

Sustainability in the undergraduate and postgraduate business curriculum of a regional university: A critical perspective

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ABSTRACT

The challenge to embed sustainability in the formal curriculum has been greatest for the business studies curriculum. Schools of business have been perceived as key socialising agencies for the intelligentsia of advanced capitalist societies, whereas the students of sustainability need to be helped to critique the dominant capitalist paradigm and consider its alternatives. Drawing on a critical perspective of education for sustainability, this paper presents a detailed examination of the sustainability curriculum at a regional university in Australia. The paper contributes to the discussion needed to understand what sustainability skills are required by managers and how tertiary education programs may need to change to develop these skills. In this way the nature of the role that business schools should be playing in leading and managing change towards sustainability is further informed.

Keywords: sustainability, sustainable development, critical curriculum theorising, education for sustainability

SUSTAINABILITY AS A BUSINESS IMPERATIVE

Sustainability is emerging as a megatrend (Lubin & Esty, 2010), affecting policy at all levels of government, corporate strategy, consumer decision-making and education. Business as major polluters and consumers of natural resources (Johansen, 2007; IPCC, 2007) are a major cause of unsustainability and, therefore, an essential component of a sustainable solution (Kiuchi & Shireman, 2002). With their financial resources and innovative capacity, business is well placed to drive progress towards sustainable solutions (Hargroves & Smith, 2005), particularly when

managers have the requisite education and motivation to implement such practices (Bridges & Wilhelm, 2008).

Reasons for business entities to make the transition to sustainability are many and varied. Sustainability, like corporate social responsibility is linked to long term competitive advantage (Franklin, 2008; Lubin & Esty, 2010; Porter & Kramer, 2006) and an organization's increased ability to attract high quality employees (Hargroves & Smith, 2005). Many executives, particularly those within relatively large organizations (over 100 staff at the corporate level) see the long-term value and success of their business as

inextricably linked to the integration of sustainability into corporate management and operations (Ferraro & Sands, 2009). Smart companies treat sustainability as innovation's new frontier, one that yields both bottom-line and top-line returns (Nidumolu, Prahalad, & Rangaswami, 2009).

The business case for sustainability depicts resource waste as inefficient in both a business and ecological sense (McDonough & Braungart, 2002), and is supported by empirical observation of economically viable organizations, which are implementing a sustainable business paradigm such as 'natural capitalism' (Lovins, Lovins, & Hawken, 1999; Stubbs & Cocklin, 2008). Further, the responsibility of business to respond to the needs of a broad range of stakeholders to maintain their license to operate is made by Schaltegger and Wagner (2006) and supported by DesJardins (2007), who argues that social responsibility beyond profit making has always been the primary objective of business.

However a positive relationship between sustainability and profitability is not proven (e.g., Bonini & Oppenheim, 2008; Hamschmidt & Dyllick, 2006; Levy, 1995; Sharfman & Fernando, 2008). Indeed, a recent study found that only 47% of Australia's fifty largest publicly traded organizations integrate sustainability or environmental issues in to their mission statement and into at least two of the marketing mix components (e.g., promotion, product, place or pricing; Polonsky, Morrish, & Miles, 2009). This suggests that while sustainability is frequently being talked about within organizations as being important, it does not necessarily translate into a strategic integration across activities. Companies' commitment to sustainability tends to rise and fall over time, depending on what stage of its life-cycle the business is in (Elsayed & Paton, 2010). Perceptions within business professions over the importance of sustainability capabilities tends to be divided, as found in a study of the accounting profession (Martin & Steele, 2010).

Managers who most effectively manage for sustainability are critical thinkers who evaluate

the options put before them and find a path leading to sustainable outcomes and ultimately a sustainable business. To help with the transition to sustainability, business will require employees who have a new skill set focused on sustainability. A key place where these employees can gain this new skill set is as part of their undergraduate or graduate university education. However, current training approaches do not appear sufficient for meeting the challenges associated with a shift to sustainability (Hatfield-Dodds, Turner, Schandl, & Doss, 2008). For instance, a recent report into education for sustainability in the Accounting profession (Martin & Steele, 2010) found that most clients 'appear to be dissatisfied with the lack of skills required for a changing and more demanding economic environment, currently demonstrated by most accounting graduates'.

According to a CSIRO report, 'Growing the Green Collar Economy', achieving the transition to a low carbon sustainable economy will require a massive mobilisation of skills and training – both to equip new workers and to enable appropriate changes in practices by the three million workers already employed in these key sectors influencing our environmental footprint (Hatfield-Dodds et al., 2008, p. 1). Making this shift is dependent upon the organization developing a range of skills and capabilities, so that sustainability can be incorporated as a strategic consideration into daily business decisions (Dunphy, Griffiths, & Benn, 2007). Further, the need to develop new knowledge and introduce new skills will remain constant, as many areas of expertise are constantly growing (United Nations Economic and Social Council, 2005). Sustainability in business and industry, therefore, is a priority in 'Living Sustainably', the Australian Government's National Action Plan for Education for Sustainability (Department of the Environment Water Heritage and the Arts, 2009). In its Plan for Education for Sustainability, the Australian Government recognizes that key professions, such as engineering, accountancy, economics, law, architecture, planning and teaching have the

'greatest and most immediate impact on sustainability outcomes', and has prioritized these in terms of research support to incorporate sustainability into university courses (p. 23).

This paper examines the extent to which the university sector is ready to deliver on the expectation that sustainability be incorporated in business courses. It starts by defining sustainability and distinguishing its strong versus weak forms. Education for sustainability – generally, in higher education and in business schools – is discussed next, with examples presented from overseas and Australia. An in-depth critical analysis of the sustainability curriculum at undergraduate and graduate level in two business programs within a regional university is undertaken before drawing conclusions and making recommendations.

UNDERSTANDING EDUCATION FOR SUSTAINABILITY

Before defining education for sustainability, it is necessary to briefly revisit the meaning of sustainability. The often-quoted definition of sustainable development is one that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland, 1987, p. 8). Historically, the term 'sustainable' arose among those with environmental concerns, and most of the literature and assessment instruments reflect this emphasis. However, it is increasingly recognized that sustainability cannot be achieved without addressing social justice issues and humane consideration toward the whole community of life an essential part of true sustainability (University Leaders for a Sustainable Future, 2007). Hence, sustainability is an evolving paradigm for planning and decision-making, which requires a basic understanding of the interconnections and interdependency among ecological, economic, and social systems (Kemp, Parto, & Gibson, 2005; Munier, 2005; Schmuck & Schultz, 2002). These three independent dimensions or pillars of sustainability – ecological preservation, social wellbeing for all members of society and

economic viability – represent the widely recognized triple bottom line (Mawhinney, 2002).

The global financial and economic crisis has affected education in general – not only in terms of threats to budgets and learning opportunities, but also in terms of the very purposes of education: It has raised questions as to the kind of society and economy, indeed the kind of future education should prepare learners for. Further, education is asked to respond to the changing realities around us as well as prepare for – and contribute to – a different future (United Nations Educational Scientific and Cultural Organisation, 2010). These types of questions have long been important components of education for sustainable development (ESD), the critical role of which was recognized in the United Nations Decade for Sustainable Development (2005–2014; United Nations Educational Scientific and Cultural Organisation, 2007). The United Nations system sees an alternative future out of the crisis in terms of a 'green economy' with ESD as the best educational framework for addressing climate change (United Nations Educational Scientific and Cultural Organisation, 2010). Midway through this decade, it is timely to ask if we are halfway there yet.

Education for sustainable development is transformative and aims to influence education towards effectively addressing current global challenges. For instance, it promotes a sense of both local and global responsibility, encourages future-oriented and critical thinking, integrates traditional knowledge, builds recognition of global interdependence and promotes reflection on new lifestyles which combine well-being, quality of life and respect for nature and other people. Essential characteristics of ESD can be summed-up as (1) dealing with all three realms of sustainability – environment, society and economy, (2) being interdisciplinary – all disciplines can contribute to ESD and (3) promoting participatory learning and higher-order thinking skills (United Nations Educational Scientific and Cultural Organisation, 2007).

A term used synonymously with ESD is Education for Sustainability (EfS). Its five components resemble the three ESD characteristics: (1) visioning (imaging a better future), (2) critical thinking and reflection, (3) participation and decision-making, (4) partnerships and (5) systemic thinking (Hunting & Tilbury, 2006). As outlined by Hunting and Tilbury (2006, p. 52), EDS/EfS attempts to move beyond education in and about environment approaches to a range of sustainability issues. It motivates, equips and involves individuals and social groups in reflection and in making informed decisions and ways of working toward a more sustainable world. Underpinned by the principles of critical theory and critical thinking skills, EfS aims to go beyond individual behavior change and seeks to engage and empower people to implement systemic changes. To simplify the discussion in this paper, the term EfS is used in preference to ESD¹.

Educational institutions that improve the knowledge and skills of learners have the potential to profoundly affect social sustainability with consequent effects on ecological and economic sustainability (Reynolds & Cavanagh, 2009). Thus, education practitioners have been called to action to reorient curriculum and teacher education programmes to integrate EfS into programmes (United Nations Educational Scientific and Cultural Organisation, 2009). They should help students understand the roots of today's injustices and motivate them to seek justice and humaneness by modeling environmentally sustainable practices (Cobb, 1998) and galvanising constructive action (Barlett, 2008). By preparing students – and the whole campus community – to be more adept decision makers in the increasingly complex, dynamic, and uncertain future that we all face, integrating sustainability into all of the major activities of educational institutions

presents a tremendous opportunity (Glasser, Calder, & Fadeeva, 2005). On the whole, the concept of sustainability requires educational institutions to rethink their missions and to restructure their courses, research priorities, community outreach, and campus operations. The extent to which this has been achieved in universities, business schools and within business schools at a regional university is discussed in the next three sections.

PROVIDING EfS IN UNIVERSITIES

Universities and other institutes of higher education are tasked with the challenge of providing their students with the skills to meet the needs of society, even as they change and shift (Darby et al., 1996). This has led to the establishment of international groups, such as the Association of University Leaders for a Sustainable Future (ULSF), the Secretariat for signatories of the Talloires Declaration (1990)², which has been signed by over 400 college and university presidents and chancellors worldwide. ULSF supports sustainability as a critical focus of teaching, research, operations and outreach in higher education through publications, research, and assessment. Sustainability institutes are emerging around the world. Despite this activity, the international higher education for sustainability (HES) community is relatively new and has indicated a lack of cohesion among researchers (Wright, 2007).

According to the Australian Learning and Teaching Council (ALTC, 2010), there is currently no model in Australia within which to locate the many options and successful practice taking place. Hence, the ALTC is working with the University of Western Sydney to create and, by year's end, launch a sustainability website for Australia's higher education sector that will bring

¹ ESD is now more commonly used to denote ecologically sustainable design or development, while EfS is the term adopted by the Australian Government's Australian Research Institute in Education for Sustainability (ARIES).

² A 10-point action plan for addressing sustainability through teaching and research activities, campus operations and cross-sectoral outreach activities at colleges and universities.

TABLE 1: PROFILE OF SAMPLE UNIVERSITIES 2008/09 (RANKED BY INCOME)

ID no.	Location	Recurrent income in million US\$ (1)	Student numbers	Income per student in US\$	Academic staff numbers	No. students to academics	No. academic programs	No. academics per academic program	No. students per academic program
1	Canada	1,074	34,606	31,035	3,764	9	295	12.8	117
8	UK2	601	206,129	2,916	2,805	73	102	27.5	2021
11	Aust5	316	22,444	14,079	1,254	18	389	3.2	58
3	Aust1	261	28,670	9,104	1,236	23	330	3.7	87
5	Africa1	252	18,353	13,731	1,042	18	142	7.3	129
2	UK1	225	22,812	9,863	864	26	796	1.1	29
7	Aust3	203	15,606	13,008	653	24	568	1.1	27
4	Aust2	156	11,972	13,030	395	30	167	2.4	72
6	Africa2	103	12,795	8,050	823	16	126	6.5	102
9	Aust4	95	14,897	6,377	259	58	239	1.1	62
	Average	329	38,828	12,119	1,310	30	315	6.7	270

Adapted from Patterson (2009) and The Association of Commonwealth Universities (2009) (1) Government and non-government sources.

together sustainability courses offered across the nation into one single space. Meanwhile, there has been some work surveying what is taking place in aspects of tertiary-sector EfS. Notably the Australian Research Institute in Education for Sustainability (ARIES) was established in 2003 by the Australian Government to undertake projects with government, community and business organizations to develop their capacity to achieve improvements in sustainability. ARIES has undertaken a suite of three projects on EfS in graduate Australian Business Schools. The first project (Tilbury, Crawley, & Berry, 2005) examined business schools in Australia and overseas to identify and benchmark best practice in education in relation to sustainability in MBA Stage 2 (Hunting, May, & Tilbury, 2006) focused on driving change with seven leading Australian business schools that worked together to make changes to their MBA program using ESF action research. Building on these efforts, the final stage (Thomas & Benn, 2009) aimed to create change for sustainability in the learning and teaching

focus of five participating business schools and in their operations.

At an international level, the Association of Commonwealth University (ACU) Management Benchmarking Program, whose aim is to 'measure and promote excellence in university management' (2009, p. 5) reviewed the topic of 'managing sustainability' in 2009. The remainder of this section highlights the key findings from this study to establish the status quo of EfS in universities. Submissions were received from 10 universities in the Commonwealth – five Australian, two British, two African and one Canadian. Contextual data for these institutions is summarised in Table 1.

Institutions are ranked by recurrent income (as a proxy for resourcing), which closely matches academic staff numbers. Considerable variation in the different universities' contexts is evident. The Canadian university is by far (triple the average) the most resourced in terms of recurrent income (absolute and per student) and academic staff numbers (absolute and relative to students).

By contrast, the least resourced university is Aust4 with almost double the average student/academic staff ratio and the lowest recurrent income. All universities offer full-time awards to on-campus students with the exception of UK2. The biggest university in terms of student numbers, UK2, offers part-time awards by distance education only, allowing it to operate on the lowest income per student (one-quarter of the average) and the highest ratio of students to academics.

These contextual differences were accounted for by the assessor, whose key criterion for judging good practice was fitness for purpose of the chosen managerial approaches documented in the written submissions. The composite model of good practice in management of sustainability covered five areas – strategy and policy, education and research, operational considerations, administration and finance, communication and feedback. Results are provided in Table 2.

A clear relationship between available resources and sustainability ratings is not evident from Table 2. Likewise, the assessor, Patterson (2009, p. 49) concluded that there is 'no single way or right way to go about the management

of sustainability at university campuses'. Rather key success factors to ensure implementation of sustainability are commitment at senior management level, measurement and accountability and resources (Patterson, 2009).

Table 2 shows that the highest sustainability score is with sustainability in education and research. Indeed, Patterson (2009) noted that the 'integration of sustainability into the curriculum is impressive. It appears to be permeating curriculum, both where courses and programs are explicitly on environmental issues and in a broader sense through electives and numerous modules within professional programs' (p. 50). Yet Patterson also observed an absence of comments on sustainability being incorporated into the graduate attributes defined by the university. Her expectation that within the assessments provided there would be 'mention of the desirability of students graduating with a commitment to the highest ethical standards in environmental practices in the workplace or a commitment to lifelong learning regarding environmental stewardship of the land and/or planet in a global context' (p. 51). The extent to which an Australian

TABLE 2: RESULTS OF GOOD PRACTICE IN MANAGEMENT OF SUSTAINABILITY

No.		Re-source ranking (1)	Strategic context and policy* and research*	Sustainability in education and research*	Operational considerations*	Administration and finance*	Communication review and feedback*	Management of sustainability* (sum)
1	Canada1	1	4	4	4	3	4	3.8
8	UK2	2	2	3	3	3	4	3.0
11	Aust5	3	3	4	2	3	4	3.2
3	Aust1	4	3	4	3	3	3	3.2
5	Africa1	5	2	2	2	2	2	2
2	UK1	6	4	5	5	4	4	4.4
7	Aust3	7	4	3	4	4	4	3.8
4	Aust2	8	1	0	2	1	2	1.2
6	Africa2	9	2	3	1	2	0	1.6
9	Aust4	10	3	3	2	3	3	2.8
	Average		2.8	3.1	2.8	2.8	3	2.9

Adapted from Patterson (2009) (1) in terms of recurrent income. *Marks awarded on scale 1 (little evidence) to 5 (strong evidence)

university incorporates sustainability into undergraduate and graduate curricula is discussed later in this paper.

PROVIDING EFS IN BUSINESS SCHOOLS

As discussed previously, the transition to sustainability represents a major shift in public thinking and in business practice. If we accept that it is the responsibility of business schools to prepare students for careers in organizations, business schools need to prepare students for jobs in sustainability. Therefore, the skills required by business school graduates should be expanded or altered to reflect these realities. The imperative for business schools to act is becoming more pressing, because approximately one-third of higher education students in Australia are enrolled in the Management and Commerce Discipline and this figure is growing at around 4% p.a. Mixed field programs, those involving multiple disciplines, including university-wide sustainability majors, are growing rapidly (43% p.a.) albeit it from a low base (Department of Education Employment and Work Relations, 2008).

Yet, in terms of going green, business schools have suffered from the degree of inertia that characterizes most tertiary institutions and are lagging behind business sustainability leaders (Barlett, 2008; Bates, Silverblatt, & Kleban, 2009; Springett, 2005). Universities are inherently conservative and highly fragmented institutions (James, 2002), which tend to sustain and reinforce the dominant capitalist paradigm of production and consumption. Hence, conventional curricula of business schools reproduce socially and ecologically unsustainable values of affluent consumer society. Most people involved in higher education would admit that most student behavior with regard to sustainability behavior has not changed appreciably, most faculty are not engaged and do not see it as a high priority. Despite some contributions, awareness and action in relation to sustainability are at an early stage in most of the higher education institutions in the United States (Barlett, 2008) and in Australia.

When benchmarked against current international best practice in sustainability, Australian business schools were found to lag behind international counterparts (Tilbury et al., 2005).

