviour that might contribute towards the overall goals of sustainability. To some extent, the approach needs to be different in each discipline and, as an example, here are some suggestions from my own discipline – statistics.

It is all too easy, as a student or a teacher, to focus on the technical aspects of the subject, for instance, the way to carry out a particular statistical technique (such as a t-test) and the various conditions that need to be satisfied in order that the test is valid. If a student has this focus, they may spend their time collecting and practising such techniques, while a lecturer may be aiming to 'cover' their syllabus

and ensure that their students are able to reproduce the material. The corresponding approach to sustainability is likely to be *Distance,* avoiding any engagement with ideas that seem to be *Disparate*, unconnected with the statistics. Lecturers may acknowledge the importance of sustainability but maintain that it should be 'taught' somewhere else, and not in their own lectures and tutorials where it will take valuable time away from the real statistics. Students will agree, and encourage their lecturers to focus on material that is 'on the examination'. Yes, this seems a bit like a caricature of the narrowest approach to learning and teaching statistics, but it does happen (though not at Macquarie, of course)!

A student or a teacher may show a broader idea of statistics by focusing on the subject itself, and on the characteristic artefacts of the subject – such as sets of data. A student may extend their understanding of statistics by analysing datasets of various types, using this as an opportunity to check that they can carry out the necessary techniques but going beyond this to the notion of investigating the information in the data. A lecturer may present and exemplify such analyses, aiming to help students to develop the experience needed for carrying out statistical investigations, and to build appropriate statistical models of a situation. Here there is scope for a lecturer to use an *Overlapping* approach to present a *Resources* view of sustainability, utilising a large source of examples and models that can be examined statistically. Lecturers can help their students engage with issues of sustainability by working with datasets such as the satellite measurements that first found evidence of the 'ozone hole' above Antarctica (when the very low summer values were classified as 'outliers' by the program that was being used for the analysis). Students will be interested to see applications of the statistics that they are studying, and can be encouraged to discuss ideas of sustainability in such a context. Further examples are given in Petocz and Reid (2003), demonstrating that it is quite possible to incorporate notions of sustainability into statistics courses without compromising the statistical content. Indeed, it seems that such examples can enhance our students' understanding of and connection with the statistics that they are studying.

The broadest view of statistics is as a way of thinking and an approach to personal and professional life. Students who have this view of statistics will already be making a strong personal connection between statistics and aspects of their own lives. They will need little encouragement from their lecturers to use ideas of sustainability to make connections between their academic study and their view of the world. Lecturers can present a holistic approach to statistics coupled with an *Integrated* approach to sustainability, including notions of *Justice* (as well as *Resources*). In the first instance, this can be done by extending the use of statistical models and datasets to a wider range of situations, and highlighting aspects of sustainability in as many of

these situations as possible. The cumulative effect of such an approach in a particular unit of study, or even a whole statistics course, can be dramatic.

Sometimes, though, it may be necessary to move beyond this and acknowledge that the statistics itself takes second place to important aspects of our and our students' lives. I recall attending a talk given by Jackie Galpin, a colleague and statistics educator in South Africa. She discussed the problem of teaching statistics in a context where a substantial proportion of her students were likely to be infected with HIV/AIDS, and those that weren't needed to take precautionary measures if they were to avoid infection. In such a situation, it seems much more important to discuss topics in statistics related to AIDS, and investigate official government statistics (and their reliability) than to continue through the usual sequence of statistical topics.

Conclusion

For the notion of sustainability to become a core concept for higher education, it needs to move beyond the work of a few interested academics. Maybe the most fertile approach is via the notion of generic capabilities: the framework has been used successfully to raise awareness of the importance of skills such as communication and team work, and dispositions such as ethics, across a range of academic disciplines. As well as signing declarations and developing 'sustainability policies', universities have a responsibility in leading the community in positioning sustainability as an essential topic for intellectual debate and practical action. In our position as university lecturers, we need to ensure that we engage professionally with the notion of sustainability, integrate it into our academic curriculum, and make opportunities to discuss and investigate it with our students. Sustainability is an essential aspect of higher education, not an 'optional extra': one of our student respondents (Emma) put it this way: *For me sustainability is about sort of building yourself and your environment to make sure that there's a tomorrow and a tomorrow after that.*

Addendum
Ten ways to incorporate sustainability into your curriculum

1. Prepare *yourself* by reading and thinking about sustainability in the context of learning and teaching: this booklet may be a good start!

2. Consider focusing on your discipline and the specific unit that you are teaching in the broadest way, so that ideas of sustainability can be incorporated naturally.

3. Provide opportunity for your students to discuss their *discipline* in a holistic way and to become aware of the range of ways in which their fellow students think about it.

4. (Provide opportunities for students to make personal and professional links with the material that they are studying.

5. (Encourage your students towards the broadest views of your discipline with assessment that goes beyond the technical aspects of the subject.

6. Incorporate ideas about sustainability into lecture examples, so that it becomes natural to talk about sustainability.

7. Incorporate aspects of sustainability into assessment tasks, and give students opportunity to explore them, particularly in groups.

8. Ask students, in class or as part of an assignment, to make a link between the topic they are currently studying and the notion of sustainability.

9. Explore with students the professional obligations and advantages of being aware of sustainability.

10. In your discussion of the concept, situate sustainability as one of a range of professional skills and dispositions that students acquire during a university education, giving them the advantages and responsibilities of an educated person in the 21st century.

Sustainability in the Curriculum at MGSM

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People teaching in the area of sustainability need to be able to move fast. By the time a subject outline is printed it is obsolete. Curriculum content is under constant review. There is an instantaneous relationship between research and teaching inasmuch as we find ourselves teaching what we are discovering as we discover it. Knowledge is actually being improved and developed through classroom discussion. We bring into the classroom the practitioners with whom we are working because, here, practice leads theory. A considerable challenge in this environment is engaging the wider faculty and bringing them along on the journey. At MGSM we have adopted an approach of developing the curriculum through action research, whereby we plan action, taking into account input from the wider faculty, implement new curriculum and then engage in wider reflection. In this way, we have opened the culture to sustainability while implementing the curriculum change. The key players have been Professor Robin Kramar and me, who have been co-conspirators in curriculum development over the past three years, and Professors Gayle Avery and Elizabeth More who have led the development research capacity, principally through the establishment of MGSM's Institute for Sustainable Leadership.

Evidence for the effectiveness of our approach is provided by an independent evaluation report to the (then) Australian Government Department of Environment and Water Resources, which concluded that we had:

> ...increased capacity at MGSM to recognise sustainability opportunities including senior level support to mainstream sustainability across courses and to consider the possibility of developing a 'Green MBA' (Molino Stewart, 2007: 13).

So far there is no such 'green MBA' in existence in Australia, and the establishment of such an MBA remains an objective of the Commonwealth Government. We have taken two important steps toward that objective:

• new MBA elective subjects, entitled *Managing Sustainable Organisations, the European Study Tour: Sustainable Leadership* and *Sustainable Valuation*, and

• The development and accreditation of a new *Master of Management (Sustainable Leadership),* which has now been approved by the Macquarie University APC for commencement in 2010.

