Educational institutions play an instrumental role in social and political change, and are responsible for the environmental and social ethics of their institutional practices. The essays in this volume critically examine scholarly research practices in the age of the Anthropocene, and ask what accountability educators and researchers have in ‘righting’ their relationship to the environment. The volume further calls attention to the geographical, financial, legal and political barriers that might limit scholarly dialogue by excluding researchers from participating in traditional modes of scholarly conversation. As such, Right Research is a bold invitation to the academic community to rigorous self-reflection on what their research looks like, how it is conducted, and how it might be developed so as to increase accessibility and sustainability, and decrease carbon footprint. The volume follows a three-part structure that bridges conceptual and practical concerns: the first section challenges our assumptions about how sustainability is defined, measured and practiced; the second section showcases artist-researchers whose work engages with the impact of humans on our environment; while the third section investigates how academic spaces can model eco-conscious behaviour. This timely volume responds to an increased demand for environmentally sustainable research, and is outstanding not only in its interdisciplinarity, but its embrace of non-traditional formats, spanning academic articles, creative acts, personal reflections and dialogues. Right Research will be a valuable resource for educators and researchers interested in developing and hybridizing their scholarly communication formats in the face of the current climate crisis.
A Decade of Design-led Sustainability Projects at Western Sydney
Abby Mellick Lopes and Jonathon Allen

The Living Lab concept—collaborative learning in a living, social setting—has its roots in the experiential, problem-focused approach to learning championed by John Dewey in the early years of the twentieth century. His key claim of a continuity between learning and society has underpinned recent developments in Living Labs, engaged research, ‘work-integrated learning’ and the development of a research and teaching nexus. These developments attempt to roll back the abstraction of knowledge in academic institutions, to enhance the contemporary relevance of knowledge in applied contexts.

The critical and all-encompassing concerns of sustainability underscored by the Sustainable Development Goals (SDGs) and their associated 169 targets, to which Western Sydney University became a signatory in 2017, bring a new urgency to these developments. However, rather than making education more socially relevant, there is now an unprecedented need for learning to be brought back to society, at multiple scales—local, societal and global. As Ezio Manzini, design theorist and champion of the social role of the design school in the transition to sustainability, remarks:

The transition toward sustainability is a massive social learning process. The radical nature of the objective (learning to live better while leaving a light ecological footprint) requires vast experimentation, a vast capacity for listening and an immense degree of flexibility in order to change. Sustainability and the conservation and regeneration of environmental and social capital means breaking with the currently dominant models of living, production, and consumption, and experimenting with new ones. A social learning process on this vast scale must involve everybody.

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The role of the university in this social learning process is critical. The university is a repository of knowledge and memory, held both by people and in the durable records of knowledge created over time. The pursuit of new knowledge is a key concern of the university, which lends to it a unique, experimental disposition in the culture, and a capacity to facilitate the massive social learning process demanded by sustainability.

Leading design thinker Tony Fry has commented that as Australian universities took on a functional role in relation to the economy with the introduction of the Higher Education Contribution Scheme (HECS) in the late 1980s, learning was replaced by a culture of earning. We see evidence of this in the language of mainstream public discourse, where universities are primarily understood as service-providers to the labour market. The precarity evoked by the current COVID-19 crisis, has caused universities to double down on their efforts to market their offerings. However, contrary to negative, narrowly-formed economic views about the relevance of the university, the context of the crisis tells us that the university has never been more relevant. Universities must turn toward sustainability in their efforts to ‘create the knowledge necessary to support a world that is livable for humanity’.7

In what follows, we provide some evidence for these claims of the relevance and importance of the role of the university by spotlighting three design-led sustainability projects conducted within Western Sydney University, and in partnership with other universities in the last decade. In selecting these few examples, we are in no way suggesting they are the only sustainability projects of note that have or are occurring at the university.8 Instead, we highlight those projects that were particularly design-led, and that showcase an affinity between design and the social learning process advocated by Manzini amongst others.

