

## Evaluation of curriculum change at RMIT: experiences of the BELP project

*Sarah Holdsworth, Sarah Bekessy and Ian Thomas*

*School of Global Studies, Social Science and Planning, RMIT University*

### ABSTRACT

This paper evaluates the process and outcomes of an action learning research project undertaken during 2005 entitled 'Beyond Leather Patches' (BELP), which aimed to embed sustainability principles in non-traditional disciplines at RMIT University, Australia. The BELP project drew on the insights of previous attempts to address education for sustainability at RMIT and sought to achieve lasting change in organisational structure/operations and curriculum content. The academics who participated in the project were involved in curriculum audits, workshops, and renewal of their curricula and a culture of open collaboration and reflective practice were actively encouraged.

The project resulted in several tangible outcomes including 16 new and revised courses in a range of discipline areas, and the development of a flexible change framework to assist the establishment of sustainability content into curricula. However, despite obvious enthusiasm from individuals involved in the project, transforming isolated innovations into embedded practice has not been particularly successful. Attitudinal surveys of the staff involved revealed that

- Identifying and retaining staff with sustainable development knowledge and skills is difficult
- Educating for sustainable development can act as a vehicle for the improvement of teaching and learning practice and the linking of research to curriculum development.
- Understanding of disciplinary culture and practice is crucial to creating curriculum change.
- Management and collegial support is necessary to ensure curriculum change programs address the many barriers faced by staff.
- The relationships developed by those working with staff are crucial in determining the level of success of the project. These relationships are shaped by factors such as status, presence and personality.
- Curriculum change projects for sustainable development education need to allow for the exploration of disciplinary and institutional assumptions that shape definitions of sustainable development. This is essential to avoid the development of shallow and simplistic interpretations of sustainability and its place in the curriculum.

This study highlights the need for a greater understanding of the theory and practice of organisational change to achieve long lasting curriculum change for sustainability.

## EDUCATION FOR SUSTAINABLE DEVELOPMENT

Current global trends provide evidence of a world in crisis describing, both qualitatively and quantitatively, the decline of our environmental and social systems (Brundtland, 1986; Flavin, 2002; OECD, 2003; Oxfam International, 2002; Porritt, 1991; UNEP, 2002, 2003, 2005). A more sustainable future requires transformative change so that, as empowered and engaged citizens, we can act individually and collectively to critically think and reflect on our current lifestyles and allow for action that results in positive environmental and social change (Fien et al., 2004). The challenge of education is to create/empower a change in attitude and behaviour if we want to see a different future to the projected one based on current trends; one that can be described as more sustainable (Orr, 1994; Schumacher, 1973).

Education for sustainable development is advocated as one way of decreasing the disconnection between humans and the natural environment (Schumacher, 1973; Stirling, 1996). Education of this kind requires a new pedagogy, which sees learners develop skills and competencies for partnership, participation and action; where individuals develop skills to critically enquire and systematically think about problems in ways that allow them to explore the complexities and implications of a more sustainable way of being (Fien, 2001).

Four interdependent systems that underlie education for sustainable development are:

- Biophysical systems – which provide the life support systems for all life, human and non-human.
- Economic systems – which provide a continuing means of livelihood (jobs and money).
- Social and cultural systems – which provide ways for people to live together peacefully, equitably and with respect for human rights and dignity.
- Political systems – through which power is exercised fairly and democratically to make decisions about the way social and economic systems use the biophysical environment.

(Fien, 2001, p.4)

This is particularly important in universities as “universities train most of the world’s managers, decision-makers and teachers” and “as institutions play significant roles in national and global economies” (Bekessy et al. 2003, p.1). According to Jucker (2002b, pp. 241-242) universities all over the world have an obligation to further sustainability for three reasons:

1. Universities produce those that will reproduce the existing power structures.
2. Academics themselves create and run society’s political and social institutions that in theory underpin and run our capitalist economy and technological direction, direct the world’s media, and educate our students.
3. Universities are afforded a very privileged status by society.

Universities have begun to engage in commitments to achieve institutional change for sustainability improvement through institutional greening programs and curriculum development (Thomas, 2004). However, sustainable development has not become widely

embraced by the university community or embedded into teaching and learning practice (Thomas, 2004). As a result, most graduates remain poorly prepared to integrate the economic, environmental, cultural and social dimensions of sustainability into their professions or in the workplace. Equally, graduates often do not gain the associated generic capabilities of effective communication, problem-solving ability, analytical skills, teamwork, flexibility and adaptability that are sought by employers (Thomas & Nicita, 2003) and which are key outcomes of a sustainability-focused education (Fien, 2001). One explanation for some of the lack of attention to sustainability is presented by Leal Filho in “Dealing with misconception on the concept of sustainability” (2000) who argues that sustainability is often resisted within organisations as it is considered to be:

1. Too abstract.
2. Too broad.
3. They are not trained to handle it.
4. The amount of resources needed do not justify it.
5. The theme has no scientific basis.

