

Reducing Gender-Based Harassment in Engineering: Opportunities and Obstacles to Bystander Intervention

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1. Introduction

Research finds that harassment, incivility, and racialized microaggressions are acute in STEM fields and that these behaviors present an obstacle to the retention and advancement of women.¹ The National Academy of Sciences, among other organizations, recommends that organizations aggressively promote climate and cultural changes to expand women's participation ([National Academies of Sciences and Medicine, 2018](#)). Historically, however, most efforts to reduce harassment and other harmful practices, including legislation, reporting systems, and training, have failed ([Feldblum and Lipnic, 2016](#); [Dobbin and Kalev, 2019](#); [Tinkler, 2012](#)). Bystander training, which gives participants skills to interrupt and intervene when they witness episodes of sexual assault, gender violence, or harassment, has proven effective in universities and in the U.S. military ([Potter and Moynihan, 2011](#); [Cares et al., 2015](#)). Yet little is known about whether the bystander approach can help to change norms and behavior among managers and leaders to combat harassment in STEM workplaces ([National Academies of Sciences and Medicine, 2018](#)). Focusing specifically on engineering, this research builds on managerial engagement approaches to organizational change ([Dobbin et al., 2015](#)) to identify

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the components and conditions of effective bystander training in the engineering context.

This paper reports initial results from Phase 1 of the research. We present data from individual interviews with a sample of faculty and staff in academic engineering (N = 31) about the obstacles to intervening as a bystander when they witness situations of harassment and bias, as well as the conditions that facilitate bystander intervention. The team also interviewed a larger sample of engineering students, though this paper presents results only from faculty and staff interviews.

Prior studies have found differences among social groups in the likelihood of experiencing harassment, incivility, and microaggressions ([Tinkler and Zhao, 2020](#); [Konik and Cortina, 2008](#)). For example, [Wagner and Htun \(2022\)](#)'s study of an engineering college finds that 50% of women say they have experienced gender harassment, compared to 40% of the sample overall. The same study finds that respondents identifying as Black and Asian are more likely than other respondents to say they experienced racialized microaggressions in the past six months ([Wagner and Htun, 2022](#)). Women faculty in the study are also far more likely than men faculty to say their colleagues do not value their research and teaching, and also to say they had received outside offers and have considered leaving. As this suggests, forging a culture of bystander intervention has the potential to improve the workplace experience of women and other underrepresented groups and to promote their retention in engineering.

2. Study Design

The team conducted 31 interviews with faculty and staff at three public U.S. universities during spring and summer 2021. All participants held appointments in engineering schools or colleges. Interviews lasted around 60 minutes and were conducted over Zoom. After obtaining consent from participants, the team recorded all interviews and then transcribed them for the purposes of analysis.² Interviewees received a \$50 Amazon gift card for their participation (and an additional \$10 if they filled out a short pre-interview survey).

Interviewers followed a guide and asked additional follow-up and clarification questions. The questions in the guide focused on participants' professional experiences, difficult or uncomfortable experiences in the workplace, views about harassment in engineering, and experiences during the COVID-19 pandemic. Table 1 shows the demographic breakdown of the interviewees. It is important to note that the average age of men and women in this sample are different: The average woman in our sample was 36-45 while for men it was 46-55.

² One of the interviews was not recorded, but interviewer notes are used for analysis instead.

Table 1: Demographics of Interviewees

	No.	Percent
<i>Gender</i>		
Woman	14	45.2%
Man	17	54.8%
<i>Rank</i>		
Tenure-track	7	22.6%
Tenured	22	71%
Non-tenure track	2	0.06%
<i>Race/Ethnicity</i>		
White	21	67.7%
Non-White	10	32.3%
<i>Sexual Orientation</i>		
Heterosexual	28	90.3%
Non-heterosexual (incl. don't want to answer)	3	9.7%
<i>Age</i>		
25-45	12	38.7%
46+	19	61.3%
Total	31	100%

Notes: For analysis and to make respondents less identifiable, some categories (race/ethnicity, age range, and sexual orientation) were collapsed.

