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Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA,  
IRVINE

Clash of Cultures in Elite Hiring: How Social Class Background Shapes the Hiring Process of  
Large Technology Companies

DISSERTATION

submitted in partial satisfaction of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Informatics

by

Phoebe K. Chua

Dissertation Committee:  
Professor Melissa Mazmanian, Chair  
Assistant Professor Roderic Crooks  
Assistant Professor Sharon Koppman

2022



## **DEDICATION**

This dissertation is dedicated to anyone who is learning to play the elite hiring game.

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- [P6]    “The Substance of Style: How Social Class-Based Styles of Interpersonal Interaction Shape Hiring Assessments at Large Technology Companies.” Phoebe K. Chua, Melissa Mazmanian. Accepted to CSCW 2022.
- [P5]    “Playing the Hiring Game: Class-Based Emotional Experiences and Tactics in Elite Hiring.” Phoebe K. Chua, Hillary Abraham, Melissa Mazmanian. Proceedings of the ACM on Human-Computer Interaction, Vol. 5, CSCW2, Article 392, Oct. 2021.
- [P4]    “What Are You Doing With Your Phone?: How Social Class Frames Parent-Teen Tensions around Teens’ Smartphone Use.” Phoebe K. Chua, Melissa Mazmanian. ACM CHI Conference on Human Factors in Computing Systems, May 2021.

- [P3] “Are You One of Us?: Current Hiring Practices Suggest the Potential for Class Biases in Large Tech Companies.” Phoebe K. Chua, Melissa Mazmanian. Proceedings of the ACM on Human-Computer Interaction, Vol. 3, CSCW2, Article 143, Oct. 2020.
- [P2] “How Much is ‘Too Much’?: The Role of a Smartphone Addiction Narrative in Individuals’ Experience of Use.” Simone Lanette, Phoebe K. Chua, Gillian Hayes, Melissa Mazmanian. Proceedings of the ACM on Human-Computer Interaction, Vol. 2, CSCW, Article 101, Nov. 2018.
- [P1] “Coordinated versus Decentralized Exploration in Multi-Agent Multi-Armed Bandits.” Mithun Chakraborty, Phoebe K. Chua, Sanmay Das, Brendan Juba. The International Joint Conference on Artificial Intelligence (IJCAI), Feb. 2017.

# ABSTRACT OF THE DISSERTATION

Clash of Cultures in Elite Hiring: How Social Class Background Shapes the Hiring Process of  
Large Technology Companies

by

Phoebe K. Chua

Doctor of Philosophy in Informatics

University of California, Irvine, 2022

Professor Melissa Mazmanian, Chair

Elite companies have long expressed a desire to hire the most talented applicants. They report wanting to hire applicants strictly based on individual merit. However, elite conceptualizations of “the best and the brightest” have historically favored upper-middle-class individuals. How these conceptualizations play out in practice and shape the hiring experience for both evaluators and applicants in elite settings remains underexplored. In this dissertation, I investigate the role of social class background in the hiring process of large technology companies.

To gain insight into both sides of the hiring process, I interviewed evaluators at top-tier technology companies in the United States and conducted longitudinal research on the application experiences of computer science Ph.D. students. I show that current hiring practices favor applicants who display an upper-middle-class style of interacting with authority figures, which I

call “interactional cultural capital.” I find that working- and middle-class applicants from elite Ph.D. programs enjoy access to valuable employment resources (e.g., referrals) and can gain insider knowledge about tacit hiring expectations. However, despite having similar valorized resources and information to their upper-middle-class peers, these working- and middle-class applicants still struggle more when navigating the hiring process. I show that working- and middle-class applicants describe spending substantially more time applying for positions and feeling more stressed when trying to meet the hiring expectations. I argue that these emotional and temporal disparities stem from the cultural mismatch between upper-middle-class and working- and middle-class interactional styles.

In sum, this dissertation reveals how current hiring practices reproduce elite workplaces by prioritizing applicants who have the privilege of learning upper-middle-class interactional styles. Current hiring practices also impose emotional and temporal burdens on working- and middle-class applicants who diverge from upper-middle-class interactional styles. My data suggest that elite organizations—companies and educational institutions that are well-resourced and well-informed about upper-middle-class practices—can scaffold working- and middle-class applicants’ process of learning the valorized interactional styles. Building on these insights, I offer two distinct intervention approaches for evaluators, educators, and designers to alleviate applicants’ class-based burdens. The first approach involves supporting applicants to navigate the current hiring practices. The second approach involves changing the current hiring practices to account for the cultural misalignment between upper-middle-class hiring expectations and working- and middle-class interactional styles.



## CHAPTER 1. INTRODUCTION

Elite companies in the United States have long prided themselves in hiring “the best and the brightest.” These companies, including large technology companies, express a desire to hire the most talented and capable applicants based on individual merit rather than sociodemographic background or personal circumstance (Facebook 2019; Google 2014; Microsoft 2020). In attempts to promote merit-based assessments that focus on applicants’ individual abilities and personality traits, large technology companies have institutionalized diversity and inclusion training for all evaluators (Facebook 2019; Google 2014; Microsoft 2020). Such training programs aim to increase evaluators’ awareness of potential hiring biases. However, these programs are only helpful to minimize the hiring biases that companies try to address.

Certain biases are particularly challenging for companies to address because they are often unacknowledged and invisible to hiring decision-makers. An example of such a bias is towards social class background. In the United States, social class background is predominantly missing from the discourse of inequality in hiring. The pervasive myth of meritocracy and the ideal of individualism help maintain the dominant beliefs that social class background does not substantially affect evaluative processes (Ortner 2003; Rivera 2016).

In addition, social class background affects evaluators’ assessments and applicants’ experiences in subtle ways (Chua and Mazmanian 2020; Rivera 2016). Deeply ingrained practices, such as tastes and styles of interacting with others, are commonly associated with individuals’ core personality traits. However, scholars have shown that the differences in individuals’ practices are not fully reducible to core personality traits (Calarco 2018; Lareau 2003; Stephens et al. 2014). Individuals’ social class backgrounds also play an important role in socializing them to adopt

certain practices. While there is a general lack of attention to the systemic ways that perceived “personality traits” are shaped by social class background, social class background affects life opportunities and job prospects. Social class background is a fundamental axis of domination, in which upper-middle-class environments reproduce power structures that marginalize working- and middle-class individuals (Jack 2019b; Lareau 2003; Rahman Khan 2012; Stephens, Markus, and Phillips 2014).

Further, social class background is an especially thorny sociodemographic factor for companies to account for in hiring because it is not a protected attribute under U.S. employment discrimination laws. As a result, companies and the U.S. Equal Employment Opportunity Commission do not collect data on employees’ social class background. This lack of data makes it more difficult for companies to be aware of and address any social class differences in hiring outcomes and experiences. Companies’ attention to how social class background shapes hiring also becomes subsumed by other legally protected attributes (Ortner 2003; Rivera 2016).

Human-Computer Interaction (HCI) and sociological scholars generally define “social class background” as groups whose parents have similar educational, occupational, and economic attainment (Calarco 2018; Chua, Abraham, and Mazmanian 2021; Lareau 2003; Yardi and Bruckman 2012).<sup>1</sup> These scholars argue that parents’ educational level, occupational type, and

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<sup>1</sup> In line with previous HCI and sociological literature (Calarco 2018; Lareau 2003; Yardi and Bruckman 2012), I categorize individuals with a parent who has a graduate degree and a professional or high-level managerial occupation as at least upper-middle-class. I label individuals whose father did not have a four-year college degree as working-class. Middle-class individuals

income heavily influence their parenting styles and access to cultural, social, and material resources. Parents' class-based parenting styles and resources in turn shape children's generation of cultural capital.

According to Bourdieu (1984, 2002; 1977), cultural capital is composed of dominant cultural signals that individuals learn from the social class settings of their families and educational institutions. Cultural capital can exist in the form of tastes, which include extracurricular interests and lifestyle preferences (Bourdieu 2002). Cultural capital can also take the form of interactional styles with authority figures, which involves the kinds of opinions and ideas that individuals feel comfortable expressing to authority figures (Bourdieu 2002). Bourdieu argues that the policies and norms of elite institutions typically give preference to upper-middle-class cultures, thus creating advantages for upper-middle-class individuals to enter society's upper echelons. Bourdieu's conceptualization of cultural capital helps us understand how elite environments produce better opportunities, experiences, and outcomes for upper-middle-class individuals compared to their working- and middle-class counterparts. Cultural capital is a powerful driver of stratification that passes on privilege from one generation to the next.

Building on Bourdieu's theory of cultural capital, prior HCI and sociological works have disproportionately focused on home and school settings. They have examined how social class background shapes parents' guidance of children and teachers' evaluation of students (Calarco

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are those who are neither upper-middle- nor working-class. For more information about the rationale behind the operationalization of social class background, please see the Methods chapter, Section 3.4.2.

2018; Khan 2010; Lareau 2003). However, we know little about how cultural capital—capital that is cultivated in individuals’ class-based familial and educational upbringing—affects the next step of their life trajectory: the workplace. Specifically, we know little about how social class background shapes evaluators’ assessments during the hiring process and applicants’ job search tactics and outcomes. Exploring how implicit biases around social class background might influence hiring in professional contexts, and especially prestigious positions such as software engineering at large technology companies, is important. Such understanding helps reveal the gateway mechanisms that allow certain groups to enter high-income brackets and gain occupational prestige.

Uncovering the subtle mechanisms that perpetuate social class biases is an important step toward reducing these biases (Stephens et al. 2014). Without insight into how social class background might shape evaluators’ assessments and applicants’ experiences, elite companies are ill-equipped to achieve their goal of reducing hiring biases and conducting more merit-based assessments. Thus, my dissertation examines how social class background influences the hiring process for Ph.D.-level computer science research and software engineering internships at highly ranked companies in the United States.

My focus on the hiring process for Ph.D.-level internships at large technology companies provides a useful lens for analyzing the role of social class background in evaluators’ assessments and applicants’ experiences. Sociologists suggest that social class differences tend to matter more in evaluators’ assessments of applicants with similar qualifications, such as technical skills, prior work experiences, and educational levels (Lamont 1992, 2009; Rivera 2016). Ph.D.-level internship applicants in computer science-related fields typically have these similar qualifications.

As such, this case is useful in making the links between social class background and hiring—links that tend to be more invisible in other cases—more explicit.

This dissertation engages with the following central research questions:

1. How does social class background shape evaluators' assessments of applicants for prestigious internships at large technology companies?
2. How does social class background shape applicants' preparation, self-presentation, and hiring outcomes for prestigious internships at large technology companies?

I addressed these research questions by interviewing 50 evaluators at large technology companies who assess Ph.D.-level internship applicants for computer science research and software engineering positions. All evaluators were full-time computer science researchers or software engineers at technology companies that were ranked top seven in terms of market capitalization in the United States. To gain insight into both sides of the hiring process, I also tracked two cohorts of Ph.D. students in Computer Science who were applying for computer science research and software engineering internships at technology companies (2019–2020 and 2020–2021). I surveyed ( $n = 408$ ) and interviewed ( $n = 63$ ) participants twice: once at the beginning of the internship search process, and again at the end. This longitudinal approach allowed me to understand applicants' lived experiences of identifying internship positions, preparing for interviews, and doing the interviews.

Drawing on my two-year, mixed-methods study, I show that evaluators' assessments create advantages for applicants who display the styles of interacting with authority figures that are learned in upper-middle-class upbringing and education. I use the term “interactional cultural capital” to refer to valorized interactional styles that act as a form of cultural capital. I argue that

evaluators' assessments are not reducible to individual talents and abilities alone. Generating and demonstrating the interactional cultural capital desired by evaluators requires a team of parents, educators, and mentors who are well-resourced and well-informed about upper-middle-class interactional styles. I further show that evaluators' unconscious preference for upper-middle-class interactional styles creates emotional and temporal obstacles for working- and middle-class applicants. These barriers exist even for these working- and middle-class applicants who have already successfully surmounted gatekeeping mechanisms to enter Ph.D. programs at elite universities. In sum, this dissertation's central argument is that elite hiring practices systematically take an emotional and temporal toll on working- and middle-class applicants—even the most successful ones who have made it into elite educational institutions—for diverging from upper-middle-class interactional styles.

### **1.1. Theoretical and Practical Contributions**

My dissertation contributes to HCI and sociological literature on cultural capital, social class background, and hiring. Current scholarship reveals how applicants' social class background influences their access to valuable resources, such as elite educational credentials, referrals, and insider knowledge about the companies (Chua and Mazmanian 2020; Dillahunt 2014; Rivera 2016; Wheeler and Dillahunt 2018). My work aligns with these insights. I find that these resources do help all applicants regardless of their social class background to secure employment. However, my work also shows that working- and middle-class applicants find it more difficult to use these resources and display the elite interactional styles valued by companies. Thus, I expand the scholarship on how class-based cultural capital influences the hiring process in the following ways.

I show that evaluators' assessments are based on applicants' display of what I call "interactional cultural capital." I coin this term to describe the upper-middle-class practices of engaging with authority figures that are valorized in elite institutions. Past literature has revealed that evaluators' assessments often favor applicants with upper-middle-class resources and tastes (Ho 2009; Koppman 2016; Rivera 2016). I expand this literature by showing that evaluators' assessments *also* prioritize applicants who display an ease with drawing upon multiple academic disciplines when generating ideas; actively facilitate back-and-forth dialogue; and voice differing opinions during high-pressure face-to-face conversations. While evaluators believe they are assessing applicants' core personality traits, as displayed through interactional style, I suggest that the desired styles of engaging with authority figures in high-stake interview settings are cultivated in upper-middle-class backgrounds.

In addition, I enrich our understanding of how applicants' disparate experiences of navigating the hiring process are driven by social class differences. Previous HCI and sociological studies show that working- and middle-class applicants face difficulties in the hiring process because of the lack of *access* to valorized resources, such as social connections and knowledge about tacit hiring expectations (Dillahunt 2014; Rivera 2016; Wheeler and Dillahunt 2018). My dissertation adds to this argument by showing why these difficulties may persist even if applicants gain access to these resources. I find that beyond shaping their *access* to resources, applicants' class-based practices also influence how they *use* these resources. While working- and middle-class applicants at elite universities may have social connections at the companies and understand the tacit expectations of hiring, they may not feel comfortable with using these connections and meeting the expectations. As a result, these working- and middle-class applicants may feel more stressed when engaging with evaluators and spend extra time preparing for interviews. I argue that

these social class disparities come from a misalignment between working- and middle-class and upper-middle-class interactional styles.

Drawing on my findings, I offer concrete strategies for three groups of stakeholders—employers, educators, and designers—to help relieve the emotional and temporal taxes that working- and middle-class applicants are forced to pay when trying to secure elite employment. I suggest two distinct intervention approaches to alleviate these burdens. The first approach involves supporting applicants to navigate the current hiring system and facilitating their access into elite workplaces. The second approach involves changing the hiring system and addressing the cultural misalignment between upper-middle-class hiring expectations and working- and middle-class interactional styles.

## **1.2. Dissertation Overview**

In Chapter 2, I review studies on culture and stratification that reveal how elite reproduction occurs in hiring. I explain Bourdieu's conceptualizations of cultural capital in more detail, and I highlight how cultural capital subtly shapes (a) evaluators' assessments of applicants and (b) applicants' experiences of the hiring process. I then discuss how the social class settings of families and educational institutions help individuals to gain cultural capital.

Chapter 3 describes the two-year, mixed-methods study that I conducted to understand the perspectives of evaluators and applicants. I explain my process of interviewing evaluators at large technology companies and tracking two cohorts of Ph.D.-level internship applicants. I also describe how I analyze the qualitative and quantitative data.



In Chapter 4, I use my interviews with evaluators to explore their thoughts on how social class background might shape hiring. I also investigate how their assessments might have underlying social class dimensions. Across the board, evaluators did not express an awareness of the ties between social class background and the interactional style they look for in applicants. Yet, all evaluators report preferring applicants who display an ease with expressing interdisciplinary ideas, facilitating back-and-forth academic exchanges, and voicing differing perspectives to authority figures in high-pressure settings. I use the term “transboundary interactional style” to describe the desired interactional style. While evaluators commonly associated applicants’ display of a transboundary interactional style with their core personality traits, I suggest that this style is often taught in upper-middle-class upbringing and education.

In Chapter 5, I draw on my surveys with applicants to investigate the links between applicants’ social class backgrounds and their hiring outcomes. Using structural equation modeling, I find that applicants’ cultural capital in the form of the number of hobbies mediates the relationship between social class background and hiring outcomes from Big Tech companies (i.e., the top five U.S. technology companies in terms of market capitalization). In addition, I highlight how both upper-middle-class and working- and middle-class applicants at feeder universities enjoy similar rates of getting Big Tech internship offers. However, compared to their upper-middle-class counterparts, working- and middle-class applicants report being more stressed during the interviews.

In Chapter 6, I use my interviews with applicants to explore the quantitative findings and provide an in-depth look at how the class-based practices of applicants at elite universities (i.e., top 25 in the nation) shape their hiring experiences. I show that both upper-middle-class and

working- and middle-class students have similar access to valorized resources, such as social connections and insider knowledge about hiring expectations. They also enjoy comparable hiring rates. However, digging deeper into their experiences of navigating the hiring process reveals a more troubling picture. Working- and middle-class students commonly report spending substantially more time applying for positions and feeling more stressed when trying to meet the hiring expectations. I find that these students face additional temporal and emotional burdens because employers' expectations are largely grounded in upper-middle-class practices.

Chapter 7 ties together the empirical findings to summarize how elite hiring practices systematically reward upper-middle-class practices, while imposing emotional and temporal taxes on individuals who enact working- and middle-class practices. I offer directions for future research, and I conclude with strategies for employers, educators, and designers to help relieve the additional burdens of working- and middle-class applicants.

## CHAPTER 2. RELATED WORK

### 2.1. Cultural Capital: The Role in Elite Hiring Practices

Numerous scholars have examined how cultural capital contributes to the social reproduction of elite individuals and institutions (DiMaggio 1982; Lareau 2003; Rivera 2016). The richness of this research stream largely stems from Bourdieu's influential conceptualizations of cultural capital (Bourdieu 1984, 2002; Bourdieu and Passeron 1977).

