

AN ANALYSIS OF INTERSECTING FACTORS INFLUENCING FIRST-GENERATION  
COLLEGE STUDENT ENROLLMENT

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Anne Johnson

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**Title**

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The Supervisory Committee certifies that this *disquisition* complies  
with North Dakota State University's regulations and meets the  
accepted standards for the degree of

**MASTER OF SCIENCE**

SUPERVISORY COMMITTEE:

Dr. Christina Weber

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Chair

Dr. Dane Mataic

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Dr. Carrie Anne Platt

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Approved:

04/9/2024

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Date

Dr. Christina Weber

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Department Chair

## **ABSTRACT**

This study examined the impact of college visits on first-generation college students (FGCS). Specifically, I analyzed data from a midsized university in the upper Midwest to understand the intersecting effect of variables on FGCS's choices for attending college. I tested four hypotheses by conducting logistic regression models using the focal variables of the number of campus visits, estimated family contribution, race, high school grade point average, and gender.

Results showed that visiting campus, a student's race, being female, and grade point average significantly impacted their likelihood of enrolling at this university. FGCS who were Black/African American or Hispanic/Latino were substantially less likely to enroll compared to FGCS who were White. When looking at race and college visits, increased college visits indicated higher chances for enrollment for most FGCS; however, Black/African American students' chance of enrolling decreased with additional campus visits.

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## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	vi
GLOSSARY OF TERMS.....	vii
CHAPTER ONE: INTRODUCTION.....	1
CHAPTER TWO: LITERATURE REVIEW.....	5
CHAPTER THREE: METHODS.....	18
CHAPTER FOUR: RESULTS.....	23
CHAPTER FIVE: DISCUSSION AND CONCLUSION.....	30
REFERENCES.....	35

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Numeric Variable Statistics .....	21
2. Categorical Variable Statistics .....	21
3. Results As Odds Ratios.....	28

## GLOSSARY OF TERMS

### First-Generation College

**Student (FGCS)**.....A student pursuing higher education whose parents have not obtained a bachelor’s degree (Redford & Mulvaney Hoyer, 2017).

**Campus Visit** .....A visit to a college organized through the Office of Admission to learn more about what a college offers. Campus visits typically include a tour, a presentation about the school, and academic information.

**Continuing Education Student** .....A student pursuing higher education and at least one parent obtained a bachelor’s degree or higher (Redford & Mulvaney Hoyer, 2017).

**Enrollment**.....The total number of students registered for at least one class in a given school unit at a given time.

**Estimated Family Contribution (EFC)** .....A measure of how much money a student and their family can be expected to contribute to the student's cost of education. This figure is used to measure eligibility for various types of financial aid. It is calculated using a specific formula based on income, assets, and household size (U.S. Department of Education, 2021).

## CHAPTER ONE: INTRODUCTION

Studies examining higher education enrollment and first-generation college students have looked at first-generation students' success patterns, the demographics of students who enroll in college, and financial impacts, largely ignoring the intersection of those factors. Scholars have predominantly examined factors such as the rigor of high school coursework, utilization of dual credit courses, or race/ethnicity impacts on a student's likelihood to enroll in college. Scholars have yet to examine first-generation college students specifically while considering the impact of campus visits and the intersection of factors that may influence their enrollment. Additionally, understanding why students enroll at a particular university once they are admitted is understudied.

As of 2019, students with parents who did not attend college, known as first-generation college students (FGCS), comprised 54% of undergraduates (RTI International, 2019). These students are significantly less likely to enroll in higher education than their peers with college-educated parents (Redford & Mulvaney Hoyer, 2017). According to the Bureau of Labor Statistics, in October 2022, 66.2% of students who graduated high school in 2022 were enrolled in college. While this percentage changed little from 2021, it has decreased by 4% since 2019. Higher education institutions are becoming increasingly concerned about college-going rates, the cost of college (Freeman & Wilson, 2022), and changing demographics in the United States (Keller, 2001). This concern for decreased college-going rates calls for a closer look at the factors influencing enrollment to increase understanding of why first-generation students are applying and being admitted to an institution but not enrolling.