To analyze the transcripts, we used the qualitative data analysis software atlas.ti. The team created an initial coding scheme, which we then revised during weekly meetings. Since questions about difficult and uncomfortable behaviors, and reactions to them, were open ended, we used a grounded theory approach to identify themes that emerged during interviews. Using this approach also allowed us to explore whether members of certain social groups, such as men or women, or senior or junior faculty, were more or less likely to bring up some themes than others.

2.1 Coding Scheme

The team began by coding all episodes where bystander intervention could potentially have occurred, and then creating subcodes for features of the incident. For example, we coded the characteristics of the incident, including the identity of the perpetrator and the status of the victim (such as student or other faculty member). We coded the actions taken or not taken, including behaviors in the moment, actions taken later (such as a follow up email to the victim), and any resolution or conclusion.

We coded participants' perceptions of the barriers and facilitating factors for bystander intervention, including departmental politics and social relations, power dynamics, whether or not people recognized the incident as harmful, minimization of the incident, fear of being blamed or accused of overreacting, and fear of disrupting unit norms, among others.

3. Findings

In this section, we report some examples of faculty and staff responses to our questions about the obstacles and opportunities for bystander intervention. The team is continuing to analyze the results of the research and will present more systematic analysis in the near future.³ All of the quotes here are from the individual

³ In other work, we have analyzed impacts of the Covid-19 pandemic on faculty and student experiences in the classroom, on their research trajectories, and their work-life balance. We presented these results at the February, 2022 Sociologists for Women in Society meeting.

interviews conducted by the team. To preserve anonymity of respondents, we have not included any identifying information.

3.1 Obstacles to bystander intervention

Interviewees mentioned several obstacles to bystander intervention, including: 1) lack of awareness; 2) subtle nature of harassing behavior; 3) power hierarchies; and 4) risks of intervention.

Lack of awareness. Interviewees noted that engineers' awareness of harassing behavior is highly variable. They noted that women and junior faculty seemed to be more aware of harassing behavior than other faculty, including older, more senior faculty. One interviewee observed, "with engineers, so much just goes over their head. A lot of people, they're just not quite there. The emotional intelligence is not so high among some engineers." Another interviewee said, "the majority of the people still think this is a joke, this is a funny joke. But they don't feel the feeling of the people who are being joked at."

"Sugarcoated" harassment. Interviewees noted that many harassing behaviors in engineering workplaces are subtle and nuanced, perhaps deliberately so. One faculty member made a distinction between "old" forms of harassment and "new forms." Old harassment would include making sexual advances or pressuring for dates. Newer harassment is more disguised. As the participant said: "Most of this improper language, people say it in a very, very civilized way. People don't use crude words...They use nice words but embed the bias within it. I didn't see the

crude comment, but I do hear the improper comment. People don't use swear words in academia, they use something even worse, mostly more sugarcoated words."

As this suggests, a great deal of the interaction that occurs does not rise to the level of a clear Title IX or Civil Rights violation. The same participant observed that: "In these days, people are getting smarter and smarter and know how to protect themselves [against] legal troubles....people are smart enough not to be caught. Most of the things that happen are without strong evidence."

Another participant concurred: "People who engage in these types of behavior...[are] very acutely aware of the of the boundaries and they don't step way out of it so that it's obvious that's what they're doing...It's always like in this very narrow space that they tread. It makes you question whether what you feel and what you should be doing is an overreaction to the situation, you question yourself." Another noted: "They know very well what they're doing. It's not someone who is ignorant and I need to teach them why that behavior is wrong."

Power hierarchies. Several participants mentioned power hierarchies between senior faculty and administrators and other faculty as a barrier. For example, one participant said: "I think the people who are being put down don't feel secure speaking out because they're in a junior faculty or associate professor position, so they worry about promotion." Another noted: "There is certainly a "good old boys" network that naturally happens and their behavior is one way in the presence of women and often slightly different in [women's] absence. I have observed things

such as that. Have I spoken up? No. Because most often this seems to come from the higher ups, not so much from the rank and file faculty.”