Bourdieu defines cultural capital as the dominant cultural signals that are cultivated in one's social class upbringing and education, and used in social selection and exclusion (Bourdieu 1984, 2002; Bourdieu and Passeron 1977). Bourdieu argues that cultural capital can take various forms (2002). Such forms include tastes (i.e., extracurricular and lifestyle interests) and interactional styles (i.e., embodied ways of engaging with others and expressing ideas). Bourdieu asserts that the policies and norms of elite institutions tend to reward and thus perpetuate the speech, behavior, clothing, and interests of dominant cultures (e.g., upper-middle-class culture). As such, the policies and norms of elite spaces subtly make the markers of dominant cultures more legitimate and desirable (Bourdieu 1990). These exclusionary dynamics contribute to the social reproduction of elite institutions. Bourdieu's theory of cultural capital is important because it provides a useful framework for scholars to understand how elite institutions, such as prestigious companies and their hiring processes, systematically preserve the status of elite individuals and classes.

Past scholarship on cultural capital and hiring has shown that evaluators are often drawn to applicants with similar tastes to them. In so doing, they contribute to the social reproduction of

elite workplaces (Erickson 1996; Koppman 2016; Rivera 2016). For example, evaluators tend to favor applicants who can hold casual conversations about shared extracurricular and lifestyle interests (Erickson 1996; Koppman 2016; Rivera 2016). These evaluators explain that applicants' shared tastes with colleagues will help them to build rapport and strengthen communication. By comparing this finding with insights from past sociological literature on familial and educational socialization, scholars show that evaluators' emphasis on shared tastes can offer advantages for upper-middle-class (UMC) applicants. Since most evaluators are from UMC backgrounds, evaluators' tastes often align more with those of UMC applicants than working- and middle-class (WMC) applicants.

One of the most interesting undercurrents in cultural capital scholarship is how evaluators at elite companies often prefer applicants who display similar upper-middle-class tastes to them. However, cultural capital in the form of shared upper-middle-class tastes is only one source of class-based biases. Another possible source involves the other form of cultural capital—learned styles of interaction. Yet, how interactional styles might shape hiring remains underexplored. This topic warrants empirical examination because interactional styles are subtle, invisibly forming a critical basis by which evaluators assess applicants' abilities to succeed in the workplace. While society predominantly attributes individuals' interactional styles to core personality traits, past sociological studies have shown that institutions, such as families and educational systems, socialize individuals to embody the dominant interactional styles of their social class settings (Calarco 2018; Lareau 2003; Stephens et al. 2014). These class-based interactional styles can in turn contribute to stratified consequences and social inequalities. Thus, this dissertation explores the relationship between hiring practices, interactional styles of engaging with authority figures, and social class background. I coin the term “interactional cultural capital” to describe the practices

of interacting with authority figures that are valued in elite institutions. These interactional practices are a form of cultural capital that is cultivated in one's social class upbringing.

## **2.2. Origins of Interactional Cultural Capital: The Role of Families and Schools**

Individuals' social class background shapes what I term "interactional cultural capital"—individuals' class-based ways of expressing oneself and engaging with others that are valued in elite environments (Calarco 2018; Lareau 2003; Stephens et al. 2014). To address the relationship between hiring practices, interactional cultural capital, and social class background, we need to understand *how* individuals' social class background influences their interactional cultural capital. Sociological studies of familial and educational socialization provide inroads into this question. This scholarship finds that individuals' interactional cultural capital—which is often viewed as stemming from their personalities—is also shaped by their social class background (Calarco 2018; Lareau 2003; Stephens et al. 2014).

Upper-middle-class (UMC) individuals grew up in families with high incomes and quality education (Calarco 2018; Lareau 2003; Stephens et al. 2014). In this privileged milieu, children are encouraged to engage confidently with authority figures and think creatively about the world. By contrast, working- and middle-class (WMC) individuals face higher levels of risk and fewer educational resources than their UMC counterparts. In response to these conditions, WMC individuals are socialized to be more cognizant of their position in the social hierarchy. They are expected to adhere to existing rules and boundaries, especially when interacting with authority figures in higher-stakes situations (Calarco 2018; Lareau 2003; Stephens et al. 2014). Thus, this scholarship suggests that UMC individuals are more likely than their WMC peers to display the desired interactional cultural capital in elite spaces. This capital stems from their class-based

training in how to express themselves and challenge the status quo in ways that are coded as “smart” or “innovative” by others in UMC settings, including large technology companies (Calarco 2018; Lareau 2003; Stephens et al. 2014).

For example, scholarship based in the home and educational institutions reveals that students’ willingness to ask social connections for help varies by social class background (Calarco 2018; Warnock and Appel 2012). Through an ethnographic study of families from different social class backgrounds, Calarco finds that UMC parents often encourage their children to view authority figures (e.g., teachers and coaches) as equals, and expect them to feel comfortable asking for help with school-related problems (Calarco 2018). These parents also teach their children to feel at ease with engaging in help-seeking behavior by asking direct questions like “Can you help me?”

Calarco shows that WMC parents instead motivate their children to be respectful of authority figures’ time and energy, coaching them to be hardworking and independent when solving problems (Calarco 2018). They also guide their children to use indirect help-seeking tactics, such as saying, “I don’t get this,” and waiting for the teacher to respond. Calarco illuminates that in alignment with their parents’ lessons, children largely adopt their parents’ class-based practices around help-seeking.

In addition, prior scholarship on familial and educational socialization shows that UMC individuals display greater ease in interacting with authority figures (Calarco 2018; Lareau 2003; Stephens et al. 2014). UMC environments generally socialize individuals to treat authority figures such as professors and teachers as equal partners; to facilitate back-and-forth scholarly conversations with authority figures; and voice opinions and disagreements on the spot (Calarco

2018; Lareau 2003; Stephens et al. 2014). By contrast, WMC environments often value deference to authority and code those who challenge authority figures as “troublemakers” (Calarco 2018; Lareau 2003; Stephens et al. 2014). These individuals are commonly taught to defer to authority figures, politely follow the conversational lead of others, and not challenge the status quo.

Sociological research also illuminates the key differences between UMC and WMC schools in terms of their resources and pedagogical styles (Anyon 1980; Khan 2010). Schools in predominantly UMC neighborhoods train their students to make abstract connections, think expansively, and pull threads from various academic disciplines when constructing an argument (Anyon 1980; Khan 2010). These schools can afford to hire interdisciplinary teachers who are skilled at facilitating interdisciplinary conversations with students (Khan 2010). Smaller class sizes also provide students with the space to explore new ways of thinking and voice their ideas (Khan 2010).

By contrast, Anyon’s landmark study finds that schools in largely WMC neighborhoods instruct students to adhere to traditional disciplinary boundaries (Anyon 1980). Such social class environments tend to de-emphasize conversations that center on interdisciplinary conceptualizations. Instead, they often encourage students to correctly follow the rote steps laid out by teachers (Anyon 1980). Further, most WMC schools struggle to fund the teachers and resources needed to cover their basic academic curriculum (Anyon 1980).

This body of sociological literature illuminates the ways in which students’ social class background shapes what I call “interactional cultural capital” (Calarco 2018; Lareau 2003; Stephens et al. 2014; Warnock and Appel 2012). Although this literature has yet to be applied directly to the context of hiring, it suggests that social class background might play a key role in

the hiring process in three ways. First, UMC applicants are likely to be more comfortable than their WMC peers with asking authority figures (e.g., hiring decision-makers) for help navigating the hiring process. Second, UMC applicants might display greater ease with facilitating back-and-forth academic conversations and debates with authority figures during interviews. Third, UMC applicants could have more practice weaving together concepts from multiple disciplines and articulating their ideas on the spot. The degree to which interactional cultural capital shapes evaluators' assessments and applicants' experiences is thus an open question that needs empirical attention.

### **2.3. Origins of Interactional Cultural Capital: The Role of Universities**

Hiring studies often show how elite universities act as springboards for students to secure professional employment at prestigious firms (Binder, Davis, and Bloom 2016; Brand and Halaby 2006; Davis and Binder 2019; Ho 2009; Rivera 2016). They have shown that elite universities provide students with the cultural and social resources they need to meet interviewers' hiring expectations. Beyond giving students educational prestige, elite universities provide students with insider networking opportunities through influential alumni groups and partnerships with top firms (Binder et al. 2016; Brown 2001; Ho 2009; Kingston and Smart 1990; Rivera 2016). Elite universities also facilitate opportunities for students to display the valorized interactional styles by learning about what to say and do during interviews (Binder et al. 2016; Ho 2009; Rivera 2011, 2016).

For example, given that prestigious firms want to attract candidates from elite universities, these firms often invest heavily in on-campus recruitment activities. By organizing informational sessions, interview preparation workshops, and networking events, Human Resources



professionals and recent alums provide students with personalized support (Binder et al. 2016; Ho 2009; Rivera 2011, 2016). Such support can come in the form of coaching students on how to interact with interviewers, offering an inside look into the company's ongoing work and future directions, and vouching for them through strong referrals.

Scholars find that these forms of support play a critical role in increasing students' chances of being hired at prestigious firms (Davis and Binder 2019; Ho 2009; Rivera 2016). They consistently find that once WMC students get admitted into an elite university, they can better compete with their UMC counterparts for jobs (Binder et al. 2016; Davis and Binder 2019). Students at elite universities also enjoy a competitive edge over their peers at non-elite universities (Binder et al. 2016; Davis and Binder 2019; Ho 2009; Rivera 2016).

In sum, we know that elite educational institutions are successful in creating robust pathways to enter prestigious workplaces, especially for students who feel comfortable taking advantage of them. Understanding these mechanisms is a key contribution of prior work. However, less attention has been paid to how individuals capitalize on these resources by displaying the interactional styles desired by elite workplaces. Past studies on educational socialization have shown that WMC students commonly struggle more than their UMC counterparts with enacting the dominant UMC practices of elite universities, such as being comfortable engaging with professors and asking them for help (Aries and Seider 2005; Armstrong and Hamilton 2013; Jack 2019a). Yet, less clear is how their class-based experiences play out beyond educational settings when students with similar educational prestige compete for professional jobs. It is important to remember that students will *not* have the same lived experiences of operating in elite hiring

settings. Thus, my dissertation extends research on culture and stratification from educational institutions to labor markets.

#### **2.4. Interactional Cultural Capital: Links to HCI Literature**

HCI studies on the hiring process of technology companies have revealed what employers mainly look for in applicants (Bailey and Stefaniak 2002; Ferguson 2005; Leitheiser 1992). These studies show that employers typically prize applicants who can demonstrate technical competence and strong “soft skills,” such as clear communication abilities and effective time management skills (Bailey and Stefaniak 2002; Ferguson 2005; Leitheiser 1992). While informative and valuable, this body of literature tends to focus on the traits that employers deem as important hiring criteria in the abstract rather than exploring how employers actually assess such traits during the hiring process. In other words, this scholarship often sidelines applicants’ interactional cultural capital and the interpersonal dynamics between evaluators and applicants as a basis of hiring assessments.

For example, Bailey and Stefaniak (2002) show that employers are increasingly valuing applicants’ verbal communication, problem-solving, and teamwork skills. Like other survey studies (Ferguson 2005; Leitheiser 1992), these scholars provided a broad definition of each soft skill (e.g., “teamwork is the ability to work with others to solve problems and to explore opportunities”), but they did not examine how employers judge these skills (e.g., the signals they use to assess whether an applicant can interact well with colleagues to solve problems) (Bailey and Stefaniak 2002). Thus, this scholarship offers little insight into how social class background shapes hiring exchanges.

In addition to studying employers' descriptions of desired traits, HCI studies have begun to examine employers' actual hiring practices by examining recruiters' pre-interview assessments (i.e., recruiting and screening practices) (Chen et al. 2018; Li, Dillahunt, and Rosenblat 2019). However, recruiters' pre-interview assessments do not heavily influence the final hiring decisions. It is important to understand the assessments of those who have the power to shape hiring decisions. Given that less attention has been paid to how hiring decision-makers assess candidates in interviews, hiring scholars have recently called for a deeper understanding of evaluators' interviewing practices (Rivera 2016).

To complement our understanding of the employers' perspectives, HCI scholars have investigated applicants' awareness of the hiring expectations and applicants' tactics of meeting these expectations. These scholars have focused on how resource-constrained groups apply for low-skill, low-status jobs. Such groups include WMC individuals (Dillahunt et al. 2017; Dillahunt and Malone 2015; J. Hui et al. 2018; Wheeler and Dillahunt 2018) and unhoused populations (Hendry et al. 2017; Woelfer and Hendry 2010, 2012) with limited education, financial resources, professional connections, and institutional support (e.g., access to job fairs and networking events).

Several HCI studies have looked at how better-educated WMC applicants—who are currently pursuing or have already completed a four-year college degree at a non-elite university—apply for a wider range of occupations (Behroozi et al. 2018, 2020; Hall Jr and Gosha 2018). Scholars find that these applicants still lack insider resources, such as social connections at companies that can provide insider knowledge about what to do and say during the interviews (Behroozi et al. 2020; Hall Jr and Gosha 2018). Applicants who are unaware of evaluators' tacit hiring expectations remain confused about how to prepare for interviews. As a result, they report

feeling more stressed during the interviews, and perform worse than those with access to such resources.

These studies focus on examining the conditions and experiences of applicants with relative disadvantage. An emphasis on relative disadvantage provides a clearer understanding of the roadblocks to socioeconomic mobility from the perspectives of applicants with minimal to average levels of resources. However, less clear are the entrenched barriers in the hiring process at more elite and lucrative companies. Generally missing in HCI scholarship—and the broader literature on sociology and hiring—is an investigation of how applicants with high educational levels (i.e., advanced degrees) and strong structural support from elite universities navigate prestigious labor markets. Understanding how these applicants apply for jobs illuminate how the dynamics within elite institutions can systematically privilege individuals from upper-middle-class settings. Specifically, compared to their non-elite counterparts, elite universities provide students with disproportionate levels of resources that are helpful in the job search process. Examples of such resources include prestigious educational credentials, robust professional networks, and insider knowledge about the hiring process and companies. Class-based differences in applicants' tactics and experiences are often more observable and impactful in elite spaces where applicants have similar educational credentials and technical skills (Lamont 1992, 2009). As such, understanding the hiring process of elite workplaces offers insights into the subtle ways that social class differences can shape hiring dynamics.

## CHAPTER 3. METHODS

### 3.1. Research Approach: Interviews and Surveys

To understand the hiring process of large technology companies, I conducted a mixed-methods study with both evaluators and applicants. This dissertation answers the following sub-research questions:

1. From the perspective of evaluators (i.e., interviewers, hiring managers, and hiring committee members), what role does social class background play in hiring conversations?
  - a. To what extent do evaluators display an awareness of the role that social class background might play in hiring?
  - b. Regardless of their displayed awareness, what are evaluators' current ways of assessing applicants?
  - c. Do current ways of assessing applicants create hidden advantages for applicants from upper-middle-class backgrounds?
2. From the perspective of applicants, how does social class background shape application tactics, experiences of interacting with hiring decision-makers, and hiring outcomes?
  - a. Do working- and middle-class (WMC) students at elite universities receive exposure to the same resources (e.g., alumni networks, social connections, and awareness of the tacit "rules of the hiring game") as their upper-middle-class (UMC) peers?

- b. If so, are there differences in how UMC and WMC applicants engage with these resources and experience the hiring process?

Table 3.1. details the specific methods and publications that I draw on to answer each research question.

Table 3.1. Research approach for understanding the perspectives of evaluators and applicants

	<b>Evaluators’ Perspectives</b>	<b>Applicants’ Perspectives</b>	
<b>Focus</b>	How social class background might shape evaluators’ assessments and the extent to which evaluators display an awareness of the potential role of social class background in hiring	How applicants’ social class background influences their application tactics, experiences, and outcomes	
<b>Method</b>	Interviewed 50 evaluators	Surveyed applicants twice—once at the early stages of (n = 490) and once after (n = 408) the internship search process	Interviewed applicants twice—once before (n = 63) and once after (n = 59) their internship interview process
<b>Related Publications</b>	(Chua and Mazmanian 2022) (Chua and Mazmanian 2020)		(Chua et al. 2021)

### 3.2. Research Context: Computer Science Research and Software Engineering Internships

In this section, I draw on publicly available information about the hiring process [e.g., (Google Careers 2022a, 2022b; McDowell 2015; Microsoft Careers 2022a, 2022b)] and my interviews with evaluators and applicants to describe my research context. Specifically, I outline

the job responsibilities, hiring processes, and tacit hiring expectations for computer science research and software engineering internships at large technology companies.

### 3.2.1. *Job responsibilities of computer science researchers and software engineers*

Large technology companies expect full-time computer science researchers and software engineers to invent, design, and build technological systems and products. These work expectations require employees to use their technical and analytical skills, including their research and programming abilities. For example, computer science researchers complete research studies that can involve integrating theories from various academic disciplines to design new algorithms, product features, or software architecture. These studies can also involve creating and running experiments to test promising ideas. After completing their research studies, computer science researchers will disseminate their findings to the wider research community by writing academic papers and corporate white papers. Software engineers contribute to product innovation and development by bringing in fresh interdisciplinary ideas and writing code that translates design mockups into working applications. Both computer science researchers and software engineers often work with interdisciplinary team members, such as designers and product managers, to ensure that their technical deliverables (e.g., research findings and working applications) align with the company's product design and business requirements. Companies predominantly assess employees' work performance based on their final deliverables, such as their research publications or contributions to new and improved products.

Companies also expect their full-time computer science researchers and software engineers to participate as evaluators in the hiring process. These employees can serve as interviewers, hiring managers, or hiring committee members. If the applicant is hired, the hiring manager will be the

applicant's manager, and the interviewer and hiring committee member may or may not work on the same team as the applicant. Evaluators have substantially more power than Human Resources staff, such as recruiters, to influence hiring decisions. Human Resources staff are not full-time computer science researchers or software engineers. Their job responsibilities include doing initial screens of applicants' resumes and application materials, putting promising candidates through to the interview phase, scheduling interviews, and acting as a liaison between evaluators and applicants.

At large technology companies, internships are paid opportunities that are typically 40 hours per week over 12 weeks during the summer. Interns generally work with interdisciplinary team members to complete at least one main project, such as conducting a research study or writing code for a new product feature. Companies use internships as a recruiting tool for full-time employees, and they often offer full-time positions to high-performing interns. There is no publicly available data on technology companies' conversion rates for interns to full-time employees. That said, in a 2021 report about interns across all industries in the U.S., the National Association of Colleges and Employers found that 66% of interns were hired into full-time positions after graduation (2021). It is likely that large technology companies have similar intern-to-full-time conversion rates. Given that companies design their internships to be conversion programs for full-time employment, their work expectations for interns are similar to those for full-time employees.

