

“You Figure It Out By Yourself”: Women’s Transitions from Computer Science Education to the Workforce

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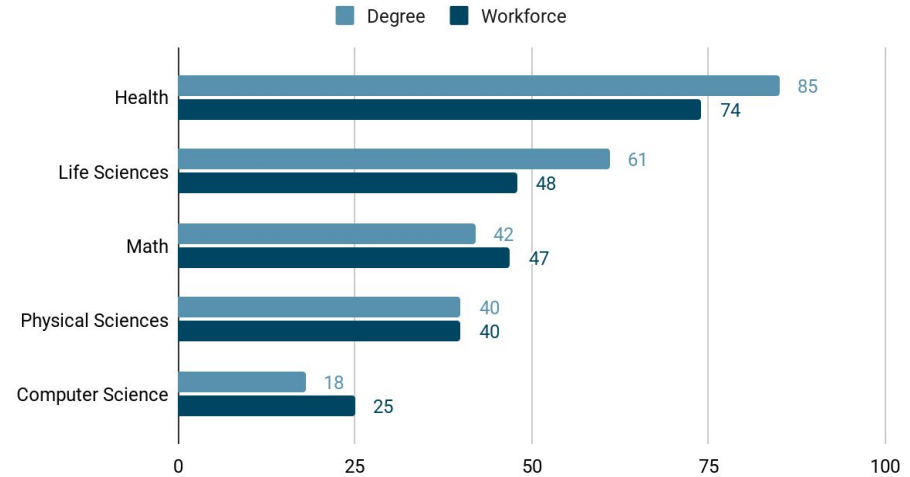
Contents

1. Background & Motivation
2. Research Questions & Goals
3. Methodology
4. Key Findings
5. Insights, Limitations, Future Work

Motivation

Women remain underrepresented in computer science, yet existing research often examines education and workforce experiences separately rather than across the transition between them.

Women's representation (%)



Adapted from Pew Research Center, (Fry et al., 2021)

An illustration of a diverse group of people, including men and women of various ages and ethnicities, rendered in a stylized, flat design. The background is a solid blue color. The text "Historical Context" is overlaid on the illustration in a large, white, sans-serif font.

Historical Context

Women's underrepresentation in CS is historically and socially constructed, shaped by cultural narratives, unequal early access, and assumptions about belonging.

(Misa, 2015; Hill et. al., 2010; Master et. al., 2021)

Background

Women's underrepresentation in CS reflects the cumulative effects of **stereotypes**, **bias**, and **cultural barriers** rather than differences in technical ability.

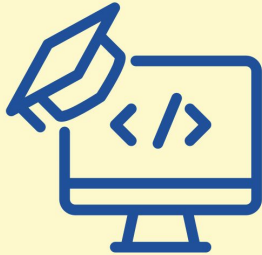
(Lunn, 2021; Misa, 2021)



Existing Support Efforts

Educational level

- Contextualized curriculum
- Inclusive pedagogy
- Mentorship programs



Organizational level

- Diversity initiative
- Bias training
- Work-life balance policies



Resources for slide 6

- Master et al., 2021
- Avolio et al., 2020

Research Gap

Existing work focuses on recruitment into education or retention within these settings.





Goal: Understand how women enter CS and how early experiences shaped participation

Research Question 1: *“How do gendered norms, stereotypes, and institutional practices shape women’s pathways into CS and their experiences in CS education?”*



Goal: Examine continuity in experiences of belonging, evaluation, and credibility

Research Question 2: *“How do these gendered dynamics persist or shift as women transition from CS education into professional settings, and how do they shape persistence?”*



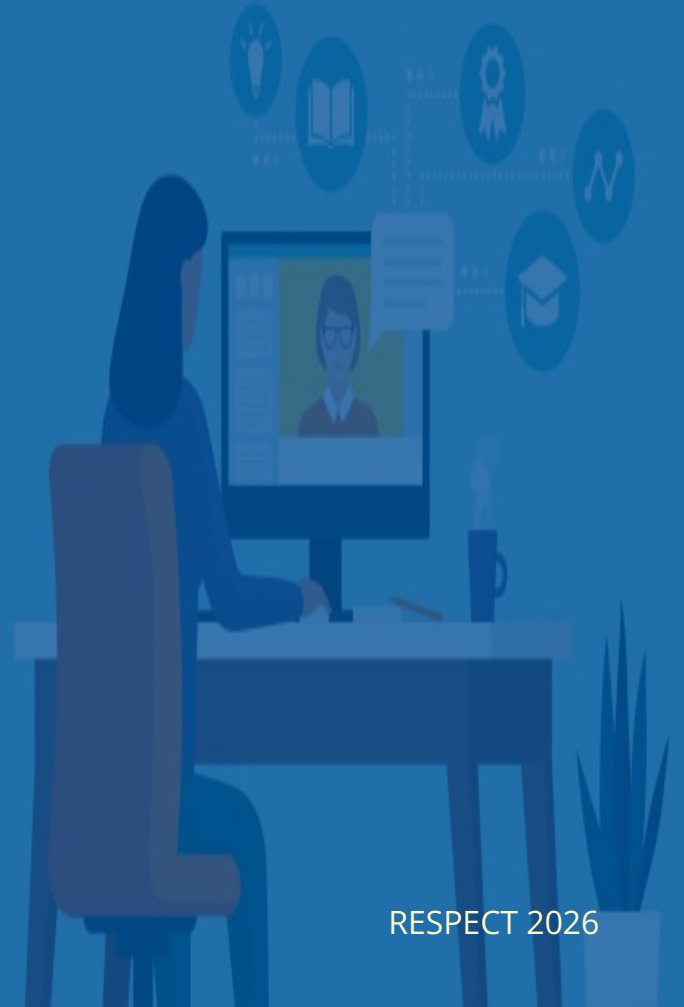
Goal: Explore how mentorship, peer support, and workplace structures influenced long-term participation

Research Question 3: *"How do women describe the role of institutional support across the academic-to-career pipeline, and how do these experiences inform more equitable and approachable CS environments?"*

Methodology

Qualitative interview study

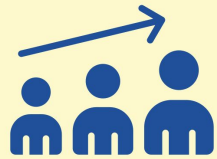
- Semi-structured
- N = 9
- Students + professionals (current or former)
- ~1 hour virtual interviews



Recruitment

Participant Overview

Age



18-24
35-34
35-44
45+

Status



Educational Background



Years of Experience



1-3
4-6
7+

Thematic Analysis

Braun and Clarke, 2006

- Iterative coding process
- IRR improved from $\kappa = 28 \rightarrow \kappa = 75$
- Codes clustered into higher-level themes

Key Theme Areas:

- Prior Exposure
- Undergraduate Experience
- Employee/Internship Experience

Key Findings

1.

Entry into CS
was uneven and
often shaped by
stereotypes

2.

Gendered
evaluation
persisted across
transitions

3.

Support systems
enabled
persistence

Findings: Entry into CS Was Shaped by Exposure and Legitimacy

- Many participants entered CS indirectly
- Early exposure opportunities were uneven

*“And one more thing I would like tell other people is, like, **just because you don't seem like the the stereotypical computer scientist doesn't mean you can't be one**, because that was something because that was something I kind of struggled with.” (P1)*

Findings: Entry into CS Was Shaped by Exposure and Legitimacy

- Masculinized stereotypes created hesitation
- Social encouragement legitimized participation

*"I remember my friends even saying, like, oh, **well, you're a girl, so you obviously aren't going to do computer science**, even that recently. But I always played lots of video games, and was like, into a lot of sort of nerdy culture kind of stuff. And so I was, like, close. I liked computers a lot. I was very interested in them, even though I wasn't, I didn't study it." (P2)*

Findings: Gendered Evaluation Persisted Across Transitions

- Underrepresentation shaped visibility and participation
- Peer interactions reinforced credibility differences

"I think computer science and girls, like a lot of girls, fall out of computer science because they don't think they can do it, and they're not, like, no one's there, like, cheerleading for them." (P6)

Findings: Gendered Evaluation Persisted Across Transitions

- Women described being spoken over or being assigned non-technical work
- Credibility often required additional validation