To better understand which factors may explain enrollment patterns, it is essential to understand various populations of potential undergraduate students. This study examined first-



generation college students, campus visits, estimated family contribution, high school grade point average, and gender. In 2020, the median income of the parents of FGCS was \$41,000, while the median income of the parents of continuing education students was \$103,000. This income discrepancy demonstrates additional financial struggles that FGCS will likely encounter in their quest for higher education. It argues the importance of examining the intersection among factors to determine a student's enrollment likelihood. Therefore, as concerns surrounding college-going rates increase, a group of students that account for 54% of the current undergraduate population is critical to understand what influences them to apply but not enroll.

Research shows that cost is an essential consideration in the college search process. As the cost of college increases, financial aid and scholarships have remained the same, making college an increasingly less affordable option. According to the 2022 College Board's report on Trends in College Pricing and Student Aid report, total federal grant aid awarded has decreased by 32% in inflation-adjusted dollars between 2011-12 and 2021-22. Additionally, the Pell Grant awarding declined by 36%. This means that fewer students who are eligible for federal aid are applying. The average published tuition and fee price is 1.65 times as high in 2022-2023 as it was 30 years ago (Ma & Pender, 2022). This increase in cost and decrease in federal aid makes it necessary to consider a family's income and if it affects their college enrollment.

A study by Shannon Washburn at the University of Missouri's College of Agriculture, Food, & Natural Resources looked at the perception of higher education from admitted students who did and did not enroll. The study found that the campus visit was the most effective source of information for their college search (Cletzer et al., 2020). Campus visits allow students to identify if they can see themselves on campus by experiencing student-led campus tours, overviews of admission information, and academic program information. An additional study

examined the impact of campus visits through a study of various institutions. The survey results found that many students said the campus visit was very influential in their college choice, and universities reported a strong connection in the matriculation rates of students who visited campus (Orban, 2021). However, this study did not examine any other factors or consider differences in race, gender, or other factors. Little research exists on on-campus visits and their potential impact on a student's enrollment likelihood, making it a valuable variable to consider.

### **Personal Statement**

For the last ten years, my professional career has been spent working in college admission at two different universities. I have met with hundreds of students and experienced firsthand the decision-making process of students as they plan their future. As a higher education professional, I have grappled with understanding what leads students to choose our university. As a first-generation college student myself, I have sought to diminish the power differential for students who are less exposed to education so that they may feel a sense of belonging and confidence in their college choice. My experience has made me a better admission professional. It has allowed me to give understanding to students and their families who are overwhelmed by the processes involved with attending an institute of higher education. Furthermore, my experience as a student and now as an enrollment professional has led me to explore the unanswered questions surrounding first-generation college students and the factors that influence their enrollment.

### **Research Inquiry**

Understanding factors influencing first-generation college student enrollment led to inquiries I explored as part of this research.

1. Is a first-generation college student who attends an official college visit more likely to enroll in higher education than one who does not?
2. Does the race of first-generation college students impact the rate at which they enroll?
3. Does an FGCS' family income, as identified by their EFC, predict the rate at which they enroll?

To research these questions, this study examines data from a midsized university in the Upper Midwest; this university will be called Upper Midwest University. Upper Midwest University has experienced declining enrollment over the last decade and is a predominately white institution with a wide variety of academic offerings and a focus on research. By examining student data from three incoming student cohorts at Upper Midwest University, I aim to contribute to the research on first-generation college students, using logistic regression models that explain why students do not enroll even after they are admitted. I used Patricia Hill Collins's conceptual framework of intersectionality and the matrix of domination to analyze the interlocking systems of race, gender, and class that impact students' college searches and decisions to attend Upper Midwest University (Collins, 1991). The following chapter discusses Collins' framework and highlights existing research on the college choice process and first-generation college students. I then discuss the methodological approach I used in this research. Lastly, I discuss my findings and analysis, providing recommendations for supporting FGCS.

## CHAPTER TWO: LITERATURE REVIEW

In this chapter, I introduce the theoretical framework guiding my analysis using Patricia Hill Collins's conceptual framework of intersectionality and the matrix of domination. This chapter also provides an overview of existing research surrounding higher education, the college search process, and first-generation college students. Patricia Hill Collins has focused her research on intersectionality and oppression, including but not limited to race, gender, and class. Collins described these factors as interlocking systems of oppression that lead to inequality. In her book, *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*, she describes a matrix of domination and later writes about intersectionality and the domains of power that are used as a theoretical framework in this study.

