The Diversity-Hire Narrative in CS: Sources, Impacts, and Responses

Christopher Perdriau
Computer Science
University of Illinois at Urbana-Champaign
Urbana-Champaign, IL, USA
chp5@illinois.edu

Vidushi Ojha
Computer Science
University of Illinois at Urbana-Champaign
Urbana-Champaign, IL, USA
vojha3@illinois.edu

Kaitlynn Gray
Computer Science
Harvey Mudd College
Claremont, CA, USA
kagray@g.hmc.edu

Brent Lagesse
Computing & Software Systems
University of Washington Bothell
Bothell, WA, USA
lagesse@uw.edu

Colleen M. Lewis
Computer Science
University of Illinois at Urbana-Champaign
Urbana-Champaign, IL, USA
colleenl@illinois.edu

ABSTRACT

Background: Affirmative action programs (AAPs) aim to increase the representation of people from historically underrepresented groups (HUGs) in the workforce, but can unintentionally signal that a person from a HUG was selected for their identity rather than their merit. We call this signal the *diversity-hire narrative*. Prior work has found that women hear the diversity-hire narrative during their computer science (CS) internships, but women and non-binary students' experiences surrounding the narrative are important to understand and have not been thoroughly explored.
Objectives: We seek to understand the (1) sources and (2) impacts of this narrative, as well as (3) how students respond to it.
Methods: We conducted and qualitatively analyzed 23 semi-structured interviews with undergraduate CS students in the gender minority (i.e., students who identify as women or non-binary).
Results: Participants reported hearing the diversity-hire narrative from family and peers. They reported feeling self-doubt and a double standard where their success was not attributed to their intelligence, but their peers' success was. Participants responded to the diversity-hire narrative by (1) ignoring it, (2) attempting to prove themselves, (3) stating that their peers are jealous, (4) explaining that AAPs address inequity, and (5) explaining that everyone is held to a high standard.
Implications: These results expand our understanding of the experiences that likely impact undergraduate CS students in the gender minority. This is important for broadening participation in computing because results indicate that students in the gender minority often encounter the diversity-hire narrative, which deprives them of recognition by invalidating their hard work.

SIGCSE 2024, March 20–23, 2024, Portland, OR, USA

ACM ISBN 979-8-4007-0423-9/24/03
https://doi.org/10.1145/3626252.3630945

CCS CONCEPTS

• **Social and professional topics** → **Computing education**; **Computer science education**.

KEYWORDS

broadening participation in computing; diversity; affirmative action

ACM Reference Format:
Christopher Perdriau, Vidushi Ojha, Kaitlynn Gray, Brent Lagesse, and Colleen M. Lewis. 2024. The Diversity-Hire Narrative in CS: Sources, Impacts, and Responses. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE 2024), March 20–23, 2024, Portland, OR, USA.* ACM, New York, NY, USA, 7 pages. https://doi.org/10.1145/3626252.3630945

1 INTRODUCTION

In the United States (US), computer science (CS) has historically lacked proportional representation of people who identify as women, Black or African American, Hispanic, Latinx/a/o/*, Native American, Native Alaskan, Native Hawai'ian, and/or Pacific Islander [24, 51]. We refer to people with these identities as people from historically underrepresented groups (HUGs) in computing. The patterns of underrepresentation of people from HUGs in computing is partly due to the microaggressions they hear in CS spaces [31, 37], which may deter individuals from continuing in CS [20].

Sue et al. [43] defines microaggressions as subtle forms of discrimination that are based on a person's marginalized identity, making them feel insulted or disrespected. Importantly, microaggressions may negatively impact students' performance [39, 42, 50] because they may negatively influence students' self-esteem [36], sense of belonging [5, 27], and self-efficacy [2]. Someone who hears microaggressions may internalize them [35] possibly reducing their self-efficacy [2] and threatening their academic [20] and career persistence [2]. Long-term, this may incite or amplify feelings of imposter syndrome [21] and anxiety [1, 28].

One microaggression students from HUGs in computing may face is being told they were only selected for a position, like being admitted to college or hired for an internship, because of their marginalized identity rather than their merit [25]. For example, women in CS report being told that they were only offered an internship because of their gender rather than their merit [25]. We refer to this specific microaggression as the *diversity-hire narrative*. This narrative discounts qualified applicants' skills and merit [12, 14, 26].

We focus on the experiences of the diversity-hire narrative among undergraduate CS students in the gender minority, i.e., students who identify as women or non-binary. To guide efforts to broaden participation in computing, it is important that we understand the sources of the diversity-hire narrative, how the narrative impacts students, and the ways in which students respond to the narrative. Our research questions are:

RQ1: From whom do undergraduate CS students in the gender minority hear the diversity-hire narrative?
RQ2: How does the diversity-hire narrative impact undergraduate CS students in the gender minority?
RQ3: How do undergraduate CS students in the gender minority respond in ways that invalidate the diversity-hire narrative?