While the literature to date has focussed on setting an international agenda for the integration of sustainability into public education, and offers principles that could form the foundation of education for sustainable development, there is a lack of research on ways of implementing these principles. To redress this lack the Beyond Leather Patches (BELP) project, based at RMIT University, Australia was an action learning research project undertaken during 2005. The project aimed to embed sustainability principles in non-traditional disciplines, and an evaluation of its process and outcomes will be the focus of this paper.

### **BEYOND LEATHER PATCHES (BELP) SUSTAINABILITY EDUCATION AT RMIT, AUSTRALIA**

The Beyond Leather Patches (BELP) project, based at RMIT University, was a one year action research project funded by the Greenhouse Unit of the Victorian Department of Sustainability and Environment. The project aim was to develop practical guidelines for integrating the broad concepts of sustainability into a wide range of tertiary courses within two Schools at the University. The main objective of the project was to identify key mechanisms required to turn sustainability innovations into embedded practice in a university context.

The BELP project provided an opportunity for educators to begin to engage in the theory and practice of sustainability education through a supported and facilitated process. The project built on the experiences of previous curriculum renewal projects at RMIT. The outcomes of these projects indicated models of change which rely on committed individuals are not enough to allow staff to integrate new content into their curriculum (Thomas, 2004). Curriculum renewal requires active leadership, staff support and adequate resources to assist in a change in practice (Thomas, 2004).

The project commenced in 2005 and was managed and overseen by two academics from the School of Global Studies Social Science and Planning. The School of Management and the School of Property, Construction and Project Management, were selected to participate in the BELP project. The selection of the two Schools was based on their understanding, sympathy and previous experience in attempting to integrate concepts of sustainability into their curriculum. A core support team was identified from each School, and a project plan developed to facilitate a process tailored to the discipline area. This addressed the concern of Alabaster and Blair (1996, pp. 98) that academic staff are "...often ideologically resistant to curriculum changes that emanate from outside the bounds of their discipline."

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 'Heads of School' from the participating Schools were actively involved and extremely supportive of the work that was conducted within the project.

A 'champion' from each School was engaged for a one year to work as part of the BELP project team, with the role of coordinating activities and precipitating change. Time availability has been repeatedly identified as a major obstacle in actioning organisational change and curriculum renewal. Hence, the project budget included 'buy-out' of the champions from some part of their daily activities. 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. The champions took on the role of instigating change using these general principles.

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

## **BELP PROJECT METHODOLOGY**

The project used an action learning approach to generate the organisational learning needed to embed sustainability-based curriculum across the university curricula (Fien, 2002b; Fien & Hillcoat, 1996). Action learning is a powerful way 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. The approach used was based on the action learning models developed in education (e.g. 'communities of practice' – see Wenger, 1998; Wenger *et al.*, 2002), the elements utilised involved collegial teams discussing, planning, resolving and taking action on real problems, and learning through questioning and reflection while doing so.

Specifically the Marquardt approach to action learning was adopted (Marquardt, 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, 2004).

These aspects of action learning have been facilitated in this project through four main phases: 1. Sustainability course audit, 2. Action learning workshops, 3. Action learning through research, 4. Curriculum renewal and course development.

### **Sustainability Course Audit**

The project work was initiated by course audits conducted by the champions within two of the Schools. The aim was to engage staff members while raising awareness and creating early momentum for the project. The results provided an insight into the level of sustainability content currently taught and assisted in determining if the proposed project methodology was appropriate.

The results of the audit suggested that within both Schools sustainability was thought of as a concept that was relevant to student learning and important to professional practice. However, many barriers to its inclusion into course curricula were identified. These include a lack of content knowledge, time, crowded curriculum, student interest, financial resources, and the identification of sustainability issues relevant to course subject matter. The results also indicated that individuals were willing to work towards building sustainability concepts into their courses if provided with some assistance in the form of: content identification and development, case studies, role plays, video clips, co-teaching/joint supervision, literature reviews, access to guest speakers, and better quality research.

The identification of courses containing sustainability concepts was ranged from subjects that claimed to teach sustainability in its entirety to not at all. This was interpreted to mean that there was a high level of confusion and interpretations of what sustainability meant in relation to the curriculum and personal and professional practice.

### **Action learning workshops**

The BELP project recognised that RMIT educators had different conceptions and understandings about sustainability and in order to teach such issues without passing on their own misconception they needed to develop better and deeper understanding of this emerging paradigm. It is extremely important for academics to be conversant with sustainability in a way that makes sense to them and their disciplines, if they are to integrate it both in research and teaching practice (Groves & Pugh, 1999).

Building sustainability into curriculum requires different modes of thinking (Sterling (1996), and the action learning workshops were fundamental to this. The workshops allowed for collegial discussion and reflection on mental models and a questioning of assumptions and worldviews that would allow for the development of sustainability curriculum. Such learning, it was hoped, would result in changes in policy and practice, creating a more lasting change in the organisational operation and culture (Schein 1992;

2001). The workshops were structured to provide academics with the opportunity to explore how they defined sustainability in both their personal and professional practice, and how sustainability content fitted best within their subject material. This recognised the importance of 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 contested paradigm.

