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The University Community as a Design “Client”

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KEYWORDS: SUSTAINABLE BEHAVIORS, PRODUCT SERVICE SYSTEMS,
ENABLING SOLUTIONS, DESIGN COLLABORATION

ABSTRACT

This paper presents the results of an industrial design studio project that partnered third year students with childcare centers and residential colleges at the Kensington campus of the University of New South Wales. The parties worked within a de-facto “designer-client” collaborative relationship, with the goal being to identify and design-out inefficient and unsustainable practices in water and energy usage and solid waste generation, thereby fostering sustainable living. To provide the theoretical background, MacKenzie-Mohr’s model for fostering sustainable behaviors and community-based social marketing was employed. Students presented design concepts to their “clients”, including staff and student residents, who provided constructive criticism on the ideas and which formed the basis for further design development. The final designs were exhibited in a public exhibition on campus to which the clients, staff and students, were invited. Reflection journals and course evaluations from students show that they genuinely appreciated working with “real” clients with real needs compared to hypothetical studio briefs, but were somewhat disappointed that the clients are not actual manufacturers (“customers”) but rather are “consumers”.

INTRODUCTION

The University of New South Wales (UNSW) in Australia is one of 413 signatory institutions to the Talloires Declaration, who have committed to incorporate sustainability literacy in teaching, research, operations and outreach. Two of the action plans in this international declaration were to “educate for environmentally responsible citizenship” and to “practice institutional ecology”. By these points signatories undertake to ensure that all their university graduates have the awareness and understanding to be ecologically responsible citizens and commit to establish institutional policies on resource conservation, recycling, waste reduction, and environmentally sound operations (ULSF, 1990). In its strategic vision, UNSW affirms that sustainability is one of its eight values (UNSW, 2007) and reiterates its belief that that “the principles of environmental sustainability should underpin and genuinely apply to all activities in which we are involved” (UNSW, 2005b).

STUDIO-COMMUNITY PARTNERSHIP

The core third year undergraduate course IDES3221 Industrial Design Studio 3A offered by the UNSW Faculty of the Built Environment is one of many learning platforms in this university that align with the institutional values on sustainability. Moreover, by focusing on design advocating environmental ethics and societal responsibility in “real world” contexts, the IDES3221 syllabus commemorates the United Nations Decade of Education for Sustainable Development, which is a challenge for educators to rethink and reform education to become a vehicle of knowledge, thought patterns and values for building a sustainable world (UN, 2002).

IDES3221 aims to engage students into employing sustainable innovation approaches as a strategic methodology for their solution generation and development, as well as introduce them to their future responsibility in creating less environmentally damaging solutions and lifestyles. The course runs for 12 weeks¹ with 2 major projects.

One of the missions of IDES3221 is to propose creative solutions that would encourage communities to foster more positive behaviors, both environmentally and socially. This approach was inspired by the “enabling sustainable solutions” methodology proposed by Manzini (2002), in which an integrated system of products, services and infrastructures is used to empower individuals and communities to achieve results and solve problems using their own skills and abilities, in a sustainable way. Another inspiration was the growing body of research on designing product service systems (PSS), which is an innovative business model that offers a mix of tangible products and intangible services to jointly fulfill specific customer needs at a reduced environmental impact (UNEP, 2002).

In 2006 these enabling solutions and PSS approaches were tested in IDES3221 via a 4-week group project where students targeted segments of the community that could benefit from PSS solutions. The brief emphasized that the sustainable action should not be done automatically by the designed solutions; rather, the user should be actively engaged and involved in performing the task that would achieve sustainability benefits, aided by the new PSS.

¹ IDES3221 ran as a 14-week course until 2007, and had 3 major projects.