To answer these questions, we conducted 23 semi-structured interviews with third- and fourth-year undergraduate CS students. We analyzed these interviews qualitatively using inductive and deductive methods. Our results provide evidence that CS students who are in the gender minority reported hearing the diversity-hire narrative from family members and peers. They reported feelings of self-doubt and a double standard where their success was not attributed to intelligence, but others' success was. Additionally, students responded to the diversity-hire narrative in five ways (see Section 4.3), all of which challenged the legitimacy of the narrative. These five approaches are a primary contribution of the paper because they provide arguments for educators to help challenge the seemingly common diversity-hire narrative and mitigate its negative impacts.

2 PREVIOUS RESEARCH

In the section, we provide a brief explanation of (1) how people view others who are the presumed beneficiaries of affirmative action programs (AAPs), (2) the experiences of people who are the presumed beneficiaries of an AAP, and (3) how microaggressions, like the diversity-hire narrative, affect people.

Before we discuss the literature, we must first state the goals of AAPs. The goal of AAPs is to address social inequality based on race/ethnicity and gender in the labor force and academia [48]. There are three main kinds of AAPs in the United States: (1) opportunity enhancement, (2) weak preferential treatment, and (3) strong preferential treatment. None of these AAPs allow for hiring an applicant solely based on their identity, but they do vary in the actions taken to make up for past discrimination [11]. Other countries like Brazil have AAPs that include quotas [9]. However, all AAPs require applicants to meet the minimum job qualifications.

2.1 Judgment of Presumed AAP Beneficiaries

Prior research has used attribution theory [19] to show that association with AAPs creates attributional ambiguity, i.e., introduces multiple explanations for why someone was hired [6, 12, 14, 38]. In numerous studies, when a fictitious candidate is described as being associated with an AAP, research participants are more likely to perceive them as incompetent [6, 12, 14, 38]. These research studies established a fictitious candidate's association with an AAP explicitly or implicitly through statements that the candidate would "add diversity" [6, 12, 14, 38]. This pattern of viewing the fictitious candidates as incompetent was found for a fictitious candidate described as a white woman [12, 14], Black man [14], Black woman [14], and Hispanic man [6, 38]. The stigma of incompetence was reduced when participants were provided with unambiguous information about the applicant's exceptional performance (e.g., a supervisor said that the applicant was in the top 5%) [12, 38]. However, in real-world scenarios ambiguous information about a person's performance is likely the norm, and ambiguous performance was more likely to be rated as incompetent [12, 38].

2.2 Experiences of Presumed AAP Beneficiaries

Minimal research has investigated the experiences of people who are presumed beneficiaries of an AAP. In one study, people thought that AAPs enabled their science, technology, engineering, and math (STEM) careers because it helped them get an interview [40]. However, they also found that some female STEM professionals felt that AAPs made it challenging to be taken seriously [40]. In an autoethnography, Hughes et al. [15] describe feeling that they were only selected for faculty job interviews as a way to fulfill the institution's diversity requirements, which negatively impacted how they perceived the climate of these institutions.

There have been few experiments designed to understand the effects of being perceived as a beneficiary of an AAP. In one experiment, a female participant was paired with a male confederate [13]. The male confederate either said that he believed that she was selected for the task because of her gender *or* because of her merit. When female participants were told that the male confederate selected her for the task because of her gender they reported themselves as less competent and were less certain of their ability to do the task well [13].

AAPs may also affect the self-perceptions of people who do *not* view themselves as beneficiaries. For example, Unzueta et al. [47] found that the participants viewed themselves as more competent if they believed that other people had benefited from quotas, but they had not. Note that quotas as an AAP have been illegal in the US since 1978, however, beliefs of their use persist [22].

2.3 Microaggressions

Prior research has found evidence that people experience microaggressions in schools and the workplace and that experiencing microaggressions relates to negative affective outcomes. For example, Black students at predominantly white institutions (PWIs) report that racial microaggressions lead them to struggle with feelings of frustration, social isolation, and self-doubt [42]. Furthermore, racially/ethnically marginalized college students reported lower self-esteem when they had a higher score on a survey designed to quantify experiences of racial microaggressions [36].

Potentially compounding racial/ethnic microaggressions, microaggressions also occur on the basis of gender [3]. Common themes of gendered microaggressions include sexual objectification, use of sexist language, assumptions of traditional gender roles, and assumptions of inferiority [3]. The few empirical studies that examine gendered microaggressions in the context of STEM found that women who experience gendered microaggressions feel excluded and unwelcome in STEM fields [8, 45]. In another study, Black undergraduate women in STEM reported that the racial and gendered microaggressions they experienced at PWIs made them feel marginalized and isolated [5]. Further, Kim and Meister [20] conducted interviews with 39 women in STEM leadership positions and found that the microaggressions they experienced seemed to cause a cycle of self-doubt and led some to leave STEM.

3 METHODS

3.1 Author Positionality

The author team believes that broadening participation in computing is important and that CS educators need to understand the ways in which communities within CS continue to marginalize people from HUGs. We were interested in this work because of the personal experiences of some of the authors and hearing students report microaggressions in the form of the diversity-hire narrative. These personal experiences and reports from students, coupled with our interest in AAPs, predominantly guided the design and analysis of this study.

