Playful Exploration Lab
Retention of Women in CS: Why Women Persist?
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Introduction

Women are underrepresented in Computer Science (CS) majors. The number of women in CS is at a historic low. Nationally, women earn about 18% of the CS bachelor’s degrees (NSF, 2012), this number is even smaller in Utah (10-15%). The problem is twofold: it includes recruitment and retention, each of which is influenced by different factors.

This study focuses on the problem of retention, which is the most prominent during the first two years of CS programs (Biggers, Brauer, & Yilmaz, 2008; Miliszewska, Barker, Henderson, & Sztendur, 2006). Attrition rates for women are twice as high as they are for men (Cohoon, 2001).

Theoretical Framework

Theory of Social Learning: Learning is the process by which newcomers become part of a community of practice, through the process of peripheral participation (Lave & Wegner, 1992; Wegner, 2008).

Methods

Research Question

RQ1: What factors influence women to persist in their CS majors?
   a. Which resources are available to them?
   b. What kind of support is available to them?
RQ2: What different trajectories do women adopt for the duration of their CS majors?
RQ3: What kind of communities are they part of in their daily life?
   a. How does that connect to their trajectories?

Data Sources

2 Focus groups
10 Interviews
10 Journey maps
Experience Sampling Method (ESM)
(10 participants x 14 days = 640 signals total)

Data Analysis

Open coding
Axial coding
Case studies

Results

Demographics

<table>
<thead>
<tr>
<th>Participants</th>
<th>Age</th>
<th>Academic Standing</th>
<th>Racial make-up</th>
<th>Marriage Status</th>
<th>Children</th>
<th>Work Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=10</td>
<td>M=21.8</td>
<td>Senior=4</td>
<td>White = 9</td>
<td>Married = 2</td>
<td>None=10</td>
<td>Yes=9</td>
</tr>
<tr>
<td>female</td>
<td></td>
<td>Junior=6</td>
<td>Latina = 1</td>
<td>Single = 8</td>
<td>No=1</td>
<td></td>
</tr>
</tbody>
</table>

Examples of Journey Maps

Jane is a senior in CS (Caucasian). She is single and has a part-time job at the university (research).
Three main factors influencing her persistence:
- Belief in the power of the major to provide a lifestyle that she wanted
- She received numerous confirmations about being employable
- Her “knowledge can benefit other people”

Joana is a senior in CS (Latina). She is single and has a part-time job in a software engineering company.
Three main factors influencing her persistence:
- Her persisting personality (she is the type of person that does not give up)
- Her natural “curiosity” (if she does not understand anything, she is not afraid to ask questions or ask for help)
- Her “thick skin” (she does not get offended by inappropriate comments)