This course will be the first Masters Degree in Australia with

such a focus and gives Macquarie a first mover advantage in the market for management education.

A particularly innovative element of the new *Master of Management (Sustainable Leadership)* is collaboration with GSE, which has produced agreement to give MGSM students in the new program access to selected GSE subjects.

After two years of frenetic development activity, it is now useful to pause for reflection. Sustainability is as much a branding issue for Macquarie as it is a curriculum issue. An emerging area of business coconsciousness like sustainability provides the opportunity to become the known and natural choice for students seeking a sustainable education. Our effectiveness has been considerably enhanced by the establishment of sources of research expertise such as the Australian Research Institute in Education for Sustainability (ARIES) in the GSE and the establishment last year of the Institute for Sustainable Leadership within MGSM.

Our sustainability thinking and practice has experienced considerable acceleration under the influence of ARIES. In particular ARIES has been promoting the usage of action research methodology within organisations as a way of building engagement in sustainability across large numbers of employees. The challenge in industry is to move sustainability from the span of control of a few experts to become a mainstream preoccupation. At MGSM, this means involving the widest possible array of academics in curriculum development.

Our first attempt at this was the peculiar way in which we went about the development of the subject entitled Managing Sustainable Organisations. In 2006 we developed a project which interviewed staff members to find out what the term sustainability meant to them, how it might be applied to thinking about their disciplines and what a sustainability curriculum might look like at MGSM. We made sure that we interviewed a mix of staff including both those who were sympathetic and unsympathetic to the idea of education for and about sustainability.

This survey of the staff by interview identified three fundamental elements of practical consciousness about sustainability. Staff had one of three views. Sustainability was either about:

- A smaller environmental footprint;
- Longevity by means of building a resilient organisation
- Sustainable competitive advantage

The last of these was not so much an understanding as a misunderstanding. In the absence of any store of knowledge or reflection these staff had reached for a use of the word that they understood: i.e. an operation is sustainable if its competitive advantage is difficult to

replicate and therefore its access to a market niche remains incontestable. Under this definition the coal industry has a sustainable competitive advantage.

This interview process clarified the politics of this particular curriculum change. We now knew who was turned on to the idea of sustainability, the points of resistance and the basis by which those interests might try to legitimate opposition.

We then surveyed the student body. This gave us qualitative data on what sustainability meant to them both personally and in their working lives. It also gave us quantitative data on the proportion of students who might choose to do a dedicated management subject focused on sustainability. While we were planning to design and introduce an individual elective subject, our longer term (as it turned out medium term) aspiration was to develop a whole course at Masters Level. The survey also gave us a chance to identify the size of the subset that might elect to do a whole program. We then devised and implemented the subject, which has now run three times. Enrolments for this year are double the number we got last year.

The next stage was to review the entire MBA. This included a review of the action taken to date, and so became part of the review part of the first action research cycle. It also expanded the scope of the endeavour to encompass a whole program. At the same time the action process was generating cultural change. It had built a wider sense that sustainability was the new zeitgeist. As mentioned above an evaluation commissioned by ARIES into its entire program noted an opening of the culture within MGSM to sustainability issues.

What is most important about the MBA review was not its output, which included three new Master of Management specialisations including a Master of Management (Sustainable Leadership). What was most important is that it was conducted by means of a larger scale action research methodology, which engaged a larger number of MGSM staff. It also connected those staff with wider bodies such as the Alumni, of whom about 100 were brought into the discussion about what the new curriculum aught to look like. In particular Alumni worked in small groups on such questions as 'what would management education look like in the future?' and 'what will be the key issues that managers will be grappling with ten years from now'. Without any leading questions, group after group identified sustainability as a key managerial interest for the future. So, these groups engaged two important components of sustainable leadership: interconnectivity and futuristic thinking. The point is that the process of review engaged the kind of capacities necessary to build a culture which values sustainability and a supported a tendency to foreground the kinds of decisions most likely to assure sustainability.

At the same time we were trying to build the institutional capacity for research in a way that could support and inform the new curriculum. In 2008 we established the MGSM Institute of Sustainable Leadership. This provides a focus for research thinking and agenda building. It also connects with other elements of the University including academics in the GSE and the Master of Organisational Psychology Program. In addition to the institutional development that such a centre provides the connections that it makes have helped to reconnect MGSM to the wider University after a period of disconnect and drift. The collaborations in the development of research projects in general and the joint supervision of research students in particular have strengthened MGSM as an institution and improved the status of sustainability in the institution further.

The new Master of Management (Sustainable Leadership) also has an innovative feature that could be replicated across the University. The collaboration between GSE and MGSM gives us access to the assets of the GSE at no marginal cost to the GSE. A reciprocal arrangement is being negotiated that will give GSE access to MGSM's assets. The assets in question include the actual knowledge stored in the two institutions and the physical provision of classes. Students will fill up spaces in the courses offered by the other institution, improving the viability of both and creating an income at zero marginal cost.

The scholarly activity of the Institute informs the content of our teaching. However, the growth of the status within MGSM of the research institute is expected to bring about a simultaneous enhancement to the status of sustainability within MGSM. The ultimate aim is to make sustainability a characteristic of the management of MGSM. As this happens, more staff will become engaged and eventually education for and about sustainability will be mainstreamed into every subject as the natural order of things. Sustainability will be part of the meaning attached to the brand. We will have a sustainability-based MBA rather than an MBA which is partly about sustainability. People will come to MGSM because they want to do the MBA in the market place which is most associated with sustainability.

The approach could be identified as being preoccupied with the business case for sustainability and the process by which leaders in business would seek to build sustainability into an organisational culture. In the future I expect that we will be moving from this instrumentalist approach to develop a more responsibility based approach, where sustainability is pursued for its own sake. This would proceed from the assumption that because business has the capacity and dynamism to be entrepreneurial, then one focus for that entrepreneurship would be to develop a wider sense of responsibility. Responsibility is a bigger future because it is pursued as an end in itself. We now know enough about management so that the ability to make profits can be assumed; it will be about the quality of the profits.

Addendum
Ten (sorry eleven) things to integrate sustainability into the curriculum

1. Curriculum is a living thing; while concepts endure, practice changes quickly.

2. Practice leads the development of theory, with some of the best theory being taught by practitioners to academics e.g. the Triple Bottom Line from John Ellington, entrepreneur and founder of SustainAbility. Academic literature, especially case studies, quickly dates, so use guest presenters from industry.

3. Because curriculum evolves quickly the curriculum development process needs to institutionalise reflection, or it will not happen.

4. Because sustainability is synonymous with viability, resilience and endurance it shares the value base of the long term business plan and so can be mainstreamed into business curriculum at a fundamental level and across all areas of finance, marketing, strategy, operations and organisational and human resource management.

5. The politics of adoption involves surveying the faculty on their views as to what sustainability actually means and then doing a stakeholder analysis that connects supporters and isolates resisters.

6. Because sustainability is a value laden concept the value base can be built into the organisational culture, which then boosts adoption.