3.2 Participant Recruitment & Demographics

Using a purposive sampling method to gather information specifically related to the diversity-hire narrative [32]. We attempted to over-sample women by recruiting students from a Women in CS group and the chapter of the Association for Computing Machinery club at a large, highly-ranked CS program at a single research university. We recruited third- and fourth-year students and over-sampled women because we believed they were more likely to have heard this narrative based on the work of Lapan and Smith [25]. We incentivized students to participate with a $20 Amazon gift card.

In total, we conducted 23 interviews with students majoring or minoring in CS. Upon completion of the interview, participants filled out a demographic form that included optional questions about their pronouns, race and/or ethnicity, gender, disability status, and the highest level of education attained by any parent or guardian. To avoid deanonymizing our participants, we present only summary demographic information. Sixteen participants identified as Asian American/Asian, three participants identified as Caucasian/white, three participants did not want their race or ethnicity included, and one left the question blank. Fifteen participants identified as women, five as men, one as non-binary, and two did not want their gender included. Thirteen participants said they wanted us to use she/her pronouns, five he/him, two they/theirs and three participants only wanted to be referred to using a pseudonym.

3.3 Interview Protocol

As this research was part of a larger project, the interview protocol encompassed additional topics, including students' CS background, experiences applying for internships, thoughts on what companies value in an intern, and whether luck plays a role in getting internships. Pertinent to this study, we explicitly asked participants, "Have you heard people say that someone got a job because of one of their identities, for example – because they're a woman?"

Following recommendations from Turner III and Hagstrom-Schmidt [46], the interview protocol was intentionally designed with clearly worded open-ended questions that were framed neutrally. As they suggest, our interview protocol was adjusted throughout the data collection to better prioritize and elicit additional information about topics of interest. Specifically, we added questions about how participants felt about AAPs, the reasons they thought people said the diversity-hire narrative, and how hearing the narrative affected them.

3.4 Data Collection & Analysis

Interviews lasted 60 to 80 minutes, were conducted over Zoom, and were recorded with participants' verbal and written consent. We followed the recommendations of Merriam and Tisdell [33] and conducted data analysis concurrently with data collection.

Data analysis was conducted in SaturateApp, a qualitative analysis tool. We began with an inductive approach [33, 41] with no codes determined a priori. The analysis team, consisting of the first two authors, created a list of initial 15 codes from the first six interviews using descriptive coding [41]. The analysis team coded the six initial interviews and met to discuss, review, and refine the meaning of the codes. Throughout additional data collection and analysis, the team met weekly to make meaning of the codes to later interviews [4]. Due to emerging codes of values, attitudes, and beliefs regarding the diversity-hire narrative, we incorporated a second inductive round of coding in the form of values coding [41]. A final deductive round of coding used the theory of computing identity, specifically the constructs of performance/competence and recognition [29]. The theoretical lens of computing identity helped to understand how participants viewed themselves as a computing person and informed our interpretation of how students' felt (un)recognized, but our findings do not incorporate this theory. Our final analysis focuses on three key topics: (1) the sources of the diversity-hire narrative, (2) how the diversity-hire narrative seemed to impact participants, and (3) how participants respond to the diversity-hire narrative.

3.5 Presentation of Data

In this paper, we present quotes from interviews with participants. Participants' quotes have the participant's pseudonym at the end followed by the paragraph number of the quote in the interview. We use ellipses ("...") to indicate the removal of words and brackets ("[]") to add words for clarity (e.g., clarifying the meaning of "this" or "they") or to replace words for anonymization purposes.

4 RESULTS

Our findings reflect the themes and variations of the sources of the diversity-hire narrative, how the diversity-hire narrative impacted students, and how they responded to the diversity-hire narrative.

4.1 RQ1: Sources of the Narrative

Nineteen out of 23 participants responded in the affirmative to the question, "Have you heard people say that someone got a job because of one of their identities, for example, because they're a woman?" We asked these participants follow-up questions about from whom they heard the diversity-hire narrative.

4.1.1 Peers as a source of the narrative. Participants commonly reported hearing the diversity-hire narrative from peers. For example, Ruchika reported hearing the diversity-hire narrative from "mostly these, um, male friends." (Ruchika #22). Diane, who had received a prestigious internship, described a person who attributed her internship offer to her gender: "The person I was talking to, who told me like, oh, you only got [company] because you're a girl." (Diane #80). Tisha described asking a male peer "why he chose research over [an] internship" (Tisha #13), to which she described him saying:

> "I'm a student from the Asia Pacific, and it's kind of. I'm a male, so it's kind of difficult for me to get an internship in the companies as such." (Tisha #13)

While Tisha's peer did not explicitly say the diversity-hire narrative, his statements imply a belief that it is harder to get an internship as an Asian "male".

4.1.2 Family as a source of the narrative. Participants also reported hearing the narrative from their families. Vic reported hearing the diversity-hire narrative explicitly from a family member, stating, "It is something my brother has said to me." (Vic #24). Another participant, Anya, reported hearing the diversity-hire narrative from family members:

> "I just, you know, heard from like a lot of people… you got in because like you're a girl and it's weird because it comes from like family members and people that you're, like, close to." (Anya #79)

These quotes demonstrate that family members explained participants' success with the diversity-hire narrative rather than as being due to their merit.

