

IOWA STATE UNIVERSITY

School of Education

A Systematic Review of the Intersections of Engineering Identity and Financial Need Literature in Community Colleges

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Engineering Identity & Community College Students with Financial Need

- Need high-quality, diverse engineering workforce; all socio-economic levels access and complete
- Students in community colleges from low-socioeconomic backgrounds and students with financial need may experience difficulty seeing themselves as engineers
- Little research has connected the concepts of engineering identity and financial need

Purpose

- Part of a Larger National Science Foundation Grant
 - SSTEM - Collaborative Research: ECSEL Scholarship Program (Electrical, Computer, and Software Engineers as Leaders) (#1565130)
- Systematic Review
- Engineering Identity, Financial Need
- Community Colleges



Systematic Literature Review Process

- Filters
 - Peer-reviewed
 - All Documents
 - 2000-present
- Databases
 - Compendex
 - EBSCHost
 - PsychINFO
- Community College Journals
 - Community College Review
 - Community College of Journal of Research and Practice
 - Journal of Applied Research in the Community College

Overview of the Findings

Multitude of different frameworks used

Multiple methodologies used

Studies investigated a variety of engineering disciplines

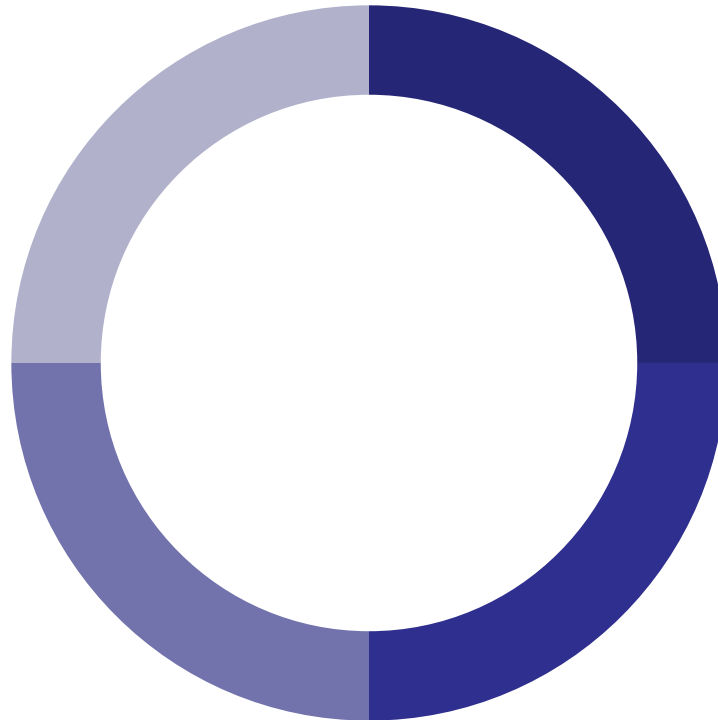
Engineering transfer engagement as central concept

All Engineering Students, Rather Than Subgroups

Multitude of Different Frameworks Used to Examine Engineering Identity and Financial Need

