Addressing the Impact of Implicit Bias on Teams in Introductory Engineering Courses

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Faculty Communities for Inclusive Teaching, 2016

Project Overview

- **Key Question:** How much does implicit bias affect students in introductory engineering courses (Engre 100 Intro to Engineering & Engr 101 Intro to Computer Programming)?
- **Key Goal:** Determine whether or not implicit bias (or related topics) should be addressed in 100/101.
- **Activities:** Four lunch meetings with faculty of 100/101 during Winter 2016. 1. Review Fall 2015 student views on being "singled out." 2. Read and discuss Blindspot: discuss reactions to taking Implicit Association Tests (IATs). 3. Discuss student views on implicit bias. 4. Plan how 100/101 might address implicit bias in the classroom. 5. Key Insights:

- Our students are a lot more affected by implicit bias than we had realized. There were literally hundreds of stories of students being singled out for how they looked or students having someone make assumptions about them based on how they look.
- Equity and inclusion are directly impacted by implicit bias, all can impact a student's ability to be an integrated member of a team.
- Taking implicit association tests (IATs) is an excellent first step towards recognizing implicit biases in ourselves before discussing how implicit bias affects other people.
- From group discussions, it became clear that any plan to address implicit bias, diversity, equity, and inclusion would need to be both easily adopted by 100/101 faculty and flexible as the faculty would need or want to do varying amounts of activities related to these topics.
- Because students are required to take both Engre 100 & 101, activities need to be complementary, to reduce direct repetition.

Participants

- Laura Alford, Naval Architecture & Marine Engineering
- Robin Fowler, Technical Communication
- Jamie Phillips, Electrical & Computer Engineering
- Elizabeth Hildinger, Technical Communication
- Lisa Grindle, Technical Communication
- Matt Johnson-Robertson, Naval Architecture & Marine Engineering
- Sonya Kotor, Computer Science & Engineering
- Peter Chen, Computer Science & Engineering
- Rob Sudaievski, Technical Communication
- Rod Johnson, Technical Communication
- Walburger & Zahn, Technical Communication
- Tresha Pinder-Groover, CRLT-Engin

Artifacts

At the final meeting of this group, we brainstormed activities that students could do to help them understand why equity and inclusion are so important to teamwork. We also discussed how these activities could be arranged throughout the semester and how they would complement each other in 100 vs. 101. The resulting plan (right) is one suggestion of how we might address implicit bias, equity, and inclusion in the introductory engineering courses.

Key: Required by any section participating (ideally, all 100/101 sections)

- Required doing any activity other than exit/entry surveys
- Suggested activity, but not required
- Activity used for assessment

Focus

<table>
<thead>
<tr>
<th>Section XXX is doing this (Y/N)</th>
<th>Entry Survey</th>
<th>Equity</th>
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<tbody>
<tr>
<td>XXX</td>
<td>5-7 base questions</td>
<td>Y</td>
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</tbody>
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Early in semester (~3rd week): Implicit Association Tests (IATs)

- Introduce concepts of implicit bias to include we naturally organize ourselves into social groups (e.g., gender, race/ethnicity, sexual identity, politics, religion, etc.). Explain that we all form invisible groups. Conduct the research behind the IAT.
- Take 2-3 IATs (NOT Gender-Science), individual or as a group.
- Which IAT did you do?
- Check questions from F15/16

Team/Group Contracts

- Add a question on inclusion to the contract. Sample language: "When you see implicit bias in your colleagues, what will you do?"
- Add a question on equity to the contract. Sample language: "When you see gender bias in your colleagues, what will you do?"

Halfway through semester: First Person Experience Research

- Provide a list of first-person experiences (e.g., three tasks), students pick 2.
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- Blog posts
- TED Talks
- Essays
- BuzzFeed articles
- Reflection on the experiences: Which ones did you pick? Why?
- Other questions?

Near end of semester: Wrap up talk in terms of exit/entry surveys

- Provide a list of first-person experiences (e.g., three tasks), students pick 2.
- Provide a list of first-person experiences (e.g., three tasks), students pick 2.
- Reflection on the experiences: Which ones did you pick? Other questions?

Exit Survey

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This community represented a large part of 100/101, but not all faculty members.

This plan would need to first be discussed with the College of Engineering leadership for 100/101. It is critical that any plan be in line with the College's own plan for the Diversity, Equity, and Inclusion Initiative.

After revision, this plan can be distributed to the entire 100/101 faculty. Faculty who can sign up to do as much or as little as they feel comfortable doing. There is value in all cases, as those that do not choose any of these activities can be control groups in future assessment, and other sections can try different amounts of these activities. Eventually, we may be able to target the most efficient activities.

Resources

- Google's research on implicit bias, including training: https://www.gooogle.com/roberts/online bias-
- Survey data from Engre 100/101, ECECS 183/280 during the Fall 2015 semester (supported by the Computing CARES project). Survey data included student answers to:
- Have you ever been singled out? If so, briefly explain.
- Have you ever had someone assume something about you based solely on how you look? If so, briefly explain.
- The game Fair Play: http://gamelearning.org/unbias/index.htm-
- Project Implicit: Implicit Association Tests: https://implicit.harvard.edu/implicit/

Next Steps

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