7. To build an organisational culture that appreciates sustainability, develop curriculum using processes that are themselves sustainable: e.g. a vision that develops from discourse, systems thinking, collaboration and critical self reflection.

8. Develop collaborations across faculty lines to create a more sustainable use of existing assets e.g. by exposing students to academic expertise not available within the home faculty; providing extra choice without extra cost etc.

9. Even leaders need mentors. There are centres of excellence that are in the business of leading others, including research institutes like ARIES and business incubators such as Resource 88. It is possible to do it alone, but if starting from scratch, you need help to accelerate progress.

10. Student response operates at two levels: most students want a credential in which sustainability is mainstreamed; a smaller subset want a tagged credential with some subjects in which sustainability is the explicit focus.

11. Developing sustainable curriculum is an area of scholarship that is worth adopting as a parallel pursuit to the researchers' primary research interest. For us, there have been crossovers since learning happens in organisations and is a dynamic force for sustainability.

Reflections on Sustainability in the Curriculum: Linguistics, Human Sciences

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1. Getting to grips with 'sustainability in the curriculum'

1.1. 'Sustainability'

1.1.1. Ecological sustainability

People are generally quite clear about ecological sustainability. The term developed through the recognition that a system has a built in mechanism for survival that depends on mutual dependence of its diverse parts. However, the system is in a delicate balance, so an external threat to one part has the potential to destroy the whole. The threat is usually habitat destruction motivated by the introduction of a new predator; by a drive for mass use of resources by an outside group, say, rubber, timber or pharmaceutical plant retrieval in the Amazon, or by urban spread. Sustainability is the compromise that allows ecologies and economies to thrive. It allows us to make the most of the future by making the best choices about the present. Some scholarly disciplines have a direct content link with sustainability (ecology, engineering, business) while others do not.

1.1.2. 'Greening the workplace'

Metaphorical extension to 'greening the home' or 'greening the workplace' is a small stretch. The compromise here is that policies need to be designed that allow small efforts to have a large positive impact on the environment. So, companies develop ways of harvesting sufficient products for their needs and ensure the system can still survive, and in parallel, homes and workplaces can develop policies, say, for recycling, to reduce their negative impact on the environment.

1.1.3. 'Sustainable future'

The next extension of the metaphor positions institutions as systems that need to endure. This entails developing policies that secure the future of the institution in the face of as yet unknown threats.

Educational institutions have operational, teaching and research tiers. From an institutional point of view, each can play an active positive role in greening the environment, and to helping the institution survive. In terms of long term viability of the organisation, students need to be able to rely on having a degree that will be as valuable twenty years from now as it was on graduation.

1.1.4. How far does the metaphor stretch?

For disciplines whose knowledge base does not include sustainability, there is, nevertheless, an imperative to contribute in practical ways towards developing student capabilities that will sustain a sense of stewardship in a changing world, develop personal strategies for dealing with change, as well as setting the agenda for lifelong learning.

UNESCO's 2004 draft on *Education for Sustainable Development* stated that learning and teaching theories and practices will need to change in order to develop the lifelong learning skills necessary for effective sustainability education. These skills include 'creative and critical thinking, oral and written communication, collaboration and cooperation, conflict management, decision-making, problem-solving and planning … and practical citizenship' (Barth et al., 2007).

1.2. 'Sustainability in the curriculum'

A university commitment to sustainability, then, has the additional responsibility of creating a experience that enhances lifelong learning; develops a commitment to being socially and ecologically aware and responsible; and teaches skills that can be applied to coping effectively with personal, institutional, and social change.

At Macquarie, a 'curriculum' is 'based on a set of values and beliefs about what students should learn' (see L&T 'Curriculum design' website, available at http://www.mq.edu.au/learningandteachingcentre/about_lt/curriculum_design.htm). Courses and programmes are delivered through subject units. The curriculum appears to be an abstract entity that is instantiated in course or programme rationales; in the unit syllabus; and is more covertly present within the activities and interactions within each learning/teaching context.

The syllabus as a curriculum instrument is more than a subject content outline and a measure of accountability. It makes processes of learning and teaching transparent, and includes the outcomes, goals and aims of the unit.

Sustainability in the curriculum (sustainability learning) involves teaching/learning about environmental sustainability but it can also involve developing/acquiring an awareness of sustainability issues through secondary unit materials. Either of these paths can lead to a personal and lifelong commitment to contributing positively to society and to the environment. Sustainability through

the curriculum relates to including sustainability goals in the ideologies that guide teaching practice and shape the learning/teaching environment. Sustainability throughout the curriculum entails additional development of realistic collaborative assessment and updating of units/courses, and practical support for sustainable learning and teaching which includes storing materials for future use or reference by learners and/or teachers.

We may need to rethink our practices to authentically include students and their diverse backgrounds in the curriculum, and in its development.

Pluralistic societies are sometimes viewed as a problem, and governments aim to resolve the perceived lack of social cohesion by developing assimilation policies. Cultural and linguistic assimilation policies rest on the belief that there is strength in sameness and safety in homogeneity. However, 'homogeny' entails a genetic relationship that does not exist in the 'homogeneity' of assimilation. Quite the opposite. Death of diversity, then, creates a fictional mask of affinity but authentic historical and cultural ties are lost. The same kind of bleaching of natural vibrancy can occur in teaching settings in which the many different cultural and linguistic backgrounds may not be visible in the unit materials, and LOTE (Language Other Than English) background students may be seen as problems and not as resources. A 'one size fits all' approach may be convenient, but opportunities for growth and positive change for all students may be missed. A dedication to sustainability could include explicit and authentic acknowledgement and use of student background resources within teaching-learning settings.

In order for a unit or course to be sustainable it needs to be regularly revised and updated, and this depends in part on student feedback. In order for student feedback to inform curriculum development, it needs to be reliable. Instruments for student assessments of teaching and learning are seen as valid and reliable despite the fact that there is cultural and linguistic diversity in beliefs and values about 'good' and 'bad' teaching, and in how this is best assessed. It may not be culturally relevant in the same way across cultures to give highest or lowest scores on Likert scaled rating items. An additional concern is that the international and domestic students who bring diversity to the classroom are bilingual, and despite regulations about independently tested English skills, they may have different levels of proficiency in English (particularly comprehension and writing), and may misunderstand assessment items. The current MU LETS allow for subject level variables to be considered in providing discipline relevant choices of evaluation items, but there is currently no overt procedure for enabling students from other cultures and first languages to relevantly respond to LETS items. Not only are the judging frameworks (including attributes of 'good teacher') different for international and domestic students with a first LOTE, but the students are less able to express their opinions.

So, considerations of content, materials, organisation, and practice work together to teach sustainability, provide the tools for sustainable futures for our students, and assist in creating sustainable teaching roles.

2. The present: sustainability in Faculty of Human Sciences curricula

2.1. Sustainability in the unit syllabus

Linguistics

Sustainability involves being a conscious part of a system that relies on its many parts to maintain viability despite threats and challenges. From ecosphere to ethnosphere, to linguasphere, complex networks of interdependence optimally allow for survival and growth in the face of change: evolution and revolution. In Linguistics, the issue of language endangerment is relevant to the notion of sustainability.