### *3.2.2. The hiring process and tacit hiring expectations*

The application cycle for summer internships generally starts in the fall and ends in the spring. Prior to formally applying through the companies' online job portals, companies expect applicants to rely on their social connections for help navigating the hiring process. Applicants



could ask their connections at the target company to submit an employee referral that vouches for their fit for the position. Applicants could also ask their contacts for insider knowledge about internship opportunities, potential hiring managers to contact, and ways to strengthen their applications. Once applicants identify internship positions that interest them, it is seen as appropriate for applicants to reach out to the hiring managers for informational chats. If applicants do not already personally know the hiring managers, it is not unusual for applicants to cold email them directly or ask mutual connections for introductions. While informational chats with social connections and hiring managers are not a part of the formal hiring process, they are an unwritten rule of the hiring game. These chats help strengthen applicants' official applications by allowing them to learn more about the positions and tailor their subsequent application materials and interview responses to meet evaluators' expectations.

As part of the formal hiring process, applicants will then submit their applications to the companies' job portals. Given that large technology companies receive numerous applications each year, hiring managers are more likely to notice applicants with employee referrals or those with whom they connected earlier on. If a recruiter believes that an applicant might be a good fit with the company, they will advance the applicant to the interview phase. It is common for hiring managers to intervene and ask recruiters to move the applicant forward to the interview phase.

During the interview phase, applicants will typically go through two rounds of interviews—one round of technical interviews and another round of behavioral interviews. These interviews are conducted by interviewers or hiring managers in the same occupation. For example, full-time software engineers will interview applicants for software engineering positions. Most interviews take place in a one-on-one setting, in which one evaluator will interview the applicant.

Some interviews can involve up to four evaluators during the session. Each interview generally lasts between 30 and 60 minutes.

Evaluators largely use technical interviews to evaluate applicants' programming skills (e.g., solving coding problems) or research skills (e.g., designing and conducting studies). Evaluators primarily use behavioral interviews to assess applicants' relevant experiences, interests, and approaches to addressing work-related challenges. During the interviews, evaluators implicitly expect applicants to verbalize their thought process, interact casually with the interviewer, integrate different disciplinary knowledge learned from school and personal pursuits, and regard the evaluator as a collaborator and problem-solving partner. While relying on evaluators and displaying technical competence seem like conflicting expectations, they work in concert. Evaluators use these interviews to assess what candidates know and how they might collaborate with colleagues to solve complex problems.

After each interview, the evaluator will write an assessment report of the applicant and submit it to the hiring committee. Hiring committee members make the final hiring decisions based on evaluators' reports and applicants' application materials.

### 3.3. Understanding Evaluators' Perspectives

#### 3.3.1. *Data Collection: Interviews*

My study<sup>2</sup> aimed to understand the extent to which evaluators at large technology companies display an awareness of how social class might influence hiring and how they assess applicants in general. To pursue these goals, I interviewed 50 evaluators who have experience interviewing and hiring Ph.D.-level applicants for computer science research or software engineering positions. These evaluators are all full-time computer science researchers or software engineers at large technology companies that often rank in the top seven in the U.S. Every participant had conducted interviews with internship applicants, and almost all had experience making final hiring decisions.

In terms of my participants' gender composition, 42 identified as men and eight as women. Regarding their racial or ethnic composition, 38 identified as white and 12 as Asian American or Asian<sup>3</sup>. I was unable to get information about participants' social class background.

I primarily reached out to evaluators through their publicly available emails on the companies' websites. I recruited almost all of the participants using this approach. I also asked my

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<sup>2</sup>The Institutional Review Board (IRB) at the University of California, Irvine approved the goals and protocols of this research study.

<sup>3</sup> I understand that "Asian American or Asian" and "White" are very broad labels and that these groups comprise individuals from various races, ethnicities, and national backgrounds. I chose to use these labels because almost all of my participants used them as emic terms to describe themselves.

participants and UC Irvine's computer science and software engineering professors to forward my study invitation to other potential participants. In attempts to increase the diversity of my sample, I posted study invitations in public online affinity groups for marginalized communities in the tech workforce, such as women in tech.

I conducted semi-structured interviews with evaluators between October 2020 and March 2021 through video calls. Each interview lasted between 30 to 45 minutes, with an average of 35 minutes. I considered this interview length to be generous because evaluators had packed schedules, and their one-on-one work meetings tend to be only 30-minutes long. I did not compensate evaluators for participating in the study.

When explaining my study's goals to participants in my recruitment materials and interviews, I mentioned my broad interest in understanding evaluators' perspectives of interviewing and hiring Ph.D.-level internship applicants. To avoid biasing evaluators' interview responses and to observe whether they would voluntarily bring up the potential role of social class in hiring, I did not disclose the research aims of the dissertation. Specifically, I did not tell them upfront that I was interested in understanding their reported awareness of how social class might shape hiring and how their assessments might have hidden and underlying socioeconomic dimensions. However, I did ask direct questions about the potential role of social class in hiring toward the end of my interviews.

To encourage participants to feel comfortable expressing their thoughts during the study interviews, I explained how I would protect their anonymity and confidentiality by removing any mentions of personally identifiable information, company and team names, university affiliations, and specific job titles from my research publications. Following standard ethical research

practices, I also told participants that they could skip any questions they felt uncomfortable answering. Finally, I informed participants that I was affiliated with a university and could not influence their job status and performance evaluations, thus reducing social desirability bias in participants' responses.

Throughout the interview study, I asked open-ended questions and then focused on the discussion topics that were most salient to participants. The first set of interview questions revolved around understanding how evaluators assessed applicants. Examples of such questions include: "If you could think back to the recent interviews you conducted, what did you look for in a successful internship applicant?"; "What would you say are the top mistakes that applicants make?"; and "If an intern candidate were to ask you, 'What could I do to prepare for the interview?' what would you say?"

To start, I explored evaluators' understanding of the connection between applicants' past experiences or environments and their ability to display the desired hiring traits. I asked, "In your opinion, what are particular life experiences or backgrounds that might shape applicants' success in the hiring process?" If participants did not voluntarily discuss the potential role of social class in hiring, I would then directly ask, "What role do you think social class might play in hiring?" I also asked participants about the current or potential role of algorithmic hiring tools in their hiring process.

While I also asked participants about gender and race, this dissertation focuses on their responses regarding social class because it is an oft-understudied sociodemographic factor in studies on hiring. In addition, I asked whether participants thought Covid-19 influenced their hiring criteria and assessments. Participants across the board mentioned that they did not observe any

pandemic-induced changes. Overall, I invited evaluators to provide concrete examples whenever they gave general answers. For example, if an evaluator said, “We look for applicants who can provide interesting ideas,” I would then ask, “Can you give an example of how an applicant showed that they can offer interesting ideas?”

I began hearing similar patterns across evaluators’ responses after conducting 40 interviews. However, I continued to recruit and interview 10 more evaluators to ensure data saturation.

### 3.3.2. *Data Analysis: Interviews*

I used an inductive thematic analysis approach to analyze the interview data (Braun and Clarke 2006). Upon completion of the data collection process, I conducted an open, line-by-line coding of the data. I would code a few transcripts and then meet with my advisor to develop, discuss, and refine the codebook. After repeating these steps four times to create a clear and detailed codebook, I coded the rest of the transcripts. Throughout the coding process, I labeled the codes based on the language that evaluators used during the study interviews. I also frequently wrote analytical memos to capture and engage with the emerging patterns and themes. I met weekly with my advisor over six months to discuss the codes, memos, and themes. Whenever questions or disagreements developed during the meetings, we both reread the relevant transcripts and built consensus.

During the first round of open coding, I addressed the first research question by parsing the extent to which evaluators displayed an awareness of how social class might play a role in hiring. Examples of initial codes included “prestigious educational credentials,” “influential connections,” “no information about applicants’ social class,” and “hiring assessments based on

individual personalities.” In writing and analyzing memos, it became clear that the minority of evaluators who identified the role of social class in hiring commonly focused on the way this sociodemographic factor shapes applicants’ access to desired resources (e.g., educational prestige and referrals).”

Next, I reflected on evaluators’ assessments of applicants. I noted the many instances and ways that evaluators across all companies focused on judging applicants’ “innovation potential.” This emic term refers to applicants’ potential to do innovative work at the company. During the second round of open coding, I created codes to capture evaluators’ descriptions of how applicants demonstrate “innovation potential.” Such codes include: “articulate how different disciplines might inform their work,” “facilitate engaging back-and-forth conversations,” “offer interesting ideas on the fly,” “raise differing opinions,” and “defend and advocate for their ideas.” I then grouped these codes under the themes: “artfully rearranging disciplinary boundaries,” “artfully rearranging role boundaries,” and “artfully rearranging power boundaries.”

Core themes became apparent after coding 42 transcripts. Nonetheless, I kept coding and analyzing the data to ensure that I had reached theoretical saturation. In reviewing all codes and themes, I was struck by how numerous evaluators—regardless of whether they displayed an awareness of how social class might influence hiring practices—emphasized that their assessments of “innovation potential” are based on applicants’ interactional styles during the interviews.

Two core themes emerged from this analysis. These themes were broadly expressed across the population with no discernable differences between evaluators with various sociodemographic characteristics. First, for the 19 participants who articulated the potential role of social class background in hiring, their awareness revolved around access to external resources. Second, all

participants described using applicants' interactional styles to assess whether they displayed the specific traits needed to succeed in the company. Given the focus on assessing candidates through how they present themselves in one-on-one exchanges, I was inspired to further investigate this finding through past scholarship on "interactional styles." I then turned to prior studies on social class in familial and educational socialization to explore whether the interactional styles that evaluators use to assess core traits might carry socioeconomic implications.

By comparing my emergent insights with the findings from past literature (see Related Work Subsection 2.2), I find that evaluators' assessments of the core trait of "innovation potential" can indeed privilege applicants who enact UMC interactional styles. Specifically, evaluators often value those who exhibit ease with expressing interdisciplinary ideas, facilitating back-and-forth dialogues, and voicing disagreements on the spot when interacting with authority figures. Taken together, my inductive findings align with previous sociological insights on learned interactional styles and suggest that evaluators' reported ways of assessing desired individual traits might have underlying socioeconomic dimensions.

### **3.4. Understanding Applicants' Perspectives**

To explore applicants' strategies and performance during the hiring process, I surveyed and interviewed Ph.D. students in computer science who were applying for computer science research and software engineering internships at large technology companies. I tracked two cohorts of Ph.D. students over two academic years (2019–2020 and 2020–2021).



### 3.4.1. *Data Collection: Surveys*

The sample consists of Ph.D. students in computer science at (a) the top ten “feeder universities” for Ph.D.-level internships at Big Tech companies and (b) ten randomly sampled universities from a list of U.S. universities with Information and Computer Science Ph.D. programs.

To identify the top ten feeder universities, I used publicly available data on employees’ educational backgrounds from LinkedIn. On LinkedIn, I searched for Ph.D. students who were Ph.D.-level interns at Big Tech companies (i.e., Amazon, Facebook, Google, and Microsoft) in 2018. For each company, I used three query words: “Ph.D.”, “intern”, and the company’s name. I identified the current university of every Ph.D.-level intern that appeared in the search results. I then created a list of universities with the most Ph.D. interns at Big Tech companies in 2018, and I included the top ten feeder universities in my sample. This approach mirrors methods of prior publications that constructed their lists of top feeder universities (Belasco 2021; Pearlstein 2014). I chose to create my own list because previous publications researched undergraduate students who were full-time employees. Examples of the top ten feeder universities include Stanford, Massachusetts Institute of Technology, and Georgia Institute of Technology.

To randomly select ten additional universities, I drew a systematic random sample of universities using the National Science Foundation’s list of universities with Information and Computer Science Ph.D. programs ( $n = 209$ ).<sup>4</sup> Examples of randomly sampled universities include Michigan State University, New Jersey Institute of Technology, and Baylor University.

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<sup>4</sup> I dropped any feeder universities that were selected during the random sampling process.

For both survey waves (2019–2020 and 2020–2021), I sent a Time 1 survey to Ph.D. students in computer science at the twenty universities through the emails listed on their universities' websites. For schools that did not list their students' emails, the Vice Chair for Graduate Affairs at the Informatics department emailed the relevant department chairs and asked them to forward the study invitation to their students. If a university's department chair did not respond to the request, I randomly selected a substitute university of the same type (i.e., feeder or randomly sampled).

I sent the Time 1 survey in November when students tend to have a sense of their internship goals but well before hiring decisions are typically made in April. After all employers had made their internship hiring decisions, I invited the participants who had completed the Time 1 survey to fill out the Time 2 survey in May. To increase the response rates, I offered participants a \$20 Amazon gift card for completing the Time 1 survey and a \$30 Amazon gift card for completing the Time 2 survey.

Across both survey waves, 539 participants responded to the Time 1 survey, with 490 participants completing it entirely. I am unable to determine the actual response rates for the Time 1 survey for two reasons. First, I do not know how many students received the study invitation because some invitations were forwarded by the universities' department chairs. Second, not all students who received the study invitation met the eligibility criteria. In general, not all Ph.D. students in computer science are interested in applying for Summer/Fall internships at tech companies. Some students may want to continue doing research at their universities.

To calculate conservative estimates of the response rates, for universities where the department chairs forwarded the study invitations, I used the total number of Ph.D. students in the

program as reported on the National Science Foundation's list of universities with Information and Computer Science Ph.D. programs. I also assumed that all students who received the study invitation are eligible participants. Using this conservative calculation produces a response rate of 19% and a complete response rate of 18%. These conservative estimates are comparable to the nation's average response rate of 20% for email surveys (Kaplowitz, Hadlock, and Levine 2004). For the Time 2 survey, 421 participants responded (response rate = 86%) and 408 completed the survey (complete response rate = 97%).

### **Changes Between the First and Second Years of the Study**

At the end of first year of the study, I found that I needed to expand the pool of possible respondents. To ensure a robust enough sample size for cross-group comparisons, I added five Information and Computer Science Ph.D. programs from the National Science Foundation list to the second year (2020–2021) sample: Caltech, UC Berkeley, UC Irvine, UC Los Angeles, and UT Austin. I chose these programs because they are relatively well-known, their students regularly intern at Big Tech companies, and their students' email addresses were accessible online. Except for UC Irvine, all of these universities were feeder universities.

Upon analyzing the interview data with applicants at the end of the study's first year, my preliminary findings suggest that working- and middle-class (WMC) applicants find the hiring process as more emotionally taxing than their upper-middle-class (UMC) peers. To further explore the potential class-based differences in applicants' emotional experiences of the hiring process, I added Likert scale questions about emotional responses in the second year of the survey study. Examples of such questions include "How relaxed did you feel when preparing for the interviews?" and "How relaxed did you feel during the interviews?"

### 3.4.2. *Data Analysis: Surveys*

#### **Independent Variables**

**Big Tech offer.** I included Amazon, Apple, Facebook, Google, and Microsoft in my measure of Big Tech companies. I chose these companies because they commonly rank among the top five technology companies in the U.S. in terms of market capitalization. These companies also typically hire a higher number of Ph.D.-level interns compared to other companies. To measure participants' hiring outcomes for Big Tech companies, I asked them in the Time 2 questionnaire: "For each company, please select the furthest progress that you made in the internship application process." Participants indicated if their furthest progress was submitting an application, receiving an interview callback, receiving a rejection, receiving an offer, or accepting an offer. I coded Big Tech offer as 1 if the participant applied for at least one internship at a Big Tech company and received or accepted an offer from at least one Big Tech company; 0, if the participant applied for at least one internship at a Big Tech company but did not receive an offer from one of these companies.

**Emotional experience of doing interviews.** I measured participants' emotional experiences of doing interviews by asking them in the Time 2 questionnaire: "How relaxed did you feel during the interviews?" I asked participants to rate their feelings on a four-point Likert scale (3 = very relaxed, 0 = very stressed).

#### **Mediating Variables**

**Cultural capital.** Drawing on Bourdieu's conceptualization of cultural capital (Bourdieu 1984), scholars on hiring typically measure applicants' cultural capital through the leisure pursuits that applicants list on resumes or discuss during interviews (Rivera 2016; Rivera and Tilsik 2016;

Thomas 2018). When examining the hiring practices for professional occupations that emphasize creativity and innovation, Koppman found that evaluators tend to value applicants with omnivorous leisure pursuits (Koppman 2016). Hiring studies often measure cultural omnivorousness by the number of distinct cultural preferences (Koppman 2016; Peterson and Kern 1996). Thus, I theorized that Big Tech evaluators would value applicants with omnivorous hobbies, and I operationalized cultural capital as applicants' number of hobbies.

### **Dependent Variables**

**Upper-middle-class.** In alignment with how social class theorists commonly define social class background (Calarco 2018; Lareau 2003; Stuber 2009), I identified students' social class background based on their parents' educational level and occupational status. These theorists argue that parents' education and occupation are highly correlated to social class, which then influences their parenting styles. Parenting styles, in turn, directly shapes the kinds of class-based practices that children adopt (Calarco 2018; Lareau 2003; Stuber 2009). In line with prior work, I categorized students with a parent who has a graduate degree and a professional or high-level managerial occupation as at least upper-middle-class. I labeled students whose father did not have a four-year college degree as working-class. Middle-class students are those who are neither upper-middle- nor working-class.

### **Control Variables**

I included the following control variables because my analyses and those of past studies show that these variables have significant direct effects on hiring outcomes (Davis and Binder 2019; Granovetter 1995; Rivera 2011, 2016).

For the structural equation model that examines the indirect effects of social class background on hiring outcomes through omnivorous taste, I used a dichotomous measure of whether the participant had a referral for a Big Tech company (1 = had a referral, 0 = did not have a referral). I also used a dichotomous measure of whether the participant is enrolled in a Ph.D. program at a feeder university (1 = enrolled, 0 = not enrolled). Feeder universities have the most students who have participated in Ph.D.-level internships at Big Tech companies. Compared to non-feeder universities, feeder universities provide their students with larger alumni networks at Big Tech companies, more on-campus recruitment opportunities, and geographic proximity to Big Tech companies.

For the model that analyzes applicants' emotional experience of doing interviews, I only controlled for whether the participant is currently enrolled at a feeder university (1 = enrolled, 0 = not enrolled). I only included one control variable because of the small sample size of the relevant variables (n = 89).<sup>5</sup>

Given that numerous prior works have shown the racial and gender disparities in hiring outcomes (Fernandez and Campero 2017; Fernandez and Fernandez-Mateo 2006; Moss and Tilly 2001), I strongly considered controlling for whether an applicant was from a racially marginalized group in computer science (i.e., Black, Hispanic or Latinx, and Indigenous individuals) or identified as female or non-binary in my models. However, neither of these variables had a significant effect on the models. And only 14 survey participants belonged to a racially

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<sup>5</sup> I only asked applicants about their emotional experiences of the hiring process in the wave 2 (2020–2021) survey.

marginalized group in the technology industry. I thus chose to exclude race and gender as control variables because the small sample size of my overall dataset limits the number of control variables I can include in my models. Table 3.2. lists the operationalization of all variables included in the analysis.