Collins argues, "The significance of seeing race, class, and gender as interlocking systems of oppression is that such an approach fosters a paradigmatic shift of thinking inclusively about other oppressions, such as age, sexual orientation, religion, and ethnicity" (Collins, 1991, p. 225). Her development of the matrix of domination was instrumental in recognizing and examining how complex aspects of our identity can impact how we understand and move through social institutions, such as education. Collins focuses on systems of oppression that most heavily affect Black women, but the framework provides a way to understand how structural power can impact multiple underrepresented groups. She argues for a transition away from additive models of oppression, which emphasize dichotomous thinking. Collins asserted, "A broader focus stresses the interlocking nature of oppressions structured on multiple levels, from the individual to the structural and which are part of the matrix of domination" (Collins, 1991, p. 230). Individuals can be a member of a dominant group and a subordinate group simultaneously. For example, a Black woman (dominant group in her home

life) of a lower level of wealth (subordinate group) operates with an intersecting oppression of class, race, and gender. Collins argued that the whole person should be analyzed to understand how an individual could be in a position of power and oppressed simultaneously (Collins, 1991). These intersecting forces have coined the matrix of domination. A first-generation student may find themselves in a dominant group as a male, but a subordinate group as Native American from a low-income family. Each factor makes up a person's experience, and Collins argues that only looking at one factor would be dehumanizing (Collins, 1991).

Building on her work with the matrix of domination, Collins has also developed her work with intersectionality in the book *Intersectionality* (Collins & Bilge, 2021). To further understand the influence of intersecting factors, Collins writes about intersectionality as an analytic tool. "Ordinary people can draw upon intersectionality as an analytic tool when they recognize that they need better frameworks to grapple with the complex discriminations they face" (Collins & Bilge, 2021). While at the time, Collins was referring to the complex discriminations of the 1960s and 1970s, I argue that utilizing intersectionality to understand better why first-generation students are not enrolling in college can shed light on how race, class, gender, and other factors drive behavior. While quantitative research often looks at discrete factors, I aim to utilize intersectionality as an analytic tool to examine how the variables work together and form an understanding of why FGCS is not enrolling. *Intersectionality* describes four distinctive and connected domains of power that can be utilized as an analytic tool: interpersonal, disciplinary, cultural, and structural. Applying these domains to the current research provides a way to examine intersecting factors impacting first-generation students' decisions to attend Upper Midwest University.

The interpersonal domains of power are the power relations within our lives that highlight who is advantaged or disadvantaged in social interactions. An example of this in a first-generation college student's college search could be a lack of knowledge surrounding the language used in higher education due to a lack of exposure from their parents. For example, continuing education students are likely more aware of the college application process, financial aid processes, and the various academic programs to choose from due to their parent's existing college knowledge. Because first-generation college student's parents have not had these experiences, they cannot guide and share this knowledge with their students. They may pressure them to navigate these processes independently. This interpersonal interaction may leave them with less power throughout their college search than their continuing education peers.

The disciplinary domain of power appears when different people encounter different rules enforcement. An example of this in higher education could be an exception being made for one student who does not meet admission guidelines to be admitted to the university. In contrast, another student with a similar academic profile is denied. In my experience in higher education, this happens when students more well-versed in the college search process can provide additional context through personal statements, letters of recommendation, or other forms of self-advocacy. Those with less experience need to be made aware of these options, which creates a power differential.

The cultural domain of power is the idea that everyone has the same opportunities and advantages. It is described as the ethos: "...social inequities that are fairly produced are socially just" (Collins & Bilge, 2021, p. 11). The cultural domain of power creates a culture that breeds oppression. In higher education, this could be only focusing on sports with male athletes or

providing more scholarships to males than females. This sends a cultural message that these sports and athletes are more important and deserve more attention.

Lastly, the structural domain of power acknowledges that the institution or organization may be fostering an imbalance of power. Recent news stories about for-profit colleges overpromising students and not sharing a clear cost of attendance could be examples of this. This structure is part of an institution that aims to prioritize money and creates a structural domain of oppression for those involved.

