**Introduction**

"The test for whether or not you can hold a job should not be the arrangement of your chromosomes." -Bella Abzug

Previous decades have seen the greatest negative effects of social stereotypes on women in STEM fields. The notion that women were naturally poor at math has begun to fade. During this degradation of social bias, society has seen the emergence of an ever-increasing population of women in mathematics-based careers. For instance, women have been earning half the biology bachelor's degrees in the United States since 1996 (Luckenbill-Edds, 2002).

An important factor contributing to the recruitment, retention, and advancement of female students in STEM fields is the availability of female mentors. There is evidence suggesting that female students who interact with female mentors are more productive in the classroom and more likely to choose STEM fields. This study aimed to determine if barriers exist in retention, recruitment, and advancement of traditional-age female students in STEM disciplines at UW-Eau Claire. We selected biology, chemistry, physics, computer science, and geology as representative STEM disciplines for the various fields that provide opportunities to achieve higher satisfaction levels with respect to recruitment, retention, and advancement of female students.

**Results**

**Recruitment**
- The majority of participants knew they wanted to pursue their chosen major before starting college, usually citing some sort of positive experience with high school science classes or teachers.
- None of the participants were contacted by their respective departments before declaring their majors.
- More than 75% of participants were well aware of emphases offered by their respective departments.
- Half of the participants were not aware of differences in number of male and female students before starting their major and half assumed there would be more male students based on previous experiences.
- The majority of participants were not aware of differences in number of male and female faculty before starting major.
- Participants felt that numbers of female students and female faculty did not influence their choice of major.
- Most participants were aware of negative stereotypes about women and STEM (e.g., "women and biology don’t mix"). A small number of participants experienced social bias from others (e.g., called "nerdy" for taking rigorous courses).

**Retention**
- All participants felt supported by faculty and students in their major.
- All participants were satisfied with resources available through their departments, though utilization of resources such as tutoring and advising was varied.
- 8 participants thought a mentorship program would benefit them, 3 did not think it would benefit them, and 3 were indifferent to the idea. Most participants did not care about the mentor's gender.
- Participants majoring in Biology reported an even mix of female and male students in lower-level classes and a decrease in the number of female students as class level increased. Participants from other majors reported fewer female students across all classes.

**Advancement**
- The majority of participants were satisfied with the number of collaborative research opportunities; many indicated that research is a large commitment.
- Participants were also satisfied with the number of internships presented by their department, however some indicated that certain emphases have more internship offers than others.
- A couple of participants noted that some internships are specific to women, and that being female makes them more desirable when applying for research positions or internships.
- All participants felt there was adequate access to supportive student organizations specific to their major, however utilization of these organizations varied.
- All participants felt that adequate advising about post-graduation plans was available (i.e., jobs and graduate school); some had not yet discussed plans with advisors because of their first-year standing.

**Discussion**

Conclusions from these interviews help us begin to understand the academic environment for female STEM students at UW-Eau Claire.

**The Student**
Participants in this study have long-standing interests in science, which resulted in declaring a STEM major. Given societal pressures that work against women pursuing careers in engineering, computer science, and mathematics, these participants are rather unique. Many researchers find that girls enter high school less confident in their math and science abilities, more likely to underestimate their achievement, and less likely to express interest in STEM careers. Participants felt that adequate advising about post-graduation plans was available (i.e., jobs and graduate school); some had not yet discussed plans with advisors because of their first-year standing.

**Limitations and Recommendations**
This study is limited by its small sample size in terms of participants as well as its sample of majors. The majority of participants were Biology majors. Other majors, such as 4 Mathematics, Physics, and Computer Science were represented by only 1-4 participants. In order to achieve a better representation of the student body, this study would need to be extrapolated to encompass more majors and have comparable numbers of students from each STEM field.

Based on participant responses, we feel there are areas within STEM fields that need improvement. We feel it would be most effective to first establish STEM-wide or department specific goals for the recruitment, retention, and advancement of female students. Some goals may include setting targets for female enrollment in programs that currently have few female students or quantifying how many female STEM students are participating in student-faculty collaborative research and engaging in efforts to increase that number over time. Other suggestions include the development of a mentorship program for female students in STEM fields. Though most participants in our study did not indicate a gender preference for the mentor, literature suggests that same-sex pairings of mentor and student are more productive than cross-gender pairings (Crombie, Pyke, Silberthorn, Jones, & Piccinin, 2003). Students’ perceptions of their classroom participation and instructor as a function of gender and context. Journal of Higher Education, 74(1), 1651-1676.

**References & Acknowledgements**


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