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Hee Song & Matthew Hora

**Navigating Barriers to  
Access Internships:  
Challenges for Thwarted  
Interns Across  
Institution Types &  
Student Demographics**

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## Executive Summary

This study investigates the barriers for students at two-year and four-year institutions to successfully pursue an internship, an experience that research indicates can have positive impacts on academic development and post-graduate career success. Given prior research suggesting that various demographic and academic attributes such as race, gender, socioeconomic status, first-generation status, and field of study may influence student experiences with various obstacles, we use a combination of descriptive analysis, heat map visualization, and logistic regression to provide new insights into the nature of college student encounters with these barriers.

As part of a partnership between Strada Education and the University of Wisconsin-Madison's Center for Research on College Transitions, the National Survey of College Internships (NSCI) was administered in the Spring of 2023 across diverse institutions in the U.S. For this analysis the study sample included 1,067 students from two-year institutions and 1,016 students from four-year institutions who had not taken an internship but had been interested in doing so (n=2,083) – a population that we call the “thwarted interns.” These students were asked whether nine possible barriers (e.g., heavy course load, lack of childcare) had prevented them from successfully finding and securing an internship. Descriptive analysis with heat maps and logistic regression analyses were used to illustrate and quantify the extent and distribution of these obstacles.

### Key Findings

- **Disparities in Internship Participation and Interest:** Of the students who answered the NSCI, 27% participated in internships while the remaining 73% did not. Among the non-interns, a striking 55% expressed a strong interest in taking an internship. This discrepancy is troubling as it highlights that a substantial number of students are missing out on internship opportunities and that a significant portion of these non-interns desired such experiences but were unable to secure them. This situation underscores significant problems with access to internships, revealing that many students are missing out on experiences that could be critical for their professional growth and mobility. But the nature of the specific obstacles facing today's college students as they seek an internship are not equally distributed across institutions, student demographics, or academic majors.
- **Different Challenges among Institution Types:** Our analysis reveals that students at two-year institutions face significant challenges balancing heavy course loads with work commitments and lack of information about securing internship opportunities. In contrast, students at four-year institutions primarily struggle with heavy course loads. Also, the lack of childcare is more significant for students at two-year institutions compared to four-year institutions, impacting their ability to manage both family obligations and academic responsibilities.

- **Structural Barriers for Underrepresented Students:** At both types of postsecondary institutions, traditionally marginalized<sup>1</sup> students such as first-generation students and those from lower socioeconomic backgrounds face significant challenges with personal barriers like time management issues (e.g. heavy course loads, work commitments), which could be exacerbated by structural barriers (e.g. insufficient pay, lack of transportation), making them prioritize immediate compensation from other jobs over internships. Regression analysis also shows that the higher odds of these similar structural barriers for different racial and gender groups persist across institution types, highlighting the possible intersection of other factors including first-generation status, socioeconomic status, and geographic location. For example, non-male students are more likely to report lack of childcare as one of their barriers to secure internships, and Black and Latinx students are more likely to face greater transportation challenges.

The results of our analysis reveal that obstacles to internships are multi-faceted and highlight the need for postsecondary institutions, government agencies, and internship providers to not use one-size-fits-all solutions to the internship access problem, but to address the unique barriers faced by different student groups. Recommendations include enhancing support services for providing adequate information and guidance for finding internships at two-year institutions, developing mentorship for students who are struggling from balancing work and course load, and increasing childcare support and developing industry partnerships to enhance availability to enable greater internship participation. Future research should explore the interrelationships among the nine barriers using mixed methods approaches, and the prospects of using intersectionality theory to better understand these dynamics and to foster equity and accessibility in educational and professional opportunities such as internships.

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<sup>1</sup> **Marginalized Students:** This term refers to students who are often underrepresented or face systemic and structural barriers in education. This includes non-male students, first-generation students, and those from lower socioeconomic backgrounds. These students typically differ from the traditional student profile in higher education, which generally includes middle- to upper-class backgrounds who attend college full-time immediately after high school and often have parents who have also attended college. Historically, male students have been predominantly considered as key students in the labor market, especially in fields like STEM and Business. Students from lower economic backgrounds often face financial barriers that make affording higher education difficult, and first-generation students may lack access to essential information and support since their parents do not have higher education degrees. Consequently, marginalized students may encounter additional challenges in accessing and benefiting from educational opportunities due to these differences.



## Introduction

Internships are a form of work-based learning that ideally offers students the chance to gain hands-on experience relevant to their academic studies while being mentored by professionals in their field (Di Meglio et al., 2022; Hora et al. 2017). Scholars in this field have documented the positive impacts of internships on students' professional development and career prospects. Internships provide opportunities for skill development, deeper sociocultural understanding of the workplace, and the application of theoretical knowledge in practical settings (Baert et al., 2021; Kim et al., 2022). These experiences, highly valued by employers, also expand professional networking opportunities, thereby enhancing students' chances of employment (McHugh, 2017; Wilson et al., 2023). Consequently, internships can play a role in enhancing students' economic outcomes, with interns often obtaining higher wages upon graduation, and achieving better career progression within the labor market (Bolli et al., 2021).

However, access to internship opportunities is limited, potentially creating a barrier to professional growth and social mobility for many college students (Hora et al. 2022; Finighan & Putnam, 2017). Despite the scarcity of studies on this matter, several obstacles have been identified that can hinder student participation. Many students struggle with balancing a heavy academic workload with internship responsibilities, which can lead them to abandon their plans to participate (Hora et al., 2021; 2022). Additionally, logistical challenges such as transportation and unpaid positions can restrict access to these opportunities (Perlin, 2012; Torpey-Saboe et al., 2022). Another major obstacle is the challenge of finding and applying for internships, often due to a lack of knowledge and guidance about how to find such information (Allen et al., 2013; Bathmaker et al., 2013). Some of these barriers to accessing internships are structural, such as transportation accessibility and internship market conditions, while others stem from personal circumstances such as managing a heavy course load.

These experiences are not universal and may vary according to the different types of higher education institutions students are attending. The distinct characteristics of community colleges and four-year universities could lead to unique challenges when pursuing internships. Community colleges often serve a more diverse student body, including a higher proportion of part-time students, older adult students, and those balancing education with work or family responsibilities. In contrast, four-year universities typically have a larger population of full-time, traditional-age students (Darolia, 2014).

Moreover, students' different demographic factors, such as race, gender, and socioeconomic status, can also influence the perception of barriers when securing internships. Students of color, first-generation students, low-income students, non-Business or STEM majors, and individuals aligned with historically disadvantaged communities face obstacles (e.g. lack of transportation, lack of information to find internships) in pursuing internships due to limited resources and discrimination in the internship market (Hora et al. 2022; Jaeger et al., 2023; Wright & Mulvey, 2021). There is limited research that thoroughly investigates how these

Access to internship opportunities is limited, potentially creating a barrier to professional growth and social mobility for many college students.

distributions are distinct or similar across different demographic identities and institution types, overlooking the fact that some student groups encounter more pronounced barriers.