4.2 RQ2: Impacts of the Narrative

Our analysis suggests that participants were negatively impacted in numerous ways when they heard the diversity-hire narrative.

4.2.1 Self-doubt. As a consequence of hearing the diversity-hire narrative, we interpret that some participants doubted whether they earned their internships based on their merit.

Idris, who identified as a woman and used they/them/their pronouns, described an intensive process of preparing for an interview but was still worried that they got their internship because of their gender. They described a process that included reviewing an interview preparatory book and doing practice problems available on LeetCode, an online interview-preparation platform. "You have an interview, you grind for it, um, where it's like, you know, you're reading Cracking the Coding Interview and doing the LeetCodes" (Idris #87). We interpret that Idris was describing their own interview preparation process, but despite this preparation, Idris had "some doubt" about the ease of their actual interview process.

> "I had some doubt, or it was like, did they just like, give me a really easy interview process because I'm a girl." (Idris #91)

Idris, at no fault of their own, showed evidence of internalizing the narrative that manifested in self-doubt.

Another participant, Stephanie, also seemed to display self-doubt about why she got her internship. In response to if she had heard the diversity-hire narrative, Stephanie said:

> "I haven't explicitly heard anyone say that, but I did kind of feel that last year, well, not because I was a woman, but because I was like, um, I was the only like female intern last year." (Stephanie #19)

In discussing her experience being the only "female intern", Stephanie first explained that she did not want to focus on if her gender was why she was hired. Stephanie then reported "not want[ing] to overthink" (Stephanie #19) the reason she was hired, before suggesting doubts about whether she deserved her internship. Despite getting an internship offer, Stephanie reported that she "didn't do that well in the technical interview" and that she was "surprised to hear that [she] was even on top of the waitlist".

4.2.2 The narrative denying students of recognition. We find evidence that the diversity-hire narrative sometimes denies students in the gender minority the recognition of being "smart" or the "best of the best" when they get prestigious internships. For example, Farah reported hearing the narrative as justification for why women of color get prestigious internships: "There are people… who are like, yes, she only got the Google internship because she is a woman of color or whatever" (Farah #108). Similarly, Diane explained that she and her peers have been told that they only got "high prestige" internships likely because of their gender or race, which Diane referred to as an "X factor" (Diane #76).

> "Um, it's been said to my peers, it's been said too, it's just said too many times… [for] high prestige companies or whatever people would undoubtedly say like that's because of X factor." (Diane #76)

These quotes provide evidence that students in the gender minority are told that their success at getting prestigious internships is due to their gender, thereby implying that they do not deserve that success and prestige.

We additionally observed that participants mentioned that other students are viewed as "smarter" (Anya #70) and "the best of the best" (Idris #77) when they get prestigious internships. For example, Anya explained that "people think of you [as being] smarter if you get into a certain company" (Anya #70). Similarly, Idris explained that "you had to be like the best of the best in order to get into this sort of stuff" (Idris #77). There appears to be a double standard in which people assume that students in the gender minority are hired solely based on their identity, yet others are "the best of the best" (Idris #77) when they get the same prestigious internship.

4.3 RQ3: Responding to the Narrative

We identified five ways participants responded to the narrative.

4.3.1 Ignore the narrative. Some participants reported responding to the diversity-hire narrative by ignoring it, possibly because of the way it made them feel. In response to whether she has heard the diversity-hire narrative, Ruchika reported that she had "definitely been in that situation and it's not fun". In explaining how she responded to the situation, she reported that she has "sort of been better about, um, sort of tuning out the negativity." (Ruchika #13). Possibly due to the diversity-hire narrative being "not fun", Ruchika has resorted to “tuning out” the people who repeated the diversity-hire narrative. Similarly, in explaining who says the diversity-hire narrative, Farah reported that “those kinds of guys come here still and they will talk about those things and it’s still hurtful, but I’ve kind of grown to ignore them”. Farah’s response to the “hurtful” comments was simply “to ignore” the people who appear to endorse the narrative.

4.3.2 Attempt to prove yourself. Some participants responded to the diversity-hire narrative by wanting to prove themselves. The desire to prove themselves may imply that this can reassure themselves that they are not a diversity-hire. When asked whether the diversity-hire narrative has influenced her behavior, Tisha reported that “it [has] kind of motivated me to work harder” (Tisha #29). Tisha explained that she responded to the diversity-hire narrative by wanting to work harder because she did not want her gender to be an explanation for her success.

> “I don’t wanna be the person who kind of gets targeted at by that, okay, ‘maybe you just got in because you were a woman.’ I, I wanna be able to say this proudly that ‘no, I worked at it and that is exactly why I, kind of got in.’ ” (Tisha #31)

Tisha seemed to believe that she had to work harder to prove that she earned her internship based on merit and not gender.