With Collin's framework of the matrix of oppression, intersectionality, and the domains of power in mind, I will review existing research on first-generation college students. This chapter will provide an overview of a) college choice, b) first-generation college students, c) challenges that exist for first-generation college students, and d) the purpose of the study. Scholars have previously sought to examine college choice and bring rationale and meaning to why students choose to attend a particular institution. Richard Chapman developed a theory to explain college search and choice as separate processes before and after a student decides to apply to a particular institution. In this theory, he identified relevant college attributes such as cost, academic quality, career prospects, and more as areas of analysis for prospective students. He even acknowledged that race, gender, first-generation status, and class may be helpful predictors of social behavior. However, he ignored the intersections of these factors and argued that personal attitudes and values are strong predictors of college choice behavior (Chapman, 1981; 1984).

Similarly, scholars Cho, Hudley, Lee, and Barry examined the roles of gender, race, and SES in the college search among first-generation and non-first-generation students. However, their study was a smaller population size that used self-reported survey data, and they did not

consider the intersection of these factors (Cho et al., 2008). More recently, scholars allied for a greater emphasis and to acknowledge that students from lower socioeconomic backgrounds and students of color enroll in college at lower rates than students who are white, middle, and upper-class (Bergerson, 2009). While this research is essential in understanding college choice and shedding light on the various attributes that contribute to a student's decision to attend college, there remains a gap in the research on first-generation college students specifically and a lack of examination at the intersectionality they experience.

### **First-Generation College Students**

Scholars have previously examined first-generation college students (FGCS) trends and studies surrounding the importance of first-generation services and support. Researchers have looked more specifically at the impacts of a particular race on an FGCS' success, the effects of programming (Graham, 2011), familial impacts (Warburton et al., 2001), the impacts that can be made in K-12, and numerous qualitative studies on the perceptions of higher education within a specific group (Alexander, 2017; Ortiz, 2023; Patel, 2020;). Numerous definitions of first-generation college students exist, including students whose parents have no higher education, those with some higher education, and those without bachelor's degrees (Patel, 2020). For this research, first-generation college students reference students for which both parents lack a bachelor's degree. According to the Center for First-Generation Student Success, as of 2015-16, 56% of undergraduate students were first-generation students, meaning neither parent had obtained a bachelor's degree (RTI International, 2019). In a survey of 2002 high school sophomores who later went on to enroll at a postsecondary institution, 24 percent were first-generation college students, and 42 percent were continuing-generation college (Redford & Mulvaney Hoyer, 2017). Several studies have examined the makeup of first-generation students



and how institutions can support them once they are enrolled (Whitley et al., 2018). However, few have examined whether select variables impact an FGCS's decision to attend a higher education institution.

Previous researchers have identified challenges for FGCS, including socialization, parental influence, ability to persist to degree completion, and preparedness for college. In her thesis, Hailey Adkisson explores why FGCS attend college. She looked at the socialization influences that contributed to FGCS's perceptions of college. She found that parental influences were the most significant source of influence related to higher education (Adkisson, 2013).

While understanding parents' influence on students' socialization, it is also essential to acknowledge that those influences vary widely depending on various factors such as socioeconomic status, ethnicity, and family makeup. Later, I will discuss the intersection of these influencers and the power of influence they have on students.

### **Parental Influence**

Existing research surrounding first-generation college students highlights parents' impact on their children's likelihood of enrolling in college. Studies cite parents' concerns regarding their child's educational plans (Cletzer et al., 2020) and potential challenges for the student if their education exceeds that of their family members (Covarrubias & Fryberg, 2015). While it is important to understand the existing research surrounding what may influence first-generation college students to continue their education, the parental influence research does not clearly define it as a deciding factor for whether or not an FGCS attends college.

Covarrubias and Fryberg (2015) examined the family impacts as they analyzed a trend in FGCS that led students to experience family achievement guilt toward their non-educated family members. The study found that FGCS, particularly those who are nonwhite, experienced a

greater level of family achievement guilt than their continuing-generation college student counterparts. However, the study uncovered a way to alleviate this guilt by having the FGCS focus on a time when they helped a family member (Covarrubