Beyond Leather Patches (BELP): Sustainability Education at RMIT University

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Introduction
Universities have a key responsibility in helping to build social capacity for a sustainable future. Yet, despite demand from students and employers and lighthouse examples of innovation, sustainability principles are far from integrated into mainstream curricula. The Beyond Leather Patches (BELP) project, based at RMIT University, seeks to provide practical guidelines for integrating the broad concepts of sustainability into a wide range of university courses. More broadly, the project aims to achieve a deeper understanding of methods to achieve curriculum and institutional change for sustainability.

The BELP project provides an opportunity for educators to begin to engage in the theory of sustainability education through a supported and facilitated process. Three Schools at RMIT are currently working on the project: the School of Social Science and Planning, the School of Management and the School of Property and Construction Management. The project methodology creates ownership through the development of an understanding of sustainability issues as they relate to education within the Schools and their respective professional practices.

While this project is currently in progress, the initial results include a course audit identifying the sustainability content currently offered within the Schools and a survey of staff attitudes towards teaching sustainability. We can also report on a series of workshops conducted to help educators shape their own visions of sustainability and to identify the type of support needed to transform teaching approaches. As an example of the type of support needed, we developed a web resource for teaching staff with tools, information and examples of the general theory behind sustainability education, current best practice, case studies, and information and links to sustainability concepts and tools for use in course material.

Education for Sustainable Development
Development towards a sustainable society entails conceptually planning for new forms of future living of humans on earth. Thinking towards a more sustainable society involves dealing with the unknown and with complexity. Baud (2004) believes we are successful at planning for a short-term future, but are unable to consider long-term alternatives for a future that we can neither feel nor practically experience; although we have a sense of our problem areas and of the potential alternative approach that exist

(Marsh and Yencken 2004). This lack of certainty is one of the main causes of resistance to change (Baud, 2004).

This dilemma is reflected in all levels of our educational systems. We continue to pursue traditional teaching and learning patterns with individuals trained to think and act with individual benefits as a focus reinforcing the dominant capitalist paradigm of Western society (Sprigett, 2004). As our pursuit of knowledge grows within increasingly specialised disciplines, we often lose sight of the overarching goal of a humane future where every citizen has the necessary knowledge, understanding, skills and values for a productive and rewarding life in an educated, just and open society (Baud, 2004). It has been argued that our best hope to achieve this goal is education with a moral and ethical foundation that shapes character and strength of mind (UNESCO, 1997). The concept of education for sustainability has been suggested as a practical and useful concept that can integrate across professions and disciplines to provide solutions to our many deep-seated problems (Government of Western Australia 2003) and has become the keystone of the global dialogue about the human future (Orr, 2002).

Internationally, through conferences, publications and commitments, there has been increasing activity in moving towards the inclusion of environmental understanding and sustainability in tertiary institutions for over ten years. The first formal recognition of the role of education for sustainability was at the Rio Earth Summit (1992) with the inclusion of Chapter 36 "Promoting Education, Public Awareness and Training", in Agenda 21. One of the Summit's key outcomes focussed on the broad role of education in sustainable development. This has continued with the development of several other initiatives, including:
- Tallories Declaration of University Leaders for a Sustainable Future, October 1990;
- Halifax Action Plan for Universities of the conference in "Creating as Common Future", December 1991;
- Copernicus University Charter for Sustainable Development of the Conference of European Rectors, Autumn 1993;
- Kyoto Declaration of the International Association of Universities, November 1993; and
- Student Charter for a Sustainable Future of the student unions of the United Kingdom, July 1995 (USLF, 2001a).

In 2002 the World Summit on Sustainable Development (WSSD) in Johannesburg reconfirmed and promoted the need to reorientate the role of education within the sustainability agenda (Lang, 2004).. Most recently the declaration of a United Nations Decade of Education for Sustainable Development starting in 2005 has repositioned the significant contributions of education to sustainability
'Education for Sustainable Development is an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future' (UNESCO, 2002).

Sustainability education differs from traditional approaches to environmental education in that it focuses sharply on more complex social issues, such as the links between environmental quality, human equality, human rights, peace and their underpinning politics (Fein et al, 2004). Baud (2004) notes that sustainability is not a purely academic topic, but focuses on real life issues and the needs of humans. Education for sustainable development needs to deal with how the world is today, particularly its social and political fragmentation. Education in this context has to incorporate current daily happenings in an inter-disciplinary and inter-cultural setting, requiring citizens to have skills in critical enquiry and systemic thinking to explore the complexity and implications of sustainability. Fein 2004, argues that this new educational approach also requires a new pedagogy, which sees learners develop skills and competencies for partnership, participation and action. This shift has had implications for how to conceptualise and approach issues such as school governance, pedagogical approaches, curriculum, extracurricular activities, and resource management (Wooltorton, 2002).

Universities have a responsibility to lead society towards a sustainable future, as they operate within a broader societal context and have the potential to contribute to the social dynamism, economic security and environmental sustainability of the communities with which they interact (Cortese, 2003) Universities prepare many of the world's managers, decision-makers, designers and teachers, and therefore have considerable influence over the direction society takes (Fien 1993, Bekessy et al 2003). The Association of University Leaders for a Sustainable Future (ULSF 2001) argues that, as in business and industry, the success of higher education in the twenty-first century may be judged mainly by the extent to which sustainability becomes a cornerstone of academic practice. Despite the wide recognition of this responsibility, and the documented demand from students and employers, sustainability principles are still far from being integrated into mainstream university operations and curricula. While there may be agreement on the overall goals of education for sustainability, its creation and implementation at local, regional and national levels is somewhat problematic due to the institutional and cultural structures in place(Holdsworth and Caswell, 2004).

Universities are institutions bound by tradition founded in disciplines mostly hundreds of years old. Their reputations and those of their scholars depend on disciplines with longstanding boundaries and credentials. Baud (2004) believes that university education is anchored in the tradition of a mono-disciplinary knowledge supply with a strong tendency of progressive specialisation; this has created the stereotype of university professors as old men in tweed jackets, with leather patches at the elbows.

These traditional disciplines, together with outdated inflexible structures and systems, contribute to the lack of university engagement with education for sustainability. Furthermore, education in universities is typically fragmented and almost ad hoc in contrast to the trans-disciplinary approach required for sustainability education. To move beyond traditional academic paradigms and disciplines we need a greater emphasis on collaboration and cooperation, with thinking that is systemic and multidisciplinary (Holdsworth and Caswell, 2004). This is not a threat to the existing disciplines – we need their history and depth – but we must also work across and sometimes outside and around

them. Baud (2004) believes that this rigid practice of specialised professionalism needs reflection in a holistic context of future options. A sustainability paradigm and education for sustainable development therefore, demands a trans-disciplinary approach to educational methodologies (Fien et al, 2004). But collaboration of this nature is not the norm in universities and requires a deep cultural shift: with transformative change as a central focus. Whilst this is difficult to achieve, it is likely to lead to profound institutional change. Lang (2004, p. 6) notes that

'Change is central to any definition of sustainable development that challenges us to reorient or re-vision our ways of thinking and doing. Change can only occur if learning is engaged and for this reason pursuing the processes associated with sustainable development requires learning. It is this connectivity with change and learning that the role for education in sustainable development becomes evident'.

Only transformative change can allow us to develop a vision of a sustainable future so that as empowered and engaged citizens we can act individually and collectively, think critically and reflect on our current lifestyles allowing for positive environmental and social change. This has implications for learning and education because it challenges educators to engage in deeper learning and teaching (Fien, 2001).

The key innovative feature of the Beyond Leather Patches project resides in the selected approach to change management. In contrast to seeking change through academics conforming with a centrally mandated, whole-of institution policy, this project recognises that educational change comes about through cultural changes in the way academics work with their disciplinary expertise, interact across interdisciplinary boundaries, and negotiate the forms, purposes and pedagogies through which knowledge and learning experiences are prepared for, and experienced by students (Fullan 1999). Hargreaves (1997) argues that embedding and scaling up innovation is more a matter of re-culturing educational practice rather than merely restructuring curricula. In Hargreaves' terms, the approach adopted in BELP project is one in which the 'cultures of teaching' in different university departments are the 'prime focus for educational change' (Hargreaves, 1997, p.1).

Similarly, Stacey (2000) argues that cultural change in organisations is most effectively managed as a process of learning through dialogue and praxis grounded in systems thinking (see also Asomba 2000, Senge 2000). The BELP project advocates a cultural change approach among staff across different academic departments in a university. This involves dialogical analyses of the knowledge forms, purposes and pedagogy that underpin curriculum development in order to facilitate the movement from reactive and adaptive modes of curriculum action to creative, reflective and generative modes (after Kim 2001).

Senge (1990) describes such changes in modes of thinking as organisational learning. According to organisational learning theory, obtaining change in an organisation is equivalent to learning as it requires people to learn about the change, accept it, and implement it (Argyris 1993; Schein 1995). As Sterling (1996, p.37) notes, '*You cannot learn without changing, or change without learning*'. The major change that occurs through organisational learning is in the mental models – of sustainability in the

curriculum in this case – held by individuals and groups. When collegial discussion and reflection on mental models and a questioning of the assumptions and wordviews that underpin them leads to the generation of new, shared mental models, then organisational learning can be said to be occurring (Kim & Senge 1994). Schein (1992; 2001) adds that organisational culture change also results when such learning results in changes that bring policy and practice into alignment with the new mental model. Such inquiry into mental models is rare in organisations and groups that do not have knowledge of and skills in organisational learning. In these cases, individuals tend to ignore those who present a different view, believing that their own view is right, or that inquiring into the other's mental model will result in that person reacting defensively. Such behaviour prevents organisational learning from occurring. Conversely, the development of tools for organisational learning – one of the focuses of this study – helps groups to develop the skills and ability to inquire into each other's mental models, thereby enabling organizational learning and cultural change to occur.

Education for Sustainable Development within Australian Universities
Despite the recognised need for a rethink of current education practices, Australian Universities have been slow to implement sustainability policy and practice, even slower than industry in many instances (Bekessy et al. 2003). Within Australia 10 of the 38 tertiary institutions have signed the Talloires Declaration (USLF, 2002), but those that have signed often fall short of publicly indicating an interest in green curriculum (Thomas, 2004). While universities educate some students about issues such as poverty, cultural impact, global warming, life-cycle assessment, environmental economic strategies, and species extinction, the vast majority of graduates are ignorant of their subtleties. Consequently, they are often poorly prepared to integrate the economic, environmental, cultural and social dimensions of their professions or to see opportunities in implementing sustainable practices (Bekessy et al. 2003).

Thomas (2004) suggests that there are still substantial barriers evident in the Australian tertiary system to implementation of education for sustainable development. A survey of Australian universities conducted by Thomas and Nicitia (2003) found that considerable confusion exists over the concepts of sustainability education. This is consistent with Filho (2000) who argues that concepts of sustainability and sustainable development are contested and their application into university curricula is bound by the idea that sustainability is too abstract, intuitions have no personnel to deal with sustainability, sustainability demands resources that institutions do not have or can not justify and that sustainability lacks scientific basis.

Bekessy and Burgman's (2001) survey seeking information about environmental curriculum from Australian and selected International Universities found a slight majority of Australian institutions responded that the extent to which courses addressed sustainability within their institution was either 'quite a bit' or 'a great deal'. Responses related to the integration of environmental knowledge, values and ideas into courses across institutions, however, indicated that participation was at a low level; fewer than a quarter indicated 'quite a bit' or 'a great deal'. Thomas (2004) argues that these results are a clear indication that the adoption of sustainability education by universities in

Australia, is at a low level and only a handful of Australian institutions are working to that end.

Sustainability Education at RMIT - Lessons Learned
Previous attempts have been made to integrate sustainability across curriculum, but most have failed to move beyond one-off innovation to mainstream, embedded practice (for examples, see Tilbury et al 2004). Transforming isolated innovations into embedded practice requires a profound understanding of both curriculum change processes and, more broadly, organisational change and development. Many obstacles must be negotiated, including organisational inertia, already over-crowded curricula, and the need for staff re-training.

