



# Study of faculty staff undertaking an on-Country experience to bridge western and Indigenous worldviews – Research design

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## ABSTRACT

### CONTEXT

In 2017, the Australian Council of Engineering Deans (ACED) released a Position Statement on embedding Aboriginal and Torres Strait Islander perspectives into the engineering curriculum (ACED, 2017). In the lead up to the ACED position statement, a research project exploring the process of embedding Indigenous perspectives into engineering curricula was undertaken (Goldfinch et al, 2016). The project produced the 'Engineering Across Cultures' (EAC) curriculum development model.

### PURPOSE

This paper outlines the rationale and design of a study that aims to further test and develop the curriculum development model for embedding Indigenous perspectives into engineering curricula (Goldfinch et al, 2016). Extending on the work of Goldfinch et al (2017), the study focuses on exploring how attitudes of university staff are influenced by an on-Country experience with Indigenous knowledge holders and how the experience leads to individual and collective action to integrate Indigenous knowledges and perspectives into engineering curricula.

### METHODOLOGY

Adopting an interpretivist worldview and a phenomenological approach, the study gathers data via semi-structured interviews and artifact sharing from participants. The interviews include open-ended questions and emergent approaches, using both text and image. Data analysis uses qualitative methods including thematic analysis. This paper also engages with the concept of decolonising methodologies in the context of engineering education research. This is used both to critique and strengthen the research design.

### ANTICIPATED OUTCOMES

The study, due for completion in 2023, will provide insights into how on-Country experiences with Indigenous knowledge holders influence participants. It will further reveal how this leads to sustainably altered commitment to institutional change, including across curricula.

### KEYWORDS

Indigenous knowledge, engineering education, on-Country experience, worldviews, curriculum development

## Introduction

Across Australia there is an increasing focus on integrating Indigenous knowledges and perspectives into higher education curricula (Universities Australia, 2022). In 2017, the Australian Council of Engineering Deans (ACED) released a Position Statement on embedding Aboriginal and Torres Strait Islander perspectives into the engineering curriculum (ACED, 2017). The ACED position statement was informed by a research project exploring the process of embedding Indigenous perspectives into engineering curricula (Goldfinch et al, 2016). The project produced the 'Engineering Across Cultures' (EAC) curriculum development model. In a study to test aspects of the model, Goldfinch et al (2017) identified a number of challenges to successfully integrating Indigenous knowledges into engineering curricula, including academics' lack of confidence in initiating relationships as well as competing individual and institutional priorities. Furthermore, the research found that academics had little knowledge of, or experience with, Indigenous people and perspectives. More significantly perhaps, there was almost no awareness that an Indigenous perspective may change the western worldview (Goldfinch et al, 2017). Goldfinch et al (2017) recommended more focused research to understand the attitudes at the earliest stage of the curriculum development model, particularly relating to overcoming the prevailing deficit mindset. It also recommended further research into the intersections between 'Aboriginal', 'Dominant' and 'Engineering' worldviews.

This study aims to further test and develop the EAC curriculum development model (Goldfinch et al, 2016). Extending on the work of Goldfinch et al (2017), the study focuses on exploring how university engineering staff are impacted by an on-Country experience and how it leads to individual and collective action.

The research question is: How does an on-Country experience with Indigenous knowledge holders influence the perceptions of the relationship between Indigenous knowledges and professional knowledge for staff at a university Faculty of Engineering and Information Technology, and how do these new understandings lead to change at an individual and institutional level?

This paper outlines the rationale and design of the study and discusses how we might move towards decolonising methodologies in engineering education research. To achieve our aspirations to integrate Indigenous knowledges, it is critical that we are able to 'make space' for different ways of knowing, including through our research. Drawing on decolonising methodologies, following the completion of the research design, we invited an Indigenous academic developer to review it as a critical friend (the second author). Highlights from the review are included at the end of this paper. based on a yarn (a process of respectful dialogue) with the first author.

## Background

It has been five years since the release of the ACED position statement (ACED, 2017). It is unclear to what extent its recommendations have been implemented across Australian universities. We do, however, know that enacting policies and strategies that prioritise the integration of Indigenous knowledges and perspectives into curricula is complex, problematic and contentious (Acton et al, 2017; Rice et al, 2020) for reasons including the complexities of Indigenous-settler relations and the pervasive influence of settler colonialism in our institutions including our universities, centring western knowledge.

It is with these complexities in mind, and the recognition that organisational change requires a concerted and coordinated effort by many, that a group of faculty executives, senior academics, professional staff and PhD candidates from the university's Faculty of Engineering and Information Technology came together for an on-Country experience. The experience was designed to support work towards achieving the faculty's vision to graduate engineering and IT professionals who practice in ways that value and respect Indigenous knowledge and Indigenous people. The on-Country experience is grounded in an aspiration to create more 'ethical space' (Ermine, 2007) within the academy where Indigenous and non-Indigenous educators can listen and learn, and where, ultimately, Indigenous peoples, knowledges and perspectives are integrated, respected and

celebrated for the benefit of all. The pedagogical design of the on-Country experience was co-designed with a local organisation with activities hosted by a number of Aboriginal and Torres Strait Islander-controlled organisations, drawing on Indigenous pedagogies.

The concept of 'Country' extends far beyond physical landscapes and holds special meaning for Indigenous Australians. Bawaka Country including Suchet-Pearson, Wright, Lloyd, and Burarrwanga (2019) observe that Country "includes not just the territorial, land-based notion of a home *land*, but encompasses humans as well as waters, seas and all that is tangible and non-tangible and which become together in a mutually caring and multidirectional manner to create and nurture a *homeland*" (p. 186, original emphasis). The concepts of relatedness are complex and include notions of reciprocity and responsibility (Martin, 2008). Knowledges and teaching are woven into Country. Moran (2018, p.75) explains, "Knowledge lives in Country and has partnered with humans since the beginning. Our consciousness originated on Country so learning on Country is a consciousness enhancing program that we teach all peoples." Given the importance of Country for Indigenous people, the natural place for university staff to learn about Indigenous knowledges and perspectives is on-Country, with traditional knowledge holders of that Country. Harrison et al (2017) outline how people can learn to be affected by Country through 'sensational pedagogies', which teach through listening, feeling and sensing. They argue that such methods help learners to understand other perspectives.

## Researcher Positionality

This paper, and the associated research design, has been developed by the first author as part of her PhD thesis. Hereafter, where 'I' is used, it refers specifically to the first author.

Before presenting the research design, we outline our positionalities. By stating our situated positions, we acknowledge that the intersections of these characteristics shape the production of knowledge and how we navigate the world as researchers.

Claire: I am a white settler Australian living on the unceded lands of the Wurundjeri People of the Kulin Nation. I am a parent, facilitator, educator and researcher with a disciplinary background in engineering and industry experience in the built environment sector. I acknowledge the privilege that my circumstances convey and my work to build competence as a researcher in this field is ongoing and multi-dimensional.

My co-authors consist of Jade, a Yuin man working in higher education academic development (critical reviewer), Melitta, a Kamilaroi academic from the university's Graduate School of Education, and Kaya, Martin and Sally, non-Indigenous academics from the Faculty of Engineering and Information Technology.

## Research Strategy

The research strategy is based on a western method (Creswell & Creswell, 2018), informed by reading on decolonising and Indigenous methodologies (Held, 2019; Ali, 2021; Smith, 2021; Foley, 2003; Foley, 2019; Simonds and Christopher, 2013).

This research seeks to understand the subjective meanings of others' lived experiences and as such, it is based on an interpretivist paradigm (Creswell & Creswell, 2018). The research question has two parts; the first is about perceptions of relationships between knowledges, and the second part is about taking action. The research question is about identifying the essence of these two phenomena based on the lived experience of people. As such, the qualitative approach of phenomenology has been selected as the overarching methodology of enquiry. Originating in the disciplines of psychology and education, phenomenology is a qualitative methodology that involves describing the lived experience of individuals with respect to a phenomenon, as described by the participants (Moustakas, 1994). Studies aim to describe the 'essence' of an experience.

## Participants

Participants were recruited from the group of 15 people undertaking the on-Country experience. Of the 15 people, two were ineligible for this study as they are conducting the study, leaving 13 potential participants. Boyd (2001) regards two to 10 participants as sufficient to reach saturation in phenomenology (the point when new incoming data produces little or no new information to address the research question). Creswell (1998, p. 113) recommends “long interviews with up to 10 people” for a phenomenological study.

Whilst the on-Country experience also involved people who are not staff of the university, particularly representatives from the host organisation and the organisations visited, as well as Indigenous elders and community members, this study exclusively focuses on the experiences of the university staff.

## **Role of the Lead Researcher**

I am a PhD candidate and participant of the on-Country experience. I am also an engineer and educator, and as such, am an ‘insider’ in the context of this research. This insider status presents a number of advantages with respect to building rapport, although there are a number of challenges I need to manage such as role conflict, self-disclosure, maintaining confidentiality and pre-existing knowledge (McConnell-Henry et al, 2010). Furthermore, this is ‘backyard’ research (Glesne and Peshkin, 1992) in that I am studying my immediate colleagues. In such settings, the power dynamics between researchers and participants require particular attention. Measures have been taken to manage the ethics of the recruitment process (to avoid potential for coercion) as well as the validation strategies to ensure accuracy and trustworthiness.

Moustakas (1994) refers to the importance of the researcher ‘bracketing’ their views and preconceptions in a phenomenological study. The researcher should become aware of their personal view and positionality in order to remove it from the process, insofar as it is possible. To do this, I have undertaken a ‘bracketing’ interview with a trusted peer prior to each round of data collection and use other strategies to become more aware of assumptions and biases in data collection and analysis.

## **Data Collection and Analysis**

Data are gathered via semi-structured interviews. Study participants attended one interview prior to the on-Country experience and two interviews after; the first, within one month of completion of the experience, and the second, approximately six months following completion of the experience. In addition to the formal interviews, study participants were invited to share reflections during the on-Country experience.

The interview design was based on an explicit, theoretically based approach developed by Bevan (2014) which blends general qualitative interview techniques and phenomenological methods of contextualisation, apprehending the phenomenon and clarifying the phenomenon. The interviews included open-ended questions and emergent approaches, using both text and image and were conducted face-to-face by preference, and online if necessary. Whilst no data gathering took place in a group context, the interviews explored the extent to which the group’s collective experience influenced participants. At the time of submission of this paper, the final round of data collection was not complete.

The data will be analysed using interpretive, inductive and iterative approaches. Key activities for interpreting the data include open coding in NVivo. Core themes will be organised into textual descriptions of the experience, capturing the ‘essence’ of the experience.

Given the inductive process of analysis, there is no specific target theoretical framework to interpret the data. However, the data may lend itself to being analysed through different theoretical lenses, such as threshold concepts theory (Moodie, 2019), the Cynefin framework that draws on complexity theory (Snowden and Boone, 2007), transformative learning theory (Taylor and Cranton, 2012) and various organisational change theories. The findings may inform or challenge these theories.

The results of the study will be presented in descriptive, narrative form. Depending on the findings, the results may also be presented in a model. To present a holistic account of the phenomena, thick descriptions will be used.

## Quality of the Study

To build trustworthiness, authenticity and credibility of a qualitative study, Creswell and Creswell (2018, pp.200-201) outline a number of validity strategies. Of those strategies, this study design includes member checking, researcher 'bracketing' and ongoing researcher reflexivity, an upfront statement of researcher positionality, peer debriefing, the presentation of negative or discrepant information, and the use of rich thick descriptions to convey findings. Steps to ensure reliability include a clear research design including procedures and protocols, including transcript checking and coding consistency. Unlike quantitative studies which seek to be able to reproduce and generalise findings, qualitative forms of inquiry do not intend to generalise findings outside of the individuals, time and place of the study. Instead, Creswell and Creswell (2018: p.202) outline that particularity, rather than generalisability, is the goal of good qualitative research.

## Ethics Considerations

This study has ethics approval from the first author's university. In addition to the typical elements of voluntary participation, informed consent, privacy and integrity, a key ethics consideration in the procedural ethics process related to power dynamics. The researchers undertaking the study participated in the on-Country experience alongside the study participants. Furthermore, two of the co-authors are study participants. Given the proximity of researchers and participants, care has been taken by the researchers to build trust with study participants, to support the participants to be open and honest in their participation, free from judgement or coercion. Where research team members hold positional power over potential participants (e.g. direct line management), steps were taken to create a separation in recruitment communications and data is de-identified by the PhD researcher (who does not hold positional power). All data is de-identified using pseudonyms for each participant.

There are a range of other ethics considerations that go beyond the procedural requirements for the study, particularly relating to the use of Indigenous knowledges and representation of Indigenous perspectives by non-Indigenous people. To provide guidance and support in this respect, an Indigenous scholar is included in the research team and has provided comment on the research design. As researchers, we will only ask participants about their own perspectives and experiences. At no point will we ask participants, or will we ourselves seek, to speak 'for' Indigenous people, or any others.

## Limitations and Complexities

Whilst the results of this study are not intended to be generalisable, some may use them as a basis for comparison with other similar groups (for example, staff in engineering schools at other Australian universities). The results are only intended to be illustrative, not representative. Nonetheless, it is important to note that participants in this study have already shown an active interest in this work, and as such, their experience may not be reflective of the broader academy.

There is also a more fundamental limitation to the design of this study that warrants exploration. As we navigate the complexities of integrating different knowledges into engineering education, we also need to consider how we do the same thing in our research. The western knowledge creation paradigm pervades and perpetuates the way we acquire knowledge, including in much of this research.

This study follows the conventional research design process and communicates it in a conventional way. That is, it follows a 'western' approach. As a non-Indigenous settler researcher working towards a PhD (a predominantly independent and individual endeavour), doing western-framed research could be considered authentic, and in many ways necessary to meet assessment requirements. However, this limits our study in its ability to reconcile and decolonise (Held, 2019),

processes that are inherently relational and necessarily collaborative. Instead of considering western and Indigenous approaches as 'either/or', instead what if we were to consider 'both/and'? Tuck and Yang (2012) go further to suggest that decolonising is not about integrating a complementary perspective, not simply 'and', but instead 'elsewhere' for knowledge production.

Smith (2021) states, "knowledge and the power to define what counts as real knowledge lie at the epistemic core of colonialism. The challenge for researchers of decolonising methodologies as a set of knowledge-related critical practices is to simultaneously work with colonial and Indigenous concepts of knowledge, decentring one, while centring the other." (Smith, 2021. p.xii)

Ideally, without the constraints of systems dominated by western worldviews – such as philosophical paradigms, timeframes, methodologies and levels of collaboration acceptable for PhD scholarship – I'd be co-designing and conducting this research alongside an Indigenous scholar, blending methodologies and navigating the cultural interface. These struggles that I'm encountering as a researcher get to the very heart of the challenge we're all tackling; creating 'ethical space' in the academy where cultural safety enables dialogue for two-way listening and learning, that doesn't preference one cultural perspective over another.

To mitigate this limitation, I have adopted one of the seven strategies for decolonisation suggested by Smith (2021); Critique. Smith argues that there "needs to be a continual critique of colonial influences on the academies and professions to allow Indigenous peoples to communicate from their own frames of reference". I invited an Indigenous academic developer to provide a critique of a draft of this paper from an Indigenous knowledge and research lens.

## Study Design Review

I came together with Jade, the critical reviewer, for two yarns about the draft paper. My voice is denoted in *italics*, and Jade's voice in **bold italics**. Rather than stated upfront, his positionality is interwoven in this review. In Jade's words, ***a 'yarn' is a relevant conversation. Differing opinions and values are being discussed around a focal point, and we're providing space for each other to be able to do that. In this instance, it is a review that we are trying to construct, and we're doing that through a conversation. And so maybe that should also be acknowledged; that even the identification of how to incorporate this became a deep consideration.***

### Making space

***As we moved through reviewing the paper, I became naturally inclined to 'make space' for the work that I was to do [at that point the paper exceeded the page limit]. This made sense on reflection, because within an Aboriginal worldview, there's a holistic self-view. I'm both an academic and an Aboriginal man... engaging through a multiplicity of identities.***

We reflected on the discomfort of that realisation. I felt uncomfortable that an Aboriginal person was taking it upon themselves to 'make space' for their voice. He was feeling like he was taking over the writing.

### Whose knowledge, which 'Indigenous' and what's appropriate?

***So this study is in relation to academics that are situated at the University of Melbourne on Wurundjeri Country, who travelled to Alice Springs on Arrernte Country and now the research design paper is being reviewed by an Yuin man based on Dharawal Country. I ask myself, what's my place here?***

***My cultural upbringing and western educational experience is a unique mix, and it gives me the opportunity to speak into spaces like this. I'm not from either of these Countries. I'm not necessarily related, but I do have the ability to speak across the two relevantly and independently.***

***For the Aboriginal people you met, how will your study benefit their communities? They have had a contribution to the 'on Country' experience of the participants, who will go on to construct the outputs and outcomes study. You already have some guiding values that are going to come through phenomenology. What other values ground your study to speak across Countries and across cultures?***

We sat with the complexity of this. What is ethical? What is culturally appropriate? What is the reviewer's role? How does he navigate his cultural responsibilities and the boundaries? How might I engage with the Indigenous people with whom we met to navigate what is culturally appropriate? The critical reviewer's work is guided by the principles of respect, responsibility and reciprocity. What are the guiding principles of the communities we met? ***Particularise the values. How do you maintain cultural appropriateness and not perpetuate cultural appropriation?***

## **Bridging worldviews**

***Let's acknowledge that part of the study will be the ways in which you start to articulate and identify the complexities between a system of knowing where ontology, epistemology, axiology, and pedagogy sort of inform each other through a hierarchy of understanding. This is going to be juxtaposed with a holistic Indigenous worldview, where there is no hierarchy, but an interwoven synergy of these things playing out, depending or 'interdepending' on the context, not the content.***

***Within this study, you are working with academics that will be moving towards curriculum transformation and the integration of Aboriginal knowledges and perspectives. This is not going to be a linear process. How can you appropriately bring knowledges in without tokenising them, without stripping away their meaning, and disrespecting where they come from, you know? Taking them out of place, interjecting them into a Western curriculum, and then not giving them their holistic grounding.***

I reflect that in writing this research paper, I'm struggling with that very process; how to integrate an Indigenous perspective into this study that is built on a western framework.

***If you can give yourself a moment to stop and think, you notice they are deeply complex issues.***

*It reminds me of a paper by Renae Acton and colleagues about the importance of engaging with the ontological and epistemological 'messiness' of this work (Acton et al, 2017). You're not throwing your hands up and saying 'it's too hard' and likewise you're not rushing to simplify. Sitting with the messiness.*

***So the terminology that I use is 'becoming comfortable with being uncomfortable'. That's where the Cynefin stuff (Snowden and Boone, 2007) becomes helpful, because it helps validate emergent knowledge. This is a complex space.***

## **De-centring western knowledge**

*I'd like to have a conversation with you about how we represent these yarns in the paper.*

***The Indigenous stuff sits above, but also within and alongside all of this in different ways.***

*I don't quite know how to represent it. Any way that it's represented will not be doing it justice. I feel giving it a heading, and you know, putting it in just one part of the paper diminishes it.*

After a short discussion about the impending deadline...

***So I think it can be its own section.***

As I write to this deadline, I reflect on whether indeed this paper has made any inroads into de-centring western knowledge.

## Conclusion

This paper engages with the concept of decolonising methodologies in the context of engineering education research. This is used both to critique and strengthen the research design for a study of university staff from a faculty of engineering and Information Technology undertaking an on-Country experience. Adopting an interpretivist worldview and a phenomenological approach, the study gathers data via interviews and artifact sharing from participants. The interviews include open-ended questions and emergent approaches, using both text and image. Data analysis uses qualitative methods including thematic analysis.

The study, due for completion in 2023, will provide insights into how on-Country experiences with Indigenous knowledge holders influence participants. It will further reveal how this leads to sustainably altered commitment to institutional change, including across curricula.

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