

# **Understanding Gender in Teamwork to Increase the Numbers of Women in Engineering**

Kacey Beddoes and Grace Panther

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## **Background**

The low numbers of women in engineering remains a concern in many parts of the world, including Australasia. Prior research on students' experiences demonstrates that classroom experiences and interactions with other students and faculty disproportionately cause negative experiences for female and other minority students and lead to attrition from engineering programs. For a variety of reasons, teamwork is one component of engineering education frequently experienced differently by women and other minority students than by male students. Given that teamwork is of central and increasing importance, it is vital that faculty members understand how to maximize gender inclusivity of their teamwork components. A study conducted over the past year examined professors' practices and discourses surrounding teamwork and gender (among other topics): this workshop is one outcome of that study.

## **Presenters**

Kacey Beddoes is an Assistant Professor at the University of Massachusetts Lowell. This workshop is based on a U.S. National Science Foundation grant for which she is Principal Investigator ([http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1427553](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1427553)). Dr. Beddoes has previously organized and led workshops at AAEE, the American Society for Engineering Education, and Frontiers in Education conferences.

Grace Panther is a doctoral student in engineering conducting engineering education research at Oregon State University. She has previously led the design and implementation of a multi-day faculty development workshop for engineering instructors. She is leading a systematic literature review of gender and teamwork (in progress), which will inform the proposed workshop.

## **Purpose**

The purposes of this workshop are to: 1) disseminate knowledge of recommended best practices for gender inclusive teamwork; 2) raise awareness of gendered dimensions of teamwork and problematic discourses surrounding teamwork; 3) provide a forum for instructors to reflect upon their own practices; and 4) identify challenges and questions for the creation of a research agenda for gender and engineering teamwork. Materials implemented will be based upon the research project described in the Background.

The outcomes of this workshop will be:

1. Practical, takeaway suggestions that instructors can implement in their own courses.
2. A research agenda for gender and engineering teamwork.

### 3. Ideas for improving mechanisms of team assessment.

Outcomes 2 and 3 will be shared with the engineering education community via future publications and a website that is being created for the larger project.

#### **Approach**

- Introductions [10 minutes]
- Interactive presentation of problems and best practices [30 minutes]
- Small group, then whole group, discussions on how to improve mechanisms for evaluating teamwork [20 minutes]
- Small group, then whole group, discussions of challenges participants face and questions they have that they would like to see included in a research agenda for the community [25 minutes]
- Summary wrap-up [5 minutes]

#### **Discussion**

The primary audience is engineering faculty members, and future faculty members, who utilize teamwork in their courses. A secondary audience is engineering education researchers who are interested in contributing to the development of a research agenda on gender in engineering teamwork and/or the creation of mechanisms to better account for gender biases in teamwork. No prior knowledge is needed to participate. Easel paper and markers are requested for group work portions.

The learning outcomes of the workshop for participants are that they will leave with: knowledge of how to facilitate more gender-inclusive teamwork; knowledge of ways in which gender biases occur in team settings; and ideas on how to better assess teamwork in ways that mitigate gender biases. The learning outcome for the larger community is a list of topics on which further research is needed.

**Keywords:** gender; teamwork; faculty development