Within RMIT there have been two attempts since 1996 to introduce sustainability education at RMIT University. Strategies for introducing curriculum change were developed by working with the staff of programs from different disciplines. The projects focussed on establishing a process to work with staff and students, but did not include the development of specific materials. It was apparent that staff members, had difficulty gaining access to relevant materials and without the required resources to support staff and pursue the strategy across the institution, the initiative languished. The report of one project concluded:

"*The Environmental Literacy Project demonstrated that the 'diffusion model', in which already committed individuals are expected to change the entire culture of departments from the bottom up, is not going to work. What is also required, if RMIT is to fulfil the commitments it has made by signing the Talloires Declaration, is active leadership from the top, a new approach to staff development, and adequate resources to allow staff to integrate environmental content into their teaching material.*" (Findlay and Thomas, 2000, p8)

Staff who were directly involved were originally enthusiastic, but were provided with no opportunities to expand that enthusiasm to the other staff via outreach programs such as staff training and development, resulting in a lapse of sustained motivation. As a consequence, the motivated staff were quickly caught up in the day-to-day demands of their programs, and the opportunity to broaden the curricula was lost.

The outcomes of these projects indicated that to support these models of curriculum renewal, curriculum structures and materials are required. These materials are readily available (for example Alverez and Kyle, 1998; and Second Nature, 2002); however, they have not been widely used. Key issues may be academics' limited knowledge of the availability of the materials, how to use them, the time (acknowledged as part of their work) to pursue curriculum change, and and understanding of why their engagement with sustainability education is important.

Beyond Leather Patches (BELP) Education For Sustainable Development at RMIT University

The Beyond Leather Patches project is an action research project focussing on embedding sustainability capability into core curricula currently running at RMIT University. Its design has been informed by insights from previous attempts to engage with sustainability education within RMIT. The project is an attempt to create lasting change in both organisational structure/operations and curriculum content. The BELP project aims to determine the key mechanisms required to up-scale and turn sustainability curriculum innovation into embedded practice.

Funding for the project for one year was provided by the Department of Sustainability and Environment (DSE) Greenhouse Policy Unit. DSE saw the BELP project as an opportunity to consolidate the groundwork that has been undertaken in the tertiary sector and to ensure that universities are aware of the demand from industry for sustainability capabilities. While discussions with academics began with greenhouse issues it was soon realised that greenhouse epitomises the complexity of sustainable development and the focus moved to the broader issues of environmental and social sustainability.

This project will identify the key mechanisms required to turn sustainability innovations into embedded practice in a university context. Specifically, the aims of the project are:

1. To understand the drivers and barriers for/to curriculum change.

2. To undertake a series of action research projects aimed at applying organisational learning and cultural change processes for embedding sustainability into the curriculum of a university.

3. To develop a flexible change framework for sustainability education for use by other academic units and universities, and

4. To make general recommendations about the types of models and approaches that can influence organisational learning and change for sustainability.

The BELP process seeks to advocate the need for alternative practice in delivering sustainability education across the schools within a Higher Education Institution. This project represents significant cross-campus collaboration between the three Schools at RMIT the School of Property Construction and Project Management and the School of Management and the School of Social Science and Planning engendering a spirit of collegiality within and across discipline areas

The project seeks to assist in the creation of a holistic vision of sustainability where it can be defined in the context of the discipline, understood in relation to the limitations and opportunities presented in societal practice, and taught in a way that is progressive rather than reactive. The project provides assistance in the identification of systemic links across the Schools where relevant sustainability capabilities and theory can be linked to program content. In turn there are opportunities for assisting student development and creation of their own vision of sustainability, and shaping it in relation to their chosen discipline and its professional practice.

RMIT has committed to several international declarations and internal policies that aim to ensure that environmental/sustainability education is addressed and implemented. These include the Tallories Declaration, RMIT's Teaching and Learning Strategy, RMIT Strategic Direction: A Sustainable RMIT and the Program Renewal Process. These agreements and policies commit the university to sustainability education, legitimising the aims of the BELP project.

The key requirements of the BELP project are:
i.   To use a sample of program teams to design and implement a model that establishes greenhouse issues into their curricula, under the broad framework of sustainability analysis and outcomes;
ii.   To select participating teams from the Schools within RMIT where courses selected would be those most relevant to greenhouse;
iii.   To develop of a web resource that includes;
  - a communication framework inviting discussion and reflection (to assist the staff involved in the pilot) and which presented the findings of the model and how to apply it in any university;
  - tools for climate change education development' and
  - Case studies.

Alabaster and Blair (1996, p 98) have suggested that academic staff are "...*often ideologically resistant to curriculum changes that emanate from outside the bounds of their discipline*."   In order to address this issue the BELP project work within RMIT is specifically focussed within three Schools with a core support team and identified academics from within the Schools to facilitate a process that is tailored to the discipline area. The project team has extensive experience in the provision of sustainability training courses and programs and currently conduct a range of research programs and other projects relevant to their areas of expertise..