In this paper, we sought to answer the following three questions: (1) What are the differences and similarities in barriers/obstacles that students encounter while seeking internships at two-year versus four-year institutions? (2) How do these barriers/obstacles patterns are similar or different among student demographics such as race, gender, socioeconomic class, first-generation status, and field of study? (3) Which student demographics are related to the likelihood of encountering specific internship barriers, separately examined for two-year and four-year institutions?

To answer these questions, we analyzed the 2023 National Survey of College Internships (NSCI) data, conducted with the Strada Education Network Foundation. We examined the nine internship barriers in samples from two-year and four-year institutions separately to account for the distinct nature and student population of each institution type, and then compared the results. Using heat map analysis and clustering methods, we first described how different demographic factors experience these barriers. Then, logistic regression analyses identified which demographic factors influenced the likelihood of each barrier.

Internship access is uneven, with students facing various obstacles due to financial, institutional, and social constraints.

Next, our paper briefly reviews the literature on internship accessibility, outlining the systemic and personal barriers that affect diverse groups of students, followed by a brief review of our methods. We conclude with a discussion of the broader implications of these findings, suggesting ways to improve equity in internship programs and proposing areas for future research to explore and address these challenges.

## Background

In this background section, we briefly review the literature on access to internships, with a focus on the nine obstacles highlighted in this study. We also review the differences between internships at two-year and four-year institutions, and differences among various demographic factors.

### Limited Accessibility to Internships

Internships significantly enhance college graduates' job prospects and employability, yet access to them is uneven, as students face various obstacles due to financial, institutional, and social constraints (Hora et al., 2021; Hora et al., 2022; Wright & Mulvey, 2021). The reasons for limited accessibility to internships can be categorized into three categories: time management challenges, logistical and financial constraints, and information and opportunity gaps. In Table 1 (below), we list the nine obstacles to internships highlighted in our study according to these three broader categories.

**Table 1. Nine Perceived Barriers to Access Internships**

| <b>Categories</b>                    | <b>Perceived Barriers</b>        | <b>Description</b>  | <b>Citations</b>                                  |
|--------------------------------------|----------------------------------|---|---|
| Time management challenges           | Heavy course load                | Students with a heavy course load often struggle to find the time required to commit to an internship.  | Hora et al., 2021; 2022                           |
|                                      | Work at a current job            | Holding a current job may limit students' availability, making it difficult to accommodate an internship.   | Perlin, 2012; Wright & Mulvey, 2021               |
| Logistical and financial constraints | Insufficient pay                 | Internships that offer insufficient pay can deter students who need financial support to sustain themselves.  | Jang-Tucci et al, 2024; Torpey-Saboe et al., 2022 |
|                                      | Lack of transportation           | Students may find it challenging to commute to or relocate for internships at locations that are not easily accessible and where living costs are high. | Hora et al., 2022; Perlin, 2012                   |
|                                      | Lack of childcare                | Students with caregiving responsibilities may face barriers to participating in internships due to the lack of childcare options.                       | Hora et al., 2022                                 |
| Information and opportunity gaps     | Not sure how to find internships | Lack of knowledge or information about how to find and apply for internships can prevent students from securing these opportunities.                    | Allen et al., 2013; Bathmaker et al., 2013        |
|                                      | Lack of internships in field     | Students may encounter limited opportunities in their specific field of study, restricting access to relevant internships.                              | Moss-Pech, 2021                                   |
|                                      | Not selected                     | Competition for limited internships can be fierce, and not being selected for available positions can be a significant barrier.                         | Hora et al., 2021                                 |
|                                      | Internship cancelled (COVID-19)  | Many internships have been canceled due to the COVID-19 pandemic, leaving students without opportunities.   | Wilson et al., 2023                               |

College students often have very busy lives, facing difficulties managing their time and schedule. For example, balancing a **heavy academic workload** with an internship can be overwhelming for many students, as both demand significant time (Hora et al., 2022). This challenge is compounded for those who have additional responsibilities such as the **need to work a paid job** or caregiving duties (Hatch & Garcia, 2017; Perlin, 2012). Such commitments can restrict the time students have available to engage in career-enhancing activities like internships, often forcing them to prioritize immediate financial earnings or family care over long-term career development (Hora et al., 2021; Wright & Mulvey, 2021).

The combination of financial need and a heavy academic course load may force students to prioritize immediate earnings over long-term career development activities.

Students also face logistical and financial obstacles to pursuing internships. For instance, students living in suburban or rural areas often face significant challenges due to **inadequate transportation**, making it difficult for them to commute to internship locations that are typically centered in urban areas (Jabbar et al., 2017; Perlin, 2012). Additionally, the financial burden of engaging in **unpaid or underpaid internships** can be prohibitive (Jang-Tucci et al. 2024; Torpey-Saboe et al., 2022). Many of these positions may not compensate enough for travel, living expenses, or lost wages from other jobs, further exacerbating the accessibility issues for financially strapped students (Wright & Mulvey, 2021). The **absence of adequate childcare services** can create challenges for students who have caregiving duties, potentially hindering their ability to engage in internship opportunities (Hora et al., 2022).

Finally, many students struggle with finding internships due to a **lack of information** on how to locate and apply for these opportunities (Allen et al., 2013). This issue is often more acute for those without strong professional networks or mentors who could guide them through the process (Bathmaker et al., 2013; O'Connor & Bodicoat, 2017). At the same time, the **scarcity of available internship slots**, particularly in specialized or highly competitive fields, means that even well-informed students may find it difficult to secure positions being rejected (Moss-Pech, 2021). The **COVID-19 pandemic** may have exacerbated this opportunity gap due to the cancellation of numerous internships, resulting in a reduction of opportunities for college students (Wilson et al., 2023).

## Potential Factors of Internship Access and Barriers

While internships offer valuable opportunities for students, access to these experiences is not uniform across all demographics. Various factors can influence a student's ability to secure and participate in internships, creating different barriers for students. In this section, we examine these potential factors, first considering the institution types in which students are situated in, and then exploring the demographic factors that may impact students' access to these opportunities.

### Institution Types

Since two-year colleges and four-year universities each play distinct roles in the U.S. educational system, with different academic programs, extra-curricular offerings, and student characteristics, it is likely that internship programs themselves and student experiences with



internships varies according to institution type. While little research exists on this possibility, we hypothesize that these differences are substantial and warrant treating the data for each institution type separately. Here we briefly review the literature that suggests these differences are worth considering.

