Career Plans of Atmospheric Science Graduate Students: Does Gender Matter?

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Introduction

The passport for an academic or research career is the doctorate. Participation of women in Atmospheric Science (ATS) graduate studies has been growing, with the percentage of women earning ATS doctoral degrees increasing from 10.6% in 1988 (NSF, 2008) to 19.8% in 2008 (NSF, 2010). At the same time, there are still very few women in ATS academic and research positions, relative to the number of women who earned ATS doctoral degrees in the last decade (Levine, Gonzalez, Cole, Fuhrman, & Carson LeFlock, 2007). This suggests that ATS female graduate students may be pursuing different careers than male ATS graduate students.

Objective

This study sought to explore the career plans of ATS female and male graduate students. This approach builds on previous studies of career planning—most of which have been about undergraduate students.

Method

Participants: The sample consisted of 42 ATS graduate students (20 female, 22 male), ages ranging from 22 to 50 (M = 25 for females, M = 28 for males). Ninety-five percent of participants were US citizens and 81% percent identified as of European American descent. Among females, 75% were currently in relationships (married/formal commitment or single/attached). None of the female students had children of their own. Among males, 77% were currently in relationships (married/formal commitment or single/attached) and 32% had children of their own.

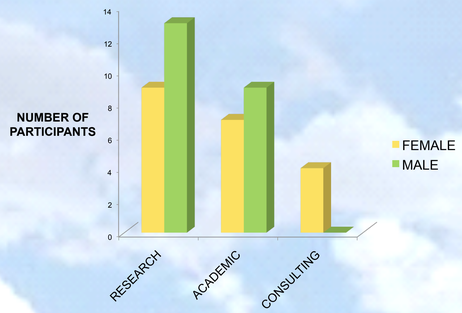
Procedure: Participants were recruited via email invitation and student and faculty referrals. Participants first completed a semi-structured survey about their educational background and interests. Semi-structured interviews about their career plans were then conducted to explore the responses they provided in the survey. The interviews were audio-recorded and transcribed verbatim, edited for accuracy, and coded by a team of researchers.

Qualitative Analyses: Interviews were coded based on Interpretive Phenomenological Analysis (Willig, 2001). A five-member female coding team: 1) assigned codes to relevant sections of text, 2) condensed the codes into themes, 3) reviewed all coded text for accuracy of themes, and 4) created narrative descriptions of emerging themes.

Data Trustworthiness: All interviews were independently coded. The coding structure was evaluated by all team members as it was developed, and consensus was reached for creation, revision, and application of codes.

Results

Career Plans of ATS Students



Both women and men planned for academic and research careers, but only women mentioned consulting careers.

Both women and men believed that rich, hands-on experiences (e.g., research practica) influenced their educational/career choice and persistence.

"I did a summer internship for three summers… I guess I really found what I was interested in." **Female Student**

"…I spent ten weeks out there, and I really enjoyed the research and I came back and I said, 'Alright, I'm going to graduate school, not going to do TV anymore'." **Male Student**

"You're required to do four semesters of research… and I was like 'I really like this,' you know, and I'm pretty good at it." **Female Student**

More women than men mentioned that role models, mentors, and/or the support of others influenced their educational/career choices.

"I think that people saw early on that I was good at it and supported me and … therefore I kind of have always thought… 'I should do this'." **Female Student**

"I had teachers that were pushing me to make sure I do what I'm interested in and telling me that, 'This is what you can do as a career'." **Female Student**

Women were more likely than men to mention their math and science interest and aptitude as a factor in their educational/career choice.

"I like this, you know, and I'm pretty good at it." **Female Student**

"I think the thing that I excel at the most in school was always math … so I knew I wanted to study math." **Female Student**

"….there was something about math classes and excelling there when most people failed that I really enjoyed." **Female Student**

For women, it was important for their career to involve opportunities for societal impact.

"…it was a way for me to help the world in some way, but still be involved in academia and mathematics and things like that." **Female Student**

"One of the things about science is I feel like it's something you can have a real impact in." **Female Student**

"I liked math, but I was never into pure math, like proving proofs and things. I kind of wanted to apply it to something." **Female Student**

Women expressed a concern about fitting career goals with partner and children commitments, whereas men valued financial rewards.

"I can't be selfish anymore and I need to, to focus on what's best as a couple." **Female Student**

"I'm gonna do what pays a little bit more, but who knows." **Male Student**

"Especially if I get married and have a family or even just getting married, money does start becoming more important." **Male Student**

Conclusions

This study documented more differences than similarities in the career plans of female and male ATS graduate students as well as in what influenced these plans. While both women and men planned for academic and research careers, only women mentioned consulting careers. With regard to what supported career choice and persistence, practical experiences were mentioned as important by both women and men, but math aptitude and role models/mentors mostly by women. Also, for women, it was critical that their career have a potential for social impact. Finally, in terms of future issues, women perceived a focus on their career as challenging or even selfish in light of current or expected family needs, while men mostly emphasized money as a way to be successful in their profession and for their family. This study's findings are consistent with, and expand those of studies of women and men in other science and engineering fields (American Association of University Women, 2010).

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