Within both Schools a key to ensuring staff presence at the workshops was a personal invitation by the Head of School. The Head of School opened and introduced the workshop demonstrating a high-level commitment to the project. An internal speaker from the University followed who was 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 within the respective industries for their leadership around sustainability also presented at the workshop. The role of the external speaker was to discuss the current and future role of sustainability within the industry, the need and advantages for graduate capabilities in sustainability, and to provide best practice/inspirational examples.

Part of the discussion that was had within both workshops was whether sustainability should be taught as stand-alone courses or as integrated material in the existing curricula. The outcome was an agreement that integrated concepts with the entire curriculum should be the ultimate outcome. But there was recognition that this could take time. To ensure sustainability was built into the curriculum as soon as possible it was agreed that stand-alone courses should be developed as a starting point, and that work to integrate the sustainability concepts within the existing curriculum would continue. Academics interested in participating in the project were identified a process for moving forward was established.

### **Action Learning Groups and Curriculum Change**

Action learning theory is based around the assertion that the most valuable learning occurs when action is taken (Pedler, 1997). The role of the action learning groups was to enhance the adoption and integration of sustainability themes into the Schools' programs and courses. Subsequent to the workshops, individuals and small action teams worked with the academic champion and the project coordinator to develop curriculum for the 2006 academic year.

The main focus of the curriculum renewal work within the two academic schools was to develop a holistic integrated approach: where students were able to achieve a deeper understanding. Alvarez and Rogers (2006) suggest that current practice of sustainable development education focuses the learner on the 'how to' or implementation of sustainability: reducing, the complexity and conflict of the concept, rather, than framing its variety of meanings and values to the world around us. Sustainability education needs to openly challenge the learner allowing for discussion of its complexity in place so that the learning experiences is participatory and respectful of others' differing perspective - this requires 'space' for students to reflect and critique sustainability as a concept in place (Alvarez and Rogers, 2006).

Consequently new curriculum material was developed with the goal of student learning outcomes that focussed on current and potential professional values and practices. Content was structured so that all students at some point within their studies would understand some or all of the following:

1. How their discipline area and professional practice functions and affects the natural environment (e.g. its sources of food, water, energy, endpoint of waste) and its contribution to a sustainable economy.
2. How their discipline area and professional practice builds social capacity (such as, how employees are involved in decision making, their status and benefits etc.)
3. The basic values and core assumptions present in the content and methods of their academic discipline.

(Adapted from Clugston & Clader, 1999)

## **BELP PROJECT OUTCOMES (END OF 2005)**

### **Curriculum**

BELP represents the first stage in transforming the curriculum at RMIT University to ensure that all graduating students have sustainability capabilities. 16 courses have been developed or modified to include sustainability content in their curriculum.

<b>First Year: Semester One</b>		<b>First Year: Semester Two</b>	
BUIL 1105	Construction Science (E)	BUIL 1149	Property Economics (E)
BUIL 1107	Design and Documentation (E)	BUIL 1114	Residential Design and Measurement (E)
<b>Second Year: Semester One</b>		<b>Second Year: Semester Two</b>	
OMGT 1124	Urban Economics (E)	BUSM 3130	Risk Management (E)
		BUIL 1128	Building Services (E)
<b>Third Year: Semester One</b>		<b>Third Year: Semester Two</b>	
BUIL 1216	Human Relations & Occupational Health & Safety (E)	BUIL 1217	Research and Sustainability (N)
<b>Electives</b> (alternative delivery mode)			
BUIL 1161	Affordability and Sustainability Study Tour: Open to all year levels from across the university (N)		
BUIL 1135	Environmental Management/Sustainable Construction Off Shore Course (N)		

**Table 1:** Courses selected for curriculum renewal as part of the BELP Project from the School of Property Construction and Project Management

Notes -

1. E: existing course revised; N: new courses developed as part of BELP
2. The courses shown are undertaken by all undergraduate students studying the following degrees within the School:
  - Bachelor of Construction Management
  - Bachelor of Project Management
  - Bachelor Property Management
  - Bachelor of Valuation

These courses were developed or revised to consider sustainable buildings and construction following a methodology developed by Graham (2000) in his paper 'Building Education for the Next Industrial Revolution: Teaching and Learning Environmental Literacy for the building Professions'. Graham (2000) describes a method of teaching principles that recognise 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.



<b>First Year: Semester One</b>	<b>First Year: Semester Two</b>
BUSM 3123 Organisational theory and Design. (E)	BUSM 1094 Introduction to Organisational Behaviour (E)

**Table 2:** Undergraduate Courses selected for curriculum renewal as part of the BELP Project from the School of Management

Notes -

1. E: existing course revised; N: new courses developed as part of BELP
2. The courses listed in the table are undertaken by all undergraduate students studying the following degrees within the School of Management:
  - Bachelor of Business - Management
  - Bachelor of Business – International Business

<b>Electives</b> (alternative delivery mode)
BSUM 3889 Managing for Sustainability (N)
BUSM 1164 Leadership (Masters Degree in Business Leadership) (E)