Two-year institutions primarily offer associate degrees and certificates (Cohen et al., 2013), with the mission to provide accessible, affordable education, serving as a steppingstone to employment or further education (Ehrenberg & Smith, 2004; Wang et al., 2007). In contrast, four-year institutions predominantly offer bachelor's and advanced degrees, and aim to furnish students with a broad, comprehensive education, often with a focus on research and academic inquiry (Wang et al., 2007). We suggest that these differences in mission and academic focus impact the degree to which institutions are focused on and prepared to offer internship programs to their experiences.

Additionally, two-year and four-year institutions have different enrollment patterns, highlight distinct demographic profiles of students, with more racially diverse, part-time, low-income, and vocationally oriented students, which impacts academic offerings through features such as adaptable (or evening) class schedules tailored to accommodate students who are balancing work commitments alongside their studies (Hatch & Garcia, 2017). Conversely, while these trends are changing, four-year institutions typically see a higher concentration of traditional college-age students and offer most courses during the workday, potentially making internship access a different issue between the two types of institutions (Darolia, 2014).

Two-year colleges often have considerable resource limitations caused by limited state funding and higher dropout rates, negatively impacting their ability to support internships.

When considering institutional differences between internship programming in higher education, Hora et al. (2021) note that a major barrier to securing internships is inadequate institutional support services. Two-year colleges have historically faced considerable resource limitations relative to their students' needs, hindered by limited state funding and higher dropout rates (Hatch & Garcia, 2017), which can translate into units such as career services being chronically under-staffed and underfunded. Historically, two-year institutions have often been under-resourced compared to many four-year colleges and universities (Allen et al., 2013). Consequently, students at these two-year colleges may lack access to the comprehensive information and training typically provided by well-funded career services departments.

### Student Demographics

Finally, we review how various demographic factors such as race, gender, socioeconomic status, first-generation status, and field of study may influence the likelihood of encountering barriers to securing internships.

In studying the accessibility of college internships for Latinx students at a Hispanic-serving institution, Jang-Tucci et al. (2024) found that racial identity, along with other factors such as income level, affected students' access to and experiences with internship opportunities. The geographical distribution of Black and Latinx students, often in rural or suburban areas with limited transportation options, poses unique challenges to accessing higher education and

compounds existing difficulties with affordability and mobility (Cottom, 2017; Hillman, 2016). Moreover, employers are less likely to respond to candidates with names that sound Black and to those who live farther away from the company, particularly for unpaid internships, making racial identity a potentially important factor in shaping students' internship experiences or lack thereof (Jaeger et al., 2023).

Gender-related identities and issues can also influence students' access to and experiences with internships. For instance, traditional and cultural gender roles in the family and the lack of support services like childcare can impact students' ability to participate in internships (Hora et al., 2021). Discriminatory practices in certain fields of study may extend into their internship job market as well, potentially affecting students' access to and experiences in internships. For instance, in fields like Computer Science, Lapan and Smith (2023) found that while internships generally reinforced women's career interests, participants also encountered challenging or even discriminatory gender dynamics. Such tendencies of existing gender dynamics and discrimination against female students, who are often stereotypically perceived as being less adept in STEM fields, potentially limit their opportunities.

Traditional and cultural gender roles in the family and the lack of support services like childcare can impact students' ability to participate in internships.

Some studies also show that socioeconomic status can significantly impact students' participation in internships. Students with low socioeconomic status struggle to accept low-paying or unpaid internships or to relocate to costly urban areas due to affordability (Perlin, 2012). Additionally, middle-class students generally secure internships more successfully than their working-class peers, partly due to utilizing their social network that provide detailed information on internships and focusing more on extracurricular activities that enhance professional experience (Bathmaker et al., 2013; O'Connor & Bodicoat, 2017). This phenomenon is similar to first-generation students, who often possess less proximity to high-quality information because their families and friends might lack experience with higher education and professional careers, leaving them less robust access to professional opportunities than their better-resourced peers (Parks-Yancy, 2012; Solorzano & Yosso, 2001).

The academic field of study can also impact internship opportunities and barriers. For example, unlike STEM and Business majors, students in the arts and humanities may encounter a shortage of positions and unpaid internships due to market conditions (Jang-Tucci et al., 2024; Hora et al., 2022). Furthermore, students in fields with severe competition, such as STEM and Business, face challenges like not being selected on internships (Lapan & Smith, 2023). Thus, individual-level factors such as racial and gender identity, socio-economic status, and academic major, are likely to impact a students' access to an internship while attending college.

## Methods

### Data Collection and Sampling

The National Survey of College Internships (NSCI) was conducted nationally in April 2023 with a diverse array of colleges and universities across the U.S. Invitations to participate in the study were sent to a subset of institutions, which then disseminated the survey to their students. Both institutions and student respondents self-selected into the study, with a total of 5,355 student responses collected via an online instrument. The data were weighted to be representative of two-year and four-year college students in terms of race/ethnicity, gender, class year, and financial aid status. The survey included juniors and seniors at four-year colleges (2,824 respondents) and students from all years at two-year colleges (2,531 respondents). It is important to note that the sample used for this report is not this larger study population (n=5,355), but instead only consists of college students who did not take an internship but had been interested in pursuing one (i.e., 55% of the non-interns in the larger study). Thus, the final study population that is the basis of our analysis includes 1,077 students from two-year institutions and 1,021 students from four-year institutions (n=2,098). We call this group the “thwarted interns” to highlight their unique nature (i.e., non-interns who had aspired to pursue a position) amidst the larger population of students who provided data for the larger NSCI study.

### Study Instrument and Key Variables

Our analysis focused on nine key variables that influenced students' ability to access (or not) an internship (see Table 1). Student respondents were asked to indicate whether a particular obstacle had impacted their ability to pursue an internship, using “Yes” or “No” response options. The survey instrument included multiple demographic items, with race measured through ten options (e.g., Black or African American, Latinx or Hispanic, and Asian) and gender measured through seven options (e.g., male, female, and non-binary). Socioeconomic status was assessed by asking students to report their perceived social class status when they were growing up (e.g., upper-middle class and working-class), first-generation status was determined by whether a student's parents had attended college, and field of study was categorized into broad academic disciplines such as Arts, Humanities, Social Sciences, STEM, and Business.

### Data Analysis

This study employed a multi-step data analysis approach to provide a comprehensive understanding of college internship barriers. To address the first two research questions, we conducted descriptive analyses by visualizing heat maps and utilized logistic regression analysis to address the third question. Findings in all data analyses are weighted to be nationally representative by race/ethnicity, gender, class year, and financial aid status.

