

Undergraduate Engineering Retention & U-M CoE's DEI Strategic Plan

A literature review and reflection on The University of Michigan College of Engineering's Five-Year Strategic Plan for Diversity, Equity & Inclusion



University of Michigan School of Education. Lambert, M., Mulry, D., Preston, J., Vandekerkhove, M. (2016)

What's at Stake?

- The world needs diversity in engineering to address needs in developing countries and to solve global issues.
- Women and minorities leave engineering at disproportionately high rates, even with similar levels of academic preparation and when doing well academically (Geisinger & Raman, 2013).
- The University of Michigan College of Engineering has a five-year strategic plan to address diversity and retention.

Research Questions

Central Q:
Why do post-secondary institutions fail to retain engineering/STEM students?

Sub Q:

- What programs and initiatives need to be in place to retain women and underrepresented minorities, who suffer attrition at higher rates than white males?
- How does an institution address the needs of a diverse population with a variety of learning styles?
- Finally, is there any way that campus community can provide a safety net for those who may fall away from an undergraduate engineering program?
- Not addressing: K-12 pipeline programs and financial incentives.



A Review of . . .

❖ **Women in Undergrad Engin**
Factors: **Aptitude. Personal achievement anxiety. Social support system climate. Discrimination and stereotype threat.**

❖ **Underrepresented Minorities**
Factors: **Self-efficacy. Academic climate.**

❖ **Learning Styles**
Factors: **Self-efficacy. Academic climate.**

❖ **Community**
Factors: **Peer influence. Faculty & staff influence.**



The CoE DEI Plan

- Women in CoE
- Underrepresented Minorities in CoE
- Addressing Academic Learning Styles
- Developing Peer & Faculty Community

www.engine.umich.edu/college/about/diversity



Strengths, Weaknesses & Recs

- Traditional measurements are in place, but more subjective measurements are required to assess community impact
- Decentralization does not easily allow for shared resources and policies
- Our society needs a diverse group of qualified engineers
- DEI programs, such as U-M's initiative, are important and ground-breaking

Conclusion

“Engineering education must evolve to meet the needs of an increasingly diverse population. While the true impact of the University of Michigan's DEI plan will not be known for at least five years, outcome measurements may prove the success of such undertakings, inspiring other institutions to adopt similar initiatives that will, ultimately, help our society solve the complex issues it faces today and in the future. “