The first project is FuturesWest 2031, a design-led initiative that aimed to generate a conversation about how Western Sydney could adapt to a

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8 To get a sense of some of the many Living Lab projects that have occurred or are currently underway at Western Sydney, see https://www.westernsydney.edu.au/driving_sustainability/sustainable_futures/living_labs.
climate-changed future, which was held at the University of Western Sydney (now Western Sydney University) in the winter of 2009. At this time, there was vital sustainability research going on at the university in various disciplines, however there wasn’t the social license or cultural imperative that exists now, and the cross-university conversation was only in its early stages. We can recall there were still debates about the reality of human-induced climate change going on in the classroom and also on occasion in the staff room! FuturesWest 2031 attempted to think about sustainability transitions for Western Sydney using an approach called ‘design futuring’, which was also being championed in the design classroom via hybrid methods of future scenario planning.

The project involved substantial baseline research on pressure points facing the region such as the future of food, urban mobility and population expansion. It used trends analysis and educated speculations about how these converging challenges might be met to develop scenarios of sustainable futures. This process was led by Dr Tony Fry in a ‘hot house’ workshop involving academics, students and local stakeholders. Graphic design was used to visually communicate emerging ideas in a community workshop promoting themes for ongoing conversation, examples of which are presented below in relation to two of the key themes explored at the event: the Western Sydney Food Bowl and Co-Housing.

FuturesWest 2031 was a catalyst for transdisciplinary conversations around sustainability, and had a strong influence on the project-based curriculum in design which continues to this day. In the above example, redundant car parks (on the presumption that by 2031, we’ve transitioned away from personal cars using internal combustion engines, to a greater dependence on public transport) are seen in three stages of their transition to urban agricultural and aquacultural food precincts—a zero-kilometer café appearing in the last image of the sequence.

9 Jonathon Allen, Abby Mellick Lopes and Tara Andrews, ‘Futures west: A design research initiative promoting sustainable futures for Western Sydney’, Cumulus 38° South 2009 Conference (Melbourne: Swinburne University of Technology/RMIT University, November 12–14, 2009).
The role here of visualizing potential futures in the context of this project was twofold: firstly, to explore options that were hitherto unthought of, and secondly to provide seductive visions of the future in order to engage stakeholders and to generate, hopefully, provocative conversations with those stakeholders. An image is powerful in that it has the ability to focus discussion and ensure there is a consensus of understanding, whereas ideas and futures presented solely in written form are typically more open to interpretation. The image evokes the change as a ‘concrete hypothesis’: ‘Not yet a reality, but that could be
made real if the necessary moves were made’. Visualizing potential futures allows deeper, detailed discussion as, whilst stakeholders may have different opinions and priorities, they are at least focused on the same point at hand rather than upon their own, often differing, interpretive visions.

The Food Bowl theme recognized that while the region has an agricultural history, much viable agricultural land had been claimed by suburban sprawl and industry in recent decades. With growing concerns about food security and the decline of manufacturing and jobs in the West, an opportunity was framed to revisit this agricultural legacy and think about urban food in new ways for the region. This theme recognized the extensive expertise in water, soil and food sustainability at the university, and a promising cultural momentum around urban agriculture.

The co-housing theme addressed the momentum of poor housing development in Western Sydney, drawing attention to the car-depending implicated by its diverse geography and inadequate public transport infrastructure, and built into the fabric of the buildings, as can be seen in the expansive space given over to the car in the image at left above. Building on the Food Bowl observations, the co-housing theme attempted to think through how Western Sydney might ‘receive’ a future population of migrants including climate refugees from nearby countries, facilitating greater density and a more climate-appropriate future everyday life.