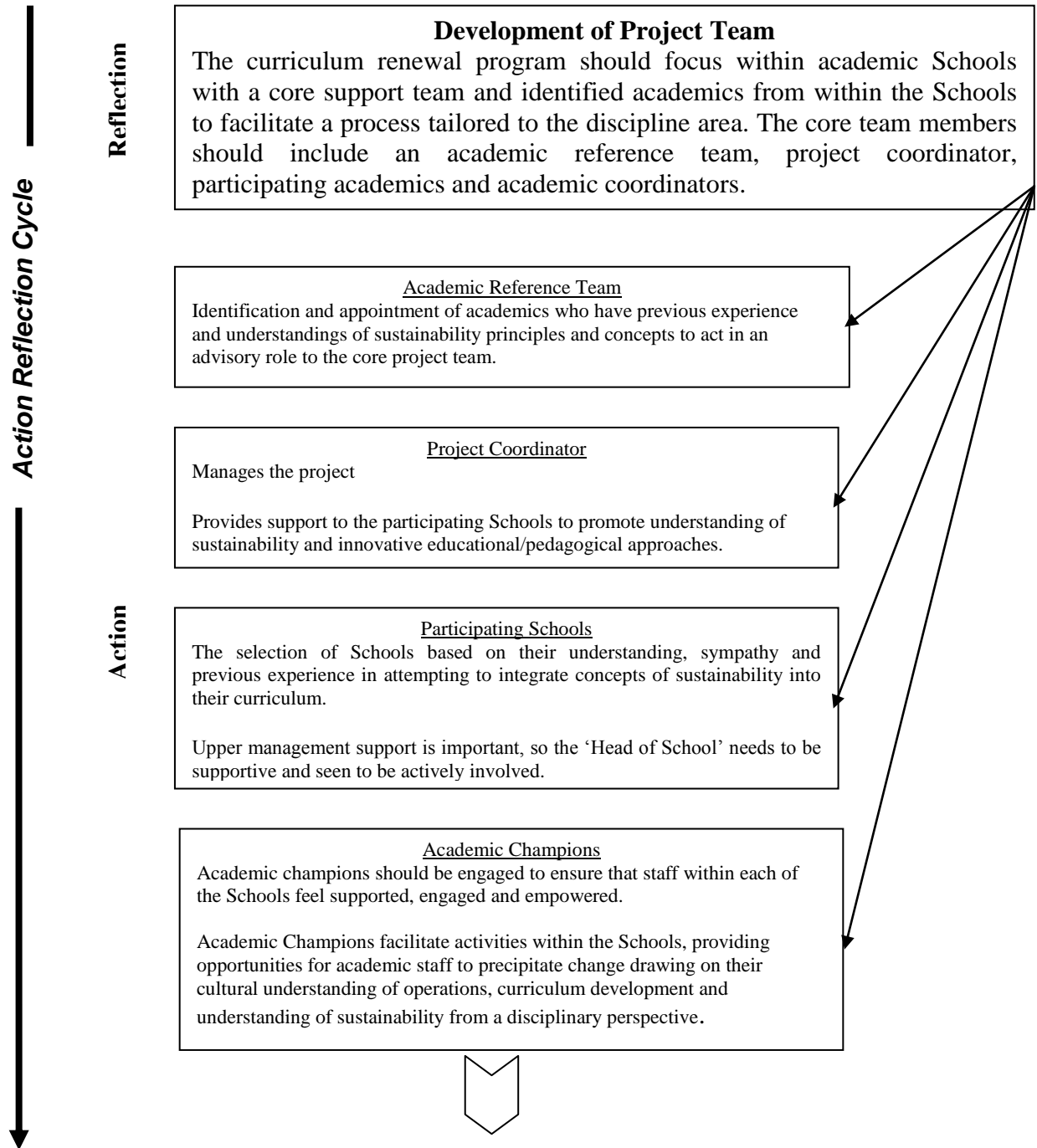
**Table 3:** Postgraduate Courses involved in curriculum renewal School of Management