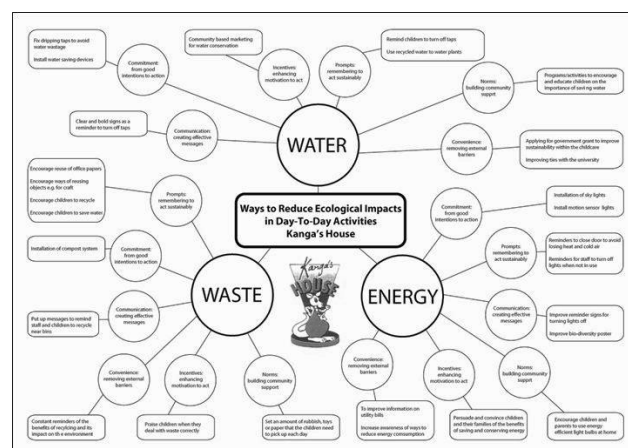
The UNSW main campus in Kensington is a multicultural community in itself: there are 40000 undergraduate and postgraduate students from 130 countries, 6000 staff, 1141 residents in fully-catered colleges, 1335 residents in self-catered accommodation, and 240 infants, toddlers and preschoolers in childcare. Like many other university campuses in the world, UNSW Kensington has food courts, sporting facilities, library and medical centre which are also visited by outsiders. Recognizing the size and diversity of the campus, it was deemed appropriate to expand the enabling solutions studio exercise to become a studio-community partnership in 2007.

This new studio challenge harmonizes with the university's Environmental Management Plan, which aims to “develop

Prior reports of environmental audits of the CCs and RCs were used as a prime reference for understanding the sustainability performance of the units. In general these audits found that numerous ecological footprint reduction opportunities exist for the CCs and RCs, by way of further conserving water and energy and cutting down on waste generation. For instance, the audits found lights being unnecessarily left on even when ambient natural light was sufficient, residents taking excessively long showers or leaving their heaters on when they left their rooms, etc.

Student groups created mind-maps of various approaches to reducing ecological impacts in day-to-day activities in CCs and RCs [Fig. 2]. The mind-maps also covered an array of tools of behavior change proposed by McKenzie-Mohr & Smith (1999): commitment from good intentions to action, prompts to remember to act sustainably, norms for building community support, communication through effective messages, incentives to motivate action, and removing impediments to sustainable convenience.

The groups also created matrices of the perceived benefits



² In 2008 Shalom College and International House joined the list of participating residential colleges; in 2009 New College and Creston College also participated.

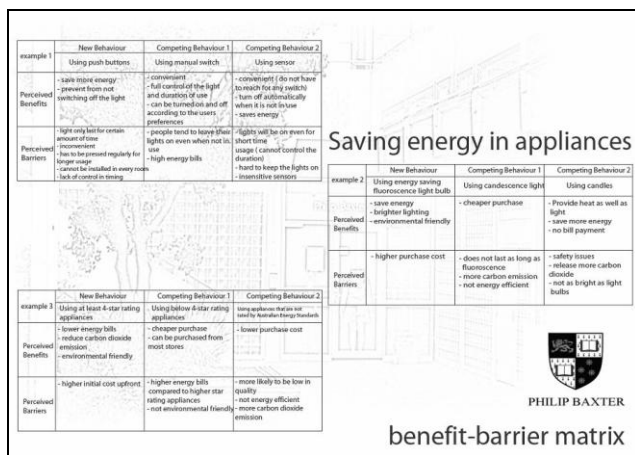


Fig. 3. Example of a matrix of benefits and barriers of desired and competing behaviors for a residential college.

and barriers to targeted sustainable behaviors and the competing unsustainable actions [Fig. 3]. The objective was to make the target behaviors more attractive by altering the benefits-barriers ratio. This can be achieved by enhancing the advantages or removing the impediments to the target behavior, or alternatively by lessening the conveniences or intensifying the obstacles of the competing behavior.