In addition to raising questions about better climate-defensive and passive-thermal built forms, this theme brought into the conversation the importance of social innovations. For example, platforms, tools and ‘starter packs’ could support the take up practices such as food gardening. Equally, opportunities for new settlers to express and share culturally-specific knowledge and expertise, need to be created and expanded. Reciprocal and regenerative learning cycles are a critical aspect of the wider social learning process that FuturesWest 2031 aspired to initiate. Rather than technical solutions or fixed realities, the visual scenarios we presented were meant to function in an innovative way as propositions and conversation starters. As it turned out, the conversation we were attempting to start with stakeholders was probably a little

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ahead of its time. The event was, however, a significant learning exercise for everyone involved, and provided an experience of the university in the role of facilitator of social learning for sustainability, and as a hub for facilitating sustainability transitions.\textsuperscript{14}

The second example was a research partnership led by the Institute for Sustainable Futures (ISF) at University of Technology, Sydney

\textsuperscript{13} The ‘McMansion’ is a reference to the fashion for excessively large dwellings that tend to parade codes of affluence whilst often being cheaply constructed and expensive to run.
\textsuperscript{14} Allen, Lopes and Andrews (2009).
(UTS) in collaboration with Western Sydney University (WSU), called *Transitioning to Sustainable Sanitation Futures*, and also known as The Funny Dunny Project\(^ {15} \) (2010–2011). This project established a transdisciplinary community of practice, involving academics from three universities, a water utility, industry and local government partners all working together to explore the problems and opportunities involved in implementing a novel system of sanitation across the two universities. This was very much conceived as a social learning initiative from the outset, creating a space to encounter and explore the many ‘unknown unknowns’ likely to emerge in the process.\(^ {16} \)

Taking the multi-level perspective promoted by transition management theory to understand changing socio-technical systems,\(^ {17} \) the global decline in the quality of mined phosphate rock used for food production\(^ {18} \) can be understood as a ‘macro-level’ or landscape event, outside the realm of direct human experience. The polluting and aging waterborne sanitation system in Sydney exists at the ‘meso’ (or regime) level,\(^ {19} \) to which everyday system ‘actors’ have some access. This project sought to create a ‘micro’ version of a complete ‘closed loop’ alternative system, make it operational and learn from what transpired from technical, social, legal and environmental perspectives. The system involved the installation of a number of urine-diverting toilets on campus at UTS for use by members of the campus community, the collection, storage and transportation of collected urine to Western Sydney, and its reuse as a partial substitute for phosphorus fertilizer in plant pot trials within the Agriculture Department at WSU, Hawkesbury.

\(^{15}\) ‘Dunny’ is Australian slang for toilet.

\(^{16}\) Here we reference Donald Rumsfield’s well-known observation about the ‘knowns’ that ‘we don’t know we don’t know’, which was made during a Pentagon news briefing to frame risk in relation to defending the US war in Iraq. Sustainability research and practice demands that we embrace risk in pursuit of a just and liveable world.


\(^{19}\) Dena Fam et al., ‘An historical analysis of Sydney’s sewer systems to determine windows of opportunity for system change’, *Design Philosophy Papers*, 7.3 (2009), 195–208.
One of the most unique aspects of this project was the way it positioned the importance of visual communication design in facilitating system operation. Previous research had shown that a highly technical approach to the problem of recovering and reusing urine had excluded the experience of everyday toilet users, undermining the new system’s chances, as the success of every new technology depends on its socialization. The Funny Dunny Project gave the user a central role, inviting, via visual communication tools created by students in the design programs of both university partners, a chance to participate in the learning process.

Fig. 4 A graffiti board designed to collect data for the Funny Dunny Project helped the researchers to track the socialization of the new ‘closed loop’ sanitation system. Designed by Yana Mokmargana (student of Visual Communications, WSU).