Linguistics aims to explain the nature of human language through studies of languages; and with a relativist lens, acknowledges the diversity of languages and their internal variations. We know that for centuries, change, growth and progress have sometimes come at the cost of cultural and linguistic diversity.

Historical Linguistics, language change, language policy and planning, language and education, and sociolinguistics are Linguistics sub-disciplines that address issues of diversity, risk and survival.

History throws the dice of destiny for languages. Languages start to lose viability when the physical, cultural and social environments which generated them are threatened. Catalan was forced into lower class status with the 1469 marriage of Ferdinand of Aragon and Isabella of Castile; hundreds of Australian indigenous languages were lost along after eighteenth century European settlement destroyed the natural, social and cultural environments from which these languages generated and were maintained; Scottish Gaelic has gradually died out and survives in a non-viable state in small areas of Scotland; and ancient Aramaic, which has survived to the twentieth century in isolated parts of Syria, has now almost been totally replaced by Arabic.

A language is viable (sustainable) if it has sufficient speakers and if those speakers have authentic contexts in which to use the language. Language policy and planning initiatives can halt the endangerment of languages if the environments of the speech communities are also supported.

Linguistic relativity and sociolinguistic variation are additional linguistic perspectives relevant to sustainability. Each culture uses words to carve up the world differently

according to their unique social and natural environments. That is, different world views are represented in the different languages of the world. Colour term studies have shown that different parts of the spectrum are lexicalised, and in some cases this reflects the ambient environment. Culture specific schema of nature generate culture-specific vocabularies and metaphors. The diversity of vernaculars and styles in a language are also inextricably interwoven with the social environment, and the variety or style is maintained for as long as the social dimension is meaningful for that group.

Psychology and Education

Theorists like B. F. Skinner, Howard Gardner, and William James who are already integral to the content of the disciplines of Psychology and Education have also contributed to debates over time on the relationship between humanity and nature. Curricula in these disciplines could more explicitly include lectures about such prominent figures' perspectives on humanity and the environment.

Ethics as the foundation of an aware life

Ethics is learned through a number of vocationally based and non-vocationally based units and courses in Human Sciences. Professional ethics is taught in dedicated units in speech pathology, audiology, psychology, and education. Research ethics is taught in modules in units, for example, inter alia anthropological linguistics and sociolinguistics. At the postgraduate level across the Faculty, research methods units have ethics modules, and HDR supervisors also have a duty mentoring the ethical research understandings of their students.

2.2. Graduate Outcomes to support sustainability education: Key competencies for sustainability

As an extension to the UNESCO (2004) Education for Sustainable Development draft, Barth et al. (2007) suggest competencies that can be fostered across the university in order to support sustainability education. These are:

1. foresighted thinking;
2. interdisciplinary work;
3. cosmopolitan perception, transcultural understanding and co-operation;
4. participatory skills;
5. planning and implementation;
6. empathy, compassion and solidarity;
7. self-motivation and in motivating others; and
8. distanced reflection on individual and cultural models.

Skills like these encourage values based and participatory learning and would be relevant graduate outcomes within any discipline. In the vocationally oriented units and courses in Human Sciences, such sustainability supportive

competencies already play a part in the curriculum.

3. Future Possibilities: Explicitly Addressing Sustainability in/through/throughout the Curriculum in Human Sciences

1. Faculty wide commitment to collaborative research (using a range of approaches) to identify the relevance of sustainability to Faculty of Human Sciences curricula, especially the sustainability of current learning and teaching roles

2. Faculty-wide commitment to sustainable archiving of research and teaching resources. This would include archiving of:

   • digital and electronic data collected in research projects;

   • L&T pro forma, useful for Faculty wide recurrent template development

   • Teaching materials

3. A commitment to integrating values-based learning principles in curricula

   In addition, Psychology could make a strong contribution to identifying University-wide graduate competencies. For example, resilience may be a useful inclusion. Our emotions often guide our actions, and the capacity to withstand change or catastrophe is an important and positive adaptive process that could become part of the array of graduate outcomes we foster. In order for a person to be resilient, s/he needs to feel a sense of connection and engagement. Learning and teaching settings in the University can be sites for building this resilience through collaboration, cooperation and active and meaningful self-directed learning.

4. Authentic green units like:

   • Linguistics: Politics, progress and Language Ecology;

   • Psychology: The environment, distress and wellness

   Interdisciplinary programmes could be developed in order to solve real life environmental issues, either campus based, or within the wider community (see Brennan, 2008). One could imagine meaningful collaboration from disciplines like psychology, philosophy (ethics and aesthetics), anthropology, linguistics, visual arts, statistics, and education.

5. Authentic green programmes, like:

   • Master of Environmental Psychology;

   • Master of Leadership in Sustainability Education

6. Explore the ways student and researcher projects in Faculty of Human Sciences can contribute towards

resolving social and human sustainability issues, for example, student projects disseminated so end users benefit.

7. Resources for students:
STUDENTINFOBANK: Exemplar essays/assignment answers/exams for student reference.

8. Lectures in undergraduate courses that focus on the environment (please see, for example, teachgreenpsych.com)

9. Encourage e-access of all student assessments (consider how assessment tasks are submitted and returned to students. This needs appropriate admin and technical support)

10. Secondary materials focusing on humanity, nature and a sustainable environment. The topic of sustainability could be a legitimate focus of classroom materials used for skills development. From social psychology to discourse analysis, there are opportunities for the debate on human stewardship of the environment and the links between human groups and the environment to be made explicit (see Brennan, 2008).

Incorporating Sustainability in the Business Curriculum

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Introduction

The aim of this paper is to provide a guide for those staff wanting to introduce sustainability into the business curriculum for the first time. It provides an overview of some current initiatives in incorporating sustainability into business courses that have been tried elsewhere, a list of issues to consider and a selected guide to other resources that may be useful.

The first point to note is that there are many definitions of sustainability. A common misperception is that sustainability is just concerned with environmental protection. In fact, most of those working in the area of sustainability define the field more broadly to include issues of economic and social welfare as well as the environmental issues. For instance, the Macquarie University definition of sustainability encompasses Environmental Protection, Social Justice, Economic Well-being and Diversity while a widely accepted definition of sustainability in business circles is meeting the 'triple bottom line' of making economic profit while having no negative impacts on society and the environment or 'People, Planet and Profit', to use a common slogan (Elkington, 1998).

The second point to note is that, whether you take a broad or narrow definition of sustainability, unlike some Faculties within the University, within the fields of Business and Economics, sustainability has already been recognised as an important issue in many business schools and business departments around the world. There have been specialist research and teaching programmes in the areas of corporate social responsibility and environmental responsibility of business for well over twenty years in some universities. However, the interest in sustainability has been fuelled by recent corporate financial reporting scandals such as Enron and the global climate change debate. This can be seen by the trend reported in the Beyond Grey Pinstripes survey sponsored by the Aspen Institute which shows that the percentage of business schools that require students to take a course in Business and Society has increased from 21% in 2001 to 63% in 2007 (http://www.beyondgreypinstripes.org/rankings/trends.cfm). A similar trend in the interest in research on sustainability can be seen by the fact that two of the last three conferences of the Academy of Management focused on themes related to sustainability – 'Doing Well by Doing Good' in 2007 and 'Green Management Matters' in 2009.