Idris reported the following when asked about the narrative:

> “It’s something I’ve heard, you know, like women will be like, oh, these other people have told me that [I only got a job because I’m a woman] and I’ll get super paranoid.” (Idris #95)

However, Idris reported having proven themself. Idris said,

> “I have proven myself where it’s like, I have, I have the accolades, I have the experience, I have years of experience that prove that I’m allowed to say the things I do. And back up that I am, you know, I am allowed to be here.” (Idris #95)

We can see that the diversity-hire narrative may impact students’ sense of belonging because Tisha, Idris, and others felt that they needed to prove themselves in order to justify that they earned their internships and are “allowed to be here” (Idris #95).

4.3.3 Explain that peers are jealous. One of the ways participants responded to the diversity-hire narrative was by saying that their peers who made these comments were jealous. For example, Uma stated, “I think most of it stems from jealousy. I think that’s the most logical explanation” (Uma #29). Uma explained:

> “[That] if [people] really want something, and someone else that they know, got it in what they perceive to be an easier way, then they’ll be really jealous about that” (Uma #29).

Esha thought that the diversity-hire narrative “comes from a lot of like men, honestly, who are salty that they didn’t get it [the internship]” (Esha #101). “Salty” is slang for jealous. Vic also thought that it was a statement based on jealousy; they reported “someone might say out of like jealousy or just prejudice” (Vic #14). In response to why Vic thought their peers were jealous, Vic reported:

> “[Jealousy is] a defense mechanism against like maybe confronting like, oh I didn’t get this internship because someone else is more qualified.” (Vic #14)

Ascribing the diversity-hire narrative to jealousy may be a way for the participants to challenge its legitimacy. If participants believe that those who are jealous use the narrative as a defense mechanism, there may be little truth to the narrative itself.

4.3.4 Explain that diversity programs address inequity. Another way participants responded to the narrative was by pointing out the benefits of diversity programs. For example, Diane noted that people may not understand the goals of these programs.

> “Usually [the narrative] comes from people with a certain amount of privilege and [they] don’t understand that they like, for example, just because they have a certain identity, um, means that they have an amount of privilege that exists because of society and what these programs are trying to do is fix it” (Diane #78)

We interpret “fix[ing] it” as addressing differences in privilege.

Similar to these programs trying to “fix it”, Tisha responded to the narrative by stating that these programs:

> “give a kickstart to women that, you know, ‘identify your potential’, ‘work towards it’ and you know. It. There’s nothing like, okay, ‘girls are not as good as boys’, ‘you are just as good’. So it’s just like, you know, basically to promote a positive mindset in women.” (Tisha #43)

From Tisha’s perspective, these programs help encourage women to join CS by pointing out that men are not better than women at CS, and they “promote a positive mindset in women”.

Uma responded to the narrative by pointing out that many programs are not “specifically catered towards women” (Uma #40).

> “So I understand why a man might think that, oh, why are they getting this?’ Because they’ll feel like, ‘Why can’t I have this opportunity?’ Well, they still do. There are plenty of student organizations that are not specifically catered towards women.” (Uma #40)

As illustrated above, some participants responded to the diversity-hire narrative by explaining how diversity programs address equity issues in CS and men still have sufficient opportunities.

4.3.5 Explain that everyone is held to high standards. Finally, another way participant response to the diversity-hire narrative was stating that companies will only hire people who are qualified and that passing a technical interview demonstrates that someone is qualified. Belle explained that affirmative action may affect who receives interviews but emphasized that technical interviews are a bar everyone has to pass.

> “I would say like maybe affirmative action allows, like, people with certain identities to have more opportunities to interview maybe, but at the end of the day, everyone has to pass the interview.” (Belle #75)

Ruchika made a similar point and stated a company “would definitely, like, look for like some, some, you know. Like some baseline skill level” (Ruchika #107). Tisha also brought up needing to pass interviews, and she added that interviewees have to go through many interviews before getting hired.

> "[Companies] have like five or six interview rounds where they have three coding rounds and two behavioral interviews, and then there are interviews with a bunch of other teams as well." (Tisha #13)

Participants' responses to the narrative may have challenged the legitimacy of the diversity-hire narrative through their observation that an interviewee has to go through "five or six interview rounds" (Tisha #13) and the perception that "everyone who's hired has passed the interview" (Belle #75).

5 DISCUSSION

For our first research question, regarding the sources of the narrative, participants reported hearing it from peers and family. Prior research would suggest microaggressions, like the diversity-hire narrative, tend to come from peers [7, 34]. From our understanding of the literature, it seems to be less common for microaggressions to come from family.

With respect to our second research question regarding the impact of the diversity-hire narrative on CS students in the gender minority, participants reported that the narrative impacted them in multiple ways. Our results expand the research on microaggressions within the context of CS, and are consistent with the research on the impacts of microaggressions [8, 20, 45]. For example, students who report hearing microaggressions are more likely to report uncertainty about their ability to successfully establish themselves or succeed in a career [2]. Our interviewees specifically discussed the diversity-hire narrative with respect to receiving CS internships. Students' internship experiences are critical to their career trajectories and even their persistence in college [18]. Hearing the diversity-hire narrative could diminish students' motivation [30]; reduced motivation during an internship may compromise their desire to persist or their performance. This means that microaggressions like the diversity-hire narrative may threaten students ability to fully reap the well-documented benefits of internships [16, 17, 44], one of which is being evaluated by employers for a possible full-time offer [10, 23].