#### Descriptive Analysis with Heat Maps

First, we examined the differences in the frequency of the nine perceived internship barriers between community colleges and four-year universities, and how different demographic factors within each institution type reported the nine barriers.

The visualization we used is a heat map, which is a technique that uses color gradients to represent the magnitude of values in a matrix. It provides a clear visual representation of complex data, making it easier to identify patterns. The color intensity in each cell indicated the degree of the barrier experienced by the demographic factor, with darker red colors representing higher frequencies and darker blue colors representing lower frequencies.

To enhance the interpretation of the heat maps and to identify clusters of demographic variables associated with particular obstacles, clustering methods were applied to group similar rows and columns together. These clusters were determined using the hierarchical clustering technique of Ward's method in the statistical software package of R. This method minimizes the total variance within clusters and helps in identifying patterns by grouping similar barriers and demographic factors together. Then, dendrograms or lines connecting different groups of variables generated from this technique were added to the heat maps used to provide a clearer visualization of the relationships between variables. The groups in each row are not mutually exclusive across different demographics like race and gender, but within each demographic factor, such as gender, the categories (e.g., male and non-male) are mutually exclusive.

### **Logistic Regression Analysis**

Finally, we conducted separate logistic regression analyses for two-year and four-year institutions to determine which demographic factors were most influential for each barrier. Each analysis focused on a barrier variable from Table 1, with race, gender, socioeconomic class, first-generation status, and field of study as the independent variables. This resulted in nine logistic regressions per institution type. The results revealed which demographic factors are most influential on barrier outcomes, highlighting which groups are most likely to face particular obstacles within higher education settings.

## **Key Findings**

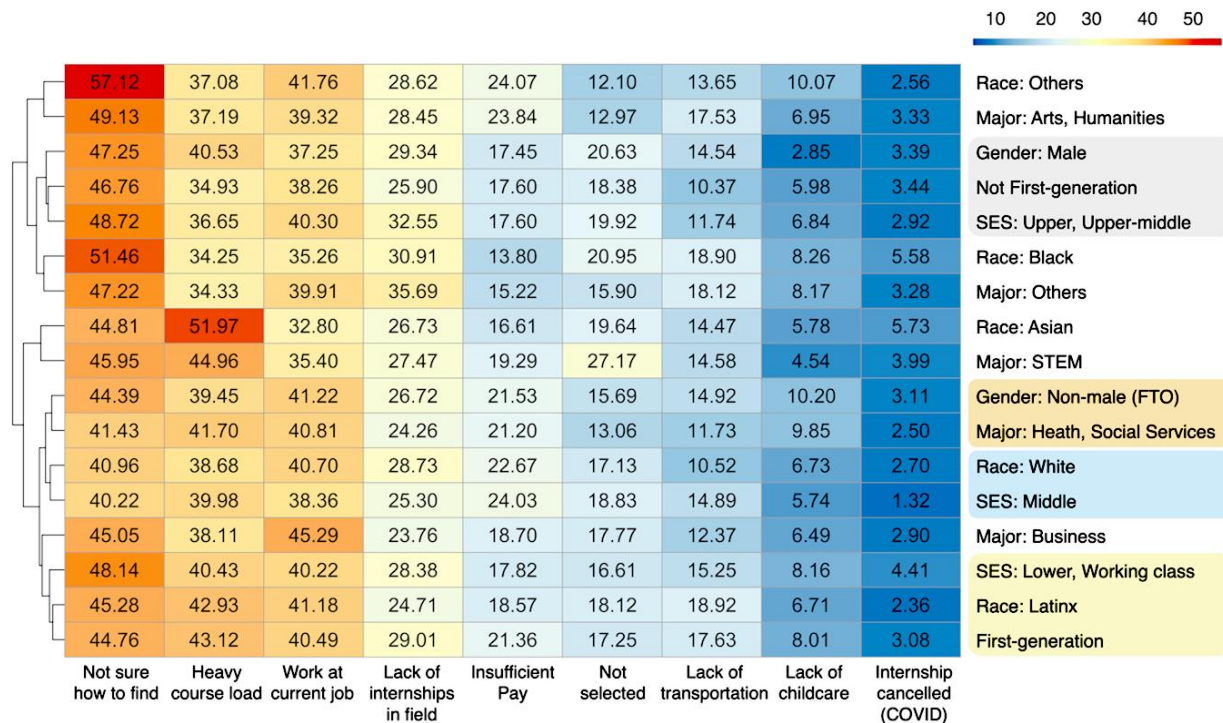
In this section, we report key findings from the study with a focus on heat maps for the two institution types and results from logistic regression analyses.

### **Descriptive Analysis with Heat Maps**

In each cell, the data represents the percentage of students within that demographic factor who responded “Yes” to facing a particular obstacle when trying to pursue an internship. For example, Figure 1 shows that 51.97% of Asian students identified “Heavy course load” as a barrier to securing internships and 27.17% of STEM major students reported “Not selected” as an obstacle to participating internships

Additionally, dendrograms are used to cluster similar response patterns within student demographics (e.g. race, gender, class), allowing for comparison of which demographic factors exhibit similar tendencies. For instance, in Figure 1, 10.20% of non-male (FTO) students and 9.85% of Health and Social services major two-year institution students identified “Lack of childcare” as a barrier to securing internships. Similarly, 18.92% of Latinx students and 17.63% of first-generation students reported “Lack of transportation” as a barrier. These similar response patterns suggest that these demographics face common and overlapping challenges in accessing internships.

**Figure 1. Percentage breakdown of multiple barriers to internship participation by demographic factors of two-year institution students**

