

The Local Design Summit: trialling a local learning program between settlers and First Nations people

Louise Bardwell^a, Patricia Wang-Zhao^a, Angus Mitchell^a, Clare Idriss^b, and Charlotte Fell^a
Australian National University and Engineers Without Borders Australia ACT Chapter^a, Engineers Without Borders Australia ACT Chapter^b,
Corresponding Author Email: charlotte.fell@anu.edu.au

ABSTRACT

CONTEXT

Immersive, community- and project-based learning experiences have emerged as a key part of engineering degrees, such as through Engineers Without Borders Australia's (EWB-A) Humanitarian Design Summits and Pollinate Group's student programs. As we continue to see stronger pushes for meaningful reconciliation, alongside a new era of engineering education that aims to be more multidisciplinary and culturally diverse, there is considerable interest in engaging First Nations communities and knowledge in these programs. There is, however, a gap in understanding how we might develop these learning experiences with our local First Nations communities. Ongoing processes of colonisation and emerging narratives of decolonisation, as well as Indigenous protocols, present multiple tensions for delivering such an event.

PURPOSE

We sought to understand how an immersive, community- and project-based learning experience between settlers and mob might be delivered on our local Ngunnawal and Ngambri Country. Inspired by existing learning programs, this program sought to trial an experience that encouraged multidisciplinary approaches and centred Indigenous knowledge within engineering and design, aiming to work with First Nations people in our community in such a way that facilitates meaningful collaboration.

APPROACH

We utilised an action research methodology in planning and delivering an impact-oriented, immersive learning experience with local Traditional Owners. The program's preliminary design involved multiple points of individual and collective reflection as well as documentation with a range of stakeholders. To quantify impacts and outcomes of this Summit, as well as facilitate iterative development, qualitative and quantitative feedback was collected and will continue to be collected in the form of feedback surveys as well as interviews.

OUTCOMES

In this paper we present the Local Design Summit (the Summit), a multi-day, community-based program, and we reflect on the tensions and challenges in running this event over the last two years. The anticipated outcome of this program is to facilitate ongoing and meaningful collaboration between First Nations people and settlers, particularly through engineering and design opportunities within and adjacent to engineering degrees.

CONCLUSIONS

We share the results of over two years of planning and delivering the Local Design Summit, an important first step in informing further development of multidisciplinary engineering learning programs with Indigenous knowledge and people.

KEYWORDS

First Nations, local learning experience, co-design, multidisciplinary learning, immersive learning

Introduction

Immersive, community- and project-based learning experiences have emerged as a key part of engineering degrees, such as through Engineers Without Borders Australia's (EWB-A) Humanitarian Design Summits and Pollinate Group's student programs. As we continue to see stronger pushes for meaningful reconciliation, a new era of engineering education that aims to be more multidisciplinary and culturally diverse has emerged. There is a growing desire to engage First Nations communities and knowledge in these programs. Student demand for these programs is also high, with many applications submitted for entry into such programs every year. Moreover, engineering industry and government bodies are increasingly recognising the value in adopting early co-design when working on Country as part of successful project management and execution, meaning that it is increasingly important engineering students are being exposed to Indigenous knowledge and co-design through learning programs.

There is, however, a gap in understanding how we might develop these learning experiences with First Nations communities, specifically those in our local community. This is not a simple proposition. Ongoing processes of colonisation and emerging narratives of decolonisation and Indigenous protocols present multiple tensions for delivering such an opportunity to engineering students and professionals, which will be explored further in this paper through the evaluation of the trial learning program collaboratively developed and delivered by the authors.

Role of project-based learning in developing culturally competent engineers

EWB-A has a rich history in project-based learning, with programs including the EWB first-year Challenge, EWB Design Summits and final-year EWB Research Challenge. These programs

"in providing a cross-cultural project context for students, can help to develop students' awareness, knowledge and skills in human-centred design and community engagement as part of technical design processes, and cross-cultural capabilities more generally" (Kutay et al., 2022).

As previous works have examined, including Smith et al. 2017, these programs have been extremely successful and transformative in the learning journey of engineering students. These programs provide students with a facilitated and mentored environment in which to learn key concepts like cultural awareness and sustainable design in practice.

A large portion of the success of these programs has come from their partnerships with grassroots organisations with whom EWB-A has existing relationships. By doing so, the project-based learning can occur not solely in a one-way and extractive fashion, but as part of broader work being completed by EWB-A professionals with the communities. It simultaneously provides students with an authentic and immersive experience. Particularly important to this structure is EWB-A's emphasis on the education-only focus of such programs, establishing this expectation from the outset of the experience to shape students' understandings of the intent and outcomes. This is particularly important in the context of overseas Design Summits, where the scope of projects that students work on is set to within the program's two-week timeframe, and there is no expectation from the community or partnering organisation/s that it will deliver a non-educational outcome for or from the students. In some cases, like the EWB Challenge, there is the opportunity for ideas generated in student projects to be integrated into current or future areas of work, however, this again is not a critical outcome of the program.

Student demand and interest in project-based learning has been readily demonstrated, with EWB-A's Design Summits often being student's main or only engagement with project-based learning in a culture different to their own. As a result, these Design Summits are a critical source of students' development-based skills (Smith et al., 2017). In the context of the Australian National University (ANU), this has proven important in serving as a key motivator for students' ongoing interaction with the field of humanitarian engineering, which can be defined as the "application of an engineering discipline, such as civil or mechanical, to a specific humanitarian or development context or response" (Smith et al., 2017). For example, it is

common for students to select their later or final-year research projects based on experiences they have had on a Design Summit. These projects typically take a socio-technical lens and speak directly to Engineers Australia's Stage 1 competency that calls for engineers to identify and understand "the interactions between engineering systems and people in the social, cultural, environmental, commercial, legal and political contexts in which they operate" (Engineers Australia, 2014).

Since 2015, EWB-A has also nationally run an Engineering On Country (EOC) program, stemming from its partnerships with Aboriginal and Torres Strait Islander communities, businesses, and organisations. The EOC program aims "to ensure Aboriginal and Torres Strait Islander communities are able to meet their aspirations through engineering and appropriate enabling infrastructure" (EWB, 2021). The growth of EWB-A's EOC program was soon reflected in the EWB Challenge, with the 2020 and 2021 Challenges partnering with the Centre for Appropriate Technology (CfAT), an Aboriginal and Torres Strait Islander controlled not-for-profit organisation, and their work with communities in the Cape York region of Far North Queensland. With the EWB Challenge having previously only partnered with international organisations in Cambodia and Timor-Leste, these 2020 and 2021 Challenges reflected a shift in approach to project-based learning, which has been continued through 2022 and 2023.

COVID-19 re-centering the focus of project-based learning for the ACT Chapter

The COVID-19 pandemic caused significant disruption to EWB-A's programs domestically and internationally, with EWB-A pausing their overseas Design Summits. The impact of this was interesting in the context of the ACT EWB-A Chapter in Canberra, where COVID-19 restrictions and transmission rates locally were fortunately relatively minimal, but the broader travel restrictions nonetheless disrupted student participation in these programs. We began questioning the reliance on overseas travel to provide opportunities for students to develop critical skills like cultural competency and community engagement. At the same time momentum surrounding and commitment to reconciliation was growing across Australia, with Universities Australia publishing an *Indigenous Strategy 2022-2025* to which all 39 Australian Universities committed. Additionally, the ANU in its *Strategic Plan 2021-2025* committed the University to engaging with Aboriginal and Torres Strait Islander people through academic work, as well as the ANU *Reconciliation Action Plan (2021-2022)* committing the University to celebrating and embedding Aboriginal and Torres Strait Islander knowledge. These strategies and initiatives beckoned the question of how we could better engage with our local First Nations Elders and mob, and by doing so, actively engage in decolonising engineering. Out of this arose the Local Design Summit (the Summit), a locally based version of EWB-A's Design Summits that focussed on EOC and on developing relationships and partnerships with our local mob. Given research that was concurrently being conducted by Angus Mitchell as part of his PhD at the ANU on the topic of Indigenous agriculture and land regeneration, it was envisaged the Summit could be used as a platform to help engage students and professionals in this area.

Program design and methodology

There were several overarching goals and considerations that informed the design and redesign of this Summit. One of these was the desire to establish connections with our local ACT community, specifically with our local mob. We wanted to see if, through the program, we could help establish ongoing research, projects or relationships that were First Nations-led and that directly benefited First Nations peoples and/or enterprises. Through this, we saw opportunity, if desired by the program's First Nations and non-First Nations stakeholders, for conversations and ideas to continue beyond the one-to-two-week timeframe of the program. The success of the program, however, wouldn't be reliant on this desired outcome, in recognition that a goals-driven approach in this area can often overlook intangible outcomes of learning and new perspectives, as highlighted in EWB-A's education-only focus.

During this design process we utilised an action research methodology to plan and deliver an impact-oriented and immersive learning experience with local Traditional Owners. Firstly, we

established a small organising team within our ACT EWB-A Chapter within which we informally split roles and tasks amongst ourselves, including funding, logistics, administration, participant communication, engagement with Traditional Owners, relationship building, workshop design, and workshop facilitation. It was at the heart of this team that we went through the iterative planning, action, analysis and conclusion cycles of action research. Specifically, the program's preliminary design involved multiple points of individual and collective reflection, with a range of stakeholders. As our organising team consisted of all non-First Nations people, all of whom identify as settlers to the land and Country on which we work and live, these points of reflection were used to guide our individual and collective learning journeys that occurred in parallel and as part of designing and running the program. We also saw it as our role as settlers to take on all of the administrative and logistical burdens associated with running the program, and ensure that we had appropriate funding and resources to properly compensate all First Nations peoples with whom we partnered. This consideration of wanting to appropriately engage with our First Nations partners in such a way that the Summit was driven by their experiences, and that the organising team simply served as support when and if required, was a core underlying principle of the design. It was equally important to negotiate the tension between wanting to have as many First Nations facilitators as possible, whilst also ensuring the burden and onus fell on non-Indigenous allies where possible and appropriate, with this tension shaping the overall design of a flexible, facilitator-driven program design.

As significant as building connections was as outcomes of the Summit, connections and relationships were equally influential in the overall design of the Summit. The first iteration of the Summit was shaped by the connections that Angus had established with Gunggari brothers Dan Ganter and Warren Ganter Saunders. Dan and Warren are deeply involved with the native plants industry in Australia, both holding extensive expertise on Australia's native flora, and as such the workshops were designed to place their extensive knowledge at the forefront. The generosity of Dan and Warren to participate and share their knowledge in the program was invaluable, allowing participants to learn first-hand about the native grains industry, technologies they have developed, and challenges facing the industry.

Another relationship that significantly influenced the design of the Summit was that with Murray Prior, the settler farmer and co-custodian of Nguurruu farm. For both iterations of the program in 2022 and 2023, Murray generously hosted the site visit day of the program at Nguurruu, inviting our participants to his home and sharing with us his decolonising journey that has occurred through his co-custodianship and relationship with Nguurruu's traditional custodian Paul Girrawah House, a proud Ngambri-Ngurm (Walgalu), Pajong (Gundungurra), Wallaboolooa (Ngunnawal) and Erambie/Brungle (Wiradyuri) man. Specifically, this included his learning from Girrawah House and other Ngambri elders on Indigenous approaches to agriculture and land regeneration, which Murray is trying to practice on his farm. Murray, with his existing relationship with Girrawah and Auntie Matilda House, was also an important point of mutual trust, facilitating the co-design of the program that occurred in its second iteration, between our organising team, Murray and the Ngambri mob.

From these discussions around design, a high-level plan for the Summit and draft program logic was developed, shown in Figure 1 on the following page. The program logic builds upon the three main components of the Summit, which were the pre-Summit readings and workshops; the site visit day; and the hackathon day. We hoped for the overall impact of the event to be settler learning and engagement locally on Country with First Nations peoples and knowledge, with the aim of exploring how participants' backgrounds in design and engineering could be used to help support First Nations enterprises.

Program format

The 2022 theme for the Local Design Summit was Indigenous agriculture and land regeneration, stemming from Angus's research in this space and the relationships he had initiated with Dan and Warren. Central to the theme was the Native Grains project, focussed on re-establishing traditional food growing and country management processes for the economic benefit of

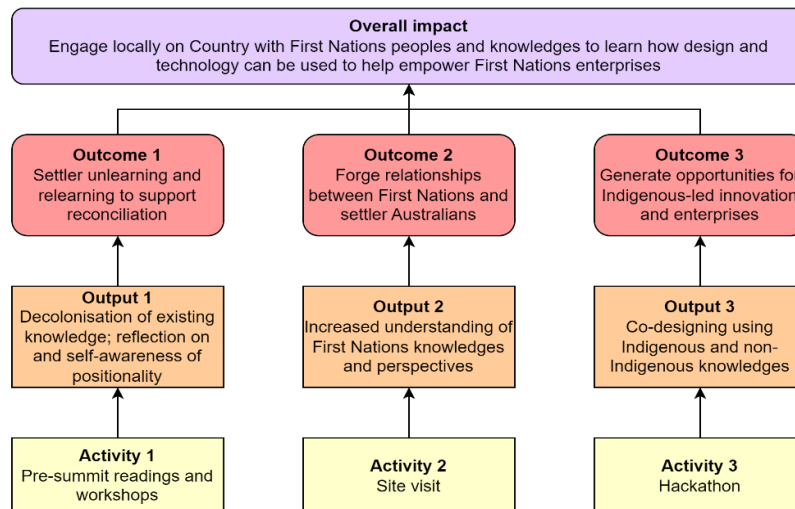


Figure 1: Draft program logic for the Summit

Indigenous peoples and country. The 2023 theme, 'Nguluway – meeting each other,' was gifted to the organising team by Girrawah and its overall intent was to bring together EWB participants, special guests and the Ngambri mob for a day focussed on reviving native foods and land management. For the second iteration, there were three workshops covering topics of native grains, bush medicines, and tubers as well as, more broadly, ongoing issues regarding First Nations engagement, Intellectual Property (IP), Free and Prior Informed Consent (FPIC), supporting a native grain industry, and decolonising practices. The 2023 Summit also hoped to celebrate local foods and ingredients, showing to the importance of First Nations peoples re-taking the agriculture narrative and for settlers to support/handover this piece.

Both the 2022 and 2023 Summits were organised by a voluntary team of five settlers from the EWB-A ACT Chapter (Charlotte, Louise, Angus, Patricia, and Clare). Members of the organising team also facilitated the settler-run workshops (pre-Summit, hackathon, and post-Summit workshops) of the Summit alongside two to three other volunteer facilitators from the ANU community and a volunteer from Soils for Life. In the 2022 Summit, workshops out at Nguurruu farm were run by Dan and Warren, with facilitation and co-facilitation from some of the settler facilitators. During the 2023 Summit, workshops for the site visit day at Nguurruu were co-designed between members of the Ngambri mob and the organising team, including talks from Girrawah and Aunty Matilda House as well as input from Dan and his partner Karmen. The 2022 Summit had 14 participants (11 students and three working professionals) and the 2023 Summit had 12 participants (six students and six working professionals), with the 2023 Summit also including several special guests for the site visit. These special guests included one working in Regenerative Agriculture, ANU's Bandalang studio program manager, and two members from Soils for Life who were invited to capture the event.

Funding for the first Summit came from a grant from ITP Renewables. The second Summit was funded both by the ANU Natasha Linard Scholarship and the Centre for Entrepreneurial Agri-Technology (CEAT). A key use of this funding was to ensure that the cost of student and other tickets was accessible, including support for extenuating circumstances, as well as ensuring the time of First Nations peoples involved in the event could be well compensated. The sales of higher priced corporate tickets involving companies sponsoring participants was also effective for funding the Summit.

Table 1 presents an overview of the Summit programs that were run in 2022 and 2023. The program for the 2023 Summit was an iterated re-design of the 2022 program, adjusted according to participant feedback, facilitator reflection and input from Murray and Girrawah. Some of the notable changes between the two years of the program include:

- Dedicating an individual workshop to positionality, where participants were guided through the ways of being, knowing, and doing (Yunkaporta, 2010);
- Including a settler-run ontological design workshop to introduce different approaches to design and histories, such as concepts of Country-centred design;
- Having a broader focus on native plants and First Nations-led commercialisation during the site visit at Nguurruu farm and,
- Including a post-Summit reflection and re-positionality session

Table 1: Overview of program for the 2022 and 2023 Summits

	2022	2023
Pre-Summit	Reading pack Online book club and introduction to positionality Welcome to Ngunnawal Country and dinner 'What is Development?' workshop	Reading pack Introduction and welcome dinner Positionality workshop 'What is Development?' and Ontological Design workshop
Summit	Nguurruu Site Visit <ul style="list-style-type: none"> • Workshop 1: Native seeds technology • Workshop 2: Cleaning and sorting native seeds • Workshop 3: Reflection and identification Hackathon <ul style="list-style-type: none"> • Gather, discover, define and ideate • Present ideas 	Nguurruu Site Visit <ul style="list-style-type: none"> • Welcome to Ngambri Country • Workshop 1: Reviving & reimaging the traditional grain economy • Workshop 2: Modern use for an ancient bush medicine • Workshop 3: Commercialising murnong (yam daisy) • Native foods feast Hackathon <ul style="list-style-type: none"> • Reflection, identify, gather, discover, define and ideate • Present ideas
Post-Summit	<i>None</i>	Reflection & re-positionality
Total Duration	One online session, two afternoon sessions and two full-day sessions over one to two weeks	Four afternoon sessions and two full-day sessions over one to two weeks

Pre-Summit

A reading pack was sent to participants a few weeks before the in-person events of the Summit so that they could commence their learning journey and understanding of Australia's First Peoples' histories and perspectives. This pack included several papers spanning Australia's history of genocide, the concept of Country, and Indigenous engineering. The start of the in-person pre-Summit included A Welcome to Country followed by a dinner picnic held by Ngunnawal Traditional Custodian Wally Bell in 2022 on ANU campus. In 2023, a Welcome to Country ceremony was instead held during the visit to Nguurruu farm on Ngambri Country and a welcome dinner was added to commence the Summit. A positionality workshop was run in both years, with more time dedicated to it in 2023, during which our settler facilitator used an adapted version of the ways of being, knowing, and doing (Yunkaporta, 2010) to ask participants to contemplate their identity map and ways of being, doing, and knowing within their own culture. The 'What is Development?' workshop was adapted from the EWB-A's workshop used in the

Humanitarian Design Summit that challenges students to critique Western perceptions of what is “most” and “least” developed, highlighting the importance of values and strengths-based approaches rather than deficit approaches. In 2023, the ‘What is Development?’ workshop was also combined with a session on different approaches to design, including background material on Country-centred design using Government Architect NSW’s Designing with Country framework (Kombumerri et al., 2020) and a mapping activity focused on shaping Indigenous futures through decolonising designs adapted from the work of Tristan Schultz (Schultz, 2018).

Summit

Going to Nguurru Farm was one of the highlights of the Local Design Summit for organisers and participants alike. The intent for the site visit was to have the content and delivery of workshops throughout the day steered by our First Nations partners, and to allow the day to evolve as organically as possible. In 2022, the day was driven by Dan and Warren, who shared with participants their vast knowledge of native plants and explained the current state and future potential of native grains in Australia. Dan demonstrated his current technologies and methods for harvesting and cleaning native grains, as well as these approaches’ successes and challenges. In 2023, under the broader theme of Nguluway, three focus areas for workshops were suggested by Girrawah and Murray during planning, and these were then co-designed and facilitated by the organising team. One of the workshops, for example, included native grain samples and experience sharing by Dan and Karmen to highlight opportunities and issues surrounding the scaling of the industry. In 2023, a native foods feast was also held at the end of the day to celebrate local ingredients and show our appreciation to the House family, Dan and Karmen, and special guests.

The hackathon day allowed participants to take their learnings from the previous day at Nguurru farm and then to brainstorm and design in response to identified opportunities. The hackathon commenced with a reflection from the site visit day, followed by the students being guided through the EWB-A design process focussing on the strategy, pre-design and initial conceptual design stages (EWB-A, 2020). First Nations stakeholders unfortunately weren’t able to attend the hackathon in 2022 and the desire to have had that opportunity to consult during the designing was clearly reflected in participants’ feedback. Accordingly, in 2023 we prioritised this and were fortunately joined for the whole day by Dan and Karmen who provided invaluable insights and feedback on the development and final presentation by groups’ of their ideas and designs.