The third point to note is that this briefing paper is largely limited to comments on teaching of Strategic Management and International Business courses at the third year undergraduate level as these are the areas where I have had personal experience of introducing sustainability issues into business courses. However many points will be relevant across all disciplines in Business and Economics and other course levels.

Options for Incorporating Sustainability in the Business Curriculum

A review of programmes and courses on sustainability offered by schools and departments of business worldwide indicates three major options for incorporating sustainability in the business curriculum:

(1) Incorporate sustainability in current Business courses

(2) Develop a new course in Sustainability in Business

(3) Develop a new degree in Sustainable Business

The sections that follow examine some examples of each option and some lessons learned from previous attempts at incorporating sustainability in the business curriculum. This is followed by a discussion of the general pedagogical issues that arise in incorporating sustainability in the business curriculum viz. theoretical/conceptual frameworks, teaching methods and resources required.

Incorporating sustainability in current Business courses

The most common method of incorporating sustainability in the curriculum is to include consideration of sustainability issues in the content of existing courses. The least intrusive way is by adding a session on sustainability in the course. For example, many teachers now include a session on corporate governance and social responsibility in strategic management/business policy courses. (See Aspen Institute, n.d., for examples of syllabi.)

This option has the advantage of being relatively straightforward but the main disadvantage is that students may find it difficult to relate this session to other parts of the course. Many textbook writers have responded by including sections on sustainability (sometimes termed 'ethics') throughout the book. For example, Peng (2009) in his *Global Strategy* textbook includes questions on Ethics at the end of each chapter as do Hansen et al. (2007) in their textbook *Strategic Management: Competitiveness and Globalisation.* This is an improvement in that sustainability is not seen as a separate issue from the other parts of the course but in both of the above texts, the problem is that the rest of the text is largely unaltered and the questions on sustainability appear like an afterthought. My own experience with using both texts is that it is difficult to link these questions to other parts of the lecture and in a 45-60 minute lecture it

is difficult to deal with questions of sustainability in any depth. As a result in practice I have found it easier to deal with these questions in a separate session on sustainability and social responsibility. A downside is that although most students show interest in the issues of corporate social responsibility and sustainability, only a few students show any deep thinking and understanding of how the aims of sustainability can be reconciled with the aim of profit maximisation in businesses.

New course

A more substantial change involves developing a completely separate course to address issues of sustainability. The new course BUS305 on 'Global Business, Society and Environment' planned for 2010 in the International Business Major is an example. However, as this course has not yet been run, I will focus on experiences others have had of teaching similar courses elsewhere. Although courses with 'sustainability' in their title only have a relatively short history, courses with titles such as 'Business and Society' or 'Business and the Environment' have been taught for much longer in some business schools. Consequently in many ways it is actually easier to develop a completely new course rather than try and adapt existing courses since existing templates and materials for such a course exist. Two of the leading texts in the field – Carroll and Buchholtz's *Business and Society* and Baron's *Business and its Environment* are now in their 5th and 6th editions respectively – and courses based on them have been taught at universities worldwide for many years. In both cases the texts originally focused on the Business-Society relationships but following the general trend have added environmental issues. The two texts adopt very different generic approaches to the subject, reflecting the backgrounds of the authors. Carroll and Buchholtz take an issue-centred approach, discussing a different aspect of the business-society relationship in each chapter from multiple perspectives. Baron takes a more theoretical approach starting from a consideration of non-profit issues in economics and strategy and then building on this to examine various non-profit issues that must be considered by managers such as environmental regulation and social responsibility.

The choice between the two approaches is very much dependent on the objectives and preferences of the lecturer although it does have some implications for how the course is taught. The theory-centred approach makes it easier to achieve coherence in the course as lectures build on preceding ones. The issue-centred approach requires use of multiple perspectives which some might argue is more beneficial in teaching sustainability. However, it does make it more difficult to achieve conceptual coherence in the course. This is discussed in more detail below.

New degree

The greatest degree of integration of sustainability into the business curriculum would be to create a completely new degree in which sustainability and business courses are interlinked. There are not many such degrees at the present time. The longest established undergraduate programme in Sustainable Business is that at Aquinas College in Grand Rapids, Michigan USA, first offered in 2004. This includes traditional business courses such as Management, Marketing, Accounting, Financial Management and Macroeconomics but also science courses such as Environmental Biology, Environmental Chemistry, Physical Science and Environmental Science and courses specifically on Sustainable Business such as Industrial Ecology, Sustainable Business Management and Building Social Capital. There are also elective courses such as Environmental Regulatory Compliance and Environmental Economics and Policy. As reported by Steketee (2009) the college was a leader in sustainable business education largely due to the fact that many of the local businesses in West Michigan are in the furniture industry and so were themselves leaders in sustainable business practices. Furthermore, the Catholic Dominican heritage of the College rooted in service to others provided a supportive environment for the programme.

According to Steketee (2009), the thinking behind the degree was based largely on the dissertation research of its chief architect Dr. Matthew Tueth on 'transformational sustainability' based on a systems perspective. This requires an understanding of natural systems and the programme was developed in collaboration with colleagues in business and the natural sciences as well as practitioners, and also benefited from advice from representatives involved with University of Michigan's (UM) joint MBA program between the Business School and the School of Natural Resources. The aim was to provide business students with a better understanding of what natural systems tell us about the impacts of business and train them to design and execute 'transitionary strategies'—those approaches that guide companies along a 'less bad' route of action.

As Steketee (2000) reports, one of the problems that they encountered in the programme was that there is no textbook that neatly fits the aim and content of the programme and they have had to piece together works from the management literature such as Hawken, Lovins & Lovins' (1999) *Natural Capitalism* and McDonough & Braugart's (2002) *Cradle to Cradle*. The other problem she highlights is what she calls 'cognitive turbulence'. This may occur when students realise they might be taking organic chemistry and accounting courses concurrently. It may also occur when they are asked to deeply examine their own lifestyles and the culture in which they live. Possibly the most significant turbulence she highlights stems

from the tension between conventional business and sustainable business perspectives. Some faculty might even view sustainable business courses as a threat to existing programmes, a passing fad, or another version of environmental studies.

Pedagogical Issues

Three generic pedagogical issues need to be considered regardless of the approach to sustainability that is adopted. These relate to theory, teaching method and resources required.

Theory

One of the key issues in incorporating sustainability into Strategic Management and International Business courses is that most existing theories and conceptual frameworks focus on profit maximisation as the goal and recent attempts at incorporating social and environmental goals are not widely understood or accepted.