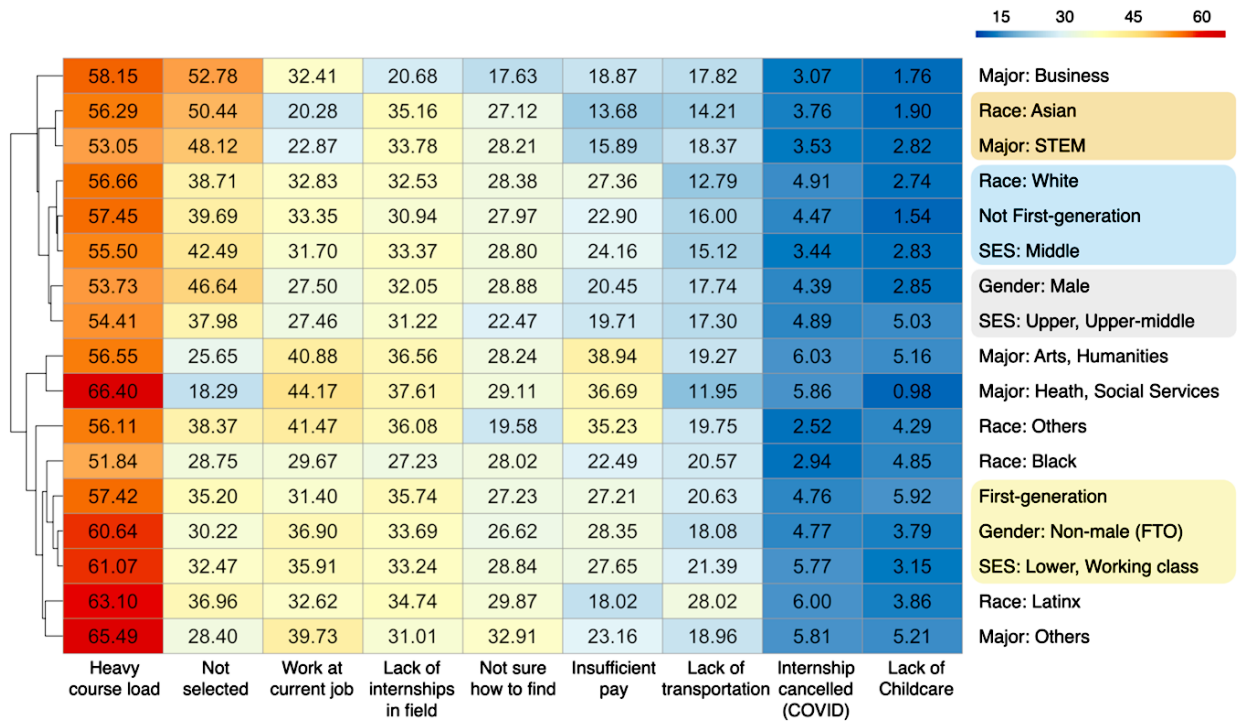


### Different Challenges Faced by Students at Two-year and Four-year Institutions

One of the two key findings from the data is that although some barriers are identical across institution types, their impact and the patterns they form with other barriers significantly differ, emphasizing the unique context of each institution type. For example, "Heavy course load" is a significant barrier for students at both types of institutions, yet the context in which this barrier interacts with others varies. For students at two-year institutions, a heavy course load combines with "Not sure how to find internships" and the "Work at a current job," showing a response pattern that is consistent across these challenges. Conversely, at four-year institutions, a heavy course load stands out as a uniquely significant barrier. This also aligns with the previous literature that those who attend two-year institutions might want to balance their work and studying than those of four-year institutions where mostly interested more on completing the degree (Darolia, 2014; Hatch & Garcia, 2017). Given that two-year colleges generally draw a wider variety of students, such as non-traditional and part-time learners, unlike many four-year colleges, the varied backgrounds of these students imply a link between their current work commitments and their educational settings, making it difficult to manage both work and studies. Furthermore, two-year colleges typically offer less support and information resources than four-year colleges, resulting in lack of information about securing internship opportunities.



**Figure 2. Percentage breakdown of multiple barriers to internship participation by demographic factors of four-year institution students**



The second finding is that specific barriers were prominent and distinct between the two different institution types. When considering factors exhibiting low percentages, both institution types reported a low impact of "Internship cancellations due to COVID-19." However, "Lack of childcare" was identified as a more significant barrier for two-year institutions than for four-year institutions. Considering the fact that from Reynolds (2012) study, 63% of two-year college students say that the importance of living at home while attending college plays a significant role in their choice of school, compared to just 25% of students at four-year colleges and the fact that two-year institution also pursue lifelong education and adult education as one of their missions (Ehrenberg & Smith, 2004), they might have a high possibility to have children to take care at home compared to four-year institution students. They may face challenges in securing adequate state and organizational support, which are closely interconnected, to handle childcare responsibilities while attending a two-year college.

Additionally, the lack of information about how to find internships is more pronounced among two-year institution students, whereas four-year institution students show a higher tendency to be not selected or rejected for their internship applications, highlighting how different institutional contexts shape the barriers students encounter. This could be also aligned with how two-year institutions lack resources and support services than four-year institutions to provide sufficient information, while some four-year institution students might lack getting support for interview preparation and resume reviews (Allen et al., 2013) or higher competition due to higher supply than demand in internships.

## Key Demographic Variables Associated with Obstacles to Internships

When focusing on student demographics in each institution type, three major findings regarding similar patterns can be highlighted. The first finding concerns historically marginalized student groups, including those from lower socioeconomic statuses (SES) and first-generation college students. These groups show consistent patterns in facing barriers to internships, both in two-year and four-year institutions. In two-year settings, these groups' responses are similar to Latinx students. They are highly impacted by heavy course loads (40.43%-43.12%) and the lack of transportation (15.25%-18.92%). In four-year contexts, first-generation students and students with lower SES backgrounds have similar patterns with females, transgender individuals, and other genders (FTO) groups. These groups find their coursework heavy (57.42%-61.07%), insufficient payment (27.21%-28.35%), and the lack of transportation (18.08%-21.39%) as their reasons for non-participation. This demonstrates how different factors are intertwined: underrepresented students may lack the necessary networks or mentors for academic guidance and facing geographical challenges that make internships less accessible.

Secondly, specific race, gender, and major can be group together by facing common challenges across both institution types. In two-year institutions, students majoring in Health and Social Services and non-male (FTO) students show similar response patterns. These groups reported high percentages compared to other groups in working at current jobs (40.81%-41.22%) and lack of childcare (9.85%-10.20%). At four-year institutions, Asian students and those in STEM fields, though not the same individuals, predominantly are full-time students not currently working (20.28%-22.87%) and report not being selected for internships (48.12%-50.44%). This situation may be influenced by limited number of internships and high demands, which depends on the industry's market dynamics.

The third finding indicates that students who are not first-generation display comparable patterns with different SES backgrounds in both types of institutions, with notably low percentages reporting issues with lack of transportation (e.g. 10.37%-14.54% in two-year institutions and 12.79%-16.00% in four-year institutions). At two-year institutions, not first-generation students closely align with male students and upper and upper-middle SES groups, reporting lower percentage of responding insufficient pay as their barriers (17.45%-17.60%). In four-year institution, middle SES students and white students' responses are similar to non-first-generation students, suggesting a homogeneity in experiences that significantly diverges from the responses of lower and working-class students and first-generation students.