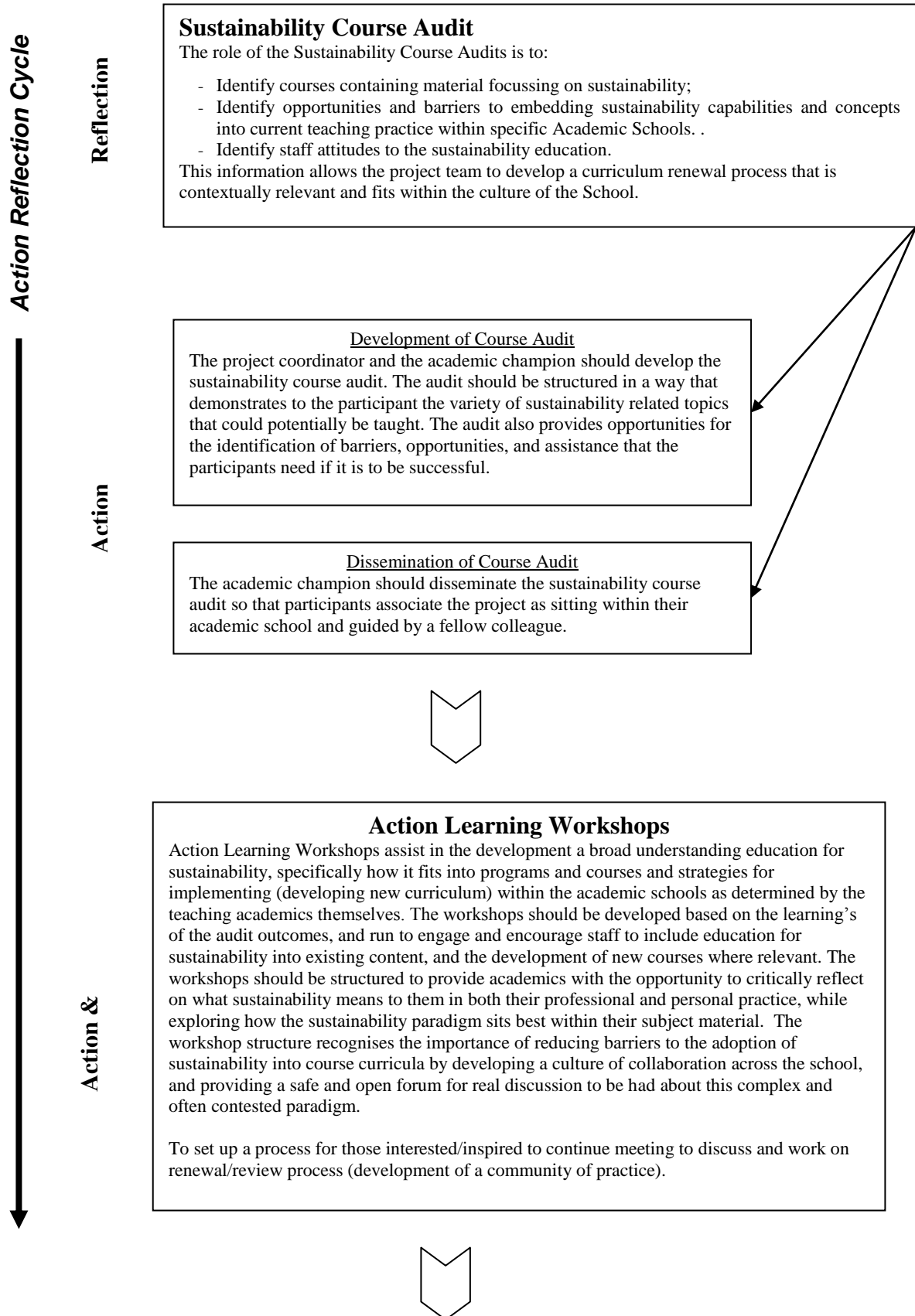
These courses were developed or revised to recognize that the problems facing contemporary society and organisations are complex, and they require leaders with a capacity for critical thinking and entrepreneurial imagination (Chia, 1996). initiatives involved setting assessment tasks such that students were invited to begin to think about how they might become change agents for sustainability, or to think critically about some of the assumptions they take for granted.