During the concept stage, each student individually came up with a concept scenario for each of these “Sustainable Everyday” (Manzini & Jégou, 2003) categories:

- “quick” solutions which require as little time and effort as possible but may have limited variety and customization.
- “slow” solutions for those who bring their personal abilities into play and who commit the necessary time and attention to achieve a high level of quality.
- “co-op” solutions based on the collaboration between different actors, which require personal commitment and a spirit of enterprise and organizational capacity.

Periodic comments and suggestions from the project cooperators, tutors, peers, and “clients” endowed students with directions on their endeavors and shape them into highly-resolved pragmatic solutions. Numerous proposals initially focused on devices which will help provide information, promote awareness or improve attitudes. However, since many studies show that simply providing information rarely results in real action or changes in behavior (McKenzie-Mohr & Smith, 1999), these awareness-type proposals were redirected towards ones which are likely to dynamically involve and engage community members towards truly understanding the consequences of their actions. From this discernment it was anticipated that they would adopt less environmentally damaging behaviors.

The final design solutions were detailed in technical drawings and photorealistic images, as well as fully-finished but non-functional appearance models. These were displayed in a public exhibition with the “clients” and UNSW staff in attendance. During the exhibition, were able to receive feedback not only to tutors but also from peers and visitors.

The student proposals can be generally categorized into three clusters: energy-saving, water-saving and waste-reducing. Some of the most innovative solutions proposed

Box 1. Solutions proposed for childcare centers

CB: A symbolic flower-shaped sensor on the kids’ desks, whose petals close when the room gets insufficient natural light, prompting the kids to remind their teachers to open the blinds to let sunlight in.

AB: A faucet that draws water from a finite reservoir, whose contents have been foot-pumped by the kids, thus educating them to conserve, to work for their needs in a fun way, and to respect the finiteness of the water they produced and not waste it.

KS: A fish-shaped faucet with a gauge and color-changing eyes to indicate unsustainable zones and a pleasant bell sound to signal appreciation that the tap has been properly closed.

DH: A retrofit drip switch which facilitates pausing the water flow while scrubbing hands with soap, instead of having to rotate the tap controls.

DC: A light switch system which allows room users to control which areas to light up rather than have the whole room unnecessarily lit.

JC: A temperature-sensitive graphic display that can retrofit on existing taps, to aid kids in visualizing the volume of water running while they wash their hands and to prompt them to turn the tap off after they’re done

TB: A means for making un-moderated power usage in childcare centers visible, prompting people to turn off unused appliances.

AS: A learning kit with booklet and reusable tags, for kids to play a detective adventure game aimed at spotting instances of energy and water wastage in the childcare centre. [Fig 4]

Box 2. Solutions proposed for residential colleges

XT: A shower platform tank which collects the wash water and cuts off the hot water supply once the maximum shower volume is reached.

MK: A push-down plug and volume indicators on wash basins to make residents conscious of the amount of water used during their hand washing tasks.

SR: A chain-operated valve that temporarily switches off the water flow of a shower when the user needs to soap up, and returns it to the same temperature when pulled again.

STL: A lighting system for the college dining hall, which senses shared human presence to increase or decrease the brightness of the light, thus encouraging residents to sit in tables in larger groups to obtain the optimum brightness to eat their food comfortably while saving energy and facilitating social interaction.

KG: A door-chain and light-switch system that required residents to power off the lights otherwise they wouldn’t be able to leave their bedroom.

SDS: A PSS to encourage college residents to participate in group laundry washing, using a clothes net and a weighing stand [Fig 5]

WSK: A clothes-sharing system, using a unique reference tag for identifying shared clothing and their previous owners and for tracking the stories and anecdotes throughout the life of the clothing as it passes from one user to another.

MYS: Worm-farming and hydroponics gardening kit to enable college residents and kitchen staff to participate in food scrap composting and organic vegetable growing, thus reducing food miles.

HW: Showerhead with color-changing LEDs powered by dynamo, visually displays relative amount of water used.