Furthermore, the analysis reveals that both types of institutions exhibit unique patterns, particularly in areas related to *field of study* and *race* categories. For instance, Business major students reported the lowest percentage of "Lack of internships in their field" in both institution types (23.76% for two-year and 20.68% for four-year). In four-year institutions, students majoring in Arts, Humanities, and Social Science reported the high percentage of "Lack of internships in field (36.56%)" along with "Insufficient pay (38.94%)" and those in Health and Social Services responded the highest "Working at current jobs (44.17%)" and "Heavy course load (66.40%)." At two-year institutions, minoritized race groups including Native American and Native Hawaiian students reported the highest "Not sure how to find internships (57.12%)" and Asian students reporting the highest "Heavy course load (51.97%)." Also, Black and Latinx students reported a high percentage of struggles with "Lack of transportation" in both types of

institutions (e.g. 28.02% of Latinx students and 20.57% of Black students in four-year institutions).

## Logistic Regression Analysis

The regression coefficients are presented in Tables 2 and 3. In our results, statistically significant coefficients (B) at the  $p < 0.05$  level are marked with an asterisk (\*),  $p < 0.01$  level with two asterisks (\*\*), and  $p < 0.001$  level with three asterisks (\*\*\*). The direction and magnitude of the B value indicate how a predictor affects the likelihood of reporting the barrier to access internships. A positive B suggests the predictor enhances the chances, while a negative B implies it reduces the odds. To enhance interpretability and highlight key findings from our logistic regression analysis, the coefficients were converted into odds ratios (or exponentiated coefficients) in texts below. An  $\text{Exp}(B)$  or odds ratio greater than 1 means the variable increases the probability of reporting that specific barrier as an obstacle to accessing internships relative to the reference group, whereas a value less than 1 suggests the variable decreases this likelihood. Given that these odds ratios are expressed as multiples, this approach allows us to quantify and compare the impact of various factors on barriers securing internships more effectively with reference groups.

### Race Difference in Lack of Transportation and Insufficient Pay

When examining the race of two-year college students, with white students as the reference group, Black and Latinx students have odds of citing lack of transportation as a barrier to internship participation 1.87 and 2.00 times higher than white students. The same trend applies to four-year colleges, where those two racial groups have odds 2.59 and 1.77 times higher, respectively, than white students. This indicates that historically minoritized racial groups had higher odds of citing lack of transportation as a barrier across both types of institutions. For insufficient pay, four-year college white students had odds 2.03, 2.49 times higher than Latinx and Asian students, respectively, and in two-year colleges, white students had odds 1.93 times higher than Black students.

### Gender Difference on Childcare Needs and Course Loads

For two-year institution students, those who are not male have odds of being unable to participate in internships due to lack of childcare 3.77 times higher than those of males. In the case of four-year college students, compared to males, non-male students have 33% higher odds of not participating in internships due to a heavy course load and 34% higher odds due to working at current jobs. This shows that non-male students across different educational institutions encounter more barriers to internship participation than male students, notably due to childcare needs and heavy course loads.

### First-generation and Socioeconomic Status on Structural Factors

For first-generation two-year students, the odds of citing lack of transportation as a barrier are 1.81 times higher than for those who are not first-generation. For first-generation four-year students, the odds of citing lack of childcare are 6.02 times higher than for non-first-generation students. Additionally, the odds of being unable to participate in internships due to insufficient

payment were 54% higher for first-generation students compared to those who are not in community colleges and 48% in four-year institutions.

For those in the lower working class in community colleges, the odds of lack of information and internship being cancelled due to COVID-19 as barriers are 1.39 and 4.18 times higher respectively than those in the middle class. In summary, first-generation students and those from lower working-class backgrounds are more impacted by structural factors, such as transportation issues, lack of childcare, low compensation and pandemic, irrelevant to individual choices in accessing internships.

### **Disproportionate Internship Opportunities among Fields of Study**

For four-year institution students, with Art, Humanities, and Social Sciences as the reference group, Business and STEM majors had odds of citing insufficient pay as a reason for not participating in internships 62% and 68% lower, respectively, and odds of being not selected 3.23 times and 2.44 times higher, respectively. This is similar in two-year institutions that STEM majors have odds 2.41 times higher. Additionally, four-year institution students majoring in Business have odds 2.19 times lower than those in Art, Humanities, and Social Sciences of citing a lack of internships in the field as a reason. This suggests that STEM and Business majors faced higher competition and were more likely to be rejected when applying for internships, while Business majors were less likely to cite a lack of internships.

**Table 2 Regression coefficient (B) results of two-year institution college students' demographic factors on barriers**

|   |                         | Dependent variable: |                  |                     |                        |                   |                              |                             |                 |                      |
|---|-------------------------|---------------------|------------------|---------------------|------------------------|-------------------|------------------------------|-----------------------------|-----------------|----------------------|
|   |                         | Heavy course load   | Insufficient pay | Work at current job | Lack of transportation | Lack of childcare | Lack of internships in field | Internship canceled (covid) | Not selected    | Not sure how to find |
| <i>Independent Variables:</i>                   |                         | (1)                 | (2)              | (3)                 | (4)                    | (5)               | (6)                          | (7)                         | (8)             | (9)                  |
| Race<br>(Ref: white)                            | Latinx                  | 0.107               | -0.293           | -0.032              | <b>0.628**</b>         | -0.064            | -0.225                       | -0.238                      | 0.138           | 0.188                |
|   | Black                   | -0.201              | <b>-0.658*</b>   | -0.258              | <b>0.695**</b>         | 0.177             | 0.128                        | 0.759                       | 0.312           | <b>0.442*</b>        |
|   | Asian                   | <b>0.542*</b>       | -0.376           | -0.347              | 0.362                  | 0.104             | -0.093                       | 0.825                       | 0.122           | 0.164                |
|   | Others                  | -0.068              | 0.092            | 0.001               | 0.312                  | 0.377             | 0.008                        | -0.206                      | -0.237          | <b>0.637**</b>       |
| Gender<br>(Ref: Male)                           | FTO                     | 0.033               | 0.235            | 0.130               | 0.123                  | <b>1.328***</b>   | -0.088                       | 0.061                       | -0.128          | -0.081               |
| SES Class<br>(Ref: Middle)                      | Upper & Upper-middle    | -0.143              | -0.374           | 0.095               | -0.140                 | 0.349             | 0.426                        | 0.754                       | -0.098          | 0.360                |
|   | Lower & Working         | -0.081              | <b>-0.479**</b>  | 0.042               | -0.158                 | 0.384             | 0.149                        | <b>1.431**</b>              | -0.167          | <b>0.330*</b>        |
| First-generation status<br>(Ref: No)            | Yes                     | <b>0.355*</b>       | <b>0.435*</b>    | 0.073               | <b>0.594**</b>         | 0.267             | 0.202                        | -0.305                      | -0.030          | -0.153               |
| Major<br>(Ref: Art, Humanities, Social Science) | Business                | -0.038              | -0.252           | 0.246               | -0.530                 | -0.042            | -0.279                       | -0.214                      | 0.368           | -0.204               |
|   | Health, Social Services | 0.148               | -0.223           | 0.027               | <b>-0.571*</b>         | 0.209             | -0.232                       | -0.248                      | 0.030           | -0.296               |
|   | Other                   | -0.193              | <b>-0.602*</b>   | 0.031               | 0.015                  | 0.316             | 0.300                        | 0.040                       | 0.227           | -0.031               |
|   | STEM                    | 0.316               | -0.193           | -0.139              | -0.168                 | -0.120            | -0.115                       | 0.212                       | <b>0.879***</b> | -0.124               |
| Constant  |                         | -0.697**            | -1.097***        | -0.520*             | -2.250***              | -4.092***         | -1.048***                    | -4.424***                   | -1.782***       | -0.318               |
| Observations                                    |                         | 1,077               | 1,077            | 1,077               | 1,077                  | 1,077             | 1,077                        | 1,077                       | 1,077           | 1,077                |
| Log Likelihood                                  |                         | -843.399            | -622.011         | -846.366            | -513.51                | -333.773          | -736.584                     | -169.323                    | -560.065        | -862.64              |
| Akaike Inf. Crit.                               |                         | 1,712.80            | 1,270.02         | 1,718.73            | 1,053.02               | 693.546           | 1,499.17                     | 364.647                     | 1,146.13        | 1,751.28             |
| Note: *p<0.05; **p<0.01; ***p<0.001             |                         |                     |                  |                     |                        |                   |                              |                             |                 |                      |



