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## Questioning Implicit Assumptions – Proactively Fostering Inclusion In Engineering Activity Design

Ashlee PEARSON

*University of Melbourne, Australia, ashlee.pearson@unimelb.edu.au*

Jessica DETERS

*University of Nebraska-Lincoln, USA, jessica.deters@unl.edu*

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# **Questioning Implicit Assumptions – A strategy for proactively fostering inclusion in engineering activity design**

**A Pearson**<sup>1</sup>

Faculty of Engineering and Information Technology, The University of Melbourne  
Melbourne (Narm), Australia  
0000-0002-4340-4473

**J Deters**

College of Engineering, University of Nebraska-Lincoln  
Lincoln, United States of America  
0000-0001-8766-9548

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## **ABSTRACT**

Within discussions of inclusion work in engineering education, calls have been made to shift to a shared responsibility model where all are responsible for proactively fostering inclusive environments. In an academic setting, it is through pro-active design of learning activities that academics can pre-emptively meet the needs of diverse students such that they may feel included. This design work often relies on academics being educated or aware of what is inclusive or exclusive for different groups that have traditionally underrepresented identities and lived experiences. However, academics do not always possess this information. This workshop proposes an approach that asks academics to employ a process-based approach to consider what assumptions underpin the design of a real-life student-centered activity and seek information to challenge those assumptions. Participants will employ this approach as well as a suggested method for drawing on evidence-based practice to consider structural and design changes that may make the activity in question more inclusive.

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<sup>1</sup> *Corresponding Author*  
A Pearson  
ashlee.pearson@unimelb.edu.au

## **1 BACKGROUND AND MOTIVATION**

Recent discussions of inclusion work in engineering education have called for a shift to a model of shared responsibility between all parties (Brown, Cheng and Whelan, 2021) (Coley, 2019) (O'Shea et al., 2016) (Brown, Pearson and Rosenqvist, 2020). Through pro-active design or re-design of the learning environments and learning activities, academics can pre-emptively meet a broader range of needs for diverse student groups and thus be more inclusive.

In implementing common inclusive frameworks such as inclusive pedagogies (Florian & Spratt, 2013, Burgstahler, 2009a, Burgstahler, 2009b) or universal design for learning (Burgstahler, 2009a, Burgstahler, 2009b, Hitchcock et al., 2002), many suggest starting with identifying what is non-inclusive in a planned activity or educational context. However, this relies on academics having a good understanding of what is non-inclusive. This may not always be the case, particularly for marginalized identities and lived experiences have less awareness about how to be inclusive of them. To combat this, we propose a process-based approach that shifts the focus to questioning what assumptions underpin any individual's participation in an educational activity or context. This creates a starting point for further lines of questioning and implementing evidence-based design that proactively fosters inclusion to a broader range of diverse students without the need for prior knowledge.

## **2 WORKSHOP DESIGN**

### **2.1 Overview**

In this workshop, participants will apply a process-based approach to educational activity design. The approach asks academics to proactively consider how said activity may be exclusionary to some students based on their lived experience or identity by asking what assumptions underpin the design and delivery of an educational activity. Participants will be guided through applying this process using a provided a hypo scenario. It will also be discussed how to find out if those assumptions may be exclusionary to different student groups who experience marginalized identities and lived experiences and where appropriate, why those in the scenario are exclusionary. The excluded student groups we will focus on will be those understudied in published engineering education research, including transgender and gender diverse students (Haverkamp et al., 2021) (Cech & Rothwell, 2018), students with disabilities and chronic illnesses (Blaser & Ladner, 2020) as well as students experiencing financial hardship (Strutz, Orr & Ohland, 2012).

The process also asks participants to consider how, through activity design and structural changes, inclusion for these groups may be fostered. Finally, intersectionality will be introduced as a concept to consider and understand the compounding effects of marginalized identity and lived experience.

### **2.2 Intended Learning Outcomes**

In small groups guided by facilitators, participants will:

- Explore a hypothetical student-centered real-life education scenario through the lens of a marginalized group. This includes identifying assumptions in the design and execution of the educational experience and the potential

consequences of these assumptions for the group in question to feel or be excluded.

- Discuss what actions could be taken at an individual and institutional level to pro-actively ensure the scenario is inclusive.
- Hear how inequities may be compounded through intersectional marginalized identities and lived experiences groups.

This workshop is intended as a conceptual discussion of the provided hypothetical scenario. Participants are not required to but are welcome to share their personal backgrounds or experiences. Participants are protected by the SEFI 2023 code of conduct (<https://www.sefi2023.eu/code-of-conduct>).

### **2.3 Target Audience**

All interested in diversity, equity, and inclusion and/or curriculum design are welcome. No prior knowledge or experience is required. A premise to engage in this workshop is that all minority groups that have equality discrimination protection under Irish law (Irish Human Rights and Equality Commission, n.d.) are valid and deserve respect and inclusion in the SEFI and engineering communities. If you are coming from a different context, we respectfully ask that you consider this in light of recent political and legal events worldwide relating to the rights of some of these groups.

### **2.4 Enhancement of Knowledge**

Enhancement of knowledge is that of the participants' approach to educational activity design. Participants will learn about and apply a systematic process that can be used as part of subject design works at their home institutions. It supports participants in their inclusive thinking through making implicit assumptions explicit, supports them in working through these assumptions to adapt activity design and challenges their thinking about inclusion to be through an intersectional lens. Similarly, participants will focus on case studies from traditionally understudied historically marginalized groups which in many contexts, little advocacy or awareness exists.

## **3 ATTENDANCE AND EVALUATION**

8 SEFI2023 attendees actively participated in the workshop engaging in rich and lively discussions for each activity. 2 small groups focused on unpacking the scenario for students experiencing financial hardship while another group focused on transgender and gender diverse students' experiences.

As part of the workshop, participants were able to share feedback with the facilitators. This feedback will be used to inform refinements to the workshop design for subsequent deliveries. The strategy employed to collect said feedback was inviting participants to anonymously note things done well on green post-it notes and areas for improvement on red post-it notes and leave them in a particular spot as they exited. 7 green things done well post-it notes and 4 red areas for improvement post-it notes were left.

Comments highlighting the things done well noted the workshop design ("*great case study, great structure for interactions, great materials to facilitate*") and "*very engaging*", the materials ("*the wheel of privilege concept*") and the applicability of the workshop to their own practice ("*easy to do, could see myself implementing this*").

Further, two participants encouraged the facilitators to publish the process at the heart of the workshop and the associated case studies, with one asking to potentially collaborate such that the workshop could be delivered to staff at their home institution.

Areas for improvement noted the potential for more depth to the discussions or faster pacing to the session and suggested assigning people to groups to broaden their horizons. While the former is something that changes with the participant in this workshop, for example the workshop ran over 2 hours the week prior at an internal event where participants felt they did not have enough time to discuss everything they wanted, the latter was a specific design choice to allow participants of marginalised identities or lived experiences self-autonomy to not discuss their identity or lived experience without having to self-identify. Another comment noted “*real question of ethics behind Professor X’s planning, regardless of policy*”, which perhaps speaks to a need of the session as part of reflecting on what actions participants could take to make non-inclusive activity elements inclusive, to discuss how participants may become advocates for change when they come across practices, they deem questionable. Additionally, a comment noted the room layout as being one that was unfavourable to a workshop. This was outside the facilitators control.

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