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Identifying Barriers: Preliminary Results of APEGA's Investigation into the Challenges Faced by Women in Engineering and Geoscience Workplaces

Alissa D. Boyle

APEGA

Sonja A. Schwake

APEGA

Summary

APEGA received a three-year (2018-2021) \$350,000 grant from the Ministry of Status of Women Canada (SWC) to investigate the barriers that women face in the engineering and geoscience workplace. The project's area of focus is to identify elements of work culture and policy that can be improved to increase retention and advancement of women in industry. Phase two of the project will create a concrete, evidence-based policy guideline that Alberta companies can implement to address barriers by fostering a culture of diversity, equity, and inclusion. This presentation reports on the initial data-gathering that was done with APEGA's membership of engineers and geoscientists (male and female, at various stages in their careers) regarding their perception of the factors responsible for the gender inequity seen in the professions, and outlines next steps toward the development of the policy guideline.

Theory / Method / Workflow

There is widespread recognition that women in science, technology, engineering, and math (STEM) fields are underrepresented, and that numerous systemic, societal, and interpersonal barriers exist in education and workplace environments. In Alberta, only 13% of Professional Engineers and 19% of Professional Geoscientists are women (APEGA, 2018). Many reasons for this inequality have been posited including gender-based discrimination (Conefrey 2001; Faulkner 2014), institutional issues in post-secondary education (Mervis 2001; Niemeier and González 2004; Rosser 2003, 2004), differences in role confidence and self-efficacy beliefs among males and females in STEM fields (Cech, Rubineau, Silbey and Seron 2011; Concannon and Barrow 2012; Litzler, Samuelson and Lorah 2014), professional workplace culture (Cech 2013; McIlwee and Robinson 1992; Robinson and McIlwee 1991), lack of female mentors in STEM professions (Gibbons and Morell 1992), and unequal advancement opportunities for women in STEM fields (Glass, Sassler, Levitte, and Michelmore 2013), among others.

The initial phase of the APEGA SWC grant project focuses on discerning how significant each of these factors are in the contemporary engineering and geoscience workplaces in Alberta. The methodology employed to solicit this data consists of an online survey, in-person and virtual/phone 1:1 interviews, and focus group discussions. The entire APEGA membership was contacted via online survey to gather preliminary data regarding members' perceptions about



the gender disparity and workplace culture in the professions. The survey questions were intended to initiate evidence-based feedback on member perceptions of how gender influences treatment in the workplace. Members were asked about work-life balance, comfort and safety in the workplace, professional mentors, and if they had personally faced gender-based discrimination. In-person and virtual/phone consultations followed up with members on trends identified in the initial survey, and provided an open-ended space for the collection of qualitative data, as well as allowed members to share their experiences and concerns about the position of women in the workplace. Subsequent phases of the project will use the data from the initial phase to develop concrete policy guidelines to address some of these barriers, including a pilot program testing the guidelines with several engineering and geoscience companies in Alberta.

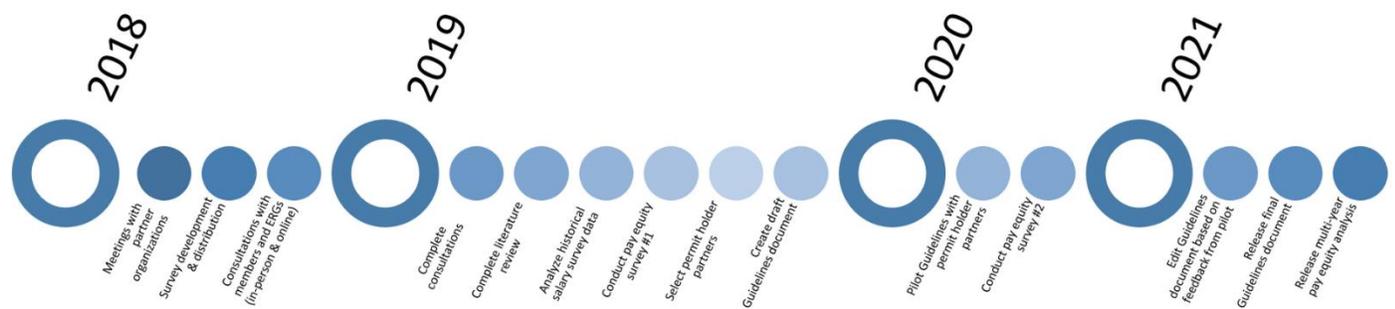


Figure 1: Workflow chart for APEGA SWC Grant project.

Results, Observations, Conclusions

The preliminary results of the survey and consultation phase of the project will be reported on in this presentation. At the time of abstract submission, the survey had just been released to the APEGA membership, and the consultations will occur in January of 2019. Therefore, no preview of results is available, however, the data will have been tabulated and analyzed by the conference date (May 2019). We will report on the member-identified factors that place women at a disadvantage in engineering and geoscience workplaces in Alberta. Preliminary conclusions regarding gendered differences in responses and reported experiences will also be disseminated here. Future directions for the project, as they relate to the preliminary data-gathering phase will also be discussed.

Novel/Additive Information

Although similar SWC projects have been recently undertaken or initiated in Alberta by some of our partner organizations (AWSN, WinSETT), the APEGA project has the unique characteristic of being authored by the regulatory body for the engineering and geoscience professions in Alberta. This puts APEGA in the unique position to also leverage the salary data gathered from permit holding companies in Alberta as a concrete measure with which to view gender inequality in the professions. Our partnership with permit-holding companies willing to pilot the

recommendations as part of the second phase of the project also broadens the scope and impact of the project.

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APEGA

Project Partners:

AWSN (Alberta Women's Science Network)
SSE (Schulich School of Engineering, University of Calgary)
CCDI (Canadian Centre for Diversity and Inclusion)
WinSETT (Canadian Centre for Women in Science, Engineering, Trades, and Technology)

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