

**ICBSI2018**  
**International Conference on Business Sustainability and**  
**Innovation**

**DESIGN THINKING FOR SUSTAINABILITY IN MANAGEMENT**  
**EDUCATION**

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*Abstract*

Recently, the adoption of design approach and thinking in sustainability for business and management education has been the key movement by business schools and educators worldwide. Both academics and management practitioners criticize management education for their lack of relevance to practitioners, the values they impart to students, and their teaching methods. The poor integration of sustainability in management education can potentially contribute to poor management outcomes for most organisations. In this paper, we argue that design thinking allows management students to think and act sustainably. The data were collected from undergraduate students and academics teaching in the management programs in Australia and China. Results indicate that students' involvement in the 'problem identification' and 'ideation' stages can contribute to their understanding of sustainability in management. Roles of educators, approaches in learning and teaching, and learning resources can also contribute to students' understanding of complex issues in sustainability and management. As such, the researcher proposes a set of four recommendations for the adoption of design thinking for sustainability in management education.

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**Keywords:** Management education, social innovation, sustainability.



## 1. Introduction

Design thinking had recently been adopted by a many business schools worldwide. The design approach can help students to identify various solutions for existing or future challenges in business. Hence, it helps students in business and management to examine issues from the multi-disciplinary perspectives. Design thinking can be described as “a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity” (Stubbs & Cocklin, 2008). Design thinking is generally referred to as “*applying a designer’s sensibility and methods to problem solving, no matter what the problem is ... a methodology for problem solving and enablement*” (Lockwood, 2010).

Design involves purposeful behaviour that is targeted toward certain goals and the creation of solutions. The goal of design may be to solve a ‘wicked problem’ that affects one or many people in one place or different societies. In fact, design is not seen as the prerogative of a select few. On the contrary, “we all can, and do, design and that we can learn to design better” (Lawson, 2006). Within the academic discipline of design, the notion of design thinking has been of central importance for more than thirty years. Schön (1983) in education and Lawson (2006) in architecture, in their respective ways described and reflected upon how designers think. Lawson (2006), for example, claimed that the design process includes formulating, moving, representing, evaluating, and reflecting.

When it comes to business education, design thinking is described as ‘integrative thinking’ helping students to transform how to view and perceive the management issues from various viewpoints. This approach to design thinking centers on innovation and business transformation, the discovery of unmet needs and opportunities, and the creation of new visions and alternative scenarios. A core element of design thinking is its ability to capture new concept in knowledge, whereby practitioners might differ in their technique and tools (Lawson, 2006). It will, however, be the combination of applying design tools with a strong understanding or organisational innovation that identifies the strategic value of design thinking.

### 1.1. Sustainability in Management Education: The Design Thinking Approach

Although students are being exposed to sustainability through a broad range of activities throughout their degree programmes, the most valuable of these is what is taught in the classroom. Students in each business school and each degree programme are exposed in very different ways, determined by the school itself and, in most cases, by the individual faculty teaching the courses (PRME, 2015).

When business schools look at ways for applying the concept of sustainability to management, rather than relying on didactic practices, design-thinking instruction can be more appropriate for both students and teachers. Design-thinking pedagogy generally emphasizes project-based learning using student teams (Dunne & Martin, 2006). This reflects the common use of multidisciplinary, cross-functional teams in design-thinking practice. Multidisciplinary teams address project complexity, ensuring that technical, business, and human dimensions of a problem are all represented (Dunne & Martin, 2006). Student teams—ideally, interdisciplinary—are typically provided with a “design challenge,” which provides a general portrayal of the problem situation.

The breadth and nature of this challenge will reflect the course in which the project takes place. The challenge, for example, may be brought to the class by businesses looking for a new approach to address a current problem, or may involve the development of a new product or service independent of an existing organization. The design challenge should allow opportunities for students to go out and directly observe potential users (Boland & Collopy, 2004).