The School of Management and the School of Property, Construction and Project Management, were selected in January 2005 to participate in the BELP project. The selection of the two Schools was based on their understanding, sympathy and attempted experience in integrating concepts of sustainability issues into their curriculum. Organisational change within institutions requires guidance and support from the top (Bekessy et al. 2003), hence it was considered important to the success of the project to have upper management support. The 'Head of School' for the Schools involved in this project are very supportive of the project.

Thomas (2004) suggests that curriculum change with a sustainability focus also requires a 'bottom-up' approach. Meima (1997) comments that commitment from key individuals and 'charisma', can be very important in initiating and sustaining change. However, for there to be a 'groundswell', other staff would have to appreciate the relevance of sustainability to their work. Cowell et. al. (1998) from their experiences in organisational renewal in tertiary organisation have identified three major barriers to change that can be summarised as:
  ▪ a lack of a culture of value or priority given to sustainability;

- a lack of organisational and resource support for staff; and
- a lack of training for academic staff.

The BELP project structure and methodology has been informed by these obstacles and RMIT's past experience with similar curriculum renewal projects to create a process that is more likely to result in successful change.

To ensure that staff within each of the Schools feel supported, engaged and empowered an academic coordinator was engaged for a one year to work as part of the BELP project team. The role of the Academic Coordinators is to coordinate activities within the Schools utilising the opportunity for academic staff to precipitate change. Authors including Atkisson (1999) and Whiteley (1995) have written generally about the instigation of change, but particularly about the importance of appreciating innovation diffusion and of the role of shared core values amongst the key staff. Overlying the specifics of the implementation approach are three strategies for motivating change. According to AtKisson (1999), transformation will be assisted by:
- promoting the new - highlight the benefits of the innovation, noting its superior features;
- critiquing the old - attack the status quo, directly or subtly, and pointing out the problems and weaknesses; and

The success of this project hinges on the appreciation of the context in which the work is taking place. Requiring a contextual understanding of the pedagogy within schools, how sustainability is understood and implemented and informed by professional industry bodies, organisations, and potential employer groups. The academic coordinators have a valuable insight into the culture of the schools and an understanding of the discipline area assisting in the identification of areas in which sustainability content can be embedded. As valued and respected members of the School they ensure that the project is based on collaboration and shared understanding.

To overcome an identified major obstacle cited in actioning organisational change and curriculum renewal – time – part of the project budget has been used to buying out the academic coordinators from their daily activities. This is especially important as previous curriculum renewal projects conducted at RMIT have been unsuccessful at facilitating last curriculum change. While those involved in the RMIT studies in the past have expressed strong interest in sustainability education other areas of resistance have dissuaded them from developing this focus in their teaching. Thomas (2005) suggested that, area of resistance may have come from the financial and administrative difficulties of developing cross-departmental (usually cross-disciplinary) initiatives.

In February 2005 a project coordinator was appointed to coordinate, develop the project methodology, assist and to act as a resource for the project team, and to establish the website, develop material.

BELP Project Methodology

The project uses an action learning approach to generate the kinds of organisational learning needed to embed sustainability-based curriculum innovations across the university curriculum (Fien 2002b; Fien & Hillcoat 1996). This approach has been based

on the action learning models being developed in education (e.g 'communities of practice' – see Wenger 1998; Wenger et al 2002) and in organisational learning for change processes increasing being used by corporations as strategies for embedding sustainability into their management and operational processes (e.g. Kim & Anderson 1998; Dunphy et al 2000).

Since Revans first introduced action learning in UK coalmines in the 1940s, there have been many variations of the concept. However, all forms of action learning share the elements of collegial teams discussing, planning, resolving and taking action on real problems - and learning through questioning and reflection while doing so. The attraction of action learning is its power to simultaneously address complex challenges and develop people and organisations at minimal resource and time costs to the institution for change that is 'owned' by participants. Revans never operationalised action learning into a standard approach (Marsick & O'Neil 1999), but over the years a number of individuals have developed approaches and models that capture the essence and critical elements that make action learning successful (eg. Marquardt, 1999; 2004; Pedler, 1997; Weinstein, 1995).