Table 3.1. Operationalization and measurement of variables included in the analysis

<b>Dependent Variables</b>
<p>Hiring outcome:</p> <ul style="list-style-type: none"> <li>- Received a Big Tech offer (1 = yes if applied to Amazon, Apple, Facebook, Google, or Microsoft and received an offer)</li> </ul> <p>Emotional experience of the interview process:</p> <ul style="list-style-type: none"> <li>- How relaxed did you feel during the interviews (0 = very stressed to 3 = very relaxed)</li> </ul>
<b>Independent Variables</b>
<p>Social class background:</p> <ul style="list-style-type: none"> <li>- Upper-middle-class (1 = yes)</li> </ul>
<b>Mediating Variables</b>
<p>Cultural capital:</p> <ul style="list-style-type: none"> <li>- Number of hobbies (range = 0 to 10 hobbies, mean = 2 hobbies)</li> </ul>
<b>Control Variables</b>
<p>Referral (1 = yes)</p> <p>Feeder university (1 = yes)</p>

### 3.4.3. *Data Collection: Interviews*

To understand the experience of Ph.D. students applying for internships at large technology companies, I asked the survey participants who completed the Time 1 survey if they would be interested in participating in the interview study. I scheduled interviews with students who confirmed that they had completed an internship interview with a technology company. I also chose to only interview applicants who grew up in the U.S. in order to focus on how this country's structural differences influence applicants' experiences and tactics around applying for jobs (Calarco 2018; Jack 2019a).

I interviewed 63 applicants twice—once during their internship interview process and once after they completed the process—for a total of 122 interviews (four applicants opted out of the second interview due to their busy schedules). All applicants attended elite universities (i.e., top 25 in the nation) and were applying for positions at top-tier technology companies in the U.S. Almost all of them were second-, third-, or fourth-year students with equal distribution across these number of years in the Ph.D. program. Students had a range of zero to eight years of previous full-time work experiences, with the mean being less than one year. I detail the gender and racial/ethnic breakdown of my interviewees in Table 3.3.

I interviewed wave 1 participants between December 2019 and May 2020 and wave 2 participants between December 2020 and May 2021. Both UMC and WMC applicants had comparable internship offer rates, where approximately 93% of UMC and 79% of WMC applicants secured an offer. The relatively similar hiring outcomes across groups allow me to shed light on the differing subjective experiences and invisible work that equally qualified and successful candidates go through during a job search.



Table 3.3. Gender and racial/ethnic composition of interviewees (applicants)

	Upper-middle-class (UMC) (n = 33)	Working- and middle-class (WMC) <sup>6</sup> (n = 30)
<b>Gender:</b>		
Male	24	18
Female	9	11
Non-binary	0	1
<b>Race/ethnicity:</b>		
White (non-Hispanic/Latinx)	26	18
Asian American	5	8
Hispanic or Latinx (non-White)	2	2
Black or African American	0	2

I conducted semi-structured interviews over a video call on Zoom. Interviews lasted approximately an hour, and participants received a \$25 Amazon gift card. Participants were aware that I was in a separate but related field and could not influence their internship search process. I also assured all participants that their responses would be kept confidential and anonymous. While

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<sup>6</sup> I used the terms “upper-middle-class” (UMC) and “working- and middle-class” (WMC) because the patterns in the data seemed to follow the lines of UMC and WMC groups. The term “upper-middle-class” includes upper-class applicants (Calarco 2018; Jack 2019). While upper-middle-class and upper-class applicants enjoy different economic privileges, both groups described using similar “poised” application tactics and experiencing shared feelings of ease with engaging distant contacts and evaluators.

social desirability bias is inherently present in all conversations, I feel that these steps minimized the chance of social desirability bias skewing the results.

During these semi-structured interviews, I explained to the participants that the study aims to understand their experiences of learning about and applying for internships. To avoid priming participants' responses, I did not mention my interest in exploring the potential social class differences in how applicants experience the hiring process. After briefing the participants about the study's goal, I asked participants open-ended questions and then focused on the topics that seemed most salient to the participant. The interviews explored topics such as the following: what approaches and accomplishments participants thought mattered most for getting an offer; how they prepared for the interviews; how they felt about the hiring process; where their particular application tactics and feelings about the hiring process came from (e.g., educational experiences or familial upbringing); what were the most rewarding and least favorite parts of the interviews; and what roles they thought their Ph.D. program, university, and family upbringing played in the hiring process. Examples of interview questions include: "How do you think your interviews went?"; "What is your least favorite part about the interviews?"; and "How did you go about preparing for them?" To explore participants' sensemaking of how their family upbringing shaped their application experiences, I asked the following question at the end of the interviews: "In your opinion, how has your family upbringing influenced your approach and abilities to do well in the internship hiring process?"

#### 3.4.4. *Data Analysis: Interviews*

I conducted an inductive thematic analysis of the interview data (Braun and Clarke 2006). After I conducted all the interviews, I coded the interviews, line-by-line, using inductive open

coding. At the beginning of the coding process, I coded several transcripts and then met with a collaborator and my advisor to develop and refine the codebook collaboratively. We repeated this process four times. Once we clearly defined the codebook, I coded the rest of the transcripts. Throughout the data analysis process, I wrote memos to identify potential themes and interesting aspects of the data. I met with the collaborator and my advisor weekly over five months to discuss the data, memos, and emerging themes. To address emerging questions that occurred during these meetings, we would reread the relevant interview transcripts and revise the thematic memos.

During the first round of coding, I was interested in understanding what applicants considered to be factors that drive hiring outcomes. With this goal in mind, I generated initial codes such as, “social connections,” “informational interviews,” “conversational ease,” “confidence,” and “technical skills.” When writing analytical memos, I found that in addition to technical competence, applicants across the board referred to two additional—and more subtle—hiring expectations they had become aware of during their Ph.D. program: a willingness to lean on social connections and a demonstration of collegiality and collaboration during interviews.

I then took a closer look at how applicants described enacting these two hiring expectations. With regard to relying on social ties, I paid attention to whom they reached out to and how. Examples of codes include: “cold emailing potential hiring managers,” “asking advisors for introductions,” and “chatting with representatives at recruitment events.” I also took note of their reported emotions when using their support-seeking tactics and created codes such as “comfortable,” “awkward,” and “bothersome.” Regarding a display of confidence and conversational ease when interacting with interviewers, I looked at applicants’ descriptions of

engagement styles, generating codes like “casual,” “humorous,” “polite,” and “formal.” I also used codes such as “confident,” “stressed,” and “nervous” to capture applicants’ expressed emotions.

Drawing on these codes, I created a profile for each participant that summarized the tactics they used to meet the two key hiring expectations and their emotional experiences with the use of each tactic. These profiles enabled me to get a comprehensive picture of each participant’s experience. Using these profiles, I compared how UMC and WMC applicants responded, both emotionally and practically, to hiring expectations. During this analysis, it became clear that applicants’ emotional responses to the tacit expectations and their resulting application tactics varied along social class lines.

Next, I created the following subthemes to capture applicants’ class-based tactics: “proactive reliance on connections,” “respectful reliance on connections,” “display of social ease with interviewers,” and “display of respect to interviewers.” The titles of these subthemes emerged inductively from the data. Finally, I analyzed applicants’ descriptions of the role their familial upbringing played in their internship search. Participants often discussed how their upbringing influenced their sense of what they considered to be appropriate ways of interacting with people in power. These musings supported—and added nuance—to my emerging insight that class-based practices affect application tactics and experiences. I then grouped the subthemes under the themes: “poised” and “pliant.”

At 50 participants, I noted the repetition of core themes and felt that I had begun to reach theoretical saturation. However, I continued to code and analyze the remaining transcripts to ensure that I had captured all the themes that might have emerged from the data. After I was done analyzing the data, I reviewed sociological literature on educational attainment and social class,

and I observed that my findings resonated with prior insights about students' class-based practices in the school setting. Thus, my definitions of UMC and WMC practices emerged from a strong alignment between my inductive data analysis and findings from prior sociological literature.

## **CHAPTER 4. THE SUBSTANCE OF STYLE: HOW SOCIAL CLASS-BASED STYLES OF INTERACTION SHAPE HIRING ASSESSMENTS**

To understand how evaluators at large technology companies assess applicants and how social class background might shape their assessments, I interviewed 50 evaluators at top-tier technology companies in the United States. As described in the methods chapter (see Section 3.3), these companies often rank among the top seven in terms of market capitalization. All evaluators were full-time computer science researchers or software engineers at these companies, and all evaluators have assessed Ph.D.-level internship applicants for computer science research and software engineering positions.

### **4.1. Evaluators' Display of Awareness of How Social Class Might Shape Hiring**

When asked open-ended questions about “the life experiences or backgrounds that shape applicants’ success in the hiring process,” only five evaluators voluntarily brought up the potential role of social class in hiring. When asked directly “what role social class might play in hiring,” only 14 additional evaluators discussed the ways in which the hiring practices of large technology companies might have socioeconomic dimensions. Almost all of these 19 evaluators focused on how social class can influence applicants’ access to valuable resources, such as elite education and social networks. For example, several evaluators explained that upper-middle-class (UMC) applicants often enjoy an advantage over their working-class counterparts when it comes to securing admission to elite universities. In turn, this advantage gives them a leg up in the competition for internship offers. Robert described why and how he often pays more attention to applicants from elite universities:

“[The company] is an elite, well-known organization, so there’s a lot of competition to get here. We get hundreds and hundreds of internship applications. I have a job, right? I’m not going to spend hours every day pouring over them. So, there are signals that come through, like I’m automatically going to give a closer look to applicants from elite schools like Stanford, [schools] that tend to be very classist. I try hard to overcome that, but I know I don’t.” — Robert<sup>7</sup>

Robert’s comment is representative of a common challenge that numerous evaluators expressed. Evaluators reported that their companies often expect them to review numerous applications in detail while juggling their core responsibilities as full-time software engineers or researchers. Given this reality, many of them explained that they often use educational prestige as a quick screen for “quality” applicants (again, with 19 evaluators explicitly recognizing that this practice might pose disadvantages for working- and middle-class (WMC) applicants.)

In addition, many of these 19 evaluators emphasized that the partnerships between large technology companies and elite universities can ease students’ process of building first- and second-degree connections with evaluators. Participants described how large technology companies frequently host networking and recruiting events at elite universities, where applicants and evaluators can meet and get to know each other. They also reported frequently collaborating

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<sup>7</sup> To protect my participants’ anonymity and confidentiality, I used pseudonyms and did not list their race. I also removed all company, university, team, and research lab names as well as slightly modified the research areas mentioned in their interview responses.

with professors at elite universities, and through these collaborations, meeting students whom they choose to recruit as interns. Nancy noted:

“[The company] doesn’t have many people from schools that aren’t Ivy and fancy. [The company] is in [a city], and we’re close to [an elite school that is near the city]. There’s a lot of connections there. And the biggest determinant is about networking—whether you know the person beforehand, or your advisor is great friends with them.” — Nancy

Nancy then explained how applicants’ connections to the evaluators can shape evaluators’ interview questions and experiences:

“If you’re interviewing somebody you don’t know at all, you must make sure they have all the skills you need. But if you already know them or someone can vouch for them, then you know they meet the basics, and you can get to the interesting conversations.” — Nancy

As Nancy’s comments reveal, knowing the applicant before the interviews or having a referral from a trusted source can allow evaluators to focus on discussing “interesting” topics during the interviews. Rather than assessing whether the applicant meets the minimum technical requirements needed to do the job, many evaluators described being able to have more engaging conversations that might foster positive impressions.

While the vast majority of evaluators talked about educational prestige and network ties in hiring, only a minority of participants felt that enjoying such resources had a socioeconomic dimension. More than half of the evaluators reported that either social class did not play a role in hiring, or that it was unclear what exact role social class might play in this process. Of the 32 participants who did not articulate a connection between social class and hiring, many explained



that they do not have information about applicants' social class throughout the hiring process. These evaluators emphasized that the internship application forms do not ask applicants about their social class and that they have difficulty gauging applicants' social class based on their self-presentation alone. According to these evaluators, they can only get this information if applicants voluntarily disclose it. As Helen said: "Social class is a characteristic that is not very visible unless they tell me." When asked how applicants' social class might shape their interview performance, Harold explained:

"It's hard to say. Actually, the better answer for you: I don't ask people about their families. I don't want to be biased by that in the slightest. I don't think it's relevant for an interview. It's massively inappropriate to ask someone in an interview, 'What was your home like growing up?' If I found out a coworker did that, I would honestly report them." — Harold

Like Harold, many evaluators described avoiding asking applicants about their social class to minimize biases against them. These evaluators maintained that not knowing the social class of applicants makes it difficult to intuit whether application strategies and performance are linked to socioeconomic structures or individual personalities. In other words, they reported lacking the necessary information needed to observe the patterns across different socioeconomic groups they encounter in hiring.

Further, several evaluators expressed that relevant educational and work experiences will matter more than upbringing as applicants move forward in their academic and professional careers. Linda explained:

"I don't think social class matters. Getting a job solely lies in how well you do at the interview. I think just relevant background matters, not other backgrounds. If you're a

software development candidate, then just your technical expertise and other soft skills matter.” — Linda

Linda’s quote illustrates how evaluators conceptualize interviews as a site that primarily assesses applicants’ individual abilities. For all evaluators, applicants’ interview performances and hiring outcomes largely depend on their displays of technical skills, time management abilities, and the most important and elusive trait, “innovation potential.” While a minority of evaluators displayed an awareness that social class influences applicants’ access to valued resources, none described a possible connection between social class and the ways in which evaluators assess desired traits such as “innovation potential.” In the next section, I examine whether and how evaluators’ use of applicants’ interactional styles to assess “innovation potential” might privilege those from a particular social class context.

#### **4.2. Evaluators’ Assessments of “Innovation Potential”**

Across the board, evaluators explained that their companies rate the job performance of current interns and full-time employees in computer science-related positions based on their abilities to make innovative contributions. As Roy said:

“We provide innovation. If you can get a piece of running code in one of our production services or publish an academic paper, or some combination of those two things, you’ve done great.” — Roy

Through analyzing evaluators’ descriptions of how they assessed applicants’ “innovation potential,” I find that they often interpreted applicants’ comfort with expressing and asserting themselves during power-laden interviews as signs of having such potential. Specifically,

evaluators reported prioritizing applicants who demonstrate what I term the “transboundary interactional style,” in which applicants display ease with communicating how different disciplinary insights might inform their work, facilitating back-and-forth conversations about the potential internship project, and standing up for their opinions by voicing disagreements. In the following subsections, I unpack how evaluators described the elements of a transboundary interactional style and these elements’ relations to the trait of being “innovative.” I also illuminate how sociological literature suggests that the elements of this interactional style are often cultivated in UMC environments.

#### 4.2.1. *“Innovation Potential”*: *Displaying an Ease with Articulating how Different Disciplines might Relate to One’s Work*

More than half of all evaluators expressed a desire to hire interns who seem capable of integrating insights from different disciplines into their work. These evaluators often characterized their projects at the company as large-scale and complex. They believed that having a knowledge base that spans multiple domains and being able to configure different ways of thinking allow applicants to tackle their projects innovatively. Ray explained:

“The company solves complex problems, and we deeply believe that if you only know one research area, you’re not going to help solve the problem. The company needs very collaborative and interdisciplinary people. People who know how to combine different methods and distill core knowledge from various areas, like robotics, vision and language, anthropology, and economics. If you can combine all the fields and techniques, there’s great potential.” — Ray

Additionally, evaluators across the board emphasized that they often worked with colleagues from different disciplinary backgrounds. Thus, being familiar with a wide range of disciplines is seen as helping applicants to communicate and collaborate effectively with various team members. Michelle noted:

“If you only study computer science, then you are less exposed to being able to talk and express yourself clearly to people with other frames of mind. That’s important for being a team member. You’ll have to talk with people with different backgrounds, terminologies, and ways of saying the same thing.” — Michelle

Ray’s and Michelle’s comments illustrate how numerous evaluators tied innovation to an ability to work across disciplines. When asked about how they assessed applicants’ abilities to do such work, these evaluators described prioritizing applicants who explicitly expressed an interest in incorporating insights from people and fields outside of their domains into their work. For example, Thomas said:

“I look at whether they’re curious. Did they read about things that aren’t what they do but could be related? I look at whether they’re adaptable. Can they apply their skills [from different disciplines] to new problems? Do they value the contributions of people from all sorts of [disciplinary] backgrounds?” — Thomas

In a similar vein, Lucas explained:

“I look for people with a more diversified set of approaches or techniques.... I ask them about what other fields they’ve explored and what things they took away from that to shape how they think about their field.” — Lucas

Thomas' quote widely reflects the comments of my study participants. Evaluators regularly described valuing applicants who seemed "curious" about topics that might initially appear unrelated to their projects. However, displaying curiosity was not sufficient. Evaluators also reported assessing applicants' "adaptability" in drawing connections between the seemingly disparate topics and their work. Lucas' remarks are particularly telling. Lucas' comments show how evaluators often discussed preferring applicants who could articulate on the spot how they would apply their "diversified set of approaches and techniques" to their projects. Here, we observe that displaying a comfort in traversing disciplinary knowledge structures and uniquely combining various perspectives is seen as a key component of demonstrating "innovation potential."

Interestingly, prior literature on familial and educational socialization suggests that UMC educational institutions often train individuals to build an argument in this desired way. These individuals may feel at ease with artfully rearranging disciplinary boundaries and expressing interdisciplinary insights during scholarly conversations because they have had much practice doing so (see Related Work Subsection 2.2). Building on these studies, I suggest that regardless of whether applicants can make these connections, evaluators' methods of assessing "innovation potential" can offer advantages for UMC applicants.