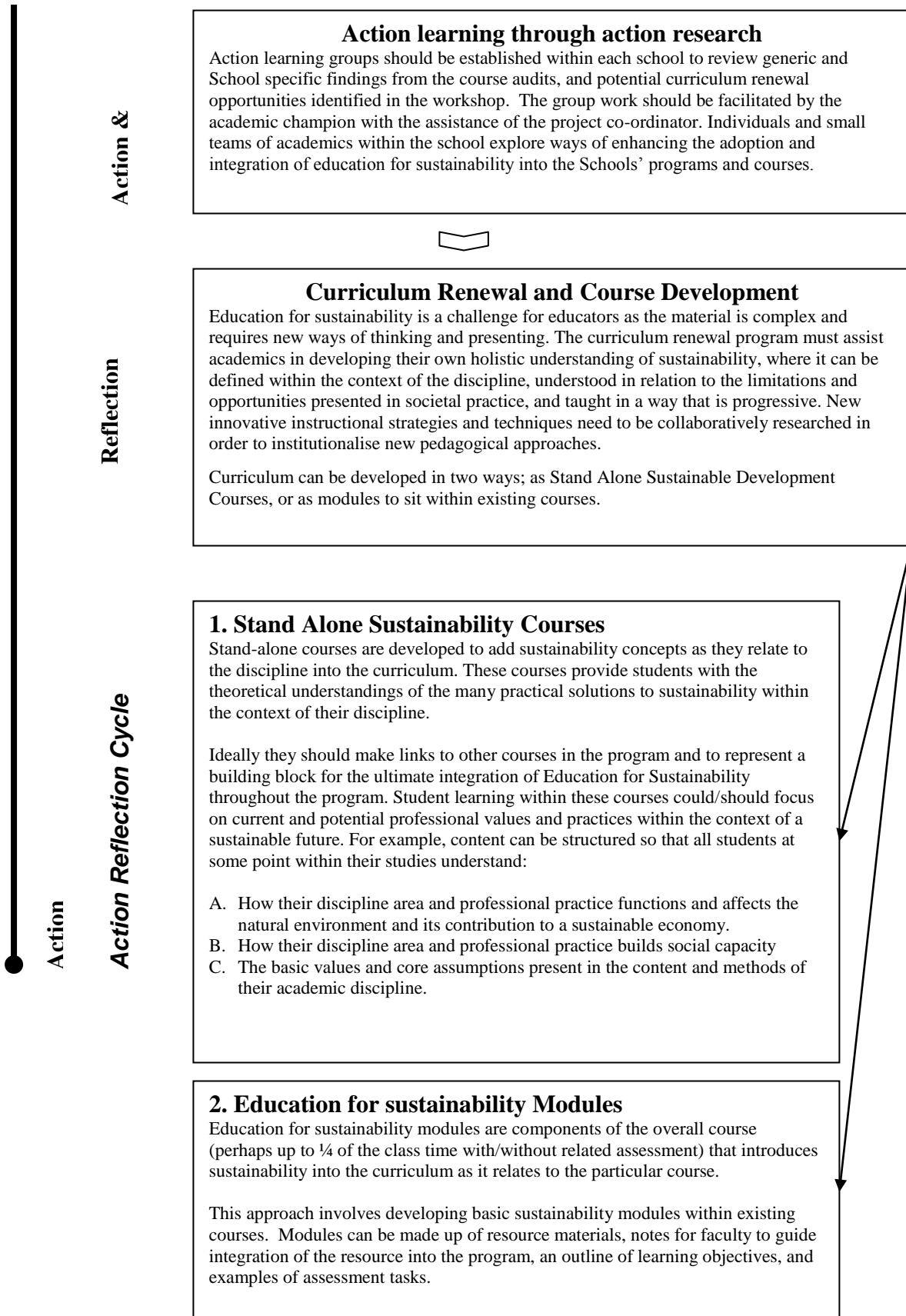
### **Flexible Change Framework**

Figure 1 presents the framework for the process of curriculum change within a university that was generated from the BELP project. It is hoped that other universities will draw on the findings to initiate similar institutional change programs. The framework is ‘flexible’ and can be used in totality or sections can be used independently. In either case it is crucial that the framework fits within the culture of the organisation engaged in change.

Figure 1 - Flexible Change Framework







## **EVALUATION OF THE APPROACH TO CHANGE MANAGEMENT USED IN THE BELP PROJECT**

The BELP project approach was founded on the assumption that professional development is a key mechanism for achieving institutional change for sustainability. The project resulted in set of outcomes describes above. The research methodology of this evaluation is guided by an interpretivist paradigm in that it seeks to determine the success of the project in creating embedded, long-lasting change. The purpose of the evaluation is to determine the status of the initial project outcomes to date, and the success of the approach taken by the project in terms of both its structure and approach to change management. The evaluation methodology was qualitative and utilised method consisted of semi structured interviews with five of the project team, with the exception of one team member who did not wish to participate.

The interviews in this research are based on a semi-structured, qualitative approach, which recognises that in some instances set structured questions will be the most appropriate methodology, while in other instances, being flexible about the direction of the conversation will result in the most useful information. This approach ensures that access is gained to the interviewees' meanings and hence the way in which they view their social world (Denzin & Lincoln, 2005). The areas that the interviews focused on were: individuals' own understanding of project's aim and process, own role in the project, approach to change and if this was successful in initiating and creating change within the School, obstacles faced and opportunities presented.

### **BELP PROJECT OUTCOMES MID 2007**

Despite the development or modification of 16 courses across the Schools, sustainability is not considered a core content area in the curriculum. Since the completion of the project both champions have left the participating Schools and this has resulted in a loss of momentum in curriculum development. This is primarily attributed to the perception that there is no-one in either school who can provide the knowledge and support on sustainability issues. The champions have not yet been replaced, as individuals with the appropriate knowledge and skills have been difficult to identify. While the curriculum in one School, developed and taught by the academic champion, has continued to be taught over the past year and half, permanent teaching staff has been difficult to find, and the long-term viability of these courses is questionable. Courses developed in the second School have not run because of a lack in student interest, and the lack of staff members to champion these courses within the School.

Within both Schools, curriculum content and teaching methods have not varied substantially; much of what is taught has been taught for years. Improvements in teaching and learning within universities can be very difficult to achieve especially in light of emerging funding structures, which has seen research and teaching increasingly being decoupled. An unexpected outcome within one School was the interest generated in improving teaching and learning practice; staff within this school began to recognise and value 'what and how' we teach. Consequently, teaching and learning is being taken more

seriously with the development of committees and awards to further research in the area. Another unexpected outcome of the BELP project was the link between teaching and research highlighting developments in industry and resultant policy that needed to be included in curriculum. The perception emerged that research on sustainability and disciplinary practice needed to be embedded into curriculum if it was to remain current with contemporary and future practice.

The reasons cited for this shift in thinking within the two Schools was a result of the leadership role shown by the academic champion and the relevance of sustainability in professional practice. “The academic champion was a vital part of the project methodology as they provided leadership to other staff members from a disciplinary perspective, they were able to lead from within”. Another outcome of the project was the new area of work undertaken by one of the academic champions; this consisted of the development of new and innovative curricula, the successful application of funded research in the area of sustainability and teaching, publication both nationally and internationally on sustainability education, and the development of trans-disciplinary research projects. This was very inspiring for other staff members within the School, and showed the opportunities and possibilities for academics as a result of changing their behaviour. “It was important for the project team to draw on other areas of recognition and validation for the research; such as, academic papers other research grants and links with industry. This helped to increase interest and commitment to the idea of curriculum change and sustainability.”