We need everyone in the community to understand why the diversity-hire narrative is harmful and untrue. We argue that teaching students in the gender minority how to cope with microaggressions is not enough. For example, teaching students the difference between the different kinds of AAPs that exist could be helpful. Going beyond teaching students how to cope with microaggressions is likely needed because our results indicate that high-achieving students in the gender minority, at no fault of their own, fall into cycles of self-doubt when they encounter the diversity-hire narrative.

As to our third research question, where we explore students' responses to the diversity-hire narrative. Believing that everyone is held to a high standard could suggest that participants believe that CS is a meritocracy. This could be helpful for some participants as it reinforces that they deserve their internship. However, this belief could be harmful because CS is not a meritocracy largely due to the pervasive biases that exist in society [6, 8, 12, 14, 38, 42, 45, 49]. Interestingly, another way participants responded to the diversity-hire narrative was by stating that diversity programs address inequity, seemingly contradicting the belief that CS is a meritocracy. Despite this acknowledgment, many still seemed to believe, to some extent, that CS is a meritocracy.

There are some limitations with our study. For example, while the semi-structured interviews allowed us to ask the participants potentially personal questions related to the diversity-hire narrative; however, participant responses to these questions were likely limited by the social dynamic with the interviewer. Our findings are additionally limited by the participants' willingness to share a perspective that may not appear to be socially desirable. For example, in discussing who is perpetuating the diversity-hire narrative and why they might be doing it, participants may not want to mention that white men are partially responsible because the interviewer, for most of the interviews, was a white man. This could be why participants' statements were rather general about who is perpetuating the narrative. Additionally, our sample is limited in that our participants, who attend a highly-ranked university, all indicated experience in computing prior to college.

Future work on this topic may seek to better understand the proportion of undergraduate students from HUGs in CS who hear diversity-hire-related narratives through a survey. In addition, similar work may aim to identify whether students in different contexts, such as at community colleges, share similar perceptions and experiences. Future work should also seek to understand how the students who identify as Black/African American, Hispanic, Latina/Latino/Latinx, Native Alaskan/Native Hawai'ian, or Pacific Islander experience the diversity-hire narrative because we were only able to collect data on how white and Asian/Asian American students in the gender minority experience the narrative.

6 CONCLUSION

In this study, we conducted 23 semi-structured interviews with third- and fourth-year undergraduate CS students (15 of whom self-identified as women, 1 as non-binary, 5 as men, 2 did not include their gender) as a way to investigate the diversity-hire narrative. Findings from our qualitative analysis provide evidence that students hear from family members and peers that students in the gender minority receive jobs because of their gender and not their merit. We found that the diversity-hire narrative is impactful: students in the gender minority reported experiencing self-doubt and hearing from others that their success was due to their identities, not their skills. Despite the impact, participants reported responding to the diversity-hire narrative in ways that seemed to challenge the legitimacy of the narrative.

ACKNOWLEDGMENTS

We would like to thank all of our participants. This material is based upon work supported by the National Science Foundation Graduate Research Fellowship. This work also was partially funded by National Science Foundation grants 1821136, 2113954, and 2113955.

REFERENCES

[1] Arthur W Blume, Laura V Lovato, Bryan N Thyken, and Natasha Denny. 2012. The relationship of microaggressions with alcohol use and anxiety among ethnic minority college students in a historically White institution. , 45 pages.

[2] Luisa Bonifacio, George V Gushue, and Brenda X Mejia-Smith. 2018. Microaggressions and ethnic identity in the career development of Latina college students. *The Counseling Psychologist* 46, 4 (2018), 505–529.

[3] Christina M Capodilupo, Kevin L Nadal, Lindsay Corman, Sahran Hamit, Oliver B Lyons, and Alexa Weinberg. 2010. *The manifestation of gender microaggressions*. John Wiley & Sons Inc.

[4] Norman K Denzin. 2010. Moments, mixed methods, and paradigm dialogs. *Qualitative Inquiry* 16, 6 (2010), 419–427.

[5] Deniece Dortch and Chirag Patel. 2017. Black undergraduate women and their sense of belonging in STEM at predominantly White institutions. *NASPA Journal About Women in Higher Education* 10, 2 (2017), 202–215.

[6] Kathy Espino-Pérez, Brenda Major, and Brenna Malta. 2018. Was it race or merit?: The cognitive costs of observing the attributionally ambiguous hiring of a racial minority. *Cultural Diversity and Ethnic Minority Psychology* 24, 2 (2018), 272.

[7] Rachel H Farr, Emily E Crain, MK Oakley, Krystal K Cashen, and Karin J Garber. 2016. Microaggressions, feelings of difference, and resilience among adopted children with sexual minority parents. *Journal of Youth and Adolescence* 45 (2016), 85–104.