XDC: Animated smart meter that displays a well-growing tree whose leaves fall the more appliances get connected to the power point.

help preschool children to engage in sustainability are presented in Box 1, while those for residential colleges are in Box 2.

Childcare directors and staff responded optimistically to the solutions presented. Their major comments centered on the aspiration that the proposed solutions would teach children responsibility for their day-to-day actions, and that they would continue these learned sustainability skills at home beyond the childcare hours.

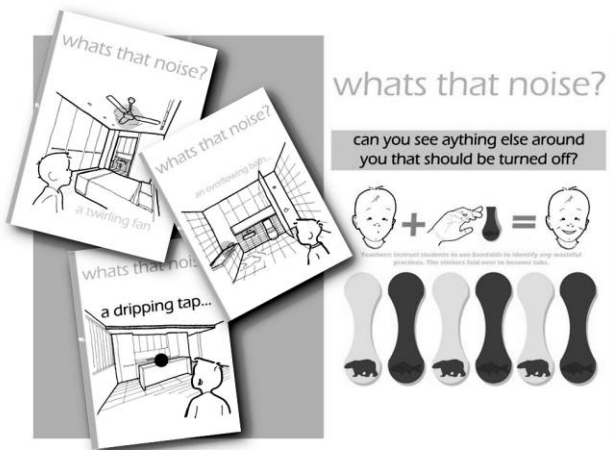


Fig. 4. A detective adventure game for young children in the childcare centre, aimed at spotting and tagging instances of water and energy wastage, by Alexandra Smith, 2007.

Most of the student proposals factored in the budget constraints of the clients, and students worked hard to ascertain that their solutions are not cost-prohibitive and do not require substantial infrastructural renovations to get them installed. Some of the residential colleges had undergone renovations recently and therefore proposals which required reinvesting in massive installations were discouraged. Many students thus directed their efforts into retrofit solutions that were easier and less costly to implement.

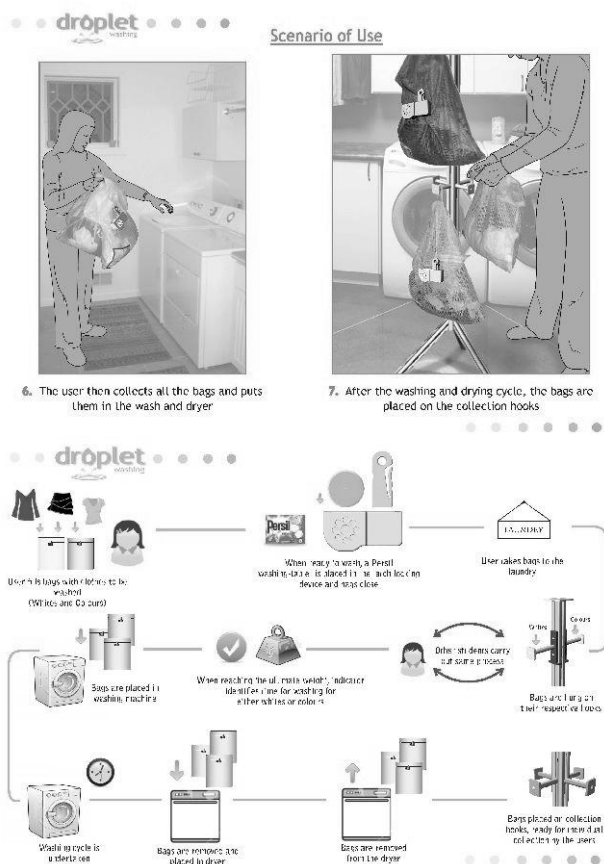


Fig. 5. PSS to encourage participation in group washing among college residents, by Sascha Dal Santo, 2009.