Within both schools sustainability skills were embedded into some position descriptions, and some of the newer appointments have experience in teaching and research in sustainability. As a result of the project there is now momentum in the university, and more people are thinking and talking about sustainability education. Further change across RMIT will be initiated through the subsequent Australian Research Council grant that has been awarded to the University to apply action learning curriculum change processes to additional schools.

### **Why the project was successful in creating initial change.**

#### ***Approach to change management***

The key feature of the Beyond Leather Patches project resided 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 recognised that educational change occurs 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. The approach adopted in the BELP project is one in which the ‘cultures of teaching’ in different university schools are the ‘prime focus for educational change’ (Hargreaves, 1997, pp.1). The success of this project hinged on the appreciation of the context in which the work took

place and the way in which the project was supported by key stakeholder groups within the university. The project required a contextual understanding of the pedagogy within schools and the day to day operations of the staff so that they had the ability to complete the work and feel supported.

The research over the past decade into the perceived level of understanding of the concept of sustainability and how to educate for it has identified that people of all ages hold misconceptions around the paradigm (Papadimitriou, 2004). This can primarily be attributed to the fact that ‘one size-fits-all’ definition is not possible, owing to its inherent scientific and socio-political complexity. It was important when discussing sustainability with academics not to enforce a definition but to allow sustainability and relevant concepts to be determined by the academics themselves. This allowed participants to come to the project on a level they felt comfortable with.

Consequently, the project attempted to provide academics with the opportunity to explore sustainability as a concept from which they could extract and develop their own meaning. This approach recognised that personal experience plays a key role in the relationship between sustainability educational theory and practice and allowed participants to own the project outcomes.

### ***The project methodology***

The two major factors controlling the structure and functioning of academia – disciplinary structure and economic forces – have proved to be a barrier to moving universities towards more sustainable practices. To overcome the barriers, high level management support from the “Heads of Schools” was secured, ensuring that staff appreciated that the project was an important priority for the School.

Both Heads of School were new to the University and this allowed them to engender a focus on innovation and change; however it also restricted their ability to work on the project as they were dealing with operational issues. Both saw their role in the project as to provide some organisational support and leadership and to mentor the champion in order to affect change within the School. Their leadership and support encouraged the champions to expand their positions, formulating their research and teaching to have a sustainability focus.

Meima (1997) (in Thomas, 2004) comments that commitment from key individuals and 'charisma', can be very important in initiating and sustaining change. The role of the academic champions was therefore vitally important as they had 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 ensured that the project was based on collaboration and shared understanding. However, the work of the academic champion would not have been as successful without the collegial support and validation provided by the academic coordinator.

Lack of adequate time for participation was overcome by allocating part of the project budget to financially resourcing the academic champions to provide relief from some of their daily activities to work on the project. This was particularly important, as previous curriculum renewal projects conducted at RMIT have been unsuccessful at facilitating lasting 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).

## **Why the project was not successful in creating longer lasting change to the curriculum**

### ***Approach to change management***

While 16 courses were modified or created out of existing courses, the development of new courses was not possible. In both Schools it is at the faculty level that core courses are established and the Head of School does not have the power to directly change this. Consequently, it is very difficult to do anything innovative and to create new curricula without having support from higher levels within the University.

The twelve month time frame of the project was inadequate to have real impact within either of the schools, nor was one champion within each school adequate to develop the capacity required to create the level of desired change. A small group of change agents rather than an individual would have been more influential; another year of the project may have strengthened the team around the academic champion. This is especially important to consider when dealing with a culture that is heavily resistant to change and collaboration.

The project approach to change management was to provide academics with assistance to develop their own understanding of sustainability. The workshops were designed to allow academics the opportunity to explore the values and principles of sustainability, before positioning sustainability in their course materials. While the project effectively engaged academics, it did not result in academics taking ownership of their own learning reflecting the role of the discipline area and resulting personal and professional practice. "There was limited interest from academics within the school, making it very hard to engage initially. As time went on and with the support of a new head of school, other academics attended a workshop and paid lip service to the project but were not prepared to spend the time to identify changes that could be made within their courses unless these changes required minimum effort on their behalves."

Jucker (2005) argues that as individuals our understanding of sustainable development is predetermined by our social values, personal privilege and power politics. He further argues that this understanding is shaped by the assumptions and methodological issues associated at an epistemological, ethical and ontological level associated with the different disciplines we work within. In respect of the BELP project an opportunity was provided for staff to explore sustainable development from a personal perspective and ways it might relate to their course content. However, it did not provide enough support and guidance to enable individuals to 'revisit' and 'revise' the values, assumptions and understandings as argued by Jucker (2005) that predetermine our understanding and resultant behaviours. Only through a deeper level of engagement can a deeper understanding of sustainable development result



and in turn become embedded into practice (Fisher 2002; Scott, 2002). “A clear need for staff training in sustainability was identified; many staff members had a shallow understanding of the issues and found it difficult to understand the relevance of sustainability to their discipline beyond a superficial treatment.”

