

Voices of Successful Women Community College Students in Science, Technology, Engineering and Math Fields

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Introduction

- STEM jobs are increasing but the # of women entering them is decreasing (**citations**)
- Offer job security, stability, and upward mobility
- Women are not equal beneficiaries of these advantages
- 25% decline in the # of women earning STEM-sub-bac degrees at CCs
- A STEM student's persistence results from a “complex interplay of factors” (Maltese and Tai, 2011 p. 901)

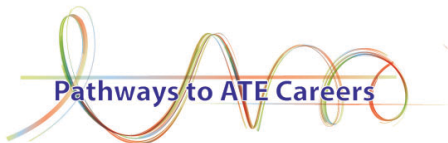
Setting

- Advanced Technological Education (ATE)
- In 100+ U.S. community colleges
- Goal is to improve STEM education for technicians in advanced technology industries
- 27% of ATE graduates are women

Methods

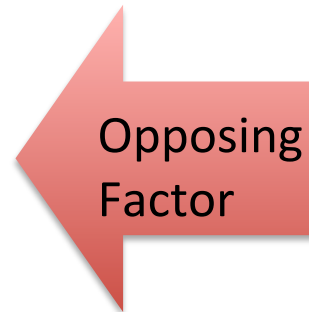
Research Question: How do successful women students from Advanced Technical Education (ATE) programs in community colleges describe barriers and supports to their success?

- Grounded in social cognitive career theory (SCCT)
- Semi-structured, multi-interview qualitative research design to understand the meaning women ascribe to their success
- Success was defined as having completed 2 semesters of the ATE program

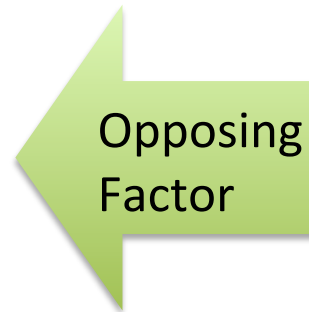


Three Factors Emerged

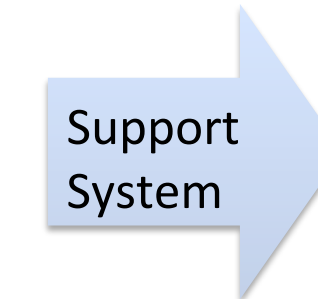
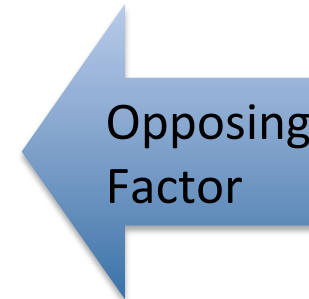
1. Self Efficacy



2. Science Identity



3. Social Support
System



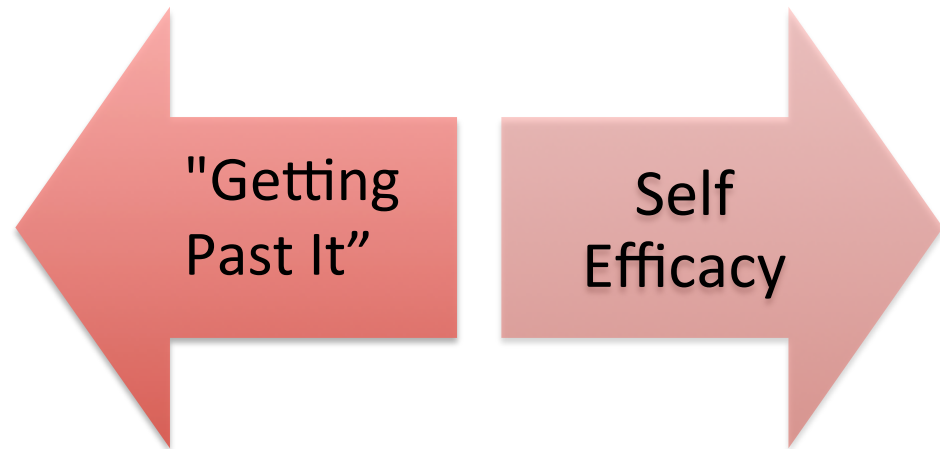
Self Efficacy

Developed through...

- “Mastery experiences”
- Seeing women succeed in STEM fields
- Encouragement from professors
- Peer support/workgroups

“Getting past it”

- Negative experiences, stereotypes



“I feel like in order to become a scientist you had to be super smart... You know in the science field, I was like, well okay maybe I’m not smart enough to do it, and then once I got past it...” -Student

Science identity

Developed through...