"I must have tried to say it very diplomatically... Eventually I gave up and messaged one of the senior devs... and the guy immediately changed it." (P8)

Findings: Support Systems Enabled Persistence

Persistence depended on support continuity within and across transitions

- Mentorship reduced isolation and uncertainty
- Women-centered organizations normalized struggle and belonging

*"Seeing that other people were having the same sort of struggles... one girl helped me a lot with my resume... that was really **a turning point** for me." (P6)*

Findings: Support Systems Enabled Persistence

Persistence depended on support continuity within and across transitions

- Workplace support systems varied
- Transitions became harder when support lessened or was absent

*“Yeah, they should definitely do that with computer science, like, give, like, a little externship with a company. So, yeah, like, students are able to know the difference with the transitions between work and then school. Because it's definitely like, **it's like, you just, you're thrown in**, because everything you do in school is not like, the same as we do in work, which that was, like, a thing that would, they would teach us beforehand.” (P7)*

Implication: Persistence Is Institutionally Shaped

- Support mattered more than ability alone
- Barriers accumulated across contexts
- Transitions are critical inflection points

Implication: Recognition and Evaluation Matter

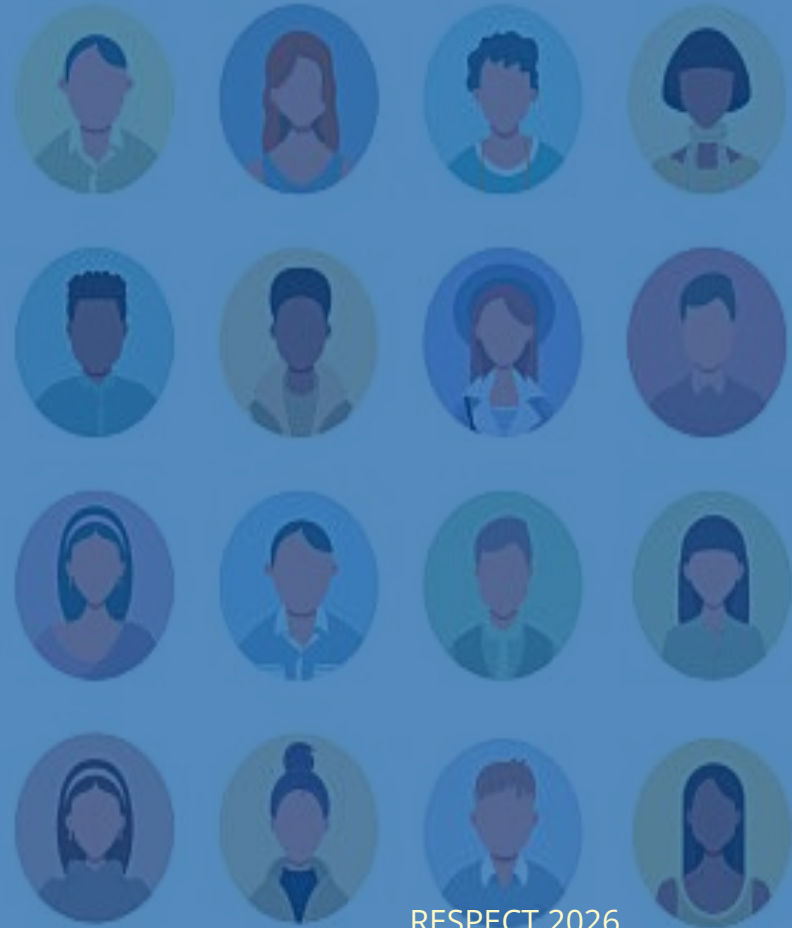
- Invisible labor constrained technical growth
- Credibility was unevenly granted
- Evaluation and recognition systems reinforced inequities

Implication: Support Must Be Expansive

- Recruitment alone is insufficient
- Mentorship and identity-safe spaces supported persistence
- Transition-focused support structures may reduce attrition

Limitations and Future Work

- Small US-based qualitative sample
- Limited intersectional analysis
- Current trends (i.e. AI, remote work)



Thank you!

Questions? Let's chat!

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QR code to paper



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