A number of business schools have started to incorporate sustainability into their curriculum. The first-movers among the universities set ambitious goals, such as 'to become one of the nation's leading proponents of sustainability, to practice what we preach and to produce leaders in many fields who will find solutions for meeting the needs of their generation without short-changing future generations' (Ithaca College, 2004). Generally speaking, more graduate business schools offer green or sustainability courses than undergraduate (Bates et al., 2009; Bridges & Wilhelm, 2008). A recent sampling of 26 undergraduate business schools in the United States (5% of AACSB institutions) showed that only 10 (38%) offered at least one green course (Bates et al., 2009, 2010). This head start of graduate over undergraduate courses may be because graduate students have 'found' themselves and have greater professional commitment to the pursuit of sustainability (Greenspoon, 2008). However, the abundance of Efs programs at primary, secondary and vocational education levels suggests that university sustainability courses are just as relevant at undergraduate as at graduate levels.

Factors in designing Efs in business schools

One of the critical decisions in design of a business curriculum for sustainability is whether to adopt a weak or strong form of sustainability, as indicated by Kearins and Springett (2003) and Springett (2005). A comparison of the two different forms for the purposes of Efs is presented in Table 3. The weak form (the minimalist view) tends to operate within the traditional bounds and assumptions of business organizations. It is a convenient compromise between business and environmental groups, which facilitates a slightly greener and more environmentally friendly version of the business-as-usual response. It can be incorporated

TABLE 3: COMPARISON OF WEAK AND STRONG SUSTAINABILITY FOR EfS

	Unsustainability (weak)	Sustainability (strong)
Paradigm	Dominant social paradigm (DSP)	Threat to orthodox paradigm.
Education	Key socializing agencies for the intelligentsia of advanced capitalist societies. Important role of capitalist political economy. Modernism.	Challenges the rationality of the capitalist paradigm. Focuses on ethics and politics of sustainability (and unsustainability). Students need to be helped to critique the narrative of modernism and to consider its alternatives.
Assumptions about the environment	Can and should be managed.	Needs to be preserved.
Assumptions about the role of managers	Corporate managers should do the managing and that environmental management is a win-win situation.	Managers need to be circumspect, critical, dialectical. Acknowledge that environment does suffer under DSP.
Assumptions about management tools	Traditional management functions and concepts are appropriate tools to use.	Need dialectical discourse, shared reflection and action on forms political economy that enable us to live sustainably.
Values	Competition and market driven, self-enhancement.	Emancipatory intent, critical, change agent role, guide people in reflection and action, critical inquiry, explore complexity and implications of sustainability, ideological and political. Dangerous knowledge. Introduce thinking about changes to personal values and to institutional structures that are necessary to ecological and social accountability and sustainable relationships with nature and each other.
Skills	Convergent thinking, co-opts students values and views.	Divergent thinking, interrogate existing knowledge claims while employing a language of 'possibility'. Empowerment of students to help them hold a mirror to the world and show it as it is and as it has produced and shaped its own nature.
Political economy	While asymmetric political forces are obvious, they are not acknowledged. A sanitized picture of management is promulgated in business courses, distanced from the structures of power and interest that originally fashioned its emergence and development. Neutrality is feigned.	Ideological and political.
Literature	'Green' business literature has produced romantic narratives to explain the accommodation of sustainability and sustainable development concepts.	Critical theorization of sustainability.
Research questions	What business should do.	What business should be? How do we wish to live and what is the role of organizations in such living?
Role of business schools	Alert students to 'issues' and 'solutions', providing a managerial approach without a grounding in the genealogy and politics of these 'symptoms' of the ecological and social problematic.	Problematised the concepts of sustainability and sustainable development and to examine the contested ways in which they are framed. Help students understand the paradigm shift required in order for business to become sustainable, including changes at the structural and institutional levels. Prepare students for the change agent role.

Adapted from Kearins and Springett (2003), Springett (2005).

into business curricula by using perspectives and tools that reinforce the status quo in the current business world. Narratives of these curricula often focus on the 'what?' and 'how?' of environmental management strategies (cleaner production, eco-efficient operations and corporate social responsibility) within an eco-modernist framework. However, these narratives fail to address the fundamental question: 'How do we wish to live and what is the role of organizations in such living?' (Gladwin, Kennelly, & Krause, 1995).

The second and stronger form of sustainability is very powerful, as it has the potential to lead to vast changes in the way in which business is carried out. It challenges the norms and assumptions for traditional business organizations, including the rationality of the capitalist paradigm of product and consumption and focuses on the ethics and politics of sustainability and 'unsustainability'. The goal is to help students 'hold a mirror to the world', to introduce them to a dialectical discourse where problematic and opposing views are incorporated into discourses of sustainability and sustainable development and to empower them through a clear sense of urgency (Springett, 2005). In order to incorporate the stronger form of sustainability into business curricula, critical skills (including reflexivity, critique and social action/engagement) must be employed, in order to challenge current assumptions about business organizations. The starting point for a critical theorization of education for sustainability is the ideological conception that unsustainability arises from social, economic and political systems of the dominant social paradigm (DSP) and from the worldviews that support that paradigm (Springett, 2005).

Use of critical skills has been proposed as a means to bridge weaker and stronger forms of sustainability (Kearins & Springett, 2003). To facilitate this bridging, Rusinko (2005) espouses the use of quality management (QM), a well-known and widely taught management paradigm. QM is accepted by most business students and allows them to address sustainability in a manner that is consistent with traditional business assumptions.

At the same time, QM represents a newer, less traditional approach to management in terms of its holistic thinking and power sharing, which facilitates application of critical skills.

An influencing factor in the choice between adopting strong or weak forms of EfS – apart from institutional and academic – is that of business' expectations about sustainable job skills. A fruitful discussion about such skills starts with how jobs in sustainability might be usefully defined. Thomas, Sandri, and Hegarty (2010) define a green job as a role (a) in an organization with environmental management and/or sustainability at its core, (b) where environment or sustainability is the main responsibility (though not core business) or (c) where the intent of which is to reduce any negative impact made on the environment of the goods or services supplied. Broadly speaking, conceptual and management skills are likely to be required for professional green jobs. However, more research and discussion is needed to understand exactly the skills required now and in the future and how the tertiary education programs may need to change to develop these skills (Thomas et al., 2010). This is imperative if sustainability skills are to rank alongside conventional business skills. It will also assist with developing aligned course designs, where aims, objectives and graduate attributes dictate assessment with content being developed afterwards (Munn, 2003).

