Women’s Entry to Graduate Study

in Postsecondary Computer Science and Computer Engineering in the United States

J. McGrath Cohoon
Holly Lord
University of Virginia
Strongest Influences on Student Decisions

Important Factors in Decisions about CSE Doctoral Education

<table>
<thead>
<tr>
<th>Factor</th>
<th>Extremely</th>
<th>Very</th>
<th>Moderately</th>
<th>Slightly</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire to research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Enjoyment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Opportunities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rep of Program/Prof</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial aid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Gender Differences in Influences

Significant Differences in Important Influences on Students in Doctoral Track

Extremely
Very
Moderately
Slightly
Not at all

 Desire to research
Interest/Enjoyment
Positive Undergrad
Prior Research Exper.
Geo Pref/Constraints

Male  Female

Male  Female
Where The Women Are

- Investigated many factors
  - Desire to teach, advance non-academic career, participation in special programs
  - Influential people
  - Reputation, expense, opportunities, institution size
  - Impression of students, faculty, department culture
  - Women faculty or students
More Factors Investigated

- Student background
- Program characteristics
- Recruitment practices
- Admission criteria
Where the Women Are

- Doctoral program with
  - Flexible timetables for degree progress
  - Research Assistantships

- $R^2 = .24$, significant at .01 level
Faculty Justification for Flexible Timetables

• [Students] have a lot of responsibilities, they have children, they have spouses. They’re like professional people already, so for them to make it work, we have to adjust. – Male faculty member

• People go through a lot of life experiences during this period. And some people finish faster than others. ... To some degree, you have to understand. – Male faculty member
Flexible Timetables Allow Outside Commitments

- *I needed to figure out a schedule that would work with my life.* - Woman doctoral Student
Inflexible Timetables Can Mean Loss of Funding

- Ph.D. level, that [sigh], that’s gets tougher. Real tough is third year. The PI might not have money for a third year student. ... Are [the students] good enough to keep the TA going, even though that means we can’t get new blood into the program? - Male faculty member
Flexible Timetables Do Not Slow Progress

- *I’m older, and I don’t have a lot of time to fiddle around with nonsense.* – Woman doctoral who is a parent, on why she chose a well-organized program
Research Assistantships

- RAs more common in
  - Top-ranked programs
  - Programs with more FT students
  - Neither aspect is related to women’s enrollment
Preference Queues & Resources

• Generous resources provide opportunities for women
  – Time and money

• Scarce resources may activate preference queues
Conclusion

• Strong similarity in male & female influencers

• Women’s representation in doctoral programs is associated with
  – Flexible timetables for degree progress
  – Research assistantships

• Identified no generally effective recruiting or admissions practices
Acknowledgements

- This material is based upon work supported by the National Science Foundation under grant number EIA-0203127. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

- Special thanks to all those who provided data for this study.