**Table 3. Regression coefficient (B) results of four-year institution college students' demographic factors on barriers**

| <i>Independent Variables:</i>                   |                         | <i>Dependent Variable:</i> |                  |                     |                        |                   |                              |                             |                  |                      |
|---|-------------------------|----------------------------|------------------|---------------------|------------------------|-------------------|------------------------------|-----------------------------|------------------|----------------------|
|   |                         | Heavy course load          | Insufficient pay | Work at current job | Lack of transportation | Lack of childcare | Lack of internships in field | Internship canceled (covid) | Not selected     | Not sure how to find |
|   |                         | (1)                        | (2)              | (3)                 | (4)                    | (5)               | (6)                          | (7)                         | (8)              | (9)                  |
| Race<br>(Ref: white)                            | Latinx                  | 0.275                      | <b>-0.707***</b> | 0.030               | <b>0.952***</b>        | 0.010             | 0.014                        | 0.186                       | -0.043           | 0.028                |
|   | Black                   | -0.313                     | -0.358           | -0.198              | <b>0.570*</b>          | 0.539             | -0.331                       | -0.603                      | -0.330           | -0.042               |
|   | Asian                   | -0.034                     | <b>-0.911*</b>   | -0.612              | 0.146                  | -0.557            | 0.067                        | -0.244                      | 0.540            | -0.031               |
|   | Others                  | -0.067                     | 0.407            | 0.392               | 0.520                  | 0.264             | 0.118                        | -0.711                      | 0.065            | <b>-0.510*</b>       |
| Gender<br>(Ref: Male)                           | FTO                     | <b>0.283*</b>              | 0.195            | <b>0.296*</b>       | 0.068                  | 0.138             | 0.067                        | 0.101                       | <b>-0.548***</b> | -0.091               |
| SES Class<br>(Ref: Middle)                      | Upper & Upper-middle    | -0.046                     | -0.268           | -0.234              | 0.288                  | 0.922*            | -0.047                       | 0.394                       | -0.259           | -0.342               |
|   | Lower & Working         | 0.256                      | 0.115            | 0.224               | 0.264                  | -0.539            | -0.084                       | 0.546                       | -0.311           | 0.025                |
| First-generation status<br>(Ref: No)            | Yes                     | -0.198                     | 0.391*           | -0.213              | -0.006                 | <b>1.795***</b>   | 0.254                        | -0.131                      | -0.081           | -0.145               |
| Major<br>(Ref: Art, Humanities, Social Science) | Business                | 0.112                      | <b>-0.969***</b> | -0.304              | -0.087                 | -1.199            | <b>-0.786**</b>              | -0.680                      | <b>1.173***</b>  | <b>-0.596*</b>       |
|   | Health, Social Services | 0.422                      | -0.093           | 0.143               | -0.632                 | -1.800            | 0.072                        | 0.017                       | -0.326           | 0.084                |
|   | Other                   | 0.407                      | <b>-0.761**</b>  | -0.013              | -0.146                 | -0.216            | -0.259                       | -0.014                      | 0.167            | 0.252                |
|   | STEM                    | -0.037                     | <b>-1.155***</b> | <b>-0.741***</b>    | -0.119                 | -0.824            | -0.106                       | -0.459                      | <b>0.892***</b>  | 0.010                |
| Constant  |                         | 0.039                      | -0.572**         | -0.542**            | -1.973***              | -3.974***         | -0.645***                    | -3.022***                   | -0.551**         | -0.742***            |
| Observations                                    |                         | 1,021                      | 1,021            | 1,021               | 1,021                  | 1,021             | 1,021                        | 1,021                       | 1,021            | 1,021                |
| Log Likelihood                                  |                         | -675.99                    | -523.447         | -612.956            | -448.583               | -137.686          | -625.021                     | -181.9                      | -614.584         | 581.756              |
| Akaike Inf. Crit.                               |                         | 1,377.98                   | 1,072.89         | 1,251.91            | 923.166                | 301.372           | 1,276.04                     | 389.801                     | 1,255.17         | 1,189.51             |

*Note:* \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

## Conclusion

We analyzed challenges faced by students in two-year and four-year institutions in accessing internships using heat map visualization and logistic regression analyses. Despite 55% of non-intern students expressing interest in internships, only 27% of college students participated, revealing a significant gap in practical career development experiences (Hora et al. 2021). This access-opportunity disparity highlights the urgent need to identify and address barriers that prevent interested students from engaging in these valuable opportunities. One of our findings revealed that barriers student encounter when securing internships differ across institution type. Students at two-year institutions struggle with heavy course loads, work commitments, and lack of information about securing internship opportunities. They also perceive lack of childcare as a significant barrier compared to four-year peers. Meanwhile, four-year institution students' main hurdle appears to be demanding academic schedules. This finding supports previous research indicating that non-traditional and part-time students at two-year institutions face additional challenges due to limited institutional support and resources (Carales, 2020; Darolia, 2014).