The Funny Dunny Project was conceived as a trial of a radical innovation at a ‘niche’ level, with the university acting as a critical research space to explore what was effectively a complex and future focused sociotechnical experiment. The ‘niche’ framing is interesting because it positioned the experiment ahead of what is actually happening in the culture at large—in what Frank Geels calls a space for radical innovations, where experiments are ‘protected’ and for which markets and preferences do not yet exist. The project modelled system change by involving those with a vested interest in sanitation and a desire to explore the potential for change, but with the cautious conservatism that characterizes risk-averse industry ‘actors’. It is critical to note here that the way the university setting acts to protect and nurture

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21 Geels (2002).
innovation and enshrines the ‘right to fail’ as an important component of social learning.22

While this experiment created more research questions than it answered and there were many technical, regulatory and socio-cultural barriers preventing the immediate uptake of the new system, it certainly inspired the imagination of industry and government actors, and allowed important new conversations about phosphorus futures to germinate.23

Our final example builds upon the Funny Dunny Project and its cross-university collegiality, to further explore how design can facilitate social engagement and learning. The Transdisciplinary Living Lab (TDLL) model was developed in 2016–2017 as a collaboration between Design at UTS, Design at Western Sydney University and the Institute for Sustainable Futures at UTS. The TDLL emerged out of a design studio at UTS exploring the problem of food waste at local, societal and global scales.24 A new food waste system had recently been installed at UTS, which was designed to eventually process 100% of the food waste generated on campus. This system had the capacity to transform most organic materials including grains, coffee grounds and meat into a ‘soil conditioner’ that could potentially be reused in local gardens and parks, via a process of low-temperature dehydration. Students in the Interdisciplinary Design program at UTS were tasked with researching the problem context of global food waste whilst also examining and reflecting on their own food practices, and proposing new concepts for how the university community could learn about the value of the system and take responsibility for what were sometimes new practices of separating organics from other waste streams in an institutional setting. Finally, students considered the impacts of their designs in relation to the SDGs and ‘planetary boundaries’,25 and reflected on how the Living Lab had influenced their thinking about their future design careers.

23 The project was awarded an NSW Green Globe Award for Sustainable Innovation in 2012.
The TDLL supports an approach to learning that starts with the familiarity of personal experiences and practices, what Fry terms ‘digging where you stand’,\textsuperscript{27} to learning with and from others (essential to a transdisciplinary approach) to propose appropriate systemic intervention, and finally through to global impacts, introducing the concept of SDGs and planetary boundaries, within which our most mundane everyday practices are ultimately nested. This approach highlights that social learning must always be transformative of self and shareable with others.\textsuperscript{28}

When Western Sydney became a signatory on the SDGs in 2017, sustainability lost any residual marginal or voluntary status and took centre stage. As the University Commitment Statement suggests, sustainability requires all core areas of the university—curriculum, operations, research and engagement—to be considered together:
Universities will have a vital role to play in addressing (these) critical global challenges and achieving the Sustainable Development Goals. Universities have a responsibility through their teaching to equip the next generation of leaders, innovators and thinkers to understand the global challenges facing the world and the role they can play in rising to meet these challenges. Through their research and training of research leaders, universities are at the forefront of finding sustainable social, economic, environmental and technical solutions to global problems. Finally through their own operations universities can pioneer innovation and can set an example to other sectors and businesses.  

Together, the three projects we’ve presented tell a story about the university’s role in facilitating the broader societal project of transitioning to more sustainable cultures and economies. These projects demonstrate the importance of a future focus, of embracing an experimental approach that might entail failure and redirection as part of the learning process, and the importance of testing ideas with people, to produce more socially robust knowledge. They also demonstrate a collaborative approach that transcends the competitive relationship between universities that is often exacerbated in a climate of funding cuts. Given the short time frame we have to make major transitions across many aspects of society if we are to limit global warming to 1.5 degrees celsius, it is important that we rapidly move toward the idea of a knowledge commons for sustainability, to which we all contribute and can draw on in remaking society within our own small spheres of influence, care and responsibility. Finally, we believe these projects also tell a story about a transition taking place in the discipline of design, which has been instrumental in the rise of unsustainable consumption across the twentieth century, and therefore perhaps more than most, is the discipline that needs to remake itself.