#### 4.2.2. *"Innovation Potential": Demonstrating a Comfort with Facilitating Interesting Back-and-forth Conversations about the Work*

According to evaluators, another vital part of demonstrating "innovation potential" entails displaying one's abilities to be a dynamic collaborator who can contribute to team endeavors. All evaluators described judging the extent to which applicants took initiative in leading a conversation

about the upcoming internship project in a way that evaluators found interesting. Nancy explained how she deliberately sought applicants who provided “interesting” ideas during the interviews:

“I’ll talk about my ideas, things I want to do [for the project]. And I’ll see if they like them and if they have interesting things to add. I want a candidate who has a trajectory that’s parallel to mine and can find interesting interconnections that could be interesting for everybody.” — Nancy

Nancy’s quote illustrates how evaluators were drawn to applicants who gave fresh insights into their project pitches during the interviews. Evaluators’ perceptions of how fast applicants produced interesting responses also mattered. Almost all evaluators reported assessing applicants’ abilities to “think on their feet” and carry a “back-and-forth conversation.” Lance discussed what he looked for in an ideal intern candidate:

“I’m looking for whether they can ask questions. Can they run with a line of reasoning? And I like people who can interact and respond on the fly. I like the banter [and] the back-and-forth discussion. [It’s because] I’m looking for a collaborator.... Most work that I run into at [the company] has an innovative part associated with it. And I’m trying to maximize joint success.” — Lance

Like the vast majority of evaluators, Lance interpreted applicants’ displays of quick thinking during the interviews as signals of their potential to enhance collaborative innovation later in the internship.

Almost all evaluators explained that maintaining a two-way dialogue involves posing thought-provoking questions about the project. However, merely asking questions was

insufficient. These evaluators also sought applicants who could build on evaluators' responses to applicants' inquiries. Later in his interview, Lance said:

“They also need to be able to cope with the answers. If they ask me a question and I give them an answer, what do they do with it? If they answer, ‘Thank you,’ that’s probably not the correct response. A good response might be, ‘Huh, that’s interesting. What about this?’”

— Lance

Similarly, Carol stressed the need for applicants to contribute to the conversation actively:

“I’m seeing how proactive they are in the interview itself. Part of it is how much of an equal exchange you have at the appropriate time in the conversation. A naturally curious person can do that because you’re picking up and feeding off something I said. Versus sitting there waiting for my question, then answering it and stopping. It’s where I realize that this conversation has become much more interesting because I was talking to you and learned something new.” — Carol

As Lance’s and Carol’s remarks illustrate, numerous evaluators described distinguishing between applicants who “proactively” contributed to the flow of the conversation and those who merely followed evaluators’ conversational lead. A critical aspect of maintaining an engaging back-and-forth dialogue involved appearing at ease with steering the conversation to explore intriguing ways of thinking about the internship project. Evaluators largely took applicants’ comfort levels with fostering an “equal exchange of ideas” during interviews as indicators of individual personality traits that contribute to innovative endeavors. As her quote shows, Carol directly tied this interactional style to being a “naturally curious person.”

However, my analysis of past research on social class differences in home and school settings reveals that this interactional style is promoted in UMC environments. UMC individuals are often encouraged to practice the art of witty exchange and feel comfortable with artfully rearranging role boundaries (see Related Work Subsection 2.2). Looking at my findings through this perspective, it becomes clear that evaluators' emphasis on applicants who seem comfortable treating them as equal conversation partners and facilitating back-and-forth conversations may privilege learned behaviors from UMC backgrounds.

#### 4.2.3. *“Innovation Potential”: Displaying a Willingness to Challenge the Status Quo by Voicing Disagreements*

In addition to judging applicants' ability to generate and communicate interesting ideas on the fly, many evaluators reported tying applicants' willingness to assert their personal opinions during conversations to their “innovation potential.” Specifically, just under half of the evaluators described seeking applicants who seemed willing to challenge the status quo by voicing their opinions. As Carol explained:

“Rebelling against authority can be a very good trait. Challenging the status quo can be very innovative.... To be willing to stand their ground and speak out against the rest, the person has got to be self-confident. It's admirable.” — Carol

When asked how they assessed whether an applicant is willing to express strong and often contradictory opinions, evaluators reported inviting the applicant to describe past experiences of challenging the status quo or pointing out the mistakes of others in constructive ways. For instance, Carol gave an example of the language that interviewees could use to demonstrate this hiring



criterion: “It could be like, ‘I see what your organization is doing and where you’re headed, but I think we can go further if we go this other direction.’” Similarly, Susan said:

“We try to suss out if [the applicant] is willing to stand up for something. If you think that something is not being done correctly or that people are making a technical mistake, we want you to stand up and say respectfully, ‘Can we reconsider this?’” — Susan

Many evaluators also described favoring applicants who appeared comfortable “defending” their ideas in the face of feedback. According to Cody:

“There are certainly jobs for people who just do what they’re told. But, to have a good career, you need to be able to advocate for your ideas. That means concisely describing your ideas and defending them against critiques, either well-meaning or hostile ones. Thinking on your feet is part of it. When people can have back-and-forth conversations, it makes the process of doing a collaborative project faster and more fun.” — Cody

In a similar vein, Deborah explained how she assessed this hiring criterion during interviews:

“It’s the way that [the applicants] respond to feedback [or ideas]. If they’re an expert and understand why [they disagree with the feedback], then they’ll explain it. Versus just shooting it down like, ‘Oh no, that’s not a good idea.’” — Deborah

As Cody’s and Deborah’s remarks reveal, many evaluators viewed the ability to “advocate for one’s ideas” in ways that sustain back-and-forth dialogue—even when responding to “hostile critiques” and authority figures such as evaluators, senior colleagues, and managers—as indicative

of assertiveness. Evaluators regularly viewed assertiveness as an individual personality trait that allows applicants to be intellectually stimulating and innovative collaborators.

At the same time, evaluators commonly deemed applicants who seemed too defensive or argumentative as terrible collaborators. “Some candidates can be very argumentative, and then you’ll know that they won’t be good people to work with,” said Linda. She then described how evaluators typically judged whether an applicant was argumentative:

“I’ve read stories of how the interviewee told the interviewer repeatedly ‘this is not the right method to solve it’ or ‘my method is better,’ got into an argument, and went on about it.” — Linda

Numerous evaluators underscored applicants’ need to strike the right balance between standing up for their own opinions and incorporating others’ ideas. Craig explained:

“All [hiring criteria] must be balanced. If you take [a criterion] and go to the extreme, that’d be too much, and that’d be wrong.... Like with [the criterion of] disagreeing, [it’s about] disagreeing with people in ways that don’t cause conflict but cause innovation and thought.” — Craig

Linda’s and Craig’s comments illuminate the delicate line between productively and destructively voicing disagreements. Like Linda and Craig, many evaluators described wanting interns who they felt would work well with team members due to an ability to welcome “productive conflict.” Taken together, their remarks reflect how evaluators often relate applicants’ willingness to voice differing opinions to authority figures to the demonstration of “innovation potential.”

Scholars who study familial and educational socialization have contended that UMC individuals are largely socialized to feel at ease with artfully rearranging power boundaries by challenging and debating with authority figures (see Related Work Subsection 2.2). Returning to my empirical findings, I thus argue that evaluators' assessments of how comfortable applicants are with advocating for their personal opinions and challenging the status quo are also related to UMC parenting and educational practices.

## **CHAPTER 5. QUANTITATIVE FINDINGS: HOW SOCIAL CLASS INFLUENCES APPLICANTS' EXPERIENCES AND HIRING OUTCOMES**

Given the importance of understanding both sides of the hiring process, Chapters 5 and 6 describe two studies about applicants' experiences and hiring outcomes. As outlined in the methods chapter (see Section 3.4), I tracked two cohorts of Ph.D.-level applicants for computer science research and software engineering internships at technology companies. I conducted a survey (n = 490) and an interview (n = 63) at the beginning of the internship search process to explore how applicants identified internship opportunities and prepared for hiring interviews. I then conducted a follow-up survey (n = 408) and interview (n = 59) at end of the internship hiring season to understand applicants' job interview experiences. This chapter presents the survey findings about the relationships between applicants' social class background and their (a) hiring outcomes and (b) emotional experiences during the interviews.

### **5.1. Descriptive Statistics**

Table 5.1. presents the descriptive statistics and a correlation matrix for all variables included in the analysis. The dependent variables are (a) whether an applicant received an offer from a Big Tech company and (b) how relaxed an applicant felt during the interviews. The independent variable is whether an applicant is upper-middle-class, and the mediating variable is an applicant's cultural capital as measured by the number of hobbies. I included the following control variables because my analyses and prior scholarship suggest that these variables significantly affect hiring outcomes: whether an applicant had a referral for the internship position and whether an applicant was attending a feeder university (Davis and Binder 2019; Granovetter

1995; Rivera 2011, 2016). Please see Section 3.4.2 for more information on why I chose these variables and how I operationalized them.

The average participant has two hobbies. Regarding the demographic composition of participants who completed both Time 1 and Time 2 surveys, 41% are from upper-middle-class backgrounds, 39% from middle-class backgrounds, and 20% from working-class backgrounds.

74% of participants identified as male, 25% as female, and 1% as non-binary. 39% identified as white (non-Hispanic/Latinx), 49% as Asian American or Asian (and specifically, 26% as Chinese American or Chinese, 19% as Indian American or Indian, 4% as Korean American or Korean), 2% as Hispanic or Latinx (non-White), and 2% as Black, African American, or African. Table 5.2. details the social class background, gender, and racial/ethnic breakdown of survey participants by their citizenship status.

Table 5.1. Descriptive statistics and correlation matrix

Variable	N	mean	S.D.	1	2	3	4	5
1. Big Tech offer	289	0.49	0.50					
2. Upper-middle-class	474	0.41	0.49	0.045				
3. Number of hobbies	496	2.48	1.58	0.117**	0.106**			
4. Relaxed during interviews	93	1.47	0.80	0.117	0.250**	0.062		
5. Referral	286	0.67	0.47	0.129**	-0.041	-0.031	-0.116	
6. Feeder university	662	0.80	0.40	0.258***	0.119***	0.036	0.172*	-0.064
*** $p < 0.01$ , ** $p < 0.05$ , * $p < 0.1$								

Table 5.2. Social class background composition of survey participants

	U.S. citizen or permanent resident (40%)	Non-U.S. citizen or permanent resident (60%)
<b>Social class background:</b>		
Upper-middle-class	57%	30%
Middle-class	34%	43%
Working-class	9%	27%
<b>Gender:</b>		
Male	68%	78%
Female	30%	21%
Non-binary	1%	1%
<b>Race/ethnicity:</b>		
White (non-Hispanic/Latinx)	65%	24%
Asian American or Asian	23%	67%
- Chinese American or Chinese	16%	28%
- Indian American or Indian	6%	33%
- Korean American or Korean	1%	6%
Hispanic or Latinx (non-White)	7%	3%
Black, African American or African	4%	0%

Regarding demographic representativeness, the demographics of my entire sample are comparable to the national averages of Ph.D. students in computer science in terms of gender (76% male and 24% female) (Zweben and Bizot 2020). The demographics of my U.S. sample are comparable to the national averages in terms of race (64% White, 22% Asian American, 6% Hispanic or Latinx, and 5% Black or African American) (Zweben and Bizot 2020). I am unable to

compare (a) my U.S. sample with the national averages for gender and (b) my entire sample with the national averages for race because of the lack of information. That is, organizations that provide demographic statistics for Ph.D. students in computer science (i.e., the National Science Foundation and the Computing Research Association) do not report the necessary national averages needed to make the comparisons.

While previous hiring studies have revealed the racial and gender inequalities in hiring (Fernandez and Campero 2017; Fernandez and Fernandez-Mateo 2006; Moss and Tilly 2001), my models do not control for whether an applicant belonged to a racially marginalized group (i.e., Black, Hispanic or Latinx, and Indigenous individuals) or identified as female or non-binary. Only 14 survey participants were from a racially marginalized group. This sample size is too small for cross-group comparisons. Further, in my models, participants' gender did not significantly affect their hiring outcomes and emotional experiences. As such, I chose to exclude race and gender as control variables because the small sample size of my overall dataset limits the number of variables I can include.

## **5.2. Effect of Social Class on Hiring Outcomes through Cultural Capital**

Table 5.3. displays the linear regression coefficients for the continuous outcome (i.e., cultural capital) and the logistic regression coefficients for the binary outcome (i.e., getting a Big Tech offer). I first tested the direct effect of social class background on hiring outcomes. Table 5.3., model 1 shows that the direct effect is not statistically significant using the 95% benchmark; upper-middle-class (UMC) applicants are not more likely than their working- and middle-class (WMC) counterparts to get a Big Tech offer. However, my structural equation modeling results

also show that applicants' social class background indirectly affects their hiring outcomes (See Table 5.3., model 2).

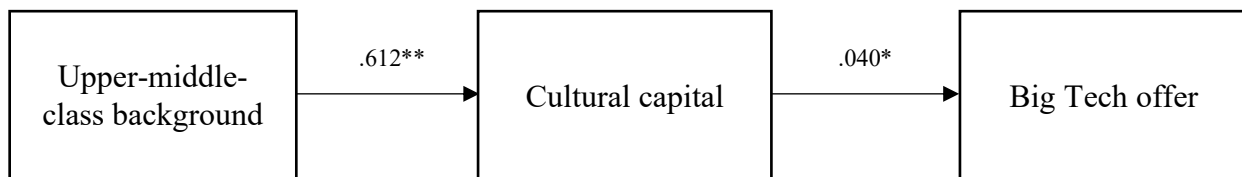
I find that applicants' cultural capital—as measured by their number of hobbies—mediates the relationship between social class background and hiring outcomes. The path from social class background to cultural capital is statistically significant ( $p < 0.05$ , where  $p = 0.001$ ); UMC applicants are predicted to have 0.62 more hobbies than WMC applicants. Also, the path from cultural capital to Big Tech offer is statistically significant ( $p < 0.05$ , where  $p = 0.047$ ) when controlling for whether applicants have a referral and attend a feeder university. Applicants with more hobbies are more likely to get a Big Tech offer, and each additional hobby increases the odds of getting a Big Tech offer by 1.041 times ( $e^{0.04} = 1.041$ ). Taken together, the indirect path from social class background to getting a Big Tech offer via cultural capital suggests the following: UMC applicants may be more likely than their WMC counterparts to get a Big Tech offer via their cultural capital. Sobel's test of the mediation effect is marginally significant ( $p < 0.1$ , where  $p = 0.086$ ).



Table 5.3. Mediating effects of cultural capital on the relationship between social class background and hiring outcomes (N = 276)

	Model 1		Model 2		Model 3	
	Direct Effect		Indirect Effect		Indirect Effect with Controls	
	b	S.E.	b	S.E.	b	S.E.
<b>Effects on Big Tech offer</b>						
Upper-middle-class background	0.186	0.249	-	-	-	-
Cultural capital	-	-	0.036	0.021	0.040*	0.199
Referral	-	-	-	-	0.164	0.061
Feeder university	-	-	-	-	0.367	0.073
R-squared	0.001		0.012		0.116	
<b>Effects on cultural capital</b>						
Upper-middle-class background	-	-	0.610 **	0.185	0.612**	0.179
R-squared	-	-	0.041		0.042	
Chi-square	0.56		0		0.91	
Degrees of freedom			0		2	
* $p < 0.05$ , ** $p < 0.01$						
* Dashes denote that the variable is not included in the model.						

Figure 5.1. Structural model of the effect of social class background on hiring outcomes through cultural capital



\*  $p < 0.05$ , \*\*  $p < 0.01$

\* This figure displays the unstandardized estimates.

### 5.3. Emotional Experiences of Applicants at Feeder Universities

Prior literature has shown that feeder universities play a substantial role in helping students to secure job offers (Binder et al. 2016; Brand and Halaby 2006; Davis and Binder 2019; Ho 2009; Rivera 2016). However, it is less clear how the social class background of students at feeder universities affects their experiences of navigating the hiring process. As such, in this section, I focus on students at feeder universities and examine the relationship between their social class background and application experiences.

In line with prior studies (Binder et al. 2016; Brand and Halaby 2006; Davis and Binder 2019; Ho 2009; Rivera 2016), I find that both upper-middle-class (UMC) and working- and middle-class (WMC) applicants at feeder universities have similar access to resources. 60% of UMC and 69% of WMC applicants have referrals, and 82% of UMC and 87% of WMC applicants know someone at the company with whom they could talk about the hiring process. I also find that the difference between upper-middle-class and working- and middle-class applicants at feeder universities in getting a Big Tech offer is not significant. Both upper-middle-class (UMC) and working- and middle-class (WMC) applicants enjoyed similar hiring rates (55% and 58%, respectively).

However, looking closer at the emotional experiences of applicants in securing employment reveals a more troubling finding. When controlling for applicants' enrollment at a feeder university, I find that UMC applicants are more likely to describe feeling relaxed during the interviews (see Table 5.4, model 5 which provides the linear regression coefficients). This effect is statistically significant using the 95% benchmark ( $p = 0.038$ ). That said, feeling relaxed during the interviews is not significantly correlated with getting a Big Tech offer ( $p = 0.307$ ).

Table 5.4. Relationship between applicants' social class background and how relaxed they felt during the interviews (N = 89)<sup>8</sup>

	Model 4		Model 5	
	Direct Effect		Direct Effect with Control	
	b	S.E.	b	S.E.
<b>Effects on how relaxed applicants felt during interviews</b>				
Upper-middle-class background	0.403*	0.167	0.359*	0.170
Feeder university			0.252	0.198
R-squared	0.062		0.080	
* $p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$				
* Dashes denote that the variable is not included in the model.				

In sum, while both upper-middle-class and working- and middle-class applicants at feeder universities have similar hiring rates, upper-middle-class applicants are more likely to feel relaxed when navigating the elite hiring process. My findings suggest that the cultural capital of upper-middle-class applicants—i.e., the practices learned from their upper-middle-class upbringing—helps ease their process of meeting evaluators' hiring expectations. This ease might stem from a cultural alignment between upper-middle-class applicants' practices and elite hiring expectations. In the next chapter, I use my interviews with applicants to investigate what are the class-based tactics they used in elite hiring. I also explore how the mismatch between their class-based practices and elite hiring expectations affect their emotional experiences of the hiring process.

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<sup>8</sup> The variables related to applicants' emotional experiences of the hiring process have a smaller N than other variables of interest because I only included questions about these experiences in the wave 2 (2020–2021) survey.

## **CHAPTER 6. PLAYING THE HIRING GAME: APPLICANTS' CLASS-BASED EMOTIONAL EXPERIENCES AND TACTICS**

My two rounds of interviews with 63 applicants suggest that all students in top Ph.D. programs are aware of the two tacit hiring expectations that employers view as critical to getting elite internships: (a) willingness to use social connections and (b) demonstration of collegiality and collaboration. These expectations valorize the upper-middle-class (UMC) practices of being “poised” and engaging comfortably across social hierarchy. As a result, I found that the elite hiring process can impose emotional and temporal burdens on working- and middle-class (WMC) applicants. They do so by pressuring these applicants to enact UMC practices that are inconsistent with their WMC upbringing in order to succeed.

