The Inclusive Community-Based Learning Lab

{Partnering with Communities while Developing Engineers}

Mission
The iCBL Lab aims to understand the ways in which Community-Based Learning within engineering impacts students, participating stakeholders, and communities.

Vision
Our research develops evidence-based approaches in CBL that support the formation of socially-responsible engineering professionals. The iCBL Lab seeks to understand how CBL partnerships can promote social justice and broaden participation in engineering.

Community-Based Learning in Engineering

CBL for the Development of Empathy in Undergraduate Engineers

- This research explores the potential for CBL to promote empathy in engineering as a learnable skill for engineering students.
- A mixed methods approach that leverages surveys, focus groups, and interviews within 5 CBL cases is used to answer:
  - RQ1: To what extent and in what ways can CBL contexts expose undergraduate engineering students to empathy?
  - RQ2: Using contextual evidence from CBL and engineering contexts, what instructional tools can be designed to foster empathy in engineering through CBL?
  - RQ3: To what extent and in what ways do contextually designed empathy modules support student development of empathy in CBL context?

Making Sense of Encounters with Cultural Differences in Engineering Service-Learning

- This research seeks to explore encounters with cultural differences from the perspective of undergraduate engineering students participating in service-learning courses.
- An interpretative phenomenological approach will be used to answer the research question:
  - RQ: How to undergraduate engineering students make a sense of encounters with cultural difference while participating in service-learning experiences?

• Community-Based Learning (CBL) refers to any pedagogical tool in which the community becomes a partner in the learning (Mooney & Edwards, 2001).
• Community Based Learning in engineering can be oriented towards broadening participation and social justice.
• A critical approach to CBL, with a focus on partnership, can inform practice that promotes social change.

K-12, Summer STEAM Education For Communities of Color

- Through the development of interactive STEAM activities (ex. using a Farmbot), this work will pursue learning outcomes that promote broadening participation through increasing STEM awareness, identity, access, and interest in communities of color.
- Collaborative inquiry is used as a participatory research approach that centers the stakeholders to further the support community outcomes. This research will investigate a community-based, K-12 STEAM summer program as a platform for broadening participation and social justice in computer science and engineering.

Investigating Inequities in Undergraduate Workforce Opportunities

- This work seeks to identify disparities in undergraduate engineering career attainment opportunities between Biomedical Engineering (BME) students and other engineering majors.
- An explanatory mixed methods approach will be used to develop an instrument informed by Social Cognitive Career Theory (SCCT) that measures undergraduate engineering career attainment influences.

• BME and UGE opportunities
• SCCT
• Cultural difference
• Community
• Research

Poster by August Majtenyi

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