There is a clear link between curriculum change and organisational change, and the lessons learnt from research into organisational change in universities must be taken into consideration when thinking about professional development. Achieving change in teaching practice and the curriculum will require an understanding of the change process, specifically internal influences for change (including beliefs and concepts of teaching) and external influences for change (workplace dimensions and culture). Chappell (2007) argues that if we want to improve teaching (content and practice), we must recognize and deal with both its systemic and its cultural aspects. Chappell (2007) argues that cultural activities are highly stable over time, not easily changed. Cultural activities are systems; and systems, especially complex ones such as teaching, can be very difficult to change. “We were asking participants to question the foundations of their discipline and there is clearly some tension in the very nature of some programs and sustainability. The value of sustainability education as an ‘add-on’ to an otherwise conflicting program is questionable.”

Without this understanding, professional development programs are unlikely to be successful at creating lasting change in teaching and learning for sustainable development. This is reflected in the overall assessment of why the project did not create significant change despite its methodology theoretically seeming ideal. The lack of success of BELP was because it was not directly defined as a "change project" or the project did not get as far as the "change" component. The BELP project was seen too simply as an audit of curricula and then the development of a new course(s).

### ***The project methodology***

The role of the champions as primary change agents was crucial to the ability of the project to achieve its desired goals. The ability of the champions to encourage change was determined by their ability to present their case convincingly to staff. The champion needed to build links within and across the school if sustainability was to be embedded across the school. However, the development of a community within an academic school is very difficult. For long term change to occur it is very important to build relationships across the school and create a sense of community and sense of validation. To do this they needed to have the relevant authority and personality to successfully engage with staff. Factors that determined this was; presence, academic status of the champion, tenure, ability to influence other staff, and leadership style. The ability of the champions to develop (or not) a community of change was reflected in the project’s initial and intermediate outcomes.

The style of engagement of the two participating Schools was substantially different, due to the relationship between the champions, the Heads of School, and other staff and the project aims were more successfully achieved in one School. However, a more prescriptive approach to change within the Schools would have been difficult. To ensure the success of curriculum change programs sensitivity to the needs of particular disciplines is clearly essential. This requires flexibility and freedom within the change team that cannot be

directed or determine from the outset by those providing advice. One-on-one interaction with staff members was an important step to achieving buy-in, but this is very time consuming and not always successful.

## **CONCLUSION**

The curriculum change project described here led to the modification or development of 16 courses in two contrasting discipline areas to provide a sustainability focus. Other unexpected and unforeseen ideas and skills were also achieved including leadership, sustainability as a focus for reconnecting teaching and learning and research and increased profile of sustainability education within the University. However, long-lasting, embedded change in the curriculum will only occur when capacity is provided to staff by way of the development of knowledge and skills in sustainable development and institutional support. Essential to this is the development of relationships within the School that promote a culture of change and collaboration, so that deeper understanding of the disciplinary and institutional assumptions that predetermined our understanding of sustainable development can be explored.

The experiences of the BELP project indicate that for any curriculum development project to be successful in the long term, there needs to be a dynamic approach to change management; one that recognises the importance the culture of the organization in assisting or blocking the proposed change. There is a need for training that allows individuals within an organisation to develop greater understanding of sustainability, including their personal and disciplinary assumptions and resulting practice. Support from authoritative figures in the university including academic leaders, department heads and high-level university policy is essential. Engagement with academic staff needs to be on their level, and change agents are essential to this for both leadership and encouragement. However it is important to consider their ability to develop, facilitate and empower a community, which is willing and able to embrace change.

A significant transformation is required for universities to meet the challenge posed by the education for sustainability movement. Yet, the theoretical and practical foundations of education for sustainability within tertiary institutions are still in their infancy and holistic models of sustainability education are yet to be developed. The need for understanding change in universities, both curriculum change and organisational change, is paramount if education for sustainable development is to be successful.

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## **Sarah Holdsworth**

Sarah Holdsworth is a PhD candidate within the School of Global Studies Social Science and Planning and was the project coordinator on the BELP research project. Sarah has a Bachelor of Education (Secondary) Environmental Science and a Masters Degree in Environmental Science. Sarah's work involves researching long-term strategies based on substantial changes to social and technological paradigms to develop pathways towards

sustainable development. Sarah's PhD focuses on the need, structure and content of sustainable education academic development in universities.

### **Sarah Bekessy**

Sarah Bekessy is a senior lecturer in environmental studies and sustainability at RMIT University. Sarah specialises in the emerging field of sustainability science and is involved in an interdisciplinary range of research and consulting projects, including conservation planning in the urban fringe and education for sustainability.

### **Ian Thomas**

Ian Thomas has extensive experience in the delivery of environmental education to undergraduate and postgraduate students, professionals, and the community. His development and teaching has been informed by his instigation and supervision of a research project to introduce waste management curricula into tertiary institutions, with a focus on RMIT, and a faculty wide project to introduce environmental literacy education.

Correspondence: Sarah Holdsworth, [sarah.holdsworth@rmit.edu.au](mailto:sarah.holdsworth@rmit.edu.au)