

article:1421**Spotlighting: Emergent Gender Bias in Undergraduate Engineering Education**

This feminist standpoint theory research project was undertaken to introduce into the women-in-engineering (WIE) literature more voices of women undergraduate engineering students, from a cross-institutional perspective, and without reference to men engineering students. It seemed to me that the majority of the research on gender among undergraduate engineers focused on a comparison between men's viewpoints (as the norm) and women's as "other." I wondered if there might not be more diversity within women's viewpoints than was being brought out in this comparison.

This research found that women engineering undergraduates appreciated the services offered by women in engineering and other demographically-based programs, but resented being "spotlighted" by the existence of special programs that made them feel both other than the norm, and simultaneously less. This conclusion "fell out" of the 63 qualitative, longitudinal interviews with undergraduate women engineers completed over a two and one-half year period from fall 1999 through spring 2002; it was their strong reactions against being asked about their gender, and the same trend in the literature that led me to be curious about this phenomenon. I felt that in most literature WIE researchers had overlaid the finding that women engineers didn't want to be thought of as different with their own interpretations: willful blindness (a form of denial) or outright lying being the most common dismissals. But I wondered about the confluence of two issues: First, something might have changed in the 30 years of gender in engineering education research to make the observation that "we are not discriminated against" more true. Second, maybe the women being interviewed were not saying what we thought they were saying---maybe they were trying to tell us something about our research as well as their lives. At least, I thought, by investigating this phenomenon further from the viewpoints of the women themselves, I could make it more understandable.

In reviewing the interviews, I started to categorize what undergraduate women engineers said about gender in their lives---not just gender-bias, but anything about gender. The students seemed to separate their lives into two areas: their lives in the engineering educational environment which they considered to be "gender-less," and "everything else" where they expected to be treated as gendered people, as women. Since there is more research on college women's experiences on campus, I focused on their lives specifically within engineering culture. Any behavior that singled out women by gender in ways that made them uncomfortable was labeled spotlighting, and spotlighting was further divided into three categories depending on the intent of the individual or institution doing the spotlighting. Type I was singling out women with the intention to harm (overt sexism); type II was doing so with neutral intentions (tacit sexism); and type III was the singling out of women with the intention to help.

Type I spotlighting was said by the students to be rare, and only two students said they had experienced it. Rather than question their motives, I decided to see what else I could focus on if, on this point, I chose to believe them. It was, after all, how they experienced their existences

within engineering education that I was interested in---very directly, their happiness. I was happy to believe that the hard work of second wave feminists has paid off to at least the point that there are fewer incidents of overt sexism in engineering education. Type II spotlighting was invisible to these sociologically-unsophisticated students, and as they didn't describe much of it, I concluded it was a problem for another day. As an aside, it is the intent of type II spotlighting that I most call into question after the fact. As I learn more about, for example, the racism implicit in a "passive" standpoint --- that is, that not being actively anti-racist is in itself a form of racism --- then I question the lack of intention of type II spotlighting. It may be a less virulent strain of bias than type I, but since it is so pervasive the bulk of its effect may be as potent. This article focused on type III spotlighting because the literature tends to focus on types I and II, and type III had not received previous attention.

WIE programs have done a lot for women in engineering and for engineering programs in general, but I believe that it is time to update them. I wanted to bring type III spotlighting to the attention of WIE researchers and administrators because I feel that if the goal of WIE programs is to serve women in engineering, they should know that the way these programs are constructed has a negative as well as a positive effect on their client population. Women undergraduate engineering students, as mostly third wave feminists, want to blend in. This may bother second wave feminists, because, well, let's face it, the a-historical approach of third wavers is frustrating. More experienced feminists know how hard they've worked to obtain and maintain the rights of these younger women to stand there and blithely say "I'm not discriminated against." This bald statement is, of course, in the larger picture untrue---the structures of gender discrimination are still in place globally; but, within engineering education, I think it makes sense to alter the WIE programs we have to reflect this underlying belief.

Because we want to make it true that women are not discriminated against in engineering, we have a special obligation to make sure they are not targeted unfairly---even by us. First do no harm. The self-selected population of women who come into engineering have higher GPAs and better study skills than their male cohorts. The existence of tutoring programs that focus on them alone is inappropriate and sends the wrong message to men and women undergraduates. So does the existence of programs to help the targets of unprofessional behavior without parallel programs to prevent these behaviors and hold accountable those who perpetrate them. My suggestions for ameliorating this situation are based on a simple shift in perspective. Replace WIE programs with conduct-in-engineering programs which originate within engineering educational communities and perpetuate professional behavior throughout engineering education and in the workplace, retaining those aspects of WIE programs which assist targets of unfair behavior.

In adopting this shift, WIE programs will continue to support women without spotlighting them, may expand to support other students as well, and will prevent the perpetuation of separate programs for every demographic group. The professionalization of the engineering education population is the work of everyone within that population as well as the larger society. I believe that at this point in time we can do that work better by emphasizing our common needs and expectations, not our differences.

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Author 1: Lisa McLoughlin Lisa@hemlockhouse.net

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