Strategic Management as a field has tended to follow economics, particularly micro-economics, in favour of developing more rigorous theories based on economic theory. This is less of a problem in International Business, which as long ago as 1989 was recognised by the late John Dunning, one of the leaders in the field, as being interdisciplinary in nature (Dunning, 1989). However, even a cursory look at International Business textbooks will show that most have a clear disciplinary bias with macro-economics being the most common base discipline. The fragmentation of knowledge into multiple disciplines is not unique to business and management studies and also occurs in other fields such as natural science. While such specialisation has benefits in focusing research and teaching in a disciplinary area it can be a barrier in teaching a topic such as sustainability which requires interdisciplinary work. It can also foster a narrow view of the world which prevents academic researchers and teachers from engaging with the critical issues that face businesses in the real world. This problem of an increasing disconnection between management theory and practice has been recognised for some time by management researchers so much so that it has been a topic discussed at several recent management conferences. The late Sumantra Ghoshal, one of the leading thinkers in the field of Strategic Management, even went so far as to blame management theories that focus exclusively on economic profit for the many corporate scandals that have surfaced in recent years (Ghoshal, 2005).

One of the problems is lack of a common language that allows exchange of ideas from different disciplines. Some social science researchers have had some success in creating concepts that bridge disciplines. For example, the field of economic sociology, which combines economic and sociological theories, has had some success in tackling

some of the issues which have troubled neoclassical economists such as altruism and common good. Some have even suggested new frameworks specifically aimed at integrating all the aspects that need to considered in teaching sustainability to business students (e.g. Stubbs and Cocklin, 2008; Kashyap et al, 2006). The problem is that the majority of lecturers in the field of management will not be very familiar with this research and even fewer will have experience teaching the ideas. Some trained in the traditional economic theories may even reject the ideas. There is, therefore, still much work to be done both in developing theories of sustainable business and in educating the educators in their use.

Teaching Practice

Teaching of sustainability is relatively new but some guidance can be obtained from more extensive experiences with interdisciplinary teaching (Nikitina, 2006; Eisen *et al.*, 2009). Although they may not be titled as courses in sustainability, some universities have for years offered interdisciplinary courses that nevertheless cover many of the issues that are now covered under the umbrella of sustainability teaching. For instance, Wilson and Kwilecki (2000) described experiences of teaching an interdisciplinary course on Economics and Religion and highlighted some problems that can occur in such courses. One problem that they highlighted is overcoming the resistance of economics students who are more used to mathematical models to the more discursive teaching style that is the norm in religious studies. Another is convincing students of the value of the course for their future careers. The same issues arise in teaching of sustainability to business students who are generally even more results-oriented than economists. Aspiring lecturers of sustainability, therefore, need to not only convince students of the business value of examining sustainability but also educate them in the more philosophical mode of enquiry that is required. For many business students this is something that they may not have had to do in previous courses.

Much can also be learned from the experiences of lecturers who have had to teach business ethics courses to business students. In many schools sustainability is now covered in business ethics courses and many of those teaching business ethics courses have been struggling with the same issues that face lecturers teaching courses on sustainability. Similar pedagogical questions about how to elevate the ethical understanding of business students have been debated in the business ethics field for years (see, for example, Sims and Brinkmann, 2003). Although there is no one answer to the question, most seem to agree that achieving such an aim requires deeper and more personal reflection by the student than, say, a course in market analysis. My own experience of the occasions when I have attempted to introduce issues of sustainability and ethics into management courses suggests that this may be the most challenging problem for both students and lecturers alike.

Resources

A review of textbooks also indicates significant differences in resources available for each of the options. For introducing sustainability into existing courses, in response to increasing interest in sustainability, many textbooks on strategic management and international business now consider issues of sustainability in addition to traditional issues related to profit maximisation. However, as stated above, the integration of these issues into the text leaves a lot to be desired. My own experience is that these texts need to be supplemented by other materials such as case studies and articles from management journals or newspapers. Another useful resource that I have discovered is Youtube for video clips on topics related to sustainability. For example, I have used video clips of talks at the World Economic Forum in Davos to introduce discussions on the social and environmental responsibilities of major multinational corporations.

For separate courses in sustainability, as described above, several textbooks for Business and Society and Business Ethics courses exist which can be used for sustainability courses, either in their entirety or else for parts of the course. The main issue for new lecturers in business sustainability is that using these texts may require a significant learning on the part of the lecturer as they generally require some knowledge of concepts and theories which lecturers may not be familiar with or which they may not have taught before. For example, Baron's 'Business and its Environment' requires some knowledge of law, politics, ethics and history, as well as the more familiar business-related disciplines of economics and strategy.

For a complete degree programme on sustainability, no publicly available resources exist so these would have to be developed for such a programme and since such programmes are likely to be unique, teaching material would need to be customised for each programme. It remains to be seen if such programmes survive long term but if they do then more material may become available in the future. In the meantime lecturers would need to develop material themselves.

Conclusions

To summarise, various options are available for incorporating sustainability in the business curriculum, ranging from minor adaptations of existing courses to a full degree in Sustainable Business. In deciding which route to follow, consideration needs to be given to the following issues: the theoretical frameworks, teaching method and resources as issues raised vary with each option. These are summarised in table 1 following together with some ideas on possible teaching methods and other sources of information.

Extent of sustainability in the curriculum	Pedagogical Issues	Possible pedagogical methods	Resources available
Incorporate in Existing course	Integrating sustainability into existing theoretical/ conceptual frameworks	Lectures on history and theory Case studies in which sustainability is a strategic issue alongside profit maximisation Discussions and debates about recent newsworthy events and issues Group presentations on sustainability-related topic Guest speakers with experience and expertise on sustainable business practices	Ethical questions addressed now in several strategy/ international business textbooks e.g. Peng's 'Global Strategy' Various websites and discussion groups available on the Internet
Develop New course	Developing coherent framework for course while allowing incorporating fresh ideas	As above plus Integrated project on sustainability Interdisciplinary team teaching	No textbook on sustainable business management but latest version of existing textbooks on Business and Society available which address sustainability e.g. Baron's 'Business and the Environment'' Beyond Grey Pinstripes' website
Develop New degree	Achieving balance between adequate disciplinary training and need to show added value of the new degree	As above plus Proposals for sustainable business initiatives Internship with company to improve sustainable business practice	Few specialist resources available

Table 1. Summary of options and issues in incorporating sustainability in the business curriculum

Some practical tips on incorporating sustainability in your courses or program

1. Decide the extent of changes in the curriculum you want to make.

2. Check out the resources available – it varies considerably depending on the topic and the extent of changes.

3. Consider new teaching methods, especially ones that encourage the students to think more deeply about the issues.

4. Look at other examples of good teaching practice elsewhere in the university or outside – many course syllabi and other articles are now available on the Internet.

5. Keep up to date on sustainability teaching – the field is fast developing and so terms and issues change rapidly.

6. Join or look at discussion groups on teaching sustainability in your field e.g. the Academy of Management has one on the Natural Environment and another on Teaching Business Ethics.

7. Be aware that you may need to educate or convince your students about the value of looking at sustainability for business.

8. Be aware that you may also need to educate or convince your colleagues as well.

9. Be willing to change your own views and how you teach your courses in order to take account of sustainability issues.

10. Establish a dialogue with businesses and read the business press to identify issues that are of current concern to businesses - they can also help in all the above.