[8] Wendy Faulkner. 2009. Doing gender in engineering workplace cultures. I. Observations from the field. *Engineering studies* 1, 1 (2009), 3–18.

[9] Rodrigo Fonseca Silveira, Maristela Holanda, Guilherme N. Ramos, Marcio Victorino, and Dilma Da Silva. 2022. Analysis of Student Performance and Social-economic Data in Introductory Computer Science Courses at the University of Brasília. In *2022 IEEE Frontiers in Education Conference (FIE)*. 1–8. https://doi.org/10.1109/FIE56618.2022.9962408

[10] Jack Gault, Evan Leach, and Marc Duey. 2010. Effects of business internships on job marketability: the employers' perspective. *Education+ Training* 52, 1 (2010), 76–88.

[11] David A Harrison, David A Kravitz, David M Mayer, Lisa M Leslie, and Dalit Lev-Arey. 2006. Understanding attitudes toward affirmative action programs in employment: Summary and meta-analysis of 35 years of research. *Journal of Applied Psychology* 91, 5 (2006), 1013.

[12] Madeline E Heilman. 1997. Sex discrimination and the affirmative action remedy: The role of sex stereotypes. *Journal of Business Ethics* 16 (1997), 877–889.

[13] Madeline E Heilman and Victoria Barocas Alcott. 2001. What I think you think of me: Women's reactions to being viewed as beneficiaries of preferential selection. *Journal of Applied Psychology* 86, 4 (2001), 574.

[14] Madeline E Heilman, Caryn J Block, and Jonathan A Lucas. 1992. Presumed incompetent? Stigmatization and affirmative action efforts. *Journal of applied psychology* 77, 4 (1992), 536.

[15] Anne K Hughes, Pilar S Horner, and Daniel Vélez Ortiz. 2012. Being the diversity hire: Negotiating identity in an academic job search. *Journal of Social Work Education* 48, 3 (2012), 595–612.

[16] Arturo Jaime, Juan J Olarte, Francisco J García-Izquierdo, and César Domínguez. 2019. The effect of internships on computer science engineering capstone projects. *IEEE Transactions on Education* 63, 1 (2019), 24–31.

[17] Amanpreet Kapoor and Christina Gardner-McCune. 2019. Understanding CS Undergraduate Students' Professional Identity through the Lens of Their Professional Development. In *Proceedings of the 2019 ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '19)*. Association for Computing Machinery, New York, NY, USA, 9–15. https://doi.org/10.1145/3304221.3319764

[18] Sandra Katz, David Allbritton, John Aronis, Christine Wilson, and Mary Lou Soffa. 2006. Gender, achievement, and persistence in an undergraduate computer science program. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems* 37, 4 (2006), 42–57.

[19] Harold H Kelley. 1967. Attribution theory in social psychology.. In *Nebraska symposium on motivation*. University of Nebraska Press.

[20] Jennifer Y Kim and Alyson Meister. 2023. Microaggressions, interrupted: The experience and effects of gender microaggressions for women in STEM. *Journal of Business Ethics* 185, 3 (2023), 513–531.

[21] John Kolligian Jr and Robert J Sternberg. 1991. Perceived fraudulence in young adults: Is there an'imposter syndrome'? *Journal of personality assessment* 56, 2 (1991), 308–326.

[22] David A Kravitz and Judith Platania. 1993. Attitudes and beliefs about affirmative action: Effects of target and of respondent sex and ethnicity. *Journal of Applied Psychology* 78, 6 (1993), 928.

[23] Nanja Kroon and Mário Franco. 2022. Antecedents, processes and outcomes of an internship program: an employer's perspective. *Journal of Applied Research in Higher Education* 14, 2 (2022), 556–574.

[24] Audra Lane, Ruth Mekonnen, Catherine Jang, Phoebe Chen, and Colleen M. Lewis. 2021. Motivating Literature and Evaluation of the Teaching Practices Game: Preparing Teaching Assistants to Promote Inclusivity. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21)*. Association for Computing Machinery, New York, NY, USA, 816–822. https://doi.org/10.1145/3408877.3432372

[25] Julia C Lapan and Katie N Smith. 2022. "No Girls on the Software Team": Internship Experiences of Women in Computer Science. *Journal of Career Development* 50, 1 (2022), 08948453211070842.

[26] Lisa M Leslie. 2019. Diversity initiative effectiveness: A typological theory of unintended consequences. *Academy of Management Review* 44, 3 (2019), 538–563.

[27] Jioni A Lewis, Ruby Mendenhall, Ashley Ojiemwen, Merin Thomas, Cameron Riopelle, Stacy Anne Harwood, and Margaret Browne Huntt. 2021. Racial microaggressions and sense of belonging at a historically white university. *American Behavioral Scientist* 65, 8 (2021), 1049–1071.

[28] Kelly Yu-Hsin Liao, Chih-Yuan Weng, and Lindsey M West. 2016. Social connectedness and intolerance of uncertainty as moderators between racial microaggressions and anxiety among Black individuals. *Journal of Counseling Psychology* 63, 2 (2016), 240.

