

Vulnerability Discovery for All: Experiences of Marginalization in Vulnerability Discovery

Kelsey R. Fulton, Samantha Katcher, Kevin Song, Marshini Chetty, Michelle L. Mazurek, Chloé Messdaghi, and Daniel Votipka

Research Questions

- Do people from marginalized populations feel accepted and supported by the broader vulnerability discovery community?
- What challenges do people from marginalized populations face in becoming a vulnerability researcher and participating in the workforce?

Methods

To understand the experiences of marginalized populations in vulnerability discovery, we conducted semi-structured interviews **with 16 members** of the **vulnerability discovery community** who also **identified themselves as members of marginalized populations**.

While our study aims to include a diverse subset of marginalized populations, we cannot claim complete representation. We strived for inclusivity by interviewing any qualified individuals who completed the screening survey and recruiting from a wide variety of platforms.

Recommendations

- Develop mentoring programs for marginalized populations to promote sponsorship
- Help mentees reach mentors
- Form affinity groups with care

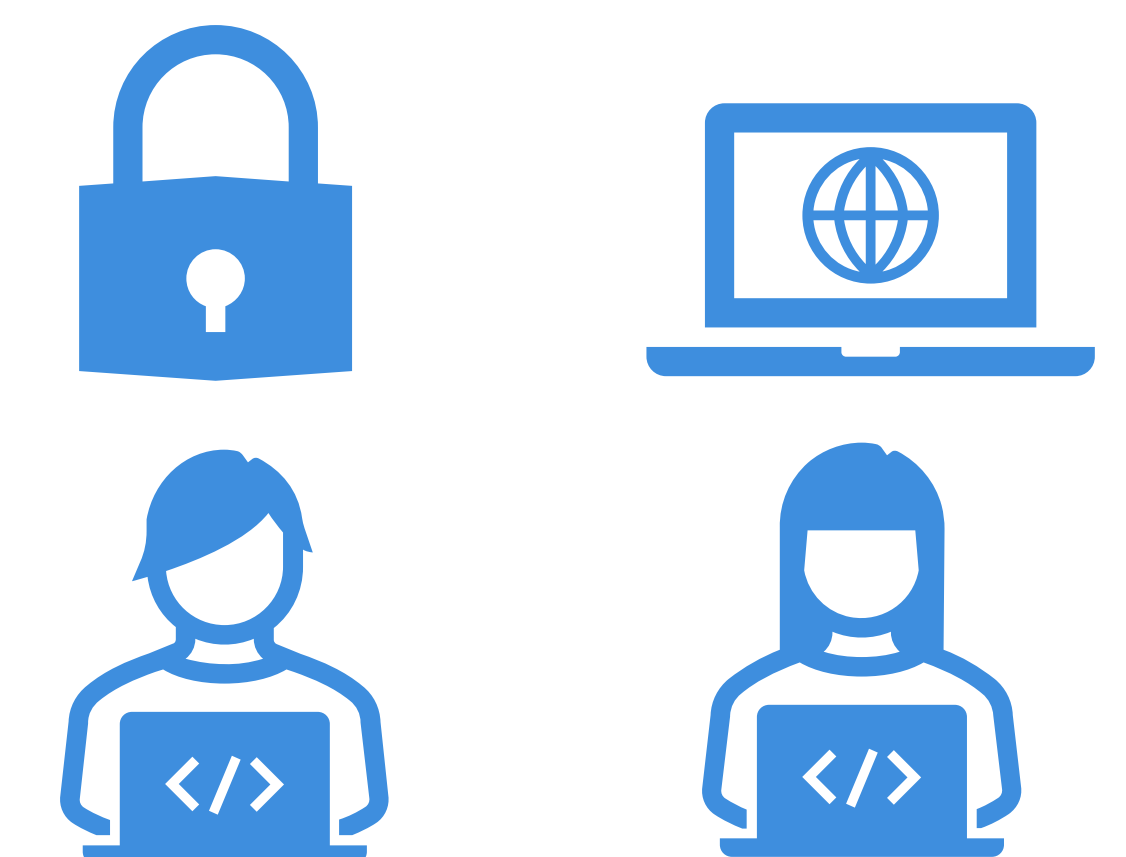
Challenges unique to marginalized populations

Difficulty being taken seriously when interacting with other security experts (N = 4).

Reluctance to share information from others in the community (N = 6). When trying to learn new things, several participants mentioned it seemed like other security experts did not want to share information. Our participants reported working extra hard to get the training and support that was more readily shared with their less marginalized colleagues.

Unwelcoming environments While representation, and diverse work groups in general, helped our participants feel welcome, the lack thereof had the opposite effect (N = 6). Some participants (N = 3) avoid interacting with the community altogether due to negative prior experiences and fear of rejection.

Discrimination Participants mentioned experiencing sexism (N = 8), racism (N = 3), sexual assault (N = 3), transphobia (N = 2), and homophobia (N = 1) either directed at themselves or someone close to them.



Challenges exacerbated for marginalized populations

Structure of learning materials and resources often assume students come with a technical background (N = 3). One way to overcome this challenge is through support from the community.

Lack of opportunities and the lack of attainable entry-level positions and opportunities (N = 3). While finding entry level positions can be challenging for all vulnerability discovery community members, it is especially difficult for members of marginalized communities. The lack of entry-level positions creates a secondary effect: making finding mentors harder (N = 5).

While helpful mentors are essential to the success of every member of the vulnerability discovery community, they play a pivotal role for members of marginalized populations.

Unhelpful mentoring Participants reported unhelpful/ unsupportive mentors as a key challenge (N = 5).

Lack of awareness Participants felt their lack of knowledge about vulnerability discovery as a career option contributed to their difficulty in getting involved (N = 6).

Uncertainty and resilience Participants cited frustration with this uncertainty about bug acknowledgement as one factor dissuading them from participation in the field (N = 5).