The Marquardt approach is used as a basis of this project because it captures the essential components of the process originally proposed by Revans, and has been effectively implemented worldwide in many types of organisations (Marquardt, 2003, 2004). Marquardt's approach to action learning is built around six components: (1) a problem or challenge of importance to the group; (2) a group of 4–8 members of an organisation; (3) a process that emphasises questions and reflection; (4) the power to take action on strategies developed; (5) a commitment to learning at the individual, team and organizational levels; and (6) an action learning facilitator who focuses on and ensures that time and energy are devoted to capturing the learning and improving the skill level of the group (Marquardt 1999; 2004).

These aspects of action learning have been facilitated in this project through four main phases. However, the approach has been flexible to allow the 'champions' within each School to set directions for curriculum redevelopment.

1. Sustainability Course Audit

Course audits have been conducted by the academics coordinators within two of the Schools; the School of Management and the School of Property Construction and Project Management. Part of the aim of the audit was to engage staff members individually to raise awareness and create early momentum.

The objectives of the audit included:
- Identification of courses containing material focussing on sustainability;
- Identification of opportunities and barriers to embedding sustainability capabilities and concepts into current teaching practice;
- Perceived need for sustainability knowledge and capabilities in graduates by industry; and
- Staff attitudes to the sustainability education.

The results of the audit provided an insight into the attitude of staff from within the Schools towards education for sustainability. Within both Schools sustainability is thought of as a concept that educators see as relevant to student learning and there is recognition that the concept is being taken seriously by industry. However, many barriers to its inclusion into course curricula were identified. These include a lack of content knowledge of the concept, time, crowded curriculum, student interest, financial resources, and the identification of sustainability issues relevant to course subject matter. The results also indicated that individual are willing to work towards building sustainability concepts into their courses if provided with some assistance in the form of: content identification and development, for example case studies, role plays, video clips, co-teaching/joint supervision, literature reviews, and access to guest speakers and better quality research.

2. Action learning workshops

Given that holistic models of sustainability education have yet to be developed it is important to keep course content flexible and open for change. The discourse and interaction over language, cultural, and disciplinal barriers needs to be pushed and practiced. Basic knowledge transfer has to be taught by emphasising the relation to real situations and made relevant to students in the context of the discipline (Baud, 2004).

The aim of the workshops was to develop a broad understanding of the place of sustainability in programs and courses and to develop approaches and strategies for implementing them. The workshops were run to engage and encourage staff to include sustainability content into existing content and develop new courses where relevant. The sessions were structured to provide academics with the opportunity to explore how the sustainability paradigm sits best within their subject material and to think about how they define sustainability in both their personal and professional practice. The workshop structure recognises the importance of reducing barriers to the adoption of sustainability into course curricula by developing a culture of collaboration across the school, and providing a safe and open forum for real discussion to be had about a complex and often contested paradigm. This approach is consistent with recognised details of training components of institutional change as suggested by Filho (2000) which include:

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

The workshops were opened by the respective Head of School, demonstrating to staff that there was high-level commitment to the project. This was followed by a speaker internal to the University, who is widely respected for their research and/or teaching practice. Internal speakers reinforced the need for sustainability capabilities within curriculum, and emphasised the advantages for graduates and the School. An external speaker known in the respective industries for their leadership around sustainability also presented at the workshop. Their role was to discuss the current and future role of sustainability within

the industry, the need and advantage for graduate capabilities in sustainability and to provide best practice/inspirational examples.

The presentations were followed by discussion to identify academics interested in participating in the project and to develop a process for going forward. It was decided that the best way to work on courses was for the academic coordinator and project coordinator to work with individuals and small groups reviewing current course guides and content.

3. Development of a Web Resource

A web resource was developed to assist with the incorporation of sustainability content into courses (http//www.rmit.edu.au/ssp/BELP). The website has three main objectives:
1. to present information, tools and examples to assist the conceptualisation of sustainability education and to support curriculum development.
2. to present findings of the BELP project including activities, approaches, courses and lesson plans.
3. to act as a communication platform to provoke discussion and reflection.

The website has been divided into 4 main areas:
Sustainability Education: Curriculum and Pedagogy.
This section provides information in the form of articles books and websites that review the current discourse around education for sustainability, specifically focussing on curriculum and pedagogy. This will allow participants to interpret and evaluate past and present models and approaches.