### **6.1. Willingness to Use Social Networks**

I found that all applicants understand that reaching out to social connections is valuable for finding open positions, learning what a hiring team is looking for, and getting referrals - though many said it was unfortunate that the system was set up in such a way. As Julie, a UMC applicant, described:

“It’s unfortunate because people who get interviews tend to be those who know this process, who are well connected. There are equally talented people, like my friends who are applying and sending resumes into the void but not getting interviews because they either didn’t know this approach or weren’t well connected enough to know it and take advantage of it. For example, it’s a lot harder if you don’t go to a school where recruiters come or has a lot of alumni at companies you’re interested in.” – Julie (UMC, female)

Julie referenced a common assumption of the hiring process: the lack of social connections prohibits less-connected applicants from finding employment at elite companies. While this assumption has merit and is likely a bottleneck in some hiring processes, in my sample of applicants from elite institutions, none reported that they lacked access to valuable social connections. In addition, none displayed a lack of awareness that reaching out to social connections is expected and advantageous. Rather, we see class-based divisions in applicants' *emotional response to the expectation* to be willing to use social connections. This emotional response led to different tactics among UMC and WMC applicants.

#### 6.1.1. *Upper-Middle-Class Applicants: Ease with Relying on Connections*

Across the board, “poised” UMC applicants reported their comfort with reaching out to individuals at target companies to learn more about available internship opportunities. These applicants described their ease with cold emailing professionals (i.e., contacting professionals with whom applicants had no direct social ties), networking at conferences, and asking connections to set up informational interviews about upcoming positions. Almost all UMC applicants described reaching out to both close and distant connections—such as advisors, friends, friends-of-friends, acquaintances, and even strangers—at the company as low-risk and rewarding. As a result, these applicants reported gaining substantial insider information about hiring teams' needs, thus allowing them to pitch their research interests in ways that interviewers view as a good “fit” for the team.

Most UMC applicants described cold emailing individuals as particularly valuable. Kyle explained:

“I’m a really big fan of cold emailing people. It’s the lowest cost, highest return thing you can do, and I’ve been doing it since I was in high school.” — Kyle (UMC, male)

Kyle’s degree of comfort with cold emailing is worth noting, and it aligns with the perspective of the majority of UMC applicants. In general, these participants did not perceive reaching outside their immediate social networks and cold contacting potential hiring managers as overstepping social bounds.

Strikingly, like Kyle, the majority of UMC applicants described feeling at ease when reaching out to prospective employers. When asked where this ease comes from, UMC applicants generally cited their upbringing. Broadly, these applicants described how their parents taught them the low-risk, high-reward nature of contacting people in authority (e.g., teachers, industry insiders, etc.) for information about various opportunities. Kyle reflected on how his parents guided him toward this tactic:

“The main reason that I’m comfortable cold emailing people is because I’ve always heard my parents say: ‘You should always email people who are in a higher position of power. There’s no downside.’ And they do it. I’ve learned to agree that yeah, there’s really no downside.” — Kyle (UMC, male)

Consistent with prior research on UMC practices around support-seeking (Calarco 2018; Stephens et al. 2014), many UMC applicants in my study explained that their parents often encourage them to ask people in higher positions of power for help in various settings, such as navigating schools, employment opportunities, and workplaces. In light of their parents’ coaching, these applicants reported capitalizing on this support-seeking tactic from an early age. As a result, UMC applicants described having a sense of ease with reaching out to both close connections (i.e.,

friends, colleagues, and professors) and distant contacts (i.e., acquaintances and strangers with potential overlapping work interests).

The majority of UMC applicants explained using their connections and informational interviews to find internship opportunities that align with their interests. For example, Julie described her general internship search process:

“I’d do coffee chats [to learn more about the position]....Nine times out of ten, it stopped after the coffee chat....It was great to chat, but I’m not interested. Then the rest of the time it’s helpful for figuring out what they’re looking for. That helps when I’m interviewing.”

— Julie (UMC, female)

Julie’s comments illustrate a common UMC application tactic. Rather than begin with a formal online application, applicants reach out to those in their personal networks to help forge connections at companies of interest. Then, they contact these connections for informational interviews (i.e., casual conversations about their work experiences and job opportunities). These brief, low-expectation chats happen outside of the official hiring process and serve to introduce applicants to the position and the company. By setting up informational interviews, almost all UMC applicants described being able to screen out what they see as uninteresting or irrelevant internships before officially applying. Such conversations also inform applicants’ understanding of what the company looks for in candidates. When asked where she learned this application tactic, Julie credited her mother:

“[My mom] is a hiring manager and I learned it from her. She ingrained in me the importance of personal connections. She’ll say things like: ‘Get coffee with people at companies you’re interested in. Not in a ‘get me a job’ way, but just asking what their

company is doing, so you know if it's a good fit for you and what kinds of people they're hiring.' — Julie (UMC, female)

Julie's comments align with how more than half of UMC applicants described learning from their parents to view informational interviews as a low-pressure way to find interesting positions. They also explained that these interviews allow them to have ample insider knowledge about the team's desired skills and interests, thus allowing them to prepare relevant internship project proposals and to demonstrate their "fit" with the hiring team during official interviews.

Almost all UMC applicants also characterized informational interviews as a way to secure referrals that are key to getting noticed by prospective hiring managers. These applicants largely view submitting applications through online portals as a waste of time because employers may not even see their applications due to the high volume of submissions. Having a referral thus enables applicants to get on hiring managers' radars and increases their chances of obtaining a formal interview callback. James explained:

"It's important to reach out to chat and get a referral. It's a way to cut through the noise and get an interview.... It's pretty standard, so I don't think I'm asking a huge favor." — James (UMC, male)

James' perspective was common among UMC applicants. The vast majority of UMC applicants described casual conversations with company employees as a fruitful avenue to gaining referrals and a competitive advantage in the hiring process. These applicants also emphasized feeling comfortable with asking their connections to vouch for their "fit" with the desired position. As James noted, they talked about this practice as something that is "standard" and not considered a "huge favor."



While most applicants reported using these informal discussions to get and prepare for official interviews, a small minority of UMC applicants also mentioned using informational interviews to circumvent the official interview process as much as possible. Vincent described this strategy:

“If you know what you want, then you can circumvent the interview process. They’ll probably make you go through it to check all the boxes. But, if you know who you want to work with, then you should talk to them.... I don’t apply for anything anymore. I’ve purposely set up my life so that I never, ever have to interview for anything because it’s stupid.” — Vincent (UMC, male)

As a whole, “poised” UMC applicants emphasized their comfort with reaching out to close and distant connections, requesting informational interviews, and asking for referrals. This ease results in three reported outcomes for UMC applicants. First, applicants can quickly screen out positions that they view as a poor “fit” with their research interests and career goals. This tactic prevents them from having to spend extensive time applying for positions they would not want or for which they are not well suited. Second, these applicants can capitalize on the insider information garnered from informal chats to better tailor their preparation for official interviews. Third, applicants can ask for referrals in a way that is not emotionally draining or seen as spending their (or their mentors’) social capital.

#### 6.1.2. *Working- and Middle-Class Applicants: Respectful about Relying on Connections*

Like their UMC counterparts, WMC applicants often emphasized the usefulness of social connections in the hiring process. However, WMC applicants across the board described being less comfortable than their UMC counterparts with reaching out to their social networks, even

though they know that it is integral to playing the hiring game. These WMC applicants were more likely to describe themselves as deferring to social hierarchy, and they emphasized being respectful about, rather than being at ease with, asking connections for assistance with their internship search. The majority of WMC applicants shared concerns that their requests might burden their contacts, and they expressed a desire to have built up a certain amount of social credit with a person before reaching out. Thus, many WMC applicants focused on leveraging a tight network of close friends or their advisors as well as attending formal recruiting events to build connections with company employees. The majority of WMC applicants in my study described feeling “awkward” or “self-seeking” to the distant connections (i.e., strangers or acquaintances) to whom they felt a pressure to contact. Carson explained how he felt about reaching out to distant contacts:

“If I don’t know the person well, then it can feel awkward and self-seeking. But at the same time, it’s valuable. So, in most cases, I’ll ask if I know the person pretty well.... Maybe it comes from the cultural norm that your relationships should be mutually beneficial. My parents taught me to be respectful and not exploit people for personal gains.” — Carson (WMC, male)

Like Carson, most WMC applicants characterized leveraging distant contacts for help with their internship applications as uncomfortable but valuable. These applicants explained that while they do feel comfortable leaning on close connections for application support, they feel hesitant to call on more distant contacts. As Carson’s comments reflect, many of these WMC applicants were cognizant of the fact that their familial upbringing instilled in them a sense of respect for other’s time—which is a hallmark of WMC practices—particularly those in a position of power.

Despite their discomfort with reaching out to distant contacts, most WMC applicants recounted the effort they expended to surpass these emotional hurdles. For example, Noel said:

“I’d want to first get in touch before asking weeks later: ‘Now that we’re back in touch, I would like to pick your brain about the interview process or pick your brain about what your team is working on.’ It’s just my style of networking.... I’m uncomfortable asking favors out of the blue from people I’m not close with. I find it more natural to get back in touch and maybe find an opportunity to help them out in some way first.... My parents definitely raised me to be a kind person. Like, I value building more of a relationship and helping others first before asking something of them.” — Noel (WMC, male)

Here, Noel indicated his baseline discomfort with leveraging connections. However, he emphasized the importance of reaching out and found a style of leveraging connections that does not compromise his class-based practices; practices in which his parents raised him to embrace. In this case, Noel described preferring to first reconnect and perhaps find a way to assist the contact before asking for help.

In addition to developing tactics to directly email distant connections, numerous WMC applicants emphasized pursuing official channels (e.g., online resources, career fairs, or introductions by their advisors) to identify potential positions. For example, Oscar found opportunities through listservs:

“[University]’s lists get a bunch of emails about job opportunities. Some people from [company] were doing on-campus interviews for us to learn about [company] and get ready for the internship application season. I went for one, and it went well. That’s how my application process started.” — Oscar (WMC, male)

Oscar cited two common resources that WMC applicants often used: (a) departmental emails about job opportunities and (b) career fairs or campus recruiting events. Although WMC applicants largely reported being uncomfortable with informally reaching out to strangers, they frequently used these more formal networking opportunities when an implicit invitation was extended. For example, Lydia applied first, then used a connection that became apparent on social media:

“Some guy said on Twitter that his team was hiring. I e-mailed him if I should apply, and he said yes. I filled out my application two months ago and didn’t hear back. But when I edited the application saying, ‘I want to work with [guy],’ they replied the next day: ‘We’re happy to schedule an interview.’” — Lydia (WMC, female)

Lydia’s experience reflects how more than three-quarters of WMC applicants hesitate to ask for application support if a potential connection does not actively signal their openness to such requests. In a similar vein, WMC applicants reported talking to insiders only after close friends, advisors, and industry mentors volunteered to introduce applicants to second-degree connections at the company. In short, WMC applicants described wanting direct introductions, clear invitations to contact, or formal recruitment avenues before they felt comfortable reaching out to tertiary contacts. That said, having a strong lab alumni culture that normalizes reaching out to contacts or coming from elite undergraduate institutions that socialize the UMC practices of support-seeking also appears to have an influence on whether WMC applicants are comfortable reaching out to distant contacts.

While the majority of UMC applicants described being comfortable deviating from the official hiring process, most WMC applicants reported the opposite. Almost all WMC applicants

began their internship search process with formal online applications. This tactic stands in stark contrast to UMC applicants' general beliefs that online applications provide a low return on time investment. These different orientations to the formal hiring process suggest that WMC applicants are more likely to assume that hiring mostly happens through a firm's official hiring process and thus spend more time engaged in formal application processes. Dan elaborated:

“Passing the technical interviews doesn't mean I'll get an offer. I'll still need to get matched with a particular project. It's late in the interview season, so there's a good chance that there aren't any projects left for me.... I didn't want to apply until I finished solving problems on HackerRank and going through *Cracking the Coding Interview*. Looking back, I should've just applied earlier to more places.” — Dan (WMC, male)

While Dan understood the importance of finding a good project match, he and numerous WMC applicants prioritized getting through the initial interview stages first. WMC applicants' focus on following official hiring processes meant that, unlike UMC applicants who ruled out irrelevant internships early on, WMC applicants relied on later-stage project matching interviews to assess whether the internship was a good fit. Focusing on “passing” early-stage interviews meant that when WMC applicants did schedule casual conversations, they were focused on gleaning different information from their company contacts than their UMC counterparts.

While UMC applicants across the board used informational interviews to get insider information on project and team “fit” information, WMC applicants more often focused on the structural, procedural, or technical aspects of interviews that would help them get past the first stages of interviewing. Ben outlined the information he seeks from friends and online searches and how it contributes to his feelings during the interview:

“The most important questions for me were: ‘What was the interview structure? What kinds of questions? How difficult were they?’ Feeling more prepared and confident means that I’ll be less likely to be anxious and not answer the questions as well....Like, there was once I didn’t know what to expect. I got caught off guard and completely forgot how to solve the problem. That was embarrassing. I felt like I wasted the interviewer’s time.” — Ben (WMC, male)

Ben described the two steps he took to try to understand what would happen in the interview itself: calling upon close contacts to understand the interview structure and searching online to identify the potential types of interview questions. Ben, and numerous WMC applicants, explained that learning as much as possible about what a typical interview might look like alleviated anxiety. They often reported focusing on proving their technical skills (as opposed to projecting team “fit” or asserting their specific interests) in earlier interviews. As Ben’s comment reflects, such behavior also aligned with the practices that many WMC applicants described learning from their parents around respecting interviewers’ time by being prepared for interviews.

These responses illuminate the degree to which WMC applicants develop coping mechanisms for what they experience as an ambiguous and emotionally taxing interview process. The vast majority of WMC applicants reported that leveraging social ties, especially distant connections, creates feelings of awkwardness and anxiety. These applicants described how they feared reaching out to distant connections and asking them for insider information and/or referrals would come across as presumptuous and entitled. To deal with these feelings, most WMC applicants discussed developing complicated strategies to help them navigate an elite hiring context that valorizes UMC practices while simultaneously abiding by their own WMC practices.

Again, the contrast between how UMC and WMC applicants experience the job search process was striking. While UMC applicants generally did not express their reservations around reaching out to connections, WMC applicants regularly talked about how much time and energy they put into considering whether it would be appropriate to email a contact. Where UMC applicants focused on informal connections, WMC applicants were much more responsive to formal recruiting and networking processes. Both WMC and UMC applicants used informational interviews to generate insider knowledge about the hiring process. However, UMC applicants focused on revealing hiring team needs, while WMC applicants emphasized learning interview structure and content. Finally, where UMC applicants ruled out uninteresting internships early on, most WMC applicants described spending a substantial amount of time following official hiring procedures, ruling out internships only during later stages of interview processes. These differences, as I discuss next, have compounding effects on the tacit expectation that applicants should project collegiality and collaboration during interviews.

## **6.2. Demonstrating Collegiality and Collaboration**

In addition to the expectation that one should call upon social networks to get an interview, both UMC and WMC applicants emphasized the importance of displaying collegiality and collaboration during the interview itself. However, I again observe clear class-based differences in applicants' emotional responses to and tactics for demonstrating collegiality and collaboration in the interview.

### 6.2.1. *Upper-Middle-Class Applicants: Display of Social Ease with Interviewers and Preference for Direct Help-Seeking Strategies*

The vast majority of UMC applicants described connecting with their interviewers through casual conversations or previous research collaborations before officially applying. As a result of prior interactions, these applicants discussed feeling comfortable during interviews. For example, Kent talked about his typical feelings during interviews:

“I don’t feel really anxious during [interviews]. Of course, I want to solve [the problem] or make the interviewer think I’m a good candidate. If I seem super anxious, then the interviewer will be like, ‘What’s up with this guy?’ But I’m not so worried about it for me personally.” — Kent (UMC, male)

As Kent indicated, UMC applicants have a clear desire to make a good impression, but for most of these applicants, this desire does not lead to an anxious reaction. This lack of anxiety enables applicants to behave in interviews as they would during day-to-day professional interactions. In turn, this ease of interaction likely makes it easier for these applicants to make a positive impression on hiring decision-makers.

Across the board, UMC applicants reported a high degree of conversational ease and an ability to facilitate a casual and fun atmosphere during the interviews. Even the few applicants who described feeling nervous about whether the interviewer would be socially awkward explained that this feeling subsided as soon as the interview began. Tess explained:

“Beforehand there were still nerves about ‘Are they going to like or hate me? Am I going to say something dumb?’ But when I’m in the moment, I’m like ‘they are doing cool work’ and it’s fun.... I definitely learned a lot about how to talk to academics just by osmosis



early on from my dad who is a professor.... So in the interviews, they all felt like researchers, like I know how to fall back on my norms of talking with a professor from another lab.” — Tess (UMC, female)

Over and over, these applicants described leaving an interview feeling confident in their abilities to develop a sense of ease with the interviewer. Like Tess, these applicants also highlighted how they learned these skills from their parents with professional or managerial jobs—positions that require them to communicate in a way that elite employers deem as collegial. In a similar vein, Vincent highlighted how he kept his composure even during a particularly challenging interview:

“Normally I don’t have to do anything. I’m like, ‘I want this new person to like me, so I’ll try to be fun and nice.’ Sometimes you’re in a really bad mood, or you got no sleep because you flew to [another state] for it the day before. So, you have to drink a cup of coffee, put on your best face and be fun.” — Vincent (UMC, male)

Here, Vincent alluded to less-than-ideal circumstances, entering an early morning interview after his flight landed late the night before. Rather than expressing anxiety, stress, or even frustration, Vincent described “putting on [his] best face” for meeting a new person and “being fun.” Most notably, he indicated that this interactional style comes naturally to him and that, in his words, he doesn’t “have to do anything.” Most UMC applicants shared a desire to have fun with interviewers. And even more importantly, these statements suggested a seemingly natural ability to make what could be a stressful experience fun and engaging. Mia, for example, described using humor to connect with interviewers during coding interviews:

“I try to make jokes, like say a funny but technical answer. Or say an outrageous answer, but you only know it’s outrageous if you’re in on the joke. It’s hard to be technical and sarcastic, but I like to do that.... Some people prefer to give straightforward answers, but I don’t think that’s as fun or memorable....But I didn’t even consciously think about how I try to crack jokes until you asked me about this.” — Mia (UMC, female)

Mia’s quotes illustrate how UMC applicants view the use of humor as a valuable way to stand out from other applicants. I also notice that these applicants described using humor instinctively. It was not until speaking with us that Mia realized how much she draws on humor during interviews. As noted above, UMC applicants often connected with their interviewers through informational chats prior to official interviews. Such prior familiarity can engender particularly congenial interviews. Tyler described his interview with hiring managers he had already developed a relationship with:

“We were just laughing the first few seconds of calling them formally in this sense because we were not taking it seriously. I was like, ‘Hey, [name],’ and just laughing. Since we already knew each other, it was silly that we have to do this formal thing. Immediately after that, we acknowledged that it’d be casual.” — Tyler (UMC, male)

Tyler’s case is an extreme example in that both the interviewer and interviewee vocalized the casual nature of the interview. While other UMC applicants did not explicitly do so during the hiring interview, they still described their tone in conversation as informal.