Post-Summit

In 2023 a post-Summit reflection and follow-up discussion on positionality (re-positionality) was included to more formally wrap-up the Summit and share learnings and key takeaways amongst participants. The reflection included an activity where participants created a cloud map of their current mindset, reflection on the program and how it might impact them going forward.

Learnings and Outcomes

Feedback received from participants was positive and showcased the unique, local learning experience that the Summit had offered them. For example, one participant noted how:

“I gained an incredible amount of knowledge over the last week... Having no knowledge on this subject previously, it was extremely eye opening to learn about engineering practices that are so well connected with the earth that have been around for thousands of years (EWB-A, 2023)”

Another engineering student participant reflected on how the Summit’s offered a new through which to understand engineering and the importance of connecting with Indigenous knowledge:

“Discussions surrounding perspective and the social and cultural implications of design have also given new insight into the importance of thoughtful and sustainable engineering practices (Craine, 2022)”

Alongside participant learning outcomes, the Summit also led to some tangible ongoing projects and partnerships, with these ongoing relationships reflecting the focus on connections and coming together. One of the designs delivered in the hackathon in the 2022 Summit was a new seed cleaning technology, which was subsequently carried on at ANU both in the form of a student research project and an ongoing research collaboration between Angus (on the organising team) and Dan and Karmen. The Summit, which contributed to developing relationships between some of our First Nations partners and initiatives happening at the ANU, also could be attributed to playing a role in Dan and Warren, as well as Girrawah and Aunty Matilda, receiving residencies at ANU's new Bandalang Studio. Bandalang Studio is an initiative from within the ANU School of Engineering that aims to "provide(s) a supportive environment for First Nations students, researchers, innovators, leaders and their non-Indigenous allies to learn and collaborate". The studio offers a number of paid residencies each year to support First Nations people to "practice, research and engage in educational development that contributes to changing perspectives on engineering in Australia and more broadly" (Bandalang Studio, n.d.).

Reflections and Conclusions

While the structure and theme of the programs in both years were quite similar, the second iteration had more depth and maturity, by virtue of learnings, reflections and feedback from the first Summit. The use of an application screening process in the second iteration provided an opportunity for us to ensure that the time and knowledge of our First Nations facilitators was being given to those who had demonstrated a genuine interest. We were also able to select a pool of participants from diverse backgrounds, from students studying a range of disciplines to working professionals. We hoped this multidisciplinary approach would align more closely with the way in which Indigenous knowledge is shared and gathered, as opposed to Western academia that tends to silo learning across separate disciplines. The success of this approach was reflected in the greater range of approaches and perspectives shared during the second Summit, particularly in relation to reflections on our decolonising journeys and potential designs.

The opportunity to learn and ideate out on Country was defining, as it facilitated a learning experience that was highly personal and spiritual for every individual. As such, the second iteration intentionally expanded upon this aspect and was well received by participants. To the organising committee and the stakeholders we consulted with, this aspect of being on Country is instrumental to the design of an immersive learning program, with students inevitably fatiguing with the online-based programs offered during the pandemic. While organisations such as EWB-A had done admirably to continue online offerings as an alternative way in which students could develop these skills, in-person experiences remained unique and in demand. While the organisation of such an event had some challenges, an extremely flexible and iterative design and planning process greatly aided program development. For example, the logistical and administrative tasks of organising the event often required reasonable amounts of notice in timing and forward planning. The nature of the seasonal work of the First Nations people we were engaging with, however, meant that planning commitments numerous months in advance was challenging. Keeping proposals, milestones and even overviews for each day flexible and accommodating was a skill the organising team had to develop, and was very helpful in ensuring the program benefited from the wealth of knowledge we were fortunate to access.

Our experience facilitating this immersive co-designed program has demonstrated a strong demand from students, academia, and industry, especially given the increased recognition of the importance of active reconciliation. This pilot also sets a precedent for engaging local First Nations communities and integrating Indigenous knowledge with Western approaches to design and engineering. As First Nations knowledge becomes more integrated into education, expanding the number of collaboratively designed and immersive experiences available to students provides the potential for future engineers to be educated on their own privilege, decolonisation and cultural competencies. This will be as essential as technical learnings to develop the next generation of culturally competent engineers.

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