Sustainability in the Faculty of Arts

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Introduction

Gone are the days when universities delivered subject knowledge and developed skills related only to narrowly defined areas - when each Department, Faculty or School was a separate silo of proficiency, churning out graduates with purely discipline specific expertise. Today the graduates we produce must have a range of valuable attributes when they emerge at the end of their higher education experience.

One such attribute that forms part of the Macquarie University graduate capabilities in the *Review of Academic Programs White Paper (2008)* is 'sustainability':

> We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

However, whilst the University desires to produce graduates who understand, value and embrace sustainability, the task of achieving this remains squarely with the teaching staff across the broad range of discipline areas.

What is sustainability?

Before considering how we might teach sustainability it is necessary to address what it means. It is clear that this is no simple matter as sustainability is not susceptible to easy definition. It has no fixed meaning and perhaps is not even capable of definition.

Sustainability is often considered in the context of 'sustainable development' famously explained in the Brundtland Report *Our Common Future* as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (UN Commission on Environment and Development, 1987). The focus here is upon 'needs' as opposed to 'wants' and therefore implies limitations being placed on our activities. But this 'definition' is vague and unhelpful in the context of teaching.

More generally sustainability is broadly accepted as a concept involving balancing environmental, social and economic concerns. Each of these aspects can be considered separately. Environmental sustainability is perhaps what springs to mind first when we consider this issue - caring for the environment, not wasting resources or degrading our surroundings. Economic sustainability is perhaps the easiest element to define - ensuring we are behaving in a way that is financially viable now and into the future. Social sustainability is sometimes forgotten or sidelined but nonetheless is an equally important element of sustainability - ensuring that we treat people in fair and equitable ways, empowering them with access to information and rights to fully participate in decision-making.

In putting these three elements together it can be seen that sustainability involves adjusting both our way of thinking and the way in which we view and behave. This change of approach has application at different levels and in diverse contexts - from the global to the national and then more locally at this University. Importantly, in the context of teaching and learning, every discipline brings its own perspective and values and can contribute knowledge and skills to its achievement.

What then do we mean by 'sustainability' in the higher education context?

At its simplest sustainability refers to longevity; ensuring that we behave in a way which will enable our long term survival. This can be viewed at the macro level in terms of the long term survival of the University, right through to specific disciplines. This latter viewpoint can be illustrated in terms of ensuring the long term viability of our degree programmes or that our specific subjects or disciplines continue. In that sense it could involve changing curricula to meet the needs of our cohort. But in the past it has tended to be limited to an environmental focus - translated into ensuring we behave in a sustainable way in terms of our use of physical resources. Such an approach aligns well with early documents such as the *Talloires Declaration* (1990) which committed University administrators to sustainable development and use of resources in the tertiary sector. In that sense this 'definition' is not particularly helpful. Attention has now turned from just sustainable use of physical resources or environmental responsibility, towards consideration of a broader definition of resources – social capital, physical resources and economic viability. Therefore, long term benefits can be considered in relation to a wide range of criteria including ethics, the environment, economics and socio-cultural awareness rather than simply a financial bottom line.

However, this approach does not necessarily mean that our students will change the way they think. We need to encourage students to view the world through another lens by re-orienting education towards sustainability - moving away from a series of actions and towards a way of thinking

that is fully integrated in our teaching. In other words, sustainability must be embedded as a core value amongst both staff and students. In this sense teaching in the context of 'sustainability' could be said to mean ensuring equitable and socially acceptable practices together with the wise use of resources to ensure long term viability.

Sustainability can be embedded in learning and teaching in multi-faceted ways - administratively, procedurally and substantively. Firstly administratively in terms of our 'footprint' involving mapping and adjusting our use of resources be they social, economic or environmental. Secondly, we can adopt processes and procedures that ensure social, environmental and economic sustainability in our decision-making. Importantly sustainability in education involves looking more broadly at the way we teach - our methodologies, practices and techniques. Only then will sustainability become a fundamental aspect of curriculum design and review. Thirdly, we can consider sustainability issues substantively by incorporating them in the subjects that we teach.

It is perhaps in this third way that academic staff face the greatest challenges. Substantively we can incorporate teaching of sustainability in individual Units, in degree programmes and throughout whole Departments. Clearly Macquarie University has driven some of these changes with a University-wide *Learning and Teaching Plan* and the curriculum review. The Planet Units will ensure that all new students have an opportunity to consider the meaning, application and challenge of sustainability. But this by itself is not enough. To encourage our graduates to adopt sustainability as a core value, it must be embedded across a wide range of our Units. We need to develop awareness in students of sustainability issues and encourage them to think creatively about solutions and approaches to these issues within their specific disciplines.

How is 'sustainability' viewed in the Faculty of Arts?

The Faculty of Arts includes a broad range of discipline areas – anthropology, English, history, Indigenous studies, law, media, music, philosophy, politics, security, sociology, cultural and international studies. Whilst this diversity presents a challenge to the incorporation of sustainability in teaching and learning, three key advantages are also apparent. Firstly, the historical foundations of sustainability lie in politics, law, history and philosophy all of which form part of the Faculty of Arts. Secondly, it follows that many of the concepts and theories that underpin sustainability form part of these subject areas. And thirdly, all Arts subjects focus, to varying degrees, upon human society allowing at the very least social sustainability to easily form part of teaching and learning.

So whilst there is diversity across the Faculty there is also

a rich source of material to draw upon in relation to the sustainability debate. This is well known and it is clear that many aspects of sustainability are already being considered and taught by academics in the Faculty. A quick glance at the Faculty's degree programmes reveals many interdisciplinary Units in which sustainability has already been or can be easily included, for example: globalisation and culture; environmental law and sustainable development; literature and politics; Indigenous cultures, identities and globalisation; activism and social change; activism and policy design; and law, globalisation and cultural transformations.

However, sustainability is viewed and implemented in different ways by different academics. As each student will take a range of subjects during his or her degree programme, not all aspects of sustainability need to be taught in every Unit. Rather the aim should be to encourage students to think in a different way. So for example, in the School of Law the focus in many Units will be upon legal ethics, social justice, equity and fairness. In environmental law attention is turned towards the conservation of nature and natural resources; but in commercial law, economic sustainability issues are considered. Thus overall at the end of their university experience graduates can have engaged with all aspects of sustainability and hopefully learnt to think about law and justice in a different way.

A similar approach can be taken across all discipline areas each of which will bring its own values, focus, skills and knowledge. The challenge in embedding sustainability is to retain flexibility in the concept whilst incorporating content and methodologies in our teaching and learning. Regardless of our discipline area sustainability can be incorporated through consideration of the impact of the concept on that discipline; research projects which can add to the discourse; through the use of texts and course materials dealing with sustainability issues; examination of case studies with global to local sustainability themes; and incorporation of problem-solving exercises and discussion topics that address questions of social justice, environmental awareness and economic viability.

What we can do

1. Meet with colleagues in our Departments and programmes and talk about what sustainability means to us.

2. Identify where sustainability is already being taught within our programmes and Units and gaps which need to be filled.