At the conclusion of the exercise, students were asked to critically reflect on their learning journey. These reflections generally show an appreciation of the challenges in contributing design solutions that would promote a better society and a more sustainable environment. Many commented positively on their experience of interacting with “clients” outside the studio, on the “real-world” nature of the briefs, and on the opportunity to propose creative but sustainable solutions. Some of these reflections are presented in Box 3.

DISCUSSION & CONCLUSION

Judging by the outcomes of this innovative studio learning process, these projects on enabling solutions and product service systems could be said to be reasonably successful. Transformative learning occurred not only amongst the students but amongst the “clients” as well. One of the CC directors commented that after taking the students through the site visit she became more vigilant with the lights and water being unnecessarily kept running. Transitioning towards a more sustainable society certainly would take long, but could be jump-started through learning activities such as this studio project.

In spite of running almost completely against the grain of conventional product designing, students were able to challenge themselves with behavioral change designs and did relatively well. It is very likely that this could not have been achieved if the students were designing only within the confines of the studio and not “working” with and getting feedback from the external collaborative partners. The difference between designing in response to hypothetical briefs and solving real-world problems is immense, and the student reflections certainly show that they favor working on real-world problems with real (or quasi-real) clients.

The projects were able to introduce all participants in this process to several student-centered approaches to teaching and learning for a more sustainable future: experiential learning, enquiry-based learning, community based problem solving, and learning outside the classroom (Cox *et al*, 2002). Students were able to engage in conscious critical thinking, investigation, active investigation, generalization, problem solving, decision making, reflection, and peer assessment. The experiences, knowledge, skills and attitudes they gained can be readily applied to new situations and to future project briefs.

The outcomes of this studio exercise are promising and motivate us to run more iterations of this. It was however a lot of hard work for myself as course lecturer-in-charge, having to orchestrate the projects and coordinate with a lot more externalities compared to, say, making the students respond to a visionary competition brief. The project required numerous planning meetings and exploratory discussions with the collaborators, as early as the year before this project was run. The public exhibition of the student works also required looking for some funding and organizing the event. To reward the excellent student outcomes, book prizes were solicited from sponsors who were selling or publishing books on sustainable design. Michael Grosvenor, author of the book “Sustainable Living for Dummies”, visited the exhibitions

Box 3. Students' reflections on the UNSW clients design project

I feel I have learnt a lot throughout this project. As a designer it was good to be able to learn and design through the learning of sustainability because it is such a big part of our industry. In future projects sustainable ideas and systems will definitely be in the front of my mind, in terms of the materials and systems involved in a product.

AB: This project has taught me the importance of interaction with the client, and how invaluable this experience can be. The fact that this assessment was based on a real-life situation is priceless compared to other assessments. I think that any design project can be easy if you're excited about your idea and if you're confident you can help someone with your ideas, and in this project I felt that way.

JC: This whole project has made me become much more aware of the environment and how vital it is for us designers to design sustainable products because of the mass production nature of the industry. I found myself making an effort to try and make a difference: separating paper, bottles, food scraps in the rubbish etc. I've even had all the light bulbs in my house changed to the energy saving type (all 37 of them)!

To be honest, I was not all too excited about the brief at the beginning of the project. I had this notion where designing for a sustainable community was something that was somewhat bland, unexciting and pedestrian. However, once my research group got into the momentum of our findings, it was exciting when we were able to identify real world problems and find a way to solve these problems through design. It was at this moment that design and the brief itself became something altogether different. As a designer, I have come to realize through this brief that designing is not purely all about what the designer wants, but rather what the designer can contribute to creating a better future. Personally, this road of sustainability is definitely the road I would love to travel down as a designer one day and I believe that my journey down that road has begun here...

AL: The project pushed my abilities as a student designer, and my perceptions on approaches to sustainability. It also helped me realize that as an industrial designer, I can pursue a meaningful career without compromising on my beliefs and ethics.