The vast majority of UMC applicants also reported being comfortable with directly asking interviewers for assistance during coding interviews. They casually used the interviewer as a

problem-solving partner without the fear of revealing gaps in their technical skills. Julie outlined the advice she would give to other job seekers:

“In addition to talking out loud, admit early on if you’re don’t understand something or have a question. I’ve done this countless times. Like: ‘I don’t know how to solve this part of the problem.... Here are all the possible ways forward. What do you think if I tried this approach?’ For me, being honest about what I know and don’t know has always made the discussion positive and constructive.” — Julie (UMC, female)

Like Julie, the majority of UMC applicants discussed using direct help-seeking tactics, such as asking for feedback on their proposed approach and requesting hints. As prior literature has shown (Brooks, Gino, and Schweitzer 2015; Chua and Mazmanian 2020), it is likely that interviewers at technology companies would interpret applicants’ direct help-seeking tactics as being open to collaborating with others and leveraging their expertise to solve problems.

When asked why they feel comfortable with casually interacting with interviewers or directly asking for help, many UMC applicants talked about how their parents taught them to view everyone as equals. Frank described his mother’s parenting style and how that influenced his perspectives:

“My parents don’t require intense respect. My mom’s a doctor. But, she’s very casual. She injects into your mind the idea that you’re on par with anybody. You shouldn’t let anybody treat you as lesser just because you’re younger or have less experiences. You’re capable of doing anything you want. I think that was really important [in shaping my views].” — Frank (UMC, male)

Together, these stories demonstrate how UMC applicants' reported ease with crossing social hierarchy contributes to their comfort with displaying collegiality and collaboration. Most of these participants used language suggesting that they are "equals" with interviewers and can naturally facilitate casual conversations with interviewers or ask them for help.

### 6.2.2. *Working- and Middle-Class Applicants: Display of Respect to Interviewers and Preference for Indirect Help-Seeking Strategies*

By contrast, WMC applicants were much more likely than their UMC counterparts to report being nervous both before and during the interviews. Rather than speaking casually and joking with the interviewers, WMC applicants described acting in a way that shows respect to the interviewers. They discussed speaking politely and engaging in general pleasantries.

WMC applicants attempted to use the behavioral interview not only to prove their competence and potential interest in the position but also to glean hints about the team's work priorities (information that most UMC applicants reported having before the formal interview process). WMC applicants often described making a substantial effort to interpret interviewers' questions and expressed their disappointment that behavioral interviews did not allow sufficient time to accomplish these goals. Michelle recounted her experience:

"When talking about the internship research project, I hoped to say my research interests, better understand theirs, and talk about an interesting direction for both parties to pursue. Because I want to know if I should invest the time for this internship.... These [interviews] are only half-hour, so it's difficult to come up with new research ideas and talk about all of that." — Michelle (WMC, female)

Michelle described a commonly shared problem experienced by WMC applicants: brief behavioral interviews did not allow enough time for applicants to get a sense of the hiring team's work interests; identify whether those interests matched their own goals; and brainstorm project ideas that would be mutually beneficial. This experience stands in stark contrast to that of UMC applicants, who described being able to prepare their responses based on information gleaned from informational interviews.

Unsurprisingly, WMC applicants reported feeling more nervous and stressed throughout the interviews than UMC applicants. WMC applicants such as Oscar described feeling evaluated in a way that felt exposing:

“I don't know if you can ever go into an interview and feel like you're not being evaluated. Even if they say, 'We're just here to learn about you and for you to learn about us,' you know they're going to form opinions about you. You can't not form opinions about somebody when you talk with them.” — Oscar (WMC, male)

In general, WMC applicants were keenly aware that they were being evaluated and thus felt it was challenging to be themselves. WMC applicants were more cognizant of the inherent power dynamics present in interviews than their UMC counterparts. As Oscar indicated, even when interviewers stressed that the conversation was supposed to be casual, “you know they're going to form opinions about you.” This extra awareness of the evaluative nature of the interaction led to a more complex interview experience for WMC applicants. These applicants reported trying to mask any outward signs of anxiety while internally quieting nerves in order to focus on the task at hand. For example, Kim described feeling nervous during technical interviews:

“[Managing emotions] is really important. It’s something I don’t always do well.... Nerves are a huge part of it. Focusing on the stress distracts you from thinking about how to solve the problem.” — Kim (WMC, female)

The challenge Kim discussed—managing one’s emotions while trying to focus on problem-solving—is a common occurrence for WMC applicants. In essence, WMC applicants found it challenging to manage stress and demonstrate collegiality. Instead of feeling at ease, WMC applicants described displaying collegiality by speaking politely. They also discussed attempting to connect with their interviewers, predominantly through general pleasantries and sending thank-you notes after the interview.

Notably, these strategies are different from the joking and informal behavior that UMC applicants described displaying in interviews. WMC applicants’ reported tactics are reminiscent of prior research showing that WMC applicants are socialized to respect power dynamics by being polite and formal when interacting with authorities (Calarco 2018; Lareau 2003; Stephens et al. 2014). I observe that WMC applicants’ strategies for demonstrating collegiality and making connections are based on the WMC practices of being “pliant.” Hugo was particularly articulate and cognizant of the ways in which his upbringing shaped his confidence:

“People who grow up upper-middle-class often have a natural confidence about them because they’ve never suffered setbacks. Whereas if you’re a poor minority kid from the bad part of town, and teachers doubt you and people make fun your whole life—even if you have an upward trajectory, it’s very hard to project that ‘I deserve to be here’ attitude. I grew up poor, and I do think like that.” — Hugo (WMC, male)

Although Hugo has “made it” at one of the highest levels of educational attainment (pursuing a Ph.D. at an elite institution), he still found it challenging to project an “I deserve to be here” attitude. Hugo’s is not an isolated case. Numerous WMC applicants described tensions between *being* technically competent and trusting that others *viewed* them as technically competent.

In response to these tensions, the majority of WMC applicants described being concerned that asking for help would reveal holes in their technical acumen and reflect poorly on them as applicants. Their views stand in contrast to their UMC counterparts’ reported assumption that they are on fairly equal standing with their interviewers and thus feel comfortable soliciting help. All applicants I spoke with displayed an awareness that it is important to express one’s thought process, treat the interviewer as a collaborator, and demonstrate technical skills during coding interviews. Knowing that the interview was supposed to be a collaborative experience, most WMC applicants reported eliciting help in an indirect manner that still affirmed their technical competence. They also expressed that being receptive to the interviewer’s guidance allowed them to demonstrate an openness to collaboration. Sophia explained:

“I first try to solve the problems on my own. If I get stuck, I’ll say, ‘In real life, I’ll put a comment here and try to find the answer online.’ or ‘I’ll move forward with this idea.’... Then if [the interviewer] sees that you’re not in the right direction, they’ll kind of present to you another idea. And I’ll be like, ‘That’s really good. I didn’t think of that.’ to reassure them that I can take feedback in what I’m doing and redirect myself. This shows that I can work in a group setting.” — Sophia (WMC, female)

Sophia later described how her parents’ perspectives shaped her ideas around indirect help-seeking tactics during interviews:

“My parents, and especially my mom, raised me to be very independent so that wherever I go, I can overcome any obstacles that arise.... So, when in the interview process, I wouldn’t [ask for help] right away. That’s not the best thing to do because you might present yourself as someone who is going to need a lot of help. And I think it can be disrespectful of their time if you’re not even trying.” — Sophia (WMC, female)

Like Sophia, numerous WMC applicants reported similar tactics for indirectly asking interviewers for hints. These applicants described demonstrating collaboration through incorporating any hints that interviewers gave. Here, we see how WMC applicants’ reported desire to respect authority figures’ time translates to their preference for using indirect help-seeking tactics during interviews. We also observe how this desire can stem from the class-based practices that they learn from their familial upbringing.

Many WMC applicants described that while some interviewers could identify and address their indirect requests for help, other interviewers might not be able to. As Lydia commented:

“I was talking through the problem for 10 minutes and the interviewer didn’t say anything about me doing it wrong. But it was like, ‘Why wouldn’t you correct me?’ That was frustrating.” — Lydia (WMC, female)

Lydia’s remarks reveal that interviewers who operate with a different set of practices regarding help-seeking may not be aware of WMC applicants’ indirect approach to getting assistance. This mismatch in practices can lead to a stressful interview experience for these applicants.



### **6.3. Working- and Middle-Class Applicants: Learning to Engage in Elite Cultural Environments**

These data provide examples of how UMC and WMC applicants from elite universities are aware of the same tacit expectations about how to apply for and get elite internships. These data also show that these applicants act on these expectations differently. The vast majority of WMC applicants talked about feeling hesitant about reaching out to all possible social connections and writing cold emails. These applicants also generally described feeling anxious and avoiding directly asking for help during technical interviews.

However, a small number of WMC applicants reported feeling comfortable with displaying collegiality and collaboration in the same style as UMC applicants. Strikingly, all of these WMC applicants had attended elite undergraduate institutions and actively discussed the process of learning to operate in elite environments over time. Several of these applicants acknowledged that scenarios like the interview process used to be more stressful but that they had improved in their ability to act informally, ask for help, and engage with authority figures in a more collaborative manner. For example, Danielle, a late-stage Ph.D. student who attended an elite undergraduate institution, described learning to share when she did not understand her interviewer's comments or questions by observing others enact this norm:

“I’ve observed other people who are great at saying, ‘I don’t know.’ It’s hard to do earlier in your career because you think you should know everything. But then you realize that no one knows everything. Seeing my PIs ask for clarification at a talk is helpful....That’s easier said than done. Sometimes I’m still in conversations where I get 70% of it, but I’m faking the other 30%, hoping that it’ll become clear.” — Danielle (WMC, female)

These data suggest that while it can be difficult for WMC students to feel fully comfortable engaging in ways that are the norm for UMC students, WMC students can learn to enact UMC practices over time through repeated exposure to elite environments. These findings are consistent with prior studies that show how WMC undergraduate students can adopt the dominant UMC practices (Carter 2005; Jack 2019a). Some WMC applicants who did *not* attend elite undergraduate universities also described learning to enact UMC practices as Ph.D. students. However, as cultural sociologists assert (Jack 2019a), adopting a new set of cultural codes takes time. It is noteworthy that those few WMC applicants who displayed an awareness and willingness to mimic UMC patterns of behavior were in the later years of their Ph.D. program.

## CHAPTER 7. DISCUSSION

### 7.1. Central Arguments

Evaluators at large technology companies serve as gatekeepers to prestigious and lucrative jobs. These evaluators often assert that they are hiring “the best and the brightest” applicants based on *individual* measures of talents and abilities. However, I find that privilege gained from social class background—which is *structurally* established through upbringing and education—also guides how evaluators assess applicants.

Evaluators describe interpreting how applicants engage with interviewers as evidence of applicants’ abilities to contribute meaningfully to the company—what evaluators call “innovation potential.” This term denotes someone who can generate and integrate new ideas into existing and future products. Evaluators report valuing applicants who display an ease drawing upon ideas from various disciplinary spaces, facilitating conversations through witty exchanges, and defending their opinions in high-pressure face-to-face exchanges, which I call the “transboundary interactional style.” Evaluators consider this interactional style to be purely based on individuals’ innate personality traits. Yet, I show that transboundary interactional style is also cultivated in upper-middle-class (UMC) backgrounds and not fully tied to individual differences or personality traits (see Table 7.1.).

Table 7.1. Summary of how evaluators’ assessments of “innovation potential” can privilege upper-middle-class (UMC) applicants

Elements of the transboundary interactional style that evaluators use to assess “innovation potential”	Ties between social class background and ease with enacting elements of the transboundary interactional style
Assessing applicants’ ease with artfully rearranging disciplinary boundaries by expressing ideas that draw on insights from multiple disciplines	Upper-middle-class (UMC) individuals are often socialized to engage with a wide variety of academic disciplines and to feel at ease with sharing their thoughts on the potential connections between various disciplinary insights (Anyon 1980; Khan 2010a).
Assessing applicants’ ease with artfully rearranging role boundaries by facilitating back-and-forth conversations with evaluators	UMC individuals are commonly trained to feel comfortable treating authority figures as equal conversation partners (Calarco 2018; Lareau 2003a; Stephens et al. 2014a).
Assessing applicants’ ease with artfully rearranging power boundaries by challenging ideas and asserting their opinions	UMC individuals are generally encouraged to be at ease with challenging the status quo and voicing their differing opinions to authority figures (Calarco 2018; Lareau 2003a; Stephens et al. 2014a).

Evaluators’ language of “innovation potential” as a key hiring criterion reflects a meritocratic evaluative practice. This hiring criterion is directly tied to the on-the-job performance criterion of contributing innovative work. Although well-intentioned, how evaluators measure this hiring criterion—that is, how evaluators use applicants’ interactional styles to measure their “innovation potential”—may perpetuate class-based biases. Once hired, companies assess the job performance of interns and full-time employees predominantly based on their work *output* (e.g., quality of publications or production code) rather than their *process* (e.g., work style or interactional style). Thus, using signals of applicants’ work process—and specifically, their

interactional styles—to predict their future job performance might not be a truly meritocratic evaluative practice.

It is also unclear whether applicants' interactional styles during interviews are tied to their ability to succeed in the workplace. As such, applicants' interactional styles might not be an accurate measurement of their “innovation potential.” To the extent that interactional styles expressed in interviews do not reflect on-the-job innovative abilities, then evaluators' language of hiring applicants based on their “innovation potential” can unintentionally mask their unconscious preferences for applicants with upper-middle-class interactional styles. In other words, their assessments could be more associated with applicants' social class upbringing and education than their abilities to perform in the workplace.

I find that all Ph.D. students at elite universities in my study, including working- and middle-class (WMC) students, are aware of what evaluators are looking for in applicants. This finding is not surprising, given that WMC students who have made it into top Ph.D. programs have learned to adeptly navigate elite social environments. This finding also aligns with theories suggesting that social class differences are “erased” once WMC applicants are socialized into elite environments (Binder et al. 2016; Davis and Binder 2019). However, my findings suggest a more complicated story. The application tactics and experiences of upper-middle-class (UMC) and WMC Ph.D. students at elite universities remain different (see Table 7.2).

Table 7.2. Summary of applicants' class-based application tactics

		Class-based practice	
		UMC: Poised	WMC: Pliant
Hiring expectation	Willingness to use social connections	Ease with relying on connections	Respectful about relying on connections
	Demonstration of collegiality and collaboration	<ul style="list-style-type: none"> <li>- Display of social ease with interviewers</li> <li>- Preference for direct help-seeking strategies</li> </ul>	<ul style="list-style-type: none"> <li>- Display of respect to interviewers</li> <li>- Preference for indirect help-seeking strategies</li> </ul>

“Poised” UMC applicants in my study report feeling more comfortable with asking connections for assistance finding an internship, as well as engaging with interviewers collegially and collaboratively. By contrast, “pliant” WMC applicants describe meeting the hiring expectations as a more temporally and emotionally taxing experience. These additional challenges come from the misalignment between the class-based practices of the hiring expectations and WMC applicants. Thus, while all applicants understand the rules of the hiring game, the cost of playing it is quite different depending on their social class background. For some WMC applicants, the disconnect between their class-based practices and the required transboundary interactional style becomes unmanageable. Successfully displaying the interactional style that applicants know is valued in the hiring process is difficult, and not demonstrating this interactional style can cost them a job offer. Other WMC applicants can successfully engage in the valorized style and land

prestigious jobs. However, the prize of securing employment still comes at a substantial emotional and mental cost.

In sum, evaluators can play a role in reproducing elite work environments by grounding their assessments in UMC practices. Their unconscious, systematic exclusion of WMC practices imposes temporal and emotional burdens on WMC applicants, including those who have overcome numerous gatekeeping processes to enter Ph.D. programs at elite universities. Therefore, my dissertation shows how elite hiring practices systematically penalize even the most successful WMC applicants for deviating from UMC practices.

## **7.2. Scholarly Contributions**

My study has implications for Human-Computer Interaction (HCI) and sociological scholars interested in how evaluators' methods of assessing applicants benefit applicants who have made it into elite universities. Prior scholarship has shown that elite universities often help students to secure professional positions at elite companies by providing valuable resources, such as educational prestige and social connections at the companies (Binder et al. 2016; Brand and Halaby 2006; Davis and Binder 2019; Ho 2009; Rivera 2016). My findings suggest that while it is true that these resources help open doors for applicants, the invisible costs of learning and enacting the elite practices of interpersonal engagement are substantial. Further, while scholars and educators are becoming more aware of the costs of social class differences in hiring, evaluators themselves display little to no awareness of these dynamics.

My research contributes to the knowledge of how this invisible class-based cultural capital shapes hiring in three ways. First, I show that what I call “interactional cultural capital”—that is, cultural capital in the form of shared interactional styles—affects evaluators' assessments of

applicants. Past HCI and sociological studies have shown that expressing cultural capital in the form of shared tastes, such as similar extracurricular and lifestyle interests, improves hiring assessments (Chua and Mazmanian 2020; Ho 2009; Koppman 2016; Rivera 2016). These studies find that evaluators more positively evaluate applicants who can connect with evaluators on a personal level by identifying common ground and discussing familiar topics (Chua and Mazmanian 2020; Rivera 2016). Because evaluators tend to be in upper-middle-class (UMC) positions, such hiring practices can privilege UMC applicants because these applicants are more likely than their working- and middle-class (WMC) counterparts to have similar tastes to those of evaluators.

My research expands this argument by showing that applicants' "interactional cultural capital" also matters during the interview itself when the conversation topics are directly related to the technical work (e.g., the upcoming internship project). I find that evaluators describe preferring a transboundary interactional style when assessing "quality" candidates. This interactional style, as sociological literature suggests, is cultivated in UMC environments. Thus, I argue that UMC environments create advantages for applicants by socializing them with not only the valorized tastes but also the transboundary interactional style desired by companies offering future jobs.