## **1.2. About the Learning in Design Project**

In this project, we decided a subject on design thinking for sustainability in international management for three group of 66 undergraduate students in Australia. We asked the students to identify key issues, base on the United Nation Sustainable Development Goals (SGDs). The project has to be base on key social issues that they perceive as important issue. The project needs to be co-developed among team members. The teaching team provides them with four elements. They include:

1. Design is multi-epistemic: interacting with the world is as much feeling, sensing, intuiting as it is thinking (Boland & Collopy, 2004) suggesting the necessity of transcending cognitive and analytical processes in designing (America, 2014). Our teaching team focuses on (a) identifying possible causes and effects of a problem as well as identifying the underlying sustainable problem.

2. Design is innovative: design is the creation of ‘preferred futures.’ and not the choosing of the best alternative (Boland & Collopy, 2004). We focus on meeting with people from different backgrounds to brainstorm issues and potential solutions.

3. Design is service: the designer requires a client or user (use-centricity). In other words, we will need to understand who will need the outcomes of the design and for what reasons.

4. Design is social: the success of a design is determined by that design’s adoption by the social body (Boland & Collopy, 2004). We encourage students to discuss and share their project to the public in order to gain useful feedback and insights for future improvement.

These four elements, the multi-epistemic, innovation, service, and the social body, are addressed and emphasized as concept of design thinking throughout the project.

## **2. Problem Statement**

A timely discussion by stakeholders in business education is how to effectively teach sustainability to business and management students. It is obvious that a number of business students are exposed to neo-classical economic thinking, which focuses on unlimited economic growth through increasing production and consumption via a free market system (America, 2014). This is predominantly because of the larger provision of classic economics and business frameworks available in business education programmes at all levels (Fleetwood, 2005). In the main, the business sector places a high premium on competitiveness, profit maximisation and shareholder wealth (Banerjee, 2008, Bond, 2006). Business schools, in their quest to achieve effective learning and teaching in sustainability, incorporated the In the current social climate, where we tend to face numerous challenges such as climate change, the growth of aging populations, food crisis etc., business will need to play pivotal roles to promote sustainability. Hence, problem-solving nature of design thinking is appropriate for what we need to prepare future graduates in management.

Comparing the problem-solving strategies of designers with those of scientists, for example, Lawson (2006) found that scientists focused on the problem to discover the fundamental rule to be applied, while designers learned about the problem by trying out various solutions. This solution-focused strategy has been observed in architects, urban designers, and engineers (America, 2014).

Stubbs and Cocklin (2008) put forward a sustainability framework which relates basic concepts and assumptions within the eco-centric, ecological modernisation and neoclassical paradigms in organisational practice and behaviour. Their framework is also useful in developing critical and reflective thinking. Foster (2011) highlights the importance of critical self-awareness as one of the cornerstones of the learning virtues of sustainability. Such awareness develops from first-order learning which signifies an adaptive learning process.

From there the second-order learning leads to examining assumptions and the third-order learning leads to a transformative perspective. These virtues can be introduced at school level in a “real sustainability curriculum” which would allow broadening of understanding, to imagine the possibilities and create the emergent future as one delves into the issues of sustainability (Foster, 2011:401).

### **3. Research Questions**

- What promote design thinking in learning and teaching in the area of sustainability management?

### **4. Purpose of the Study**

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Comparing the problem-solving strategies of designers with those of scientists, for example, Lawson (1979) found that scientists focused on the problem to discover the fundamental rule to be applied, while designers learned about the problem by trying out various solutions. This solution-focused strategy has been observed in architects, urban designers, and engineers (America, 2014). Certain stage of design thinking can help learners to relate problem and learning. For instance, the first stage of the design thinking process is to gain an empathic understanding of the problem you are trying to solve. This involves consulting experts to find out more about the area of concern through observing, engaging and empathizing

with people to understand their experiences and motivations, as well as immersing yourself in the physical environment to have a deeper personal understanding of the issues involved.