3. Consider ideas as to how sustainability can be embedded both procedurally and substantively. For example, establishing new programmes and Units, strengthening or introducing elements of sustainability in existing courses.

4. Explore sustainability case studies for analysis. For example, socially sustainable building design, environmental ethics and philosophy, sustainable development in international politics, environmental law and policy.

5. Identify texts and course materials that address sustainability issues and build these into our Units.

6. Consider whether Sustainability@MQ projects can be utilised for study. Many of these projects address administrative and procedural aspects of environmental sustainability.

Conclusion

The need for sustainability in higher education has been recognised for some considerable time now. All the key global sustainable development instruments stress the importance of raising awareness, training and educating people about sustainability and we are presently in the middle of the *Decade of Education for Sustainability* (UNESCO, n.d.) with its goal of integrating the principles, values and practices of sustainable development in all education and learning. This challenge has been embraced by MQ in the curriculum review through the inclusion of a graduate capability which focuses upon awareness and active engagement in social and environmental sustainability. In order for it to become a core value sustainability really must be internalised and made a part of oneself and one's thinking. Such a change in attitude can only be brought about by building capacity and knowledge supportive of values such as professionalism, ethical behaviour and lifelong learning.

In terms of our graduates 'sustainability' must be promoted by integrating it in university curricula and teaching and learning with each discipline bringing its own skills, knowledge and perspectives. But it is essential for our students to embrace sustainability not only whilst they are at MQ but also to prepare them for graduate life in the 'real world' in which this concept and its twin 'sustainable development' have become paradigms of choice. We must move from 'sustainability' being considered peripheral to what we do, to its full integration in all aspects of our teaching. This will encourage students to develop skills and ways of thinking which can be applied to much broader fields than simply their discipline areas. In turn they will be encouraged to participate as global citizens and engage in addressing global to local issues for a sustainable future.

To achieve this we must all consider the meaning of sustainability to our programmes and how it fits within our curricula and teaching in general. At its heart 'sustainability' is a holistic and interdisciplinary concept. The first step is to think and reflect on what sustainability means for our students. This paper aims to engage staff in the Faculty of Arts in that process. The next step is to integrate

sustainability within our learning and teaching. Sharing of experiences and practices is an important part of this process. Lastly we must periodically reflect, review and adapt our curricula to ensure ongoing momentum on sustainability.

Sustainability is in essence a proactive concept, and its promotion and integration in education must be seen as a positive challenge. It is a concept that crosses all disciplines and so we must work together to develop strategies and methodologies for best practice education for sustainability in the Faculty of Arts and across the whole University. Only then can we achieve the change in thinking necessary for Macquarie University and its graduates to truly embrace sustainability.

Conclusion to Section 2

These contributions show that the UN Decade of Education for Sustainable Development is being interpreted in a range of ways at Macquarie University. From carrying out exploratory research about the ways in which staff and students understand the term to attempting to embed sustainability in student learning experiences and ensuring that whole programs are 'sustainable', sustainability has become part of the scene on campus. We have a role in educating students for sustainability, but also in creating programs and structures which can be sustained.

More than just a passing fad, the incorporation of the principles of sustainability into curricula will help us to educate students who are committed to lifelong learning, socially and environmentally aware and can cope with change, while ensuring that Macquarie retains a reputation for leadership in higher education.

It is clear that there is plenty of room for different approaches to embedding sustainability into the curriculum. It may be as simple as a thoughtful choice of examples, case studies or datasets, or as complex as the design and construction of an entire new program based around sustainability in a particular discipline area. In all cases the starting point is discussion and debate about what 'sustainability' could mean in a particular disciplinary context.

As the contributors note, if sustainability is truly to become a core concept in higher education, we must all engage with the ideas and integrate it into our curriculum. It is up to us all to provoke and encourage discussion or debate on sustainability at every possible opportunity.

Glossary of Terms

Biodiversity corridor: Biodiversity corridors are dedicated parts of a managed landscape where a locally-representative native vegetation association is retained or restored, ideally in a contiguous layout. When sufficiently networked with larger intact natural areas (eg > 2 hectares), biodiversity corridors provide for fauna movement and genetic exchange between suitable habitat patches. They may also comprise limited local habitat in their own right amidst surrounding non-natural land uses.

Biodiversity: Biodiversity refers to the variety of life on earth - plants, animals and microorganisms, as well as the variety of genetic material they contain and of the ecological systems in which they occur. In Article 2 of the 1992 United Nations CBD (United Nations CBD 1992a), biodiversity was defined as:

> *the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.*

Critical thinking: In education for sustainability, critical thinking is a process which involves a deep examination of power, consumption and root causes of our sustainability challenges, whether they are linked to economic, ecological, social or cultural issues. It engages us in recognising bias in the world around us and in reflecting on the assumptions underlying our knowledge, perspectives and opinions (IUCN Commission on Education and Communication, (2004).

Global community: The interconnected system; recognising the integral and interdependent nature of the Earth.

Global Futures Program: The Global Futures Program, which will commence in 2010 in conjunction with Macquarie University's new curriculum. Its aim is to develop partnerships, both local and international, which make valuable contributions to communities, and which are mutually beneficial. Programs will be developed in conjunction with local community groups, regional and remote councils, Indigenous groups, and nations throughout the South Pacific and South East Asia. All students will be required to incorporate the Global Futures Program into their degree with each placement earning students academic credit.

Local community: Local community is a geographically defined community of place, a group of people living close to each other. The term community suggests that its members have some relations that are communal - experiences, values, and/or interests may be shared, they may interact with each other and are concerned about mutual and collective well-being. (Wikipedia - http://en.wikipedia.org/wiki/Local_community)

Participatory decision-making: Education for sustainability aims to develop learners' skills, abilities and motivation. Learners are at the centre of the active participatory experience, with learning, facilitation and decision-making in the hands of learners themselves (IUCN, 2004).

Procurement: Procurement is described as the securing of goods and/or services made by an organisation in delivering their core activities to serve their community.

Sustainability principles: Incorporating the integration between environmental protection, social advancement and economic well-being into actions and practices.

Sustainability: Refer to Section 1, Figure 1 for a complete definition of sustainability.

Sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UN Commission on Environment and Development, 1987).

Sustainable procurement: Sustainable procurement has been defined by the United Kingdom Government commissioned Sustainable Procurement Taskforce as '…a process whereby organisations meet their needs for goods, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment' (Sustainable Procurement Task Force, 2006).

Systemic thinking: This is an approach to thinking that allows us to understand and manage situations marked by complexity. It exhibits an increasing emphasis on 'linking thinking', on integrated and adaptive management of problems and on interdisciplinary, participative and holistic approaches to learning.

The University: Refers to Macquarie University.

U@MQ: U@MQ Limited is a subsidiary company of Macquarie University, providing the non-academic services and facilities that help students and staff achieve a healthy and balanced approach to university life.

University community: Refers to the staff, students and community members associated with Macquarie University on a regular basis.

Values based learning: This approach to learning encourages people to explore the links between their assumptions, their biases, their culture and family, and their consequent decision-making. It is critical, reflective thinking and values based learning which contribute to envisioning a sustainable future (IUCN, 2004).

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