DS: I have now come to terms with the way in which the future of design will be guided... by a return to the roots of necessity and sustainability. Prior to undertaking this semester's Studio 3A, this notion seemed as though it may inhibit the way that we design. Now I see that designing in a responsible manner fosters better design on all fronts, as it forces us to push any design to its best limits... An aspect which was a first for me was the requirement of having to design for a specific client. Consultations with our client proved to be a valuable learning experience which we can now apply in the real world upon graduating. They taught us how to prepare or work for evaluation by people without a design background and to communicate our ideas in a much simpler way.

KJL: It's a lot different when you can interact with your client, get their feedback, get a first hand recount of what their needs are, what little details are needed, what they would like to see happen. Having a problem where the client is your tutor is different to one where your client happens to be a real person (not that our tutors aren't real...)

and donated copies of his books to his preferred student works. Students appreciated the exposure and commendation that their work received through the exhibition.

The CCs and RCs were active collaborative partners at various stages of this project, providing helpful feedback to make the creative proposals work within their business contexts. The main shortcoming of the project is that it ends at conceptual level, and that students weren't able to further prototype their ideas iteratively until a final workable solution that directly benefits the "client" is achieved. This is a factor of the time limitations in the studio course which is divided

among several learning objectives, not just this project. Moreover, there is a risk of students losing interest in this exercise had it been a 12-week exercise rather than a 6-week one.

Some students and tutors suggested that this studio project would have been much better if the client was an industrial partner, one who would actually manufacture their ideas, thus making it a real industry experience. This would be in contrast to the UNSW entities that are knowledgeable end-user clients but are not financially equipped to make decisions as to whether an idea is worth investing in and mass-producing. In my view, this latter part is the role of the studio tutors, who have the experience in product development, as well as that of the student designers, who should take the initiative of consulting with manufacturing experts themselves in order to mature their solutions.

Even so, the experiences gained from these sorts of projects show that students appreciate the challenging nature of briefs with aspects of sustainability and participatory design, and their reflections point toward a growing desire to be more responsible future practitioners in the industrial design community. The third-year studio has been an opportune spot within the four-year industrial design curricula to actively engage and influence young minds about their future responsibilities to the planet and to the people, when they practice as design professionals. The work that these new industrial designers will generate will have an enormous impact on the future, and it is our duty as their mentors in university to empower them with authentic learning and ensure that they conscientiously grow with the belief that they should actively be part of the sustainability solution, not the problem.

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REFERENCES

- Cox, B, Calder, M & Fien, J. 2002. *Teaching and learning for a sustainable future: a multimedia teacher education programme*. Paris: UNESCO.
- Manzini, E. 2002. Context-based wellbeing and the concept of regenerative solution: a conceptual framework for scenario building and sustainable solutions development. *Journal of Sustainable Product Design* 2(3-4):141-148.
- Manzini, E & Jégou, F. 2003. *Sustainable everyday: scenarios of urban life*. Milan: Ambiente.

- McKenzie-Mohr, D & Smith, W. 1999. *Fostering sustainable behavior: an introduction to community-based social marketing*. Gabriola Island BC: New Society.
- Ramirez, MJR. 2007. Promoting sustainability through industrial design studio projects. *ConnectED International Conference on Design Education*. Sydney: University of New South Wales.
- ULSF. 1990. *The Talloires Declaration*. Talloires: University Leaders for a Sustainable Future.
- UN. 2002. *Resolution 57/254: United Nations Decade of Education for Sustainable Development*. New York: United Nations General Assembly.
- UNEP. 2002. *Product-service systems and sustainability: opportunities for sustainable solutions*. Paris: United Nations Environment Programme.
- UNSW. 2005a. *UNSW Environmental Management Plan 2005-2010*. Sydney: University of New South Wales
- UNSW. 2005b. *UNSW Strategic Plan 2005*. Sydney: University of New South Wales.
- UNSW. 2007. *B2B blueprint to beyond 2010: UNSW strategic intent*. Kensington: University of New South Wales.