Risks of intervention. Potential bystanders engage in cost-benefit analysis. Is it worth the risk of disrupting unit relations to change the behavior of a person who may be incorrigible? Risks to bystanders are greater if they perceive that their actions will not produce results: “If you confront, there has to be some outcome that comes with it. Most often that outcome would either be the person who you confront it stays in that position of power, in which case, it makes for an uncomfortable coexistence, or even if they are fired that that has a destabilizing effect on the department.”

A few respondents expressed a “why bother?” and “it’s not worth it” attitude. For example: “It’s not worth my time and I know that’s a rather poor attitude to have, but there are...bigger battles to be fought than correcting someone who cannot be corrected.” Another interviewee said: “I think that I’m one of those people who gets along well with others. I play my politics well, so I don’t get into situations...like racial stereotyping or something like that, even if someone said something I usually don’t take it in a very negative light. My attitude has always been that it’s just not worth my time to react to these things.”

3.2 Facilitating conditions for bystander intervention

Interviewees mentioned several facilitators to bystander intervention, including: 1) leadership; 2) gender balance; and 3) students affected.

Leadership. Norm-setting by leadership helps create a culture that validates bystander intervention and discourages harmful behavior. One participant noted that even if faculty initially adhere to new norms for strategic reasons, this nonetheless contributes to changing the climate over time: “A very strong push down from the top leadership from the provost and down has happened, which has resulted in a lot of people correcting their behaviors. Perhaps not acknowledging that what they’re doing is wrong, but again just saying that ‘Oh, I might lose my job if I don’t fix this.’ It’s sort of a resentful fix if you will but, to tell you the truth, it’s okay to resentfully do it. Because what that does is increase the sensitivity in the department to this. When you stop saying stupid things for a few years and then someone says [something], everybody’s jaws drop to the floor.”

By contrast, when leadership appear to tolerate harassment (and even to perpetrate harassment), there is a culture of impunity, and people perceive that there is little point to intervening or reporting harmful behaviors. As one participant noted: “A lot of people feel...when it’s leadership and these people keep getting reappointed to their positions, what good does it to say anything anyway?”

Gender balance. Some participants mentioned growth in the number of women in a department to be an important factor that enabled faculty to stick up for other faculty. One participant observed that in recent years the number of women full professors had “quadrupled,” so that “there are now more people who feel comfortable speaking out than they would have pre-promotion.” Still, another noted that women are not immune from bad behavior. Growth in numbers of women in

their department was accompanied by some harmful behavior perpetrated by women toward other women.

Students affected. Some participants mentioned that they perceive a greater willingness to stand up to other faculty when the victims are students. “There’s lots of bad habits that faculty develop like not assigning grades on time, things like that that are rather important to students. And so those are the really abrasive interactions you have to have. A faculty may feel like they don’t necessarily have to listen to you, and then you have to make sure that the students’ interests are taken care of.”

4. Conclusions

Our analysis of interviews with faculty and staff revealed that many participants perceive barriers to bystander intervention, such as the nuanced nature of uncivil and harassing behavior, the fear of disrupting unit relations, and the reluctance to take risks when intervention may not lead to any positive outcome. We found that fewer faculty identified opportunities to bystander intervention, though some mentioned the importance of leadership, gender balance, and a shared interest in protecting students.

The good news is that the barriers do not appear strong or permanent. They are more embedded in people’s perceptions than in institutional rules. For example, if a senior faculty member were visibly reprimanded or punished for violating norms of civility, this action could change people’s perceptions that nothing would come of their bystander intervention. If members of a unit supported the intervention of

a faculty member to protect another faculty during a meeting, or interrupted derogatory comments, these actions could reduce the perception that bystander behavior is risky and disruptive to social relations.

Actions that are supportive of bystanders, evidence that bystander behavior improves rather complicates social relations, and evidence that harassing or uncivil behavior gets punished all have the potential to change individual risk-benefit calculations. Bystander training can help to increase participant awareness and confidence, and thus to consolidate norms that endorse interventions. We expect to report results of our pilot study of bystander intervention in engineering at the 2023 ASEE meeting.

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