[29] Jonathan Mahadeo, Zahra Hazari, and Geoff Potvin. 2020. Developing a computing identity framework: Understanding computer science and information technology career choice. *ACM Transactions on Computing Education (TOCE)* 20, 1 (2020), 1–14.

[30] Mojdeh Mardani and Robert Stupnisky. 2023. Influence of Workplace Microaggressions on Engineering Female Faculty Motivation to do Research. In *International Conference on Gender Research*, Vol. 6. 168–176.

[31] Eric R McCurdy. 2020. *Discrimination as a barrier to diversity: Sexism and microaggressions against African American women in computer science and engineering*. Ph.D. Dissertation. The University of Akron.

[32] Sharan B Merriam et al. 2002. Introduction to qualitative research. *Qualitative research in practice: Examples for discussion and analysis* 1, 1 (2002), 1–17.

[33] Sharan B Merriam and Elizabeth J Tisdell. 2015. *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

[34] Monica L Miles, Amanda J Brockman, and Dara E Naphan-Kingery. 2020. Invalidated identities: The disconfirming effects of racial microaggressions on Black doctoral students in STEM. *Journal of Research in Science Teaching* 57, 10 (2020), 1608–1631.

[35] Kevin L Nadal, Rukiya King, DR Gina Sissoko, Nadia Floyd, and DeCarlos Hines. 2021. The legacies of systemic and internalized oppression: Experiences of microaggressions, imposter phenomenon, and stereotype threat on historically marginalized groups. *New Ideas in Psychology* 63 (2021), 100895.

[36] Kevin L Nadal, Yinglee Wong, Katie E Griffin, Kristin Davidoff, and Julie Sriken. 2014. The adverse impact of racial microaggressions on college students' self-esteem. *Journal of College Student Development* 55, 5 (2014), 461–474.

[37] Dara Naphan-Kingery and Marta Elliott. 2018. Predicting college women's perceptions of a future in engineering by their experiences of microaggressions, identity management, and self-efficacy in college engineering. *Journal of Women and Minorities in Science and Engineering* 24, 4 (2018).

[38] Miriam G Resendez. 2002. The stigmatizing effects of affirmative action: An examination of moderating variables. *Journal of Applied Social Psychology* 32, 1 (2002), 185–206.

[39] Amy L Reynolds, Jacob N Sneva, and Gregory P Beehler. 2010. The influence of racism-related stress on the academic motivation of Black and Latino/a students. *Journal of college student development* 51, 2 (2010), 135–149.

[40] Sarah L Rodriguez and Kathleen Lehman. 2017. Developing the next generation of diverse computer scientists: the need for enhanced, intersectional computing identity theory. *Computer Science Education* 27, 3-4 (2017), 229–247.

[41] Johnny Saldaña. 2014. Coding and analysis strategies. *The Oxford Handbook of Qualitative Research* (2014), 581–605.

[42] Daniel Solorzano, Miguel Ceja, and Tara Yosso. 2000. Critical race theory, racial microaggressions, and campus racial climate: The experiences of African American college students. *Journal of Negro education* (2000), 60–73.

[43] Derald Wing Sue, David Sue, Helen A Neville, and Laura Smith. 2022. *Counseling the culturally diverse: Theory and practice*. John Wiley & Sons.

[44] Heather Thiry, Sandra L Laursen, and Anne-Barrie Hunter. 2011. What experiences help students become scientists? A comparative study of research and other sources of personal and professional gains for STEM undergraduates. *The Journal of Higher Education* 82, 4 (2011), 357–388.

[45] Lauren D Thomas, Danielle L Watt, Kelly J Cross, Jeremy Alexis Magruder, Chanel Renee Easley, Yael-Alexandra Jackie Monereau, Makita R Phillips, and Arielle M Benjamin. 2016. As purple is to lavender: Exploring womanism as a theoretical framework in engineering education. In *2016 ASEE Annual Conference & Exposition*. ASEE Conferences, New Orleans, Louisiana.

[46] Daniel W Turner III and Nicole Hagstrom-Schmidt. 2022. Qualitative interview design. *Howdy or Hello? Technical and professional communication* (2022).

[47] Miguel M Unzueta, Angélica S Gutiérrez, and Negin Ghavami. 2010. How believing in affirmative action quotas affects White women's self-image. *Journal of Experimental Social Psychology* 46, 1 (2010), 120–126.

[48] Natasha Warikoo and Utaukwa Allen. 2020. A solution to multiple problems: the origins of affirmative action in higher education around the world. *Studies in Higher Education* 45, 12 (2020), 2398–2412.

[49] Yang Yang and Doris Wright Carroll. 2018. Gendered Microaggressions in Science, Technology, Engineering, and Mathematics. *Leadership and research in Education* 4 (2018), 28–45.

[50] Tara Yosso, William Smith, Miguel Ceja, and Daniel Solórzano. 2009. Critical race theory, racial microaggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review* 79, 4 (2009), 659–691.

[51] Stuart Zweben and Betsy Bizot. 2017. 2016 TAULBEE survey. *Computing Research News* 29, 5 (2017).