Second, I argue that in addition to influencing their hiring outcomes, applicants' interactional cultural capital also shapes their experiences of meeting hiring expectations. My findings advance scholars' understanding of the unique challenges that WMC applicants face when navigating the hiring process. Current HCI and sociological literature on hiring suggests that WMC applicants have difficulties getting insider coaching and referrals because they do not have social



connections at the company (Chua and Mazmanian 2020; Dillahunt 2014; Rivera 2016; Wheeler and Dillahunt 2018). My research adds to this argument by explaining why these difficulties persist. While WMC applicants in my study describe knowing people at prestigious companies, many applicants report feeling uncomfortable asking them for favors if they are not close connections or if applicants have not been explicitly invited to contact them. We can see that WMC applicants' hesitancy about tapping their professional networks may not stem from a lack of social capital but instead from a misalignment between WMC applicants' class-based practices and current hiring expectations.

Third, I argue that cultural capital in the form of insider knowledge is important but alone insufficient to alleviate applicants' emotional and temporal burdens of navigating the hiring process. My study speaks to HCI and sociological research that assumes that WMC applicants might struggle to get hired because they do not know the unwritten rules of the hiring game (Chua and Mazmanian 2020; Rivera 2016; Wheeler and Dillahunt 2018). This body of literature implies that revealing these salient expectations would fully ease job seekers' application process. My findings challenge this assumption. For example, while WMC applicants understand the importance of appearing confident to interviewers, not all of them can successfully mask their stress and anxiety during the high-pressure interviews. Even if they can display such confidence, enacting UMC practices takes a considerable emotional and temporal toll on them. Thus, merely helping WMC applicants to uncover the "hidden curriculum" is an important step toward greater equity in hiring, but it is insufficient if applicants' class-based practices clash with those of the elite context.

### 7.3. Implications for Design

#### 7.3.1. *Implications for the Design of Algorithmic Hiring Tools*

My interviews with evaluators offer ideas for improving the design of algorithmic hiring tools. Interestingly, when asked about the potential role of algorithmic tools in hiring, evaluators commonly discussed how these tools could either reduce or exacerbate hiring biases depending on whether designers are able to account for all possible human biases. However, these same participants did not display awareness of the potential social class biases implicit in their ways of assessing “innovation potential.” This disconnect suggests the difficulty of designing tools to reduce the biases of which designers and evaluators are unaware. Drawing on my findings of how evaluators’ emphasis on a transboundary interactional style has ties to upper-middle-class backgrounds, I offer suggestions for designers of algorithmic hiring tools to minimize social class biases in algorithmic interview assessments.

Algorithmic hiring tools, including HireVue, Knockri, and myInterview (HireVue 2021; Knockri 2021; myInterview 2021), currently analyze applicants’ interview responses in attempts to determine personality traits. Specific examples include “innovativeness,” “agreeableness,” and “openness.” How exactly these tools use machine learning algorithms to identify applicants’ personality traits is unclear and “black-boxed.” That said, these designers often emphasize their efforts to ensure that their algorithmic assessments comply with the country’s legal fair-hiring standard regarding protected demographic attributes, especially gender, race, and age (HireVue 2021; Knockri 2021; myInterview 2021; Raghavan et al. 2020). For example, designers mention using training data that are representative of the target population along the lines of legally protected demographic attributes (HireVue 2021; Knockri 2021; myInterview 2021). They also

assert that analyzing what applicants say during interviews (i.e., their interview responses) rather than how they look (i.e., their appearances) helps to eliminate hiring biases (HireVue 2021; Knockri 2021; myInterview 2021).

Designers' efforts to use representative training data and remove visual analyses help improve fairness in algorithmic hiring for legally protected groups. However, these tactics do not address all avenues of potential bias. While social class background is not a legally protected attribute in the United States, it is a well-documented axis of oppression in the country (Calarco 2018; Lareau 2003; Rivera 2012). My dissertation shows that evaluators' assessments can subtly and subconsciously privilege upper-middle-class applicants. As such, these data suggest that designers need to think broadly about potential avenues of bias when developing "representative" training data for algorithmic hiring tools. When conducting algorithmic audits, designers should also identify any class-based disparities in algorithmic interview assessments.

More specifically, my findings challenge designers' claim that algorithmic hiring tools can alleviate hiring biases by removing visual cues about applicants' appearance and only assessing applicants' interview responses. This claim assumes that by only evaluating interview responses, algorithmic hiring tools can limit potential biases based on gender, race, and other markers commonly assessed through appearance. Designers herald this technique of minimizing appearance-based biases as enabling algorithmic hiring tools to fully assess applicants' innate personality traits. However, my findings suggest that applicants' interview responses are also a site where applicants display the interactional style acquired from their social class upbringing. As such, designers should consider whether algorithmic hiring tools are unintentionally biased toward upper-middle-class applicants.

Given that designers do not publicly disclose how hiring algorithmic tools translate interviewee responses into assessments of “agreeability” or “innovativeness,” I am unable to discuss whether hiring algorithmic tools prioritize upper-middle-class interactional styles and are biased toward upper-middle-class applicants. That said, designers often create algorithmic tools based on evaluators’ current hiring assessments. One could imagine that these tools would rate applicants who display an upper-middle-class interactional style more highly. As certain markers in interview responses (e.g., phrases such as “interdisciplinary” and “I disagree”) are likely to signal an upper-middle-class interactional style, designers should ensure that hiring algorithmic tools are using these markers with caution.

### *7.3.2. Implications for the Design of Social Networking Tools*

My surveys and interviews with applicants also offer design implications for social networking tools. I agree with previous work in HCI that finds that helping working- and middle-class (WMC) applicants to identify connections at potential workplaces empowers them (Wheeler and Dillahunt 2018). Wheeler and Dillahunt, in particular, have called for social networking sites to help applicants find the contacts from whom they could get referrals and information about job opportunities (Wheeler and Dillahunt 2018). Based on my findings, I expand on this suggestion and urge designers to think beyond the question of whether WMC applicants have access to the “right” social connections. Having the “right connections” is only the beginning. My data suggest that reducing the class-based disparities in applicants’ experiences also involves alleviating the emotional and temporal burdens that working- and middle-class applicants face when reaching out to these connections.

Hui and colleagues have recently taken on this challenge by designing and evaluating IntroAssist, a tool that reduces users' anxiety about asking professional connections for assistance using "cold" emails (J. S. Hui, Gergle, and Gerber 2018). IntroAssist achieves this goal by increasing users' skills in writing email requests. My findings reveal that in addition to these efforts, designers could also improve applicants' confidence in seeking assistance by considering their class-based networking practices. Although networking sites (e.g., LinkedIn, Facebook, and Twitter) enable applicants to identify social contacts at potential workplaces, WMC applicants may not feel comfortable asking them for help because they do not want to burden these contacts with requests. To support these applicants, designers of networking sites could allow potential mentors to indicate their willingness to help applicants. The networking sites could then match these mentors with applicants and encourage mentors to initiate the conversation with applicants. This feature could thus ease applicants' burden of reaching out to viable mentors for job search assistance.

#### **7.4. Implications for Evaluators**

My research shows that current elite hiring practices create additional emotional and temporal burdens for working- and middle-class applicants. Building on the findings from all three of my studies, I encourage evaluators to alleviate these burdens by considering how applicants' social class background affects their ability to (a) acquire resources that help them in the hiring process, and (b) develop a transboundary interactional style that evaluators value in interview assessments. Evaluators could use two different approaches to reduce these class-based burdens. They could better support working- and middle-class applicants to navigate the current hiring

practices. They could also change current the hiring practices to account for applicants' class-based differences in interactional styles.

The first approach of supporting applicants to meet the upper-middle-class hiring expectations takes place at a more individual level. Evaluators could consider the extent to which applicants feel comfortable asking connections for job search assistance. Prior to the internship application cycle, evaluators from similar backgrounds could offer to mentor working- and middle-class applicants. These evaluators could not only provide moral support, but also strategize with applicants on how to prepare for interviews and display the desired hiring traits in less stressful and time-consuming ways.

The second approach of critically examining and changing the hiring process requires more collective efforts. My findings show that evaluators used applicants' interactional styles to gauge their future job performance. However, it remains unclear whether displaying an upper-middle-class transboundary interactional style during interviews is positively associated with producing innovative *deliverables* in the workplace. In the longer term, companies could examine the relationship between interactional styles during interviews and on-the-job innovative abilities. They could also identify additional measurements of hiring traits related to job performance and not tied to social class background. Companies could then use these measurements to assess applicants' actual "innovation potential."

In the shorter term, to alleviate the burdens of working- and middle-class applicants when securing employment, evaluators could explore other ways of assessing applicants' "innovation potential." Specifically, evaluators could try to minimize the pressure they subconsciously place on applicants to display an upper-middle-class interactional style during high-stakes, power-laden

interviews. My findings suggest that working- and middle-class individuals may feel more comfortable carefully deliberating and crafting their responses before voicing them to authority figures. Considering this working- and middle-class interactional style, evaluators could provide applicants more information before the interviews and offer different avenues for them to express themselves.

For example, evaluators could provide an overview of the potential internship project and interview questions beforehand. If evaluators prioritize interdisciplinary ideas, they could inform applicants about this expectation. If evaluators prefer applicants who are willing to challenge the status quo, they could ask applicants to prepare a response about how they voiced disagreements in a prior situation. Evaluators could also ask applicants to submit a written reflection on interesting ideas to explore during the interview and internship.

Such changes to the evaluative practices would allow all applicants more time to generate interesting ideas and think about how they could best communicate their ideas to evaluators, thus alleviating the stress of expressing their thoughts on the fly during high-pressure interviews. Such tweaks could also result in an interview setting that better reflects applicants' future work environment. Compared to interview settings, work environments at large technology companies often allow employees to familiarize themselves with a project, prepare their ideas before presenting them to colleagues, and share their perspectives via different channels (e.g., written documents and emails). By conducting hiring interviews that better approximate the work environment, evaluators can better assess applicants' abilities to contribute meaningfully to the workplace. As with all intervention efforts, evaluators should pay attention to how each change in their evaluative practices affect each applicant group. They should examine the effects of these

changes on all applicants and avoid unintentionally imposing additional burdens on a particular group.

## **7.5. Implications for Universities and Educators**

Universities and educators play integral roles in helping students to fulfill hiring expectations. They provide students with robust social networks through maintaining alumni connections, hosting networking events, and facilitating introductions. They also help students to uncover the hidden curriculum of hiring through organizing job preparation workshops and advising students on their job search strategies. These efforts are important and commendable. My findings underscore the need for universities and educators to also consider whether working- and middle-class (WMC) students feel comfortable leveraging these social and cultural resources. Drawing on my findings, I provide additional steps that universities and educators could take to ease WMC students' process of using these resources to meet the hiring criteria.

Universities and educators could support applicants by creating spaces for WMC students to engage with WMC peers and alumni and to explore how they can fulfill the hiring expectations. Universities could establish affinity groups and mentorship programs for WMC students. Educators could introduce WMC students to their WMC peers who have successfully secured job offers from elite firms. Engaging with WMC peers can enable WMC applicants to gain social support and identify ways to minimize the emotional and temporal burdens of navigating elite hiring processes.

In addition, universities could create alumni directories that allow alumni to indicate their openness to helping students navigate certain aspects of the job search process. For example, alumni could state if they are willing to do mock interviews, share their experiences at the



company, or brainstorm ways to approach the hiring process. Universities could also provide email templates or samples for students to use when reaching out to these contacts. Further, educators could encourage their students to identify and cold email potential hiring managers. Given their familiarity with their students' work and interests, advisors could offer to give feedback on students' cold email drafts to increase students' comfort levels around sending these emails.

## **7.6. Future Directions**

Future research could investigate how the emotional and temporal taxes that working- and middle-class applicants pay during the hiring process affect their subsequent experiences in the workplace. For example, researchers could examine how these applicants' shorter-term experiences of securing employment affects their longer-term sense of belonging in the technology industry.

Future work could also take intersectionality into account and explore how social class background, gender, and race shape elite labor markets. While this dissertation examines the role of social class background in hiring, prior literature suggests that gender and race are also axes of domination that influence applicants' experiences of meeting hiring expectations (Castilla 2008; Posselt 2016; Ray 2019; Warikoo 2016). Past research suggests that working- and middle-class women face a "double bind" in hiring; they not only experience gender discrimination but also must develop tactics to respond to upper-middle-class hiring practices. Further, as past research finds that Black women face substantial racial and gender discrimination (Crenshaw 2017; Pogrebin, Dodge, and Chatman 2000), it is plausible that working- and middle-class Black women applicants encounter a "triple bind" in navigating predominantly white, male, and upper-middle-class labor markets. Given that the applicant pool for elite occupations is often homogenous in

terms of race and gender (i.e., applicants tend to be white or Asian men), it is highly unlikely that using this dissertation's methodologies would yield a robust enough sample size for cross-group comparisons. Thus, future research could explore alternative methodologies for understanding the intersectional dynamics of elite hiring. For example, scholars could focus on current employees at large technology companies who belong to multiple marginalized identities and do in-depth retrospective analyses of their career trajectories.

Finally, it is important to note that I am not arguing that applicants' social class background predetermines their interactional styles. Some working-class individuals have more outgoing personalities that allow for greater comfort during conversations in an interview setting. Some upper-middle-class individuals have shyer personalities and prefer to take more time to deliberate before immediately voicing their opinions to authority figures. Future work could investigate how the intersections between applicants' personalities and social class background figure into the hiring process.

## **7.7. Conclusion**

Elite companies often use the language of *individual* talent and merit to describe their hiring practices. Such words downplay the role of *structural* constraints—and specifically, class-based familial and educational upbringing—in the hiring process. Past research has shown that the social class settings of families and educational institutions shape individuals' cultural capital (Calarco 2018; Lareau 2003; Stephens et al. 2014). Cultural capital is composed of the dominant cultural signals that authority figures valorize in evaluative processes, including college admissions and hiring (Calarco 2018; Lareau 2003; Stephens et al. 2014). Evaluators' assessments

of cultural capital can, in turn, systematically prioritize upper-middle-class applicants (Koppman 2016; Rivera 2016).

Recent studies of culture and stratification have found that cultural capital in the form of upper-middle-class tastes can create advantages for applicants (Koppman 2016; Rivera 2016). Evaluators at elite companies often prefer applicants with similar upper-middle-class hobbies and leisure preferences to them (Koppman 2016; Rivera 2016). This literature raises important questions about the forms of cultural capital that elite companies reward, and how cultural capital influences evaluative processes. In this dissertation, I enrich current scholarship by revealing how cultural capital, in the form of interactional styles, matters in elite hiring. I use the term “interactional cultural capital” to describe the styles of interacting with authority figures that are valued in elite institutions and cultivated in one’s social class upbringing. Interactional cultural capital warrants empirical attention because differences in how individuals engage with others are subtle, yet they are how authority figures select and exclude groups of people.

This dissertation shows how interactional cultural capital shapes evaluators’ assessments and applicants’ hiring experiences. I examine this topic within the context of the elite hiring process for Ph.D.-level internships at top-tier technology companies in the United States. I use a mixed-methods approach to triangulate the perspectives of evaluators and applicants and increase the scope and breadth of my findings.

Using a survey, I show that evaluators’ assessments prioritize applicants who can display upper-middle-class cultural capital, and they exclude working- and middle-class applicants. My interviews with evaluators allow me to further understand this finding and explore *how* this preference plays out in interviews. These interviews suggest that evaluators desire applicants who

display what I call “transboundary interactional style.” Demonstrating a transboundary interactional style involves responding to interview questions by drawing on interdisciplinary ideas, taking the reins in conversation, and defending one’s opinions. While evaluators commonly related transboundary interactional style to applicants’ individual personalities, I suggest that this interactional style is also often cultivated in upper-middle-class backgrounds. In other words, the preferred interactional style is linked to upper-middle-class interactional cultural capital.

From the other side of the hiring process, my interviews with applicants reveal that beyond providing access to valorized resources (e.g., social connections and insider knowledge about tacit hiring expectations), elite universities and individual mentors can help working- and middle-class applicants to become more comfortable with demonstrating the desired interactional styles. I find that these working- and middle-class applicants can “win” offers at the same rate as their upper-middle-class counterparts. Yet, this prize comes at a high emotional and temporal cost. Working- and middle-class applicants must perform additional work to demonstrate the upper-middle-class interactional styles that evaluators prefer. This work is a result of the cultural mismatch between working- and middle-class interactional styles and upper-middle-class hiring expectations.

It is important to note that society would generally assume that the working- and middle-class applicants in my study have “made it.” They have successfully gotten into Ph.D.-level programs, and many of them are at elite universities in the nation. However, my findings reveal that working- and middle-class applicants at elite universities still face additional barriers when navigating elite hiring processes. Past scholarship has shown that working- and middle-class applicants struggle when they lack educational prestige, social connections at the companies, and insider knowledge about the hiring process (Behroozi et al. 2020; Hall Jr and Gosha 2018; Rivera

2016). It is highly plausible that working- and middle-class applicants with fewer resources and lesser educational status would feel more stressed throughout the hiring process.

Taken together, I argue that elite hiring systems create advantages for applicants who have been socialized to enact upper-middle-class interactional styles. My data suggest that while working- and middle-class applicants at elite educational institutions can learn what are the tacit hiring expectations, trying to meet these dominant expectations comes with emotional and temporal costs. Thus, I hope my dissertation generates a discussion on how to support working- and middle-class applicants beyond providing access to valuable employment-related resources. To alleviate the added burdens of working- and middle-class applicants, elite companies must challenge the assumption that individuals' ingrained practices, such as ways of interacting with authority figures, are the sole result of individuals' core personality traits. If elite companies recognize how individuals learn class-based practices, then elite companies can help scaffold applicants' process of acquiring valorized upper-middle-class interactional cultural capital.

With an increased awareness of how interactional cultural capital shapes hiring, elite companies could share the considerable burden of educational institutions to teach students the desired upper-middle-class interactional styles. For example, elite companies could provide mentorship programs and job preparation workshops that scaffold applicants' process of learning to meet the hiring expectations around interactional styles. These programs could include topics about how to express interdisciplinary ideas, assert oneself, and casually engage evaluators during interviews. Another more revolutionary and longer-term approach to reducing the added burdens of working- and middle-class applicants is to widen current evaluative perspectives. Specifically, elite companies could recognize working- and middle-class interactional styles as equally valuable

ways of expressing oneself and change the hiring process accordingly. In sum, evaluators at elite companies play a powerful role in influencing applicants' experiences of entering prestigious jobs and the upper echelons of society. To implement a holistic hiring process that considers the wellbeing of all applicants, evaluators should account for the role of social class background in shaping elite hiring.

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