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## **5. Research Methods**

The present study targets at understanding the possible kinds of views management students at a higher education institution might have on design thinking, as well as their relationships with sustainability management. We are also interested in how students’ views might be interrelated with each other and their backgrounds. Qualitative method was chosen to achieve this goal as this study is a new research area with needs of exploration for theory development (Creswell, 2015) and understanding the current phenomenon from different viewpoints (Miles & Huberman, 1994).

To document findings, the researcher followed these three steps. The first step was to create a conversational platform. We aim to use platform such as Line and email to create a platform for conversation. Both the line Messenger and e-mail group discussions were moderated by the lecturers. Second step, an introductory session was held with all the groups and the ground rules were set up. The moderators controlled the discussions and ensured that ground rules set were adhered to by all participants. On a weekly basis, different discussion topics were posted and all participants were encouraged to fully contribute so that others can learn. The topics being posted were derived from the Mini curriculum specifically developed to guide the moderation process. The curriculum comprised of modules in sustainability management. Finally, students were observed during the development of the project while in their groups. The instructor evaluated each group on the level of student engagement observed. The final method of evaluation was to determine the success of the groups through how the students felt about their groups. To document this, students were administered a survey at the conclusion of the project to rate their feelings about the effectiveness of the way the groups were designed.

## **6. Findings**

### **6.1. Roles of Instructors in Teaching Sustainability**

In this study, we try to understand how instructors can transform how students identify learning strategies through the design concept. At first stage, we ask each instructor to identify and reflect upon their

roles in working with students on the development of the sustainable business project. All instructors in the team define their roles as a coach or supporter who work with students to examine the core problem. They also raise an issue that it is useful to (1) clarify the concept of sustainable management from the beginning of the class, (2) identify common goals of the project, and (3) be open with the interpretation of the issue.

*“Global sustainable development challenges already represent market opportunities for multinational companies able to develop and deliver innovative and effective future solutions.”*

*“I need to encourage my students to think about the concept of market opportunities that align with sustainable management.”*

The role of instructors in promoting sustainability in management in education must also be supported by the institution. We learn from the project that, instead of instructors working individually, we work with faculty leadership to create time and space for them to work as a group. We support them in framing the problem, developing student-centered ideas, and preparing classes. Instructors learn to adopt a design thinking mindset simply by taking part in this process.

*“It is fun to embark on a journey with my colleagues. Design thinking is new to us and we develop a social group that focuses on teaching design thinking.”*

Most instructors in this study also discussed teaching methodology. For them, this term refers to the general principles, pedagogy and management strategies used for classroom instruction. It assumes a core role and has a far-more reaching influence than content in classroom instruction. They suggest that using free-form approach in various aspects of methodology can promote flexibility in creativity, thinking, and prototyping. Students will feel comfortable to think and act freely for the solutions of the project. The nature of design thinking also allows instructors to engage students with various stakeholders in sustainability management.

This study also characterises the multidimensional aspect of sustainability management (social, economic, ecology, and technology). When instructors design activity for design thinking, they have to be mindful of the interconnection of all aspects of sustainable issues in business. In sum, their ability to design a course, facilitate design thinking activities, and direct instruction has a significant influence on students' ability to think in the designer's way.

Finally, institutional support is mentioned frequently by the instructors in this project as critical to overcoming the constraints faced by faculty interested in integrating sustainability issues into their teaching. Almost all participants agreed that business schools that are serious about heading in that direction should consider building it explicitly into academic plans and performance management criteria, and could encourage sustainability research by directing funding incentives.

## **6.2. Approaches in Learning**

This theme is outstanding among students in the program. At the beginning of the project, students were asked to understand the issues by experiencing the feelings of others. Each them selected global challenges – ranging from climate, water and food crises, to poverty, conflict and inequality. Although they

understand the importance of the issue, they engaged with people who are passionate about the issue, and in many circumstances with people who suffer the consequences of the issue. Ability to understand the sustainable issue from various perspectives can help them to understand the real need for solutions.