Sustainability Education in Practice
This section presents information on the current discourse around education for sustainability as it related to specific disciplines and provides information about the dominant trends in various discipline areas in relation to sustainability and the methods used to teach this material. It includes theory, websites, case studies and tools.

Sustainability Resources and Teaching Aids
This section contains a variety of sustainability related concepts and tools. It provides developed teaching materials, definitions, websites and links to organisations with further information.

Discussion Platform
This space provides a platform to submit relevant information and discuss the project.

4. Action learning through action research

In action learning, the most valuable learnings occur when action is taken, for one is never sure the idea or plan will be effective until it has been implemented (Pedler 1997). Action learning groups have been established in each of the Schools to review generic and School specific findings from the course audits.   The group work is facilitated by the academic coordinator and the BELP project co-ordinator and aims to explore ways of

enhancing the adoption and integration of sustainability themes into the Schools' programs and courses.

Examples of Curriculum renewal approaches as part of the BELP process

Property Construction and Project Management
A number of courses within the School of Property, Construction and Project Management [PCPM] are currently being restructured as part of the BELP project. The three principal courses identified are:

Environmental Management (new course);
Research & Sustainability (existing course); and
Affordability and Sustainability (Study Tour) (existing course).

These courses are being developed or rewritten to consider sustainable buildings and construction in a number of different ways. The general approach taken follows a methodology previously developed by Graham (2000) in his paper 'Building Education for the Next Industrial Revolution: Teaching and Learning Environmental Literacy for the building Professions'. Graham describes a method of teaching sets of principles that describe both the personal attributes of the student and the nature of their actions. This approach enables students to analyse their professional approach and the reasons for the decisions they make as construction professionals. The degree to which a student has embodied these principles will be demonstrated through their understanding of a number of key concepts. Students must also learn tools and methods that allow them to demonstrate that they understand the concepts, and apply them in problem contexts to solve resource and environmental problems (Graham 2000).

In the new third-year Environmental Management course, students are asked to consider a building that they live or work in, or a live construction project, and in view of global and regional economic, social and ecological issues, produce a report detailing the changes they would make, if any, to increase the sustainability, both in terms of the building structure and its operation and maintenance. This provides students with skills including an understanding of the reuse and recycling of existing building structures and materials, jobsite waste management, choosing and educating suppliers for environmental purposes, and building commissioning and monitoring (Hayles and Holdsworth, 2005).

The third-year Research and Sustainability course has been redeveloped to ensure that students understanding of research informs their ability to critically examine sustainability. The students are taught sustainability principles using different research methods so that they better understand the often complicated decision making that surrounds sustainability issues. Students are expected to complete a literature review on a topic relating to one or more aspect of sustainability, showing that they have grasped the key concepts and can apply critical thinking in their approach to developing a research question for their final year project.

Sustainability and Affordability is a Study Tour elective open to all students within the University. Students attend seminars and site visits in both Melbourne and in New

Zealand where they are given the opportunity to compare methods of eco-assessing domestic building designs. They will also look at key environmental issues and adaptive housing designs. Students must complete an assignment to demonstrate an understanding both in wider sustainability and affordability issues as well as looking at current best practice in housing development. They are asked to produce housing plans for a specific location taking into consideration issues that may impact on sustainability performance and long-term affordability. To complete the course, students are invited to present, in an open forum, the key challenges they experienced in planning for sustainability and critically explore whether, in their opinion, housing sustainability must be driven by the house builder or the consumer. It is hoped that this hands-on approach will mean that students are better equipped to tackle complex issues in their own professional practice.

In addition to these courses, a further seven courses (four first year and three second year), across the four disciplines within the School (construction management, project management, property and valuation), have been identified and core themes of sustainability are being embedded. It is intended that this approach will provide these students with grounding in sustainability (theory and practice) and a solid foundation for specialist sustainability subjects, including electives, introduced in third year.

By allowing the students to critically question their own views of sustainability, they can examine the way they interpret the world and how their knowledge and opinions (morality and ethics) are shaped by those around them. Discussing sustainability in this context allows an exploration of the concept within society as a whole and the construction industry as a focus; how these influence current personal and current/future professional practice (Hayles and Holdsworth, 2005).

