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**Female Doctoral Students' Interactions with Faculty Members
and Their Aspirations to Pursue Academic Careers in Engineering:
Past, Present and Future**

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Abstract:

According to a 2004 report from the Commission on Professionals in Science and Technology, women in engineering and the physical, mathematical, and environmental sciences make up less than 6 percent of full professor positions. Two decades ago, researchers projected that occupational equity for females in science and engineering was just “a matter of time”—time for increasing the number of female Ph.D. students and moving them through the ranks of academia (Fox, 2001). However, the prediction that growing numbers of female Ph.D. students would lead to greater gender equity among the professoriate has not come to pass. Fox (2000) studied women doctoral students’ experiences in science and engineering by surveying over 3,000 women. Her findings revealed that women are less likely to be “taken seriously” by their advisers, feel less comfortable speaking in research groups, and are less likely to receive effective help and feedback from their professors. Her work suggests that greater attention should be paid to understanding the experiences of women graduate students in science and engineering, with a particular focus on their interaction with faculty members. Although a wide range of higher education literature emphasizes the importance of student-faculty interaction on students’ satisfaction and professional development (Astin, 1977, 1985, 1993; Bean, 1985; Bean & Kuh, 1984; Pascarella, 1985; Pascarella & Terenzini, 1976, 1979, 1981; Tinto, 1993; Wilson et al., 1975), the research on female graduate students and their interactions with faculty in science and engineering is fairly limited.

Accordingly, the objective of this project was to examine interaction among women graduate students and their faculty members in the field of engineering. More specifically, I examined how student-faculty interactions support or limit women's aspirations to pursue academic careers. To pursue these issues, I conducted ethnographic research, incorporating the approaches of in-depth semi-structured interviews and participant observations with female doctoral students in the School of Engineering at Western University—a large research university in the western region of the United States. This university was selected due to its strong engineering programs and large number of graduate students in engineering. Theoretically speaking, I utilized theories related to mentoring and organizational socialization, combined with feminist standpoint theory, to guide my study throughout its duration. The specific research questions are: 1) In what ways do student-faculty interactions influence the socialization experiences of women doctoral students in engineering? 2) How do student-faculty interactions impact women doctoral students' aspirations to pursue academic careers?

This research suggests that improving organizational practices and policies in various areas concerning the advising relationship, funding, and non-academic issues such as expanding counseling and social opportunities would no doubt enhance the quality of women doctoral students' mentoring experience. Such efforts may effectively assist graduate women in engineering to overcome academic, professional and personal hardships and encourage them to pursue careers in academia. The increase and quality of female professors in academia may in turn benefit future women doctoral students in their mentoring and career training.