First-generation and those from lower socioeconomic backgrounds reported similar barriers in both institution types. This finding aligns with the previous literature indicating that these students are disadvantaged by financial and logistical barriers and lack of quality information crucial for navigating higher education and the professional world (Bathmaker et al. 2013; Parks-Yancy, 2012). These students are disproportionately impacted by structural factors in accessing internships, which are largely beyond individual control, include transportation issues, insufficient internship compensation, lack of childcare, and pandemic-related challenges (Hora et al., 2022; Torpey-Saboe et al., 2022). Furthermore, the higher odds of these similar structural barriers for different racial and gender groups persist across institution types, highlighting the possible intersection of other factors including first-generation status, socioeconomic status, and geographic location.

For example, regarding different racial backgrounds across both two-year and four-year institutions, students from historically underrepresented racial groups were more likely to report transportation difficulties as an obstacle to internship participation, likely reflecting broader socioeconomic and geographic factors. Black and Latinx students often reside in areas with limited public transportation infrastructure (e.g., rural areas or under-resourced urban and suburban neighborhoods), possibly impacting their access to educational and career opportunities like internships (Cottom, 2017; Hillman, 2016). Additionally, the disparity in citing insufficient pay as a barrier likely stems from various interrelated factors, including socioeconomic status (e.g. preference for immediate compensation among lower SES students, higher expectations for higher SES students) and cultural background (e.g. differing views of fair compensation). These factors, along with access to information and career guidance (e.g. awareness of industry standards for internship pay and related advice), can interact differently across diverse groups of students.

Different gender identities also influence the structural barriers that students encounter to secure internships. While male students at two-year colleges primarily struggle with heavy course loads, childcare is less significant for them compared to non-male students. FTO students in two-year institution have higher odds of being unable to participate in internships due to lack of childcare compared to male students. This finding aligns with the literature

suggesting that gendered norms of traditional caring roles may disproportionately affect non-male students, particularly those who are part-time students with full-time jobs (Hora et al., 2021; Wang, 2017).

Finally, one of the findings demonstrates how specific race, gender, and major can exhibit similar patterns. Response patterns to internship barriers were similar for Health and Social Services majors and non-male students in two-year institutions, while in four-year institutions, comparable patterns emerged among Asian students and those pursuing STEM fields. While these groups are not necessarily mutually exclusive, their similar patterns suggest common challenges and experiences when accessing internships, possibly supporting earlier studies that indicate racial and gender disparities exist within majors like STEM and Social Services (Khunou et al., 2012; Lapan & Smith, 2023).

In essence, students seeking internship opportunities often face various structural and personal obstacles. Personal challenges include difficulty balancing work commitments with academic responsibilities due to limited time, or lack of knowledge about how to find internships. However, our findings indicate that these barriers are frequently associated with underlying structural barriers, such as insufficient payment, traditional gender roles influencing the demand for support services like childcare, geographical constraints on lack of transportation issues, and lack of institutional support providing quality information (Hora et al., 2021). Our results also extend prior research by highlighting the complexed challenges faced by students from diverse backgrounds and providing insights that higher education institutions should pause promoting internships as a one-size-fits-all solution until these issues are effectively resolved (Hora et al., 2022). Ultimately, these findings call for efforts to bridge gaps in support and resources, empowering all students to succeed regardless of institutional affiliation, socioeconomic status, race, or gender (Torpey-Saboe et al., 2022).

### **Key Issues for Developing Effective Internship-Related Educational Policies**

Policymakers and educators should develop tailored strategies to address distinct barriers at two-year versus four-year institutions. Two-year institution students often struggle with finding internships and balancing heavy course loads with work commitments, while four-year students mainly face challenges with heavy course loads. Enhancing guidance on finding internships and balancing academic responsibilities is crucial. This will help students become fully aware of their opportunities and allocate resources effectively, especially considering two-year institutions as gateways for racially marginalized groups such as Black and Latinx students (Carales, 2020; Hora et al., 2022).

Marginalized groups, including students from lower socioeconomic backgrounds and first-generation college students, face similar barriers across institution types. Since they struggle with heavy course loads and work commitments, mentorship programs and resources specifically designed for these groups are essential (Hatch & Garcia, 2017). Efforts to address logistical difficulties should include alternative formats such as online or hybrid internships, making them more feasible and affordable for marginalized students (Reid et al., 2023; Teng et al., 2022).

Non-academic and structural barriers, including childcare, transportation, and financial constraints, significantly impact students' ability to engage with internships. Educational policies

should provide support services to tackle these broader life challenges, particularly for students facing economic and geographical challenges (Jabbar et al., 2017). Securing funding for proper compensation and relocation costs for those positions is also crucial (Hora et al., 2021). Fostering partnerships between educational institutions and industry or nonprofit organizations can address barriers like insufficiently paid internships and selection issues due to supply-demand imbalance. By expanding these partnerships across various fields of study can create more relevant internship opportunities aligned with students' academic and career goals (Moss-Pech, 2021).

### **Limitations and Future Research on Internships**

Descriptive findings and singular dimensional regressions in this study may limit our understanding of complex interactions. Future research can use methodologies such as Hierarchical Linear Modeling and interaction terms to explore how intersecting factors (e.g. race, gender, structural forces) affect students' experiences with internship barriers (Jang, 2018; Jang-Tucci et al., 2024). We identified patterns among different demographic groups, but rigorous clustering methods such as Latent Class Analysis can be established to examine the interrelationships among barriers to reveal compounded challenges faced by certain student groups (Tsai et al., 2023).

The study's cross-sectional nature may limit the ability to capture the evolving nature of barriers. Longitudinal studies on internships could investigate the long-term effects of barriers on students' career trajectories and success after graduation, providing insights into how early challenges shape professional outcomes (Hora et al., 2023). Additionally, future research can utilize mixed methods to explore the nine barriers used in this study more comprehensively. Qualitative interviews can provide deeper insights into personal experiences, complementing quantitative data. Integrating both methods offers a holistic understanding of how these barriers interact and impact students' access to internships (Hora et al., 2021; 2022).

Examining how barriers to internships vary across academic disciplines can identify unique challenges and tailored solutions for different fields of study. Certain majors exhibit racial and gender disparities that serve as significant barriers, while others may impose heavier course loads and rigorous curricula that make internship participation difficult (Lapan & Smith, 2023). Additionally, varying supply and demand for internships by major can further complicate access for students (Jang-Tucci et al., 2024).

Since this study focuses on students' perspectives, exploring how internship providers' perceptions and requirements influence internship accessibility can be informative. Internship providers can provide insights into the supply side of internships and specific barriers, such as limited internship availability, capability and funding constraints, or industry-specific requirements that students may not know (Hora et al., 2017; McHugh, 2017). Moreover, analyzing educational institutions' and organizations' policies can identify practices that either facilitate or hinder access to internships across different demographics. Such inquiries may help stakeholders develop effective strategies to enhance internship accessibility, ensuring all students can leverage these professional development opportunities.

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