*“After talking to the team who work on clean water and sanitation in India, we understand the issues they and people in India face as well as the characteristics of the people you want to help.”*

*“The prototype step helps me to think about water sanity and business from the industrial perspectives.”*

Sometime, they refer to the flipped classroom, a methodology that inverts the logic of classroom organisation, that is, it is a teaching modality in which content and instructions are studied before the student attends the classroom, which is now the place to deepen the contents already studied. Most teachers see themselves as facilitator who do not transfer the knowledge to the students, and then test them through assessments as in the traditional management education. On the other hands, they try to motivate the students to seek through investigation and research certain knowledge in sustainability and management.

In this project, we learn that most instructors follow these rules and steps: 1) Inquiry: classroom activities involve a significant amount of questioning, problem solving, and other active learning activities, forcing the student to recover, apply and expand the material learned virtually; 2) Feedback: students receive feedback immediately after performing face-to-face activities; 3) Learning modes: students are encouraged to participate in virtual and face-to-face activities, which are computed in the student’s formal assessment, in other words, they score; 4) Variety: both the material to be used virtually and in the face-to-face learning environments are highly structured and well-planned.

### **6.3. Creativity**

Creativity in design thinking is raised as a key learning approach promoting students’ understanding on sustainability management. In the process of idea generation, most students identify ‘positive’ ideas and actions that help them to think positively. Creativity was promoted by encouraging openness to new ideas, taking the time to understand the problem, and learn alternative solutions. This approach to design thinking centres on innovation and business transformation into sustainable way, the discovery of unmet needs and opportunities, and the creation of new visions and alternative scenarios that lead to sustainability. A core element of design thinking when students follow the process of sustainability in organisation plan can help them to be able to capture new knowledge from the scenario.

*“We learn from those who really need a proper solution. It is helpful for us to obtain a clear understanding of the problem.”*

The majority of the students in this study mentioned that following the design thinking concept in the design of sustainability project helps them to develop divergent thinking, ensure the positive learning among team members, and allow the cross-pollination of ideas among them. They also refer to ability to

relate with users, policy makers, and industrial representative can allow them to see things that other stakeholders may not forecast for the future.

*“Hearing ideas from the companies and the community representatives allow our team to link people and resources that may not exist traditionally.”*

We also learn that students’ learning approaches that support them to think ‘solutions’ must be well designed by both students and teachers. All students in this study agree that they should play a part in the design of learning approaches. By asking their opinions on what the teaching team has prepared for them, it will help them to feel the sense of belonging to the concept of sustainability. Student learning in the area of sustainability has evolved from a passive activity to one of active engagement, collaboration, and self-empowerment. This change has been parallel in time with a debate in business and management education on curriculum content, facilitation and assessment practice. With this shift in learning in mind and the pressing need to develop the soft skills in sustainability and practices, there is a level of recognition that different approaches to learning are urgently needed.

## **7. Conclusion**

We learn from the project that, when design thinking is adopted in learning and teaching of sustainable management, the dialogue shifted quickly from how to create opportunities for business and management students, to how to remove the barriers that exist to prevent student opportunities from flourishing. The ability to combine problem-based learning, case study, field observation, and small group discussion enables students to deeply understand the relationship between business, policy and sustainability issues.

Participants suggested that faculty members need to identify the student change agents within their schools and to collaborate with them to develop prospects for sustainability integration. Engaging students with stakeholders from the operational, policy, and community in the learning process help students to further explore the ideas for future solutions to maintain sustainable business.

This study also finds that collaboration with peers is an important element of the design process when students develop their sustainability project. Mutual understanding involves a commonly agreed upon set of facts and an appreciation of the underlying mental models being applied by different students.

Sustainability curriculum requires vision, purposeful design and action. Dialogue as a way to connect concepts of self, community and the urgency of current choices related to sustainability, is a place to begin understanding that we are a critical part of the transformative curriculum we write (Wright et al, 2015). Design thinking is one of many learning and teaching approaches that promote a high-level understanding of sustainability concept to business and management students. Creativity and Ability to connect to the problems in the design thinking should be promoted to support learning and teaching in sustainable management

## Acknowledgments

I sincerely thank my colleagues at RMIT and Mahidol Universities for your support while working with them on this project.

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