- Time in research laboratories
- Doing authentic science research
- “Vida Real, ” Real life
- Project based learning



Identity
Conflict

Science
Identity

Identity conflict...

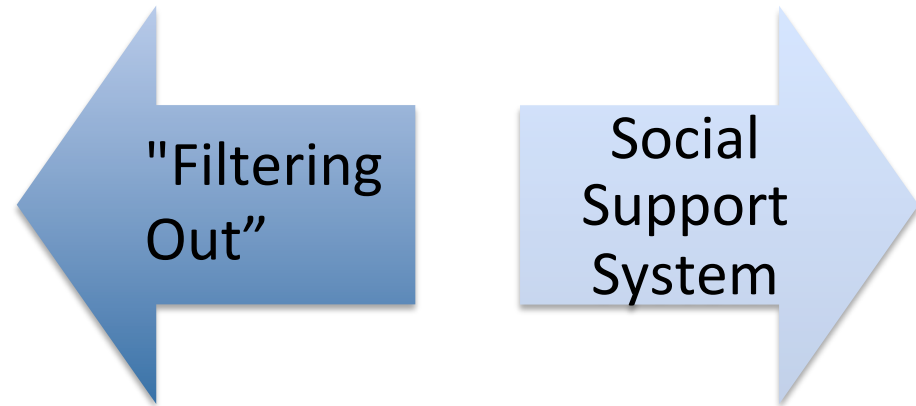
- “Weeding out” unqualified students
- Impersonal interactions
- Lack of relevance

“It’s like what we are doing in lab and class are related to ‘vida real’” -Student

Social support network

Developed through...

- Support from their professors
- Cohorts
- Built-in, required tutoring sessions with peers



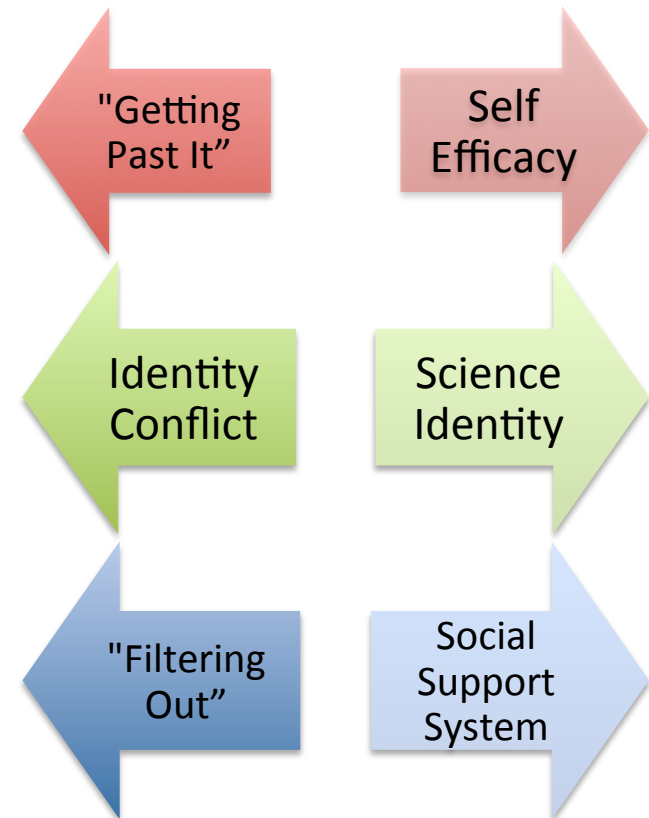
“Filtering out...”

- *“He filters them out and makes them feel stupid in front of the class” – Student*
- Peer intimidation

“I really feel like these people [ATE instructors, staff] are trying to help me succeed...” -Student

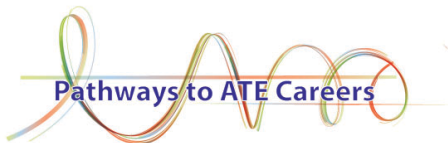
Implications

- ✓ Self efficacy & relevancy
- ✓ Cohorts & tutoring sessions
- ✓ Women scientists in action
- ✓ Authentic science experiences
- ✓ Opportunities to present & communicate science



Future Directions

- ✓ This study has informed my current dissertation research
- ✓ I am doing a qual study interviewing graduates of these programs
- ✓ Evaluate baseline ATE programs on welcoming ness to women
- ✓ Find out how many women of color are graduating from ATE vs. break out women and women of color for different industries



Thank you

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