The Inclusive Community-Based Learning Lab

{Partnering with Communities while Developing Engineers}

The Ohio State University
College of Engineering
The Department of Engineering Education

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.

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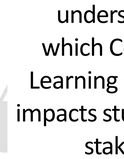

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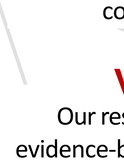

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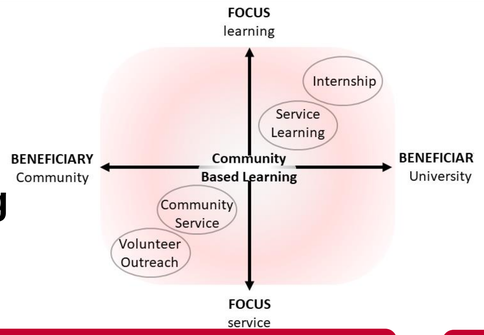
Want to learn more…

Scan the QR Code or visit our website at www.theiCBLlab.com

Community-Based Learning in Engineering

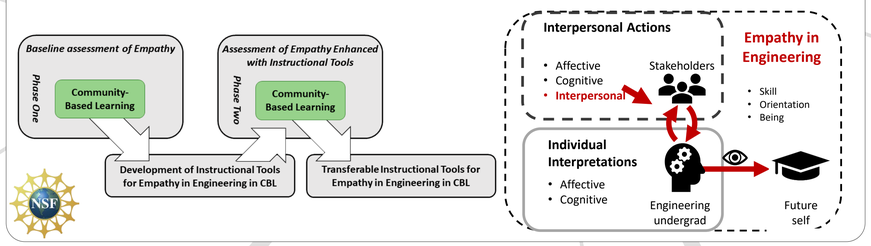


- **Community-Based Learning (CBL)** refers to any pedagogical tool in which the community becomes a partner in the learning (Mooney & Edwards, 2001).
- Community Based Learning in engineering can be oriented towards **broadening participation** and **social justice**.
- A **critical approach** to CBL,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

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:

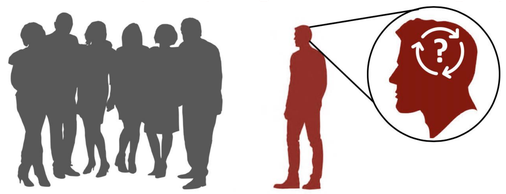
RQ1: To what extent and in what ways can CBL contexts expose undergraduate engineering students to empathy?
RQ2: Using contextual evidence from CBL and engineering contexts, what instructional tools can be designed to foster empathy in engineering through CBL?
RQ3: To what extent and in what ways do 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?



- The goal of this work is to provide contextual insights into the lived experiences of undergraduate students participating in engineering service-learning experiences that can lead to a more critical service-learning pedagogy in engineering.

K-12, Summer STEAM Education for Communities of Color

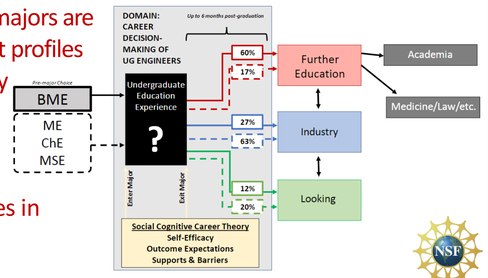
- Through the development of interactive STEAM activities (ex. using a Farmbot), this work will pursue learning outcomes that promote **broadening participation through increasing STEM awareness, identity, access, and interest in communities of color.**
- Collaborative inquiry is used as a participatory research approach that centers the stakeholders to further support the 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.

RQ1: What differences between BME UGEs and those from other engineering majors are revealed through analysis of student profiles and industry workforce opportunity measures?
RQ2: How can SCCT support the development and validation of an instrument to characterize inequities in industry workforce opportunity?



Partners

Engineering Education Transformations Institute
UNIVERSITY OF GEORGIA

The **EETI** at UGA is a leading research team in EER who serve as collaborators and mentors on iCBL research.

The **CMNMG** is a community Garden located at the Church of Christ of the Apostolic Faith and supports the community's families through education, diet, and empowerment.

Department of BIOMEDICAL ENGINEERING

OSU's CoE Department of Biomedical Engineering is an iCBL partner on the NSF RIEF grant.

The MJF seeks to make positive change in the lives of underserved youth through STEAM education

EPICS IN IEEE
Engineering Projects In Community Service

EPICS in IEEE awards grants to university student groups to work on socially innovative projects

SPEED is a global non-profit student organization that promotes student activism through engineering education

Poster by August Majtenyi