

Assessing Opinions, Experiences, and Perspectives of Females Nationwide via a Web-based Questionnaire

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Abstract — *The under representation of females in engineering, computer science and technology fields is well documented, but remains a serious issue facing academia and industry. The goal of this study is to develop effective strategies for recruitment and retention of women in engineering, engineering technology and computer science. The strategies will be derived from a statistical analysis of data collected from survey instruments distributed to various groups of women. Prior to implementation of the surveys, a discussion group will be necessary to add value to this research. This discussion group will be the driving force behind the content of questions and will collaborate on avenues of dissemination and marketing of the survey instruments to ensure nationwide participation.*

Index Terms — *attitudes, opinions, questionnaire, recruitment, and retention.*

BACKGROUND

Research shows many factors influence young women's decision making regarding career choices. Women in engineering programs and engineering faculty are trying various techniques to engage and inform potential female students about the opportunities in engineering. Many faculty members conduct outreach to high school and middle school aged students. Programs are also attempting to create a more positive environment for female students in engineering, engineering technology and computer science curricula.

Statistics from the College of Engineering at Montana State (MSU) show that female enrollment drops 19% between the freshman and sophomore years, 10% is lost between the sophomore and junior years, and 7.5% between the junior and senior years. An internal survey of women students in engineering at MSU conducted in 2003 revealed that 58% of current female engineering students had seriously considered leaving engineering at some point in their academic careers, and that the majority of these women had the most doubts during the sophomore year (37%) Ulvin, 2003. With a 12.2% female enrollment in engineering in 2002, we were below the

national average. By initiating this study to better understand the perception of females at different stages in their academic development, we make important steps toward changing the climate and culture of engineering as well as creating different strategies to target and support females in engineering. Specifically, we will be providing data-supported recruitment and retention models through statistical analysis of data collected through this nationwide effort.

METHODOLOGY

The research will gather opinions, experiences, and perspectives of females nationwide from diverse backgrounds and ages in their attitudes towards engineering through a web-based online questionnaire. The proposed study will consist of three groups and three questionnaires developed respectively. The Group classification will be as follows: Group #1 – pre-college women, Group #2 - women currently enrolled in college engineering programs, and Group #3 - women engineers currently working in industry or academia.

CONCLUSION

Results from the questionnaires will disclose the participants' attitudes and experiences regarding engineering. As users submit their responses, a database will be created to store the results. From this database, statistical analysis can be conducted to classify and draw conclusions, and establish recommended strategies in recruitment and retention practices. Building upon this data set, it is hoped that existing engineering programs can apply the results in a positive manner. In addition, new program initiatives can be developed from this data. Lastly, this research has the potential to be an on-going collection of responses where it is possible to illustrate participants' responses, through web-based programming; via online graphs, pie-charts, etc. where the users can compare their responses to others across the nation.

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