Consequently the most successful way of engaging students and enhancing their awareness of the issues has been to personalise the experience, allowing them to take ownership of the notion of sustainability before looking at the building and construction industry's current response. As a result there is a move away from the traditional lecture to a more hands on approach, one which makes it easier for the students to foster values and behaviours, deepening their understanding of the issues, and to recognise the importance and complexity of the decisions they will be asked to make in their professional lives. This approach involves challenging preconceptions. In teaching sustainability it is necessary to challenge that way of thinking and convince students that they can make a positive difference to the state of the world and that there is hope for a sustainable future.

This is just the start of an on-going process to embed sustainability principles and demonstrate best practice approaches to sustainable decision making, design and construction in courses within the school (Hayles and Holdsworth, 2005).

School of Management

One of the key strengths in the School of Management is that a is a strong tradition of action research and action learning. Implicit in this approach is the notion of collaboration, reflective practice and process facilitation.   Hence the learning environment needs to be reframed as one of collaboration where learners and educators are co-creators of experience and meaning (Cunliffe, 2002). This makes robust relational and process facilitation skills critical in facilitating learning for sustainability. These also happen to be the same skills that we need to teach our students as they work collaboratively in sustainability projects. While academics in the School of Management recognised their limited understanding of environmental sustainability, anxiety around this seemed to be contained by a realisation that their expertise in process facilitation and individual and group behaviour was just as valuable in educating for sustainability.

Initially, academic staff were likely to indicate that they did not cover sustainability in their courses. Some suggested that sustainability could not be seamlessly integrated into their courses. However, through the process of completing the audits and participating in the workshops and follow-up conversations, staff came to realise that most management courses do cover social/human sustainability; they simply use different terminology to that used within the sustainability domain. This realisation was useful in a number of ways including demystifying sustainability and thereby making the topic less daunting. Consequently, some academics were able to identify ways in which they could begin to introduce sustainability into their courses and not necessarily wait until they felt they had technical expertise in all aspects of the topic, particularly the ecological dimension. One such effort involved setting assessment tasks such that students were invited to begin to think about how they might as human resource management practitioners, become change agents for sustainability.

The need for a critical perspective in educating for sustainability (Barnerjee, 2004, Springette, 2004), presents a challenge for management education. Currie and Knights (2003) note the discomfort with and resistances to critical management education at the student, teacher and institutional levels. This may be due in part to a potential for critical frameworks to disempower and alienate (Cunliffe, 2002). The overtly political and polemic nature of critical perspectives can be perceived as anti-organisation by some of the stakeholders. Hence the challenge in teaching management students to think critically about some of the assumptions they take for granted and perhaps cherish is likely to be a delicate balancing act. On the one hand there is a need to thread carefully particularly around the more political and value ridden issues. At the same time however, one needs to be mindful of the fact that the problems facing contemporary society and organisations are complex, and they require leaders with a capacity for critical thinking and entrepreneurial imagination (Chia, 1996).

Conclusion
This chapter describes progress to date on a large, collaborative project titled 'Beyond Leather Patches', which seeks to embed sustainability principles in non-traditional disciplines at a university in Australia. We present initial results of audits of sustainability content currently taught in the selected Schools and describe the attitudes towards sustainability education of key academic staff. The potential obstacles and barriers

identified by staff, and lessons from previous attempts to embed sustainability into curriculum were used to inform the approach used in the project. Action learning workshops allowed the project team to identify courses that can be redeveloped to include a sustainability focus. A website was established to provide resources and tools to assist staff develop discipline-specific material. The unique aspects of this project that increase the likelihood of success include a highly collaborative, interdisciplinary project team, the provision of financial support to academic coordinators in each of the Schools to allow time to be committed to the project and the focus on making sustainability content relevant to each discipline and linked to capabilities desired by industry.

Ensuring that education within universities no longer reflects the professors with tweed jackets and leather elbow patches, we need to rise to the challenge set by EF Schumacher, the celebrated author of Small is Beautiful (1973) when he wrote,

'Education which fails to clarify our central convictions is mere training or indulgence. For it is our central convictions that are in disorder, and, as long as the present anti-metaphysical temper persists, the disorder will grow worse. Education, far from ranking as [our] greatest resource, will then be an agent of destruction.'

The BELP project through curriculum renewal in line with education for sustainability seeks to nurture future professionals, our greatest resource, in a way that will create a more sustainable future, which after all should be our central conviction.

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