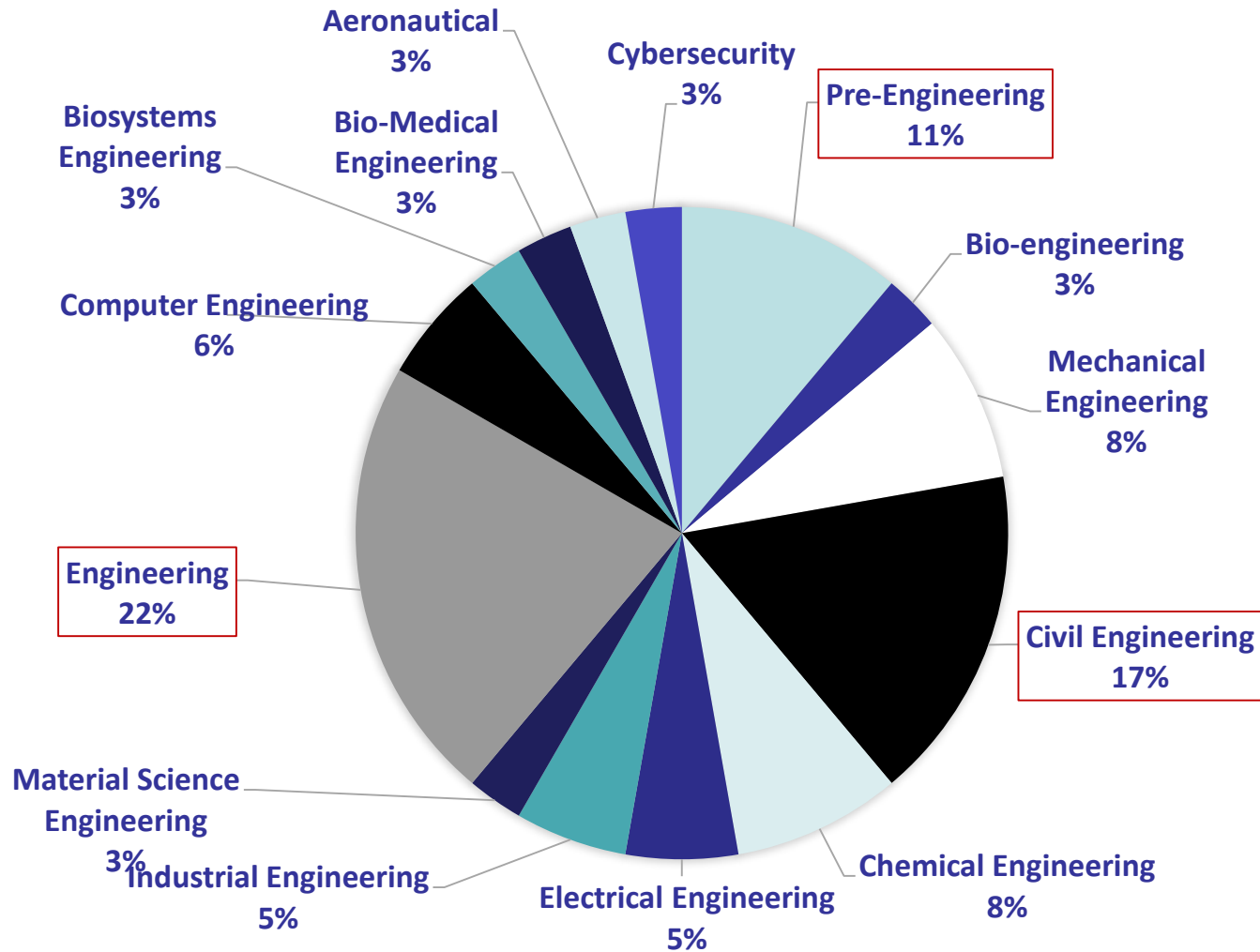
- Adult learning
- Aspirational momentum
- Collaborative learning Model
- Community cultural wealth
- Community of Practice
- Experiential capital
- Learning Persistence in College
- Mentee/Mentor Relationship (2)
- Science Identity Theory
- Self-Efficacy (2)
- Social Learning Theory
- Stereotype Threat
- Transfer Capital (2)
- Transformative Experience
- Validation