The employability of university graduates has been driving the development of graduate attributes. Further, government funding in higher education is becoming increasingly linked to performance indicators, such as the level of employer satisfaction with graduate skills (Jones, 2002). As a result of government and accreditation pressures (Association to Advance Collegiate Schools of Business, 2007), there is a clear imperative for universities internationally to integrate these attributes, including those relating to sustainability. Constructive alignment of learning outcomes, expressed in terms of graduate attributes, with learning activities, assessment tasks and assessment criteria is a way forward to developing employability skills (Trelaven & Voola, 2008), whereby

effective assessments provide a further stimulus for learning (Dean & Cowley, 2009; Lizzio & Wilson, 2004). Hence, the higher education sector is placing increasing value on its role in the development and embedding of generic skills or graduate learning outcomes into the learning experiences of students (Bath, Smith, Stein & Swann, 2004; Crebert, Bates, Bell, Patrick & Cragnolini, 2004; Jones, 2002), particularly in ways that students will encounter in jobs (Trelaven & Voola, 2008).

Graduate skills related to ethical and environmental awareness are one of the most recent to be included in universities' graduate attributes and have not yet been widely conceptualised. Unlike the other graduate attributes, their inclusion has been driven by Australian and international government initiatives (e.g., Hatfield-Dodds et al., 2008; United Nations Educational Scientific and Cultural Organisation, 2007), as discussed earlier. If university graduates have been deficient in ethical and environmental awareness, some employers to date appear not to have cared or noticed. This may be related to the perception that green jobs are in relation to vocational jobs, almost to the complete exclusion of recognition of the contribution made by the many professional areas (Thomas et al., 2010). On the other hand, some professions (e.g., accountants) and larger organizations are pushing for employees with sustainability-oriented skills (Martin & Steele, 2010). How a regional Australian university has started to reorient its business program curriculum toward sustainability is discussed next.

CASE STUDY OF EFS IN BUSINESS SCHOOLS AT A REGIONAL UNIVERSITY

Sustainability concepts and tools can be integrated into current business curricula either as an add-on program entirely devoted to sustainability or by integrating the subject into the various topics of current course offerings (Bridges & Wilhelm, 2008). At Southern Cross University (SCU), a signatory to the Talloires Declaration, sustainability has been integrated into the current business curriculum in three ways. Firstly, sustainability has been initially conceptualised as

one of seven graduate attributes in use at SCU and business schools – 'ethical, cultural and environmental awareness – understanding of the critical importance of ethical behavior, cultural and environmental awareness and sensitivity within all aspects of business'. Despite the call for all business majors to incorporate this attribute in their content, recent mapping exercises showed that its take-up relative to traditional graduate attributes has been low.

A second way in which sustainability has been integrated is through a university-wide sustainability major which has been available to undergraduate students since 2008. This major examines the social, cultural, economic and environmental aspects of sustainability. The major has two compulsory core units which provide the introductory and foundational knowledge on which the major is built. These units are *Global Environmental Issues* offered by the School of Environmental Science and Management and a broadly focused business unit *Ethics and Sustainability*. Students then choose a further six units from 10 sustainability-related units across the disciplines of Business, Environmental Science, Education, Tourism Management, Indigenous Studies, Arts and Social Sciences.

The strength of the sustainability major is the broad range of disciplinary perspectives of sustainability reflected in the basket of available units. The major exemplifies an essential course that bridges disciplinary divides, sharpens the focus on the reform of business and equips the next generation of bio-inspired business professionals and entrepreneurs with a knowledge of world-changing ideas based on what nature already knows (Steketee, 2009). In integrating sustainability theory and practice across multiple disciplines, the sustainability major offers a holistic curriculum.

A possible weakness of the university-wide sustainability major is that it is constructed entirely of existing units. No new units were developed specifically for this new major with all units also available within other disciplinary specific programs. The benefit of this approach is the minimal investment required upfront to offer the major.

The risk inherent in this design is the possible lack of academic coherence within a program of potentially disjointed units. At this stage there is no conclusive feedback from students to suggest academic coherence is or is not a problem with the sustainability major.

Thirdly, SCU has added sustainability into its business curriculum in both core units and units offered within business majors. In the undergraduate business school, sustainability has been embedded in the first-year, eight-unit Bachelor of Business core through the unit *Ethics and Sustainability*. Sustainability topics are also included in the first year core Accounting (sustainability accounting) and Management (corporate social responsibility) units. A dedicated *Sustainable Business Management* unit is included in the undergraduate Management major and in the university-wide sustainability major. Both of these units were introduced in 2005 following a five year review of SCU undergraduate business programs. During this review, an external panel consisting of industry professionals and senior academic staff recommended SCU shift their main business program, the *Bachelor of Business*, towards a Triple Bottom Line program with strong themes of ethics, social responsibility and sustainability embedded throughout the program.

Within the MBA program, a three or four unit Corporate Sustainability stream is offered which includes two business sustainability units (*Managing Sustainable Organisations* and *Critical Issues in Management*). *Critical Issues in Management* is also offered outside this specialisation in a schedule of 13 units of which students must choose six units. Most students completing this unit do not choose to do the sustainability specialisation.

Curriculum and assessment in sustainability units

To reorient or renew education by creating an EfS curriculum, educational communities need to identify knowledge, issues, skills, perspectives and values in relation to environment, economy and society (McKeown, 2002). Tables 4–7 apply

this analytical framework to each of the four SCU business sustainability units.

Drawing on the data compiled in Tables 4–7, Table 8 provides a summary assessment of the four SCU business schools' sustainability units in terms of essential characteristics of EfS – interdisciplinary, triple bottom line, participatory learning and higher-order skills (United Nations Educational Scientific and Cultural Organisation, 2007) as well as curriculum goal and form of sustainability taught (Springett, 2005).

While the individual units are clearly specific to the business-discipline, students have the opportunity to complement them with the inter-disciplinary sustainability major. Within each pair of undergraduate and graduate sustainability units, one has a theoretical goal (teaching about sustainability), the other a practical goal (teaching to achieve sustainability). Each of the business sustainability units addresses the three realms of sustainability, whereby the core unit does so in the most balanced way, i.e., one that gives equal weighting to environment, economy and society. The other three units tend to concentrate more on economic and environmental aspects.

The two undergraduate units espouse a stronger form of sustainability than the graduate units. Students in the core unit are equipped with a range of ethical frameworks with which to examine the root of the ecological crisis and are challenged to commonly held assumptions about business. The undergraduate elective, *Sustainable Business Management*, teaches a strong view to the extent that it offers a range of genuinely alternative business models, such as biomimicry, with which to achieve sustainability. By contrast, the two graduate units tend to focus more on facilitating incrementally greener approaches within the existing capitalist paradigms.

Assessment within each of the four business sustainability units varies somewhat, though the emphasis is on deeper, formative learning approaches as opposed to summative, test-based assessments, especially in the undergraduate units (see Table 4). The assessment of participatory learning is encouraged in the undergraduate units, but virtually non-existent at the graduate level.

TABLE 4: EfS CURRICULUM PROFILE OF UNDERGRADUATE-CORE UNIT *ETHICS AND SUSTAINABILITY*

Aim: Identify ethical dimensions at the root of the ecological crisis leading to an exploration of the concept of sustainability and its relevance to global society.			
EfS component	Environment	Economy	Society
Knowledge	Environmental ethics Environmental sustainability	Business ethics Sustainable economics Critique of neoclassical economics	Social responsibility of business Religious and cultural determinants of ethics Social and cultural sustainability
Issues	Contemporary ethical and global sustainability problems Professional competency/knowledge, reasoning/critical thinking, lifelong learning/research and communication (unweighted) through assessment (below)		
Skills and assessment	Critical ethical analysis of recent news article of student choice (35%) Ethics and sustainability case study: Choice of 5 cases (35%) Online discussion: Choice of 5 topics (10%) MCQ test (20%)		
Perspectives	Stakeholder theory, Global citizens, Deep ecology		
Values	Eco-humanism, Utilitarian, Intergenerational fairness, Social equity		

TABLE 5: EfS CURRICULUM PROFILE OF UNDERGRADUATE ELECTIVE *SUSTAINABLE BUSINESS MANAGEMENT*

Aim: Demonstrate relevance of sustainability concept to business. Explore CSR as a lens to evaluate all business activities. Introduce a variety of innovative tools to identify the means for business to manage their transition to sustainable organizations.			
EfS component	Environment	Economy	Society
Knowledge	Carbon management Corporate environmental management Ecological economics	Ethical theories applied to business CSR Building a sustainable business Emissions trading and carbon taxes Sustainable marketing and HRM	Sustainable consumption Socially responsible business Ethical organisations
Issues	Sustainable business models (Industrial ecology, natural capitalism, biomimicry, The natural step) Means of implementation		
Skills and assessment	Professional competency/knowledge, reasoning/critical thinking, lifelong learning/research and communication (unweighted) through assessment (below) Ethics and sustainability case study: Choice of 5 multinationals (30%) Sustainability report: Transform an organisation of student's choice to a sustainable organisation (60%) Online discussion re exemplar businesses (10%)		
Perspectives	Stakeholder, Transformational, social responsibility		
Values	Curiosity and questioning, community participation, equity, creativity		

TABLE 6: EfS CURRICULUM PROFILE OF GRADUATE ELECTIVE *CRITICAL ISSUES FOR MANAGEMENT*

Aim: Provide an understanding into promoting sustainable practices, acting in a socially responsible manner and dealing with legislative and regulatory trends.

EfS component	Environment	Economy	Society
Knowledge	The polluter's dilemma Biofuels and alternative energy Emissions trading and carbon offsets	Corporate social responsibility Sustainable organizations Promoting innovations and systems transitions	Safeguarding public values
Issues	Infrastructure provision Transport problems Risk, foresight and the future		
Skills and assessment	Contemporary issues related to energy and role of government in sustainability		
	Professional competency/knowledge, reasoning/critical thinking, lifelong learning/research and communication, creative problem solving, practical management skills (unweighted) through assessment		
Perspectives	Detailed critical analysis of a critical issue: Choice of 5 topics (50%) Final exam: 4 case study questions (50%)		
Values	Predominantly managerial and business oriented		
	Creativity, pragmatism		

TABLE 7: EfS CURRICULUM PROFILE OF GRADUATE ELECTIVE *MANAGING SUSTAINABLE ORGANISATIONS*

Aim: Provide specific means by which a sustainability strategy can be implemented within existing business.

EfS component	Environment	Economy	Society
Knowledge	The built environment Giving back to the environment	Theoretical underpinnings Competitive sustainability Harnessing technology Sustainable production	Human resources
Issues	Contextual forces and stakeholders Energy use and transport Where to from here?		
Skills and assessment	Available technology, means of implementation		
	Professional competency/knowledge, reasoning/critical thinking, lifelong learning/research and communication, creative problem solving, practical management skills(unweighted) through assessment		
Perspectives	Critical analysis of the sustainability credentials of a chosen organisation (20%) Sustainability plan for the chosen organisation (40%) Final exam (40%)		
Values	Dominant business paradigm		
	Curiosity and questioning, creativity		

A weakness of some university programs is the absence of a clear link between the development of graduate skills and their assessment (Patterson,

2009). Without making the link transparent, the achievement of learning outcomes cannot be verified. Within the two undergraduate sustainability

TABLE 8: SUMMARY ANALYSIS OF SCU BUSINESS SCHOOL SUSTAINABILITY UNITS

Business school unit	Curriculum goal	Triple bottom line focus of sustainability	Form of sustainability taught	Participatory learning	Higher-order skills
<i>Ethics and Sustainability</i> (undergraduate-core)	Teach about sustainability; theoretical	Balanced – all pillars addressed	Strong	Some	Critical analysis
<i>Sustainable Business Management</i> (undergraduate-major)	Teach to practice sustainability, practical	Balanced with emphasis on economic and environmental	Strong	Some	Critical analysis; creative problem-solving
<i>Critical Issues for Management</i> (graduate-stream)	Teach about sustainability; theoretical	Balanced with emphasis on economic and environmental	Weaker	None	Critical analysis
<i>Managing Sustainable Organizations</i> (graduate-stream)	Teach to practice sustainability, practical	Balanced with emphasis on economic	Weaker	None	Critical analysis; creative problem-solving

units there are clear examples where assessment design contributes to the development of SCU's designated graduate attributes such as:

1. Ethical and environmental awareness is developed in both units by exposing students to multiple case studies which identify unethical or unsustainable practice.
2. Critical analysis is assessed in the Ethics and Sustainability unit by requiring students to use a rational decision analysis process utilising both deontological and utilitarian ethical theories.
3. Creative redesign of business systems utilising biomimicry is part of the assessment in Sustainable Business Management.

The link between theory and practice is evident in *Sustainable Business Management* by requiring students to select an organization with which they are familiar and to identify a series of recommendations across sustainability performance criteria of waste management, water management, supply chain management, carbon management, transport and energy management, land management, and the redesign of production and distribution systems to enable the

transformation of the organization to sustainability. This is an onerous assessment task which replaces a formal final examination and requires academic staff to work closely with students to help with the design and progression of their sustainability reports.

The SCU business and sustainability units appear to be providing a sound theoretical foundation for students to understand important sustainability concepts. Students are given opportunities to apply sustainability concepts at individual, organizational and global levels through transformative sustainability assessments, activities and case studies. The undergraduate units, in particular the core, are most effective at developing graduates with the capacity to achieve sustainability outcomes. The finding extends the recent three-stage ARIES research project, which focused on EfS at graduate Australian Business Schools (Hunting, May, & Tilbury, 2006; Thomas & Benn, 2009; Tilbury et al., 2005). SCU graduate sustainability units also make extensive use of case studies relevant to the economic dimensions of sustainability, albeit within the dominant managerial paradigm on which the MBA rests.

Enrolments in sustainability units

The number of students nominating the university-wide sustainability major is very small – 13 in 2009. Preliminary evidence suggests students choose to do some of the units in the sustainability major but elect not to, or are unable to, complete the full major. At SCU, university-wide majors are available to be taken as second majors in a limited number of double major degree programs. Science programs at SCU require a high proportion of discipline specific content, thus excluding the sustainability major as an option for students. Within SCU business programs, the sustainability major is only available as a second major. This ensures business graduates have a vocationally oriented primary major, supplemented and broadened if they choose sustainability as their second major. Small numbers in the sustainability major are further explained by the inability of many students to fit a second major into their business degree programs if they enter SCU with advanced standing from other higher education institutions. The number of students completing each of the four sustainability units is provided in Table 9.

As shown, enrolments in both undergraduate units are relatively strong. *Sustainable Business Management* can be taken by students who choose to do the university-wide sustainability major, or students who have chosen the undergraduate Management major, or as an elective. There is no evidence of any substantial demand for the MBA Corporate Sustainability specialisation given that most of the students taking *Critical Issues in Management* do so as part of an MBA program which excludes the other units in the specialisation. The third unit is *Corporate Governance*. The specialisation suffers from a lack of obvious sustainability content, with only one unit of the three unit specialisation containing direct reference to sustainability in the title. However given the low demand there is no strong evidence that the investment required in developing four strong sustainability focused units is justified on economic grounds.

TABLE 9: NUMBER OF STUDENTS COMPLETING SUSTAINABILITY UNITS

		2010	2009	2008
Undergraduate	Ethics and Sustainability	464	503	511
	Sustainable Business Management	71	87	42
Graduate	Managing Sustainable Organizations	2	8	NA
	Critical Issues in Management	20	32	50

Student feedback on sustainability units

Table 10 summarises some of the feedback provided on the formal SCU Student Feedback System. Students complete online surveys towards the end of the teaching session and remain anonymous. The mean score provided is an average, with a highest score of 5 representing that the student very strongly agrees with the statement and a score of 1 representing that the student very strongly disagrees with the statement. *SD* measures the standard deviation, and *n* is the number of students responding to the student feedback survey. The 2010 score for Ethics and sustainability shows extremely high approval rating (4.6 out of a possible highest score of 5, with 94% of respondents agreeing or strongly agreeing with the statement that they were satisfied with the unit). The significantly higher approval ratings for 2010 are indicative only, as they relate to a smaller cohort of 16 from 54 students, pending availability of feedback from the larger cohort later in 2010. However the 2008 feedback is still favourable, but amongst a larger cohort of approximately 500 students' feedback is mixed (refer to Table 11 for qualitative feedback).

Table 11 provides a small sample of qualitative feedback provided by students studying the two undergraduate sustainability units. Feedback was extracted from the formal SCU Student Feedback System as well as from unsolicited email feedback

TABLE 10: FORMAL STUDENT FEEDBACK (QUANTITATIVE)

		2010	2009	2008
Ethics and Sustainability				
	n	16	166	129
This unit helped me to develop some valuable skills/attributes	Mean	4.6	3.8	3.81
	SD	0.6	1.1	
Overall, I am satisfied with this unit	Mean	4.6	3.6	3.8
	SD	0.6	1.1	1
Agree or Strongly Agree with statement <i>I am satisfied with this unit</i>		94%	62	70
Sustainable Business Management				
	n	21	25	10
This unit helped me to develop some valuable skills/attributes	Mean	4.0	4.5	4.1
	SD	1.1	0.7	0.9
Overall, I am satisfied with this unit	Mean	3.9	4.4	4.1
	SD	1.2	0.6	0.9
Agree or strongly agree with statement <i>I am satisfied with this unit</i>		77	92	80

provided by students to the Unit Assessor at the end of the teaching session.

The majority view expressed in the feedback received is supportive of sustainability units in the business curriculum. Furthermore, some of the feedback reflects the emancipatory and transformative potential of this curriculum, given the content deliberately ensures potential solutions to problems of unsustainability are provided. Nonetheless, the fourth comment reflects a minority view that any unit content outside the realm of business is irrelevant. Moreover the experience at SCU is that some academic staff within the business school uphold this view and believe ethics and sustainability should only be taught from a business perspective. Sustainability in business is still considered by some to be at the fringe rather in the mainstream of business curriculum. Hence, there has been a continuing need during the six years in which this unit has been offered to provide justification for the content to both students and staff.

CONCLUSION AND OUTLOOK

This paper provided the context for the sustainability curriculum at Australian business schools.

It also critically assessed the sustainability curriculum at a regional Australian university by applying the EfS framework as well as an analysis of sustainability form and curriculum goals. It was shown that sustainability can be incorporated into undergraduate and graduate higher education curricula in a number of ways. Doing so through a dedicated core unit with a strong sustainability orientation at undergraduate level is a particularly effective way to positively influence the behavior of students in their future jobs as managers, professionals, business people and citizens.

To progress the uptake of sustainability in business schools, the impediments to achieving EfS identified by McKeown (2002) need to be understood and addressed. They account for the lagging sustainability focus of business schools and/or low enrolment share of the sustainability major and electives at SCU and, possibly, at other institutions. Further research into the nature of student demand and motivation for sustainability versus traditional discipline-bound units and majors would highlight ways to build enrolments in sustainability. For instance what sustainability skills do students think business needs and which skills do students think they lack. What sustainability

TABLE 11: STUDENT FEEDBACK (QUALITATIVE)

1. Ethics and Sustainability (Formal SCU feedback system)

I have learned a lot from this subject that I will be able to use in everyday life.

I found this unit to be extremely thought provoking and very current in regards to issues affecting the world at the moment.

My personal development during this course has been greater than any other course I have completed

I thought this unit, as a business student, was incredibly irrelevant, and served no purpose what so ever for my future education. I thought I was studying religion, geography, and history on any given day, and not a business degree, and as I said earlier it drew to(sic) much valuable time from other major subjects with 3 assessment tasks and an exam to come, as opposed to 2 assessment tasks in bigger and more important subjects. I am very disappointed in this subject and its irrelevance to a business degree.

2. Sustainable Business Management (Formal SCU feedback system)

The values I am learning from this unit have already had an immense impact on my career and have resulted in a promotion

I have found this unit so practical, a lot more, 'real' than most units. I've gained so much insight and learnt so much valuable information through it.

I'm extremely satisfied with this unit, from the amount of knowledge gained, to learning new ways to think about solving problems related to sustainability. I never realized how in depth it was going to be, but I feel that all the areas covered were completely relevant. Thanks so much for a wonderful semester of very interesting learning.

3. Both units (Informal and unsolicited informal feedback sent by email to Unit Assessor)

Both these units seem to me to be vital for any student undertaking business studies.

At first, I found this course a bore. But now it makes me think more about how to live an ethical and meaningful life.

Being exposed to the literature that surrounds this unit has strengthened my personal opinions as well as my resolve and determination to actively participate in the creation of a sustainable world for the future.

I have thoroughly enjoyed this unit and it is one that will stay with me forever.

It was while participating in ethics and sustainability I realised that through trying to work, study and obtain security for my family I had actually forgotten or didn't have time for a lot of my feelings towards the world and how it is managed.

...just want to say how much of an impact the Ethics and sustainability unit really has for the ordinary accounting major student. This unit has really made me think about the direction of my career, and the impact we have.

skills organizations think they need (and when) also needs to be determined.

A further impediment to achieving EfS based on experience at SCU is the skepticism amongst some students and staff of the relevance of exploring within a business program the broader political, social, cultural and environmental context in which business takes place. This reinforces the need to have a strong rationale for sustainability

curriculum design within business programs and a willingness to continually explain and justify this rationale. Furthermore at SCU the version of sustainability (weak versus strong) underpinning curriculum redesign was found to be different at undergraduate and graduate levels. The notion of starting with a stronger form of sustainability at undergraduate level and then shifting to weak form sustainability within the graduate MBA

program appears curious. This is more reflective of the specific views and preferences of the academic staff driving each program, rather than a deliberate or planned distinction.

These impediments need to be addressed at the curriculum planning stage. Indeed, there is scope to develop a more sustainable business curriculum for the next generation of business students, one that reimagines the role of business and its various professions, as well as the role of educators in business. Drawing on the SCU undergraduate experience, this should be a curriculum that espouses a strong sustainability worldview, teaching students how to make effective business decisions that are simultaneously in the best interests of customers, society, the environment, as well as the organization.

New sustainability courses should be designed with a view to improving learning outcomes, as urged by the AACSB. For instance, by offering experiential learning opportunities, students can be prepared to initiate and implement sustainable projects in organizations. A number of exemplars for designing and implementing university sustainability courses are readily available (Bates et al., 2009, 2010; Greenspoon, 2008; Ithaca College, 2004; Springett, 2005; Steketee, 2009; United Nations Educational Scientific and Cultural Organisation, 2005) as are teaching techniques, such as QM (Rusinko, 2005) and general EfS tools (McKeown, 2002). In addition, sustainability education of academic staff through a faculty development programs can considerably strengthen our understanding as professional educators and our ability to contribute to institutional change, as shown by evidence from the Piedmont Project at Emory University in Atlanta, USA (Barlett, 2008) and Jamaica (Down, 2006). Further, another way to enhance educators' learning about sustainability is through collaboration by linking EfS between schools, vocational and higher education (Roffe, 2010).

On a larger scale, the efforts by the ACU's Management Benchmarking Program for sustainability could be extended to all universities through the uptake of the Sustainability Assessment

Questionnaire (SAQ) for Colleges and Universities. This qualitative questionnaire is a useful starting point to help assess the extent to which an institution is sustainable in seven critical areas of higher education, including curriculum; research and scholarship; institutional mission, structure and planning and student opportunities (University Leaders for a Sustainable Future, 2007). Finally, following Wright (2007) and Reynolds and Cavanagh (2009), more work needs to be done to develop the research priorities for HES in Australia, in order to help improve its design and uptake.

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