Multiple Methodologies Used to Examine Engineering Identity and Financial Need

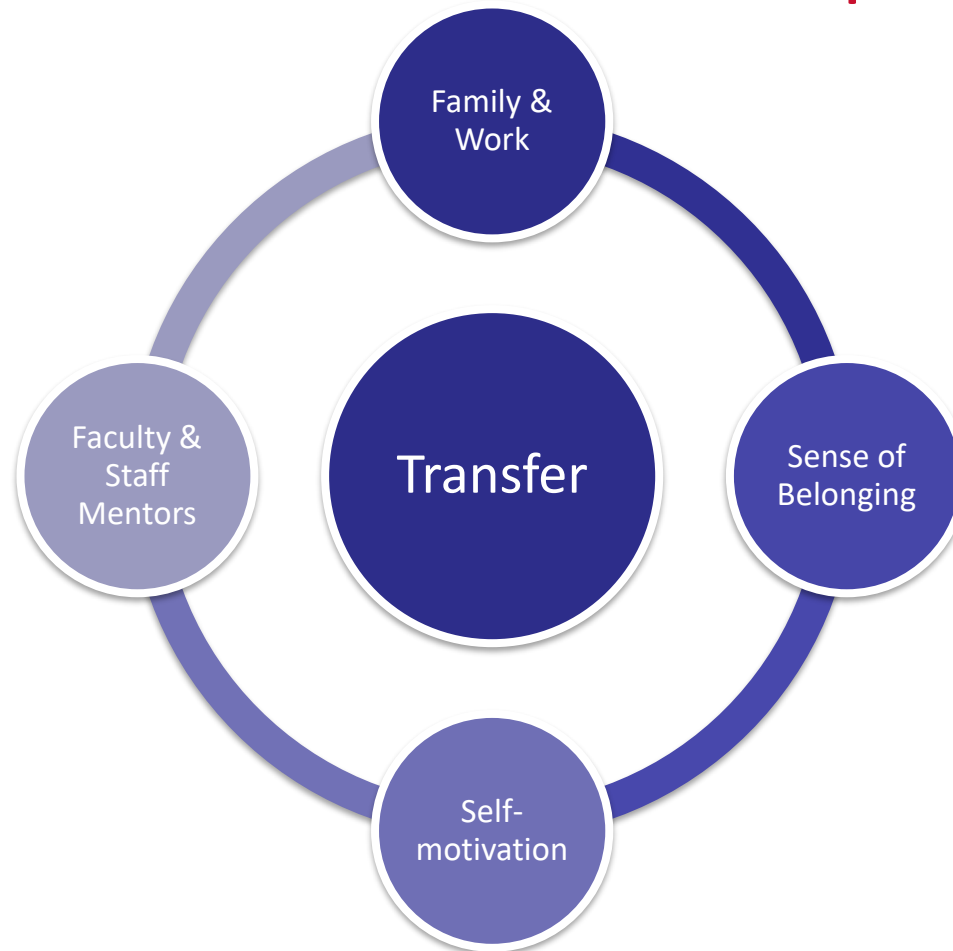


■ Qualitative ■ Quantitative ■ Mixed-Methods ■ Assessment

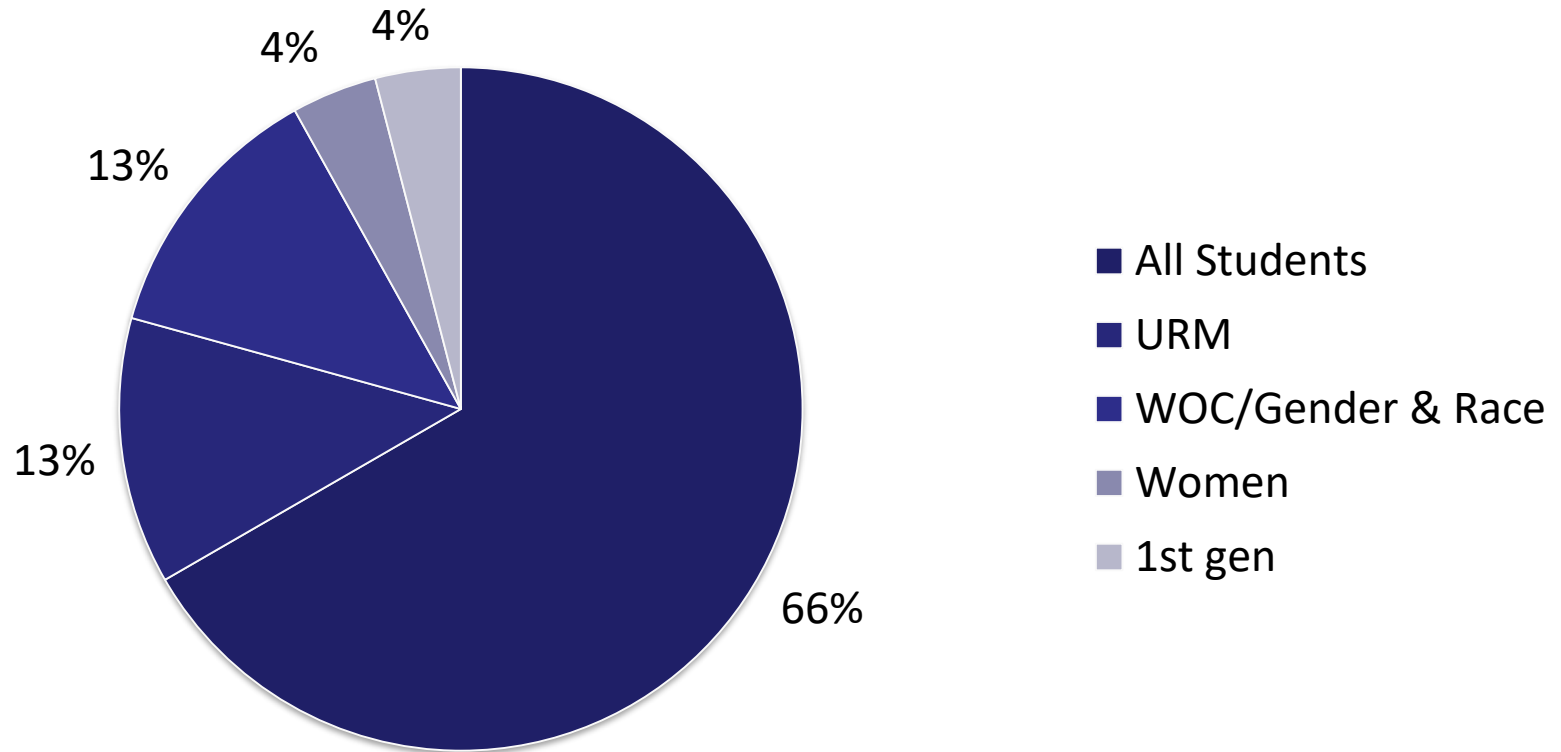
Studies Investigated a Variety of Engineering Disciplines



Literature Content: Engineering Transfer Engagement as a Central Concept



Literature Content: All Engineering Students, Rather than Subgroups



Implications: Future Research

Engineering
identity
frameworks

Creative, complex
methods

Financial Need &
Subdisciplines

Identity &
Transfer

Marginalized
students, STEM
Identity &
Financial Need

Longitudinal
Study – Interviews

Implications: Policy & Practice

Considering
identity and
financial need

Engineering as an
identity process

Contextualizing by
sub-discipline

Understanding
factors of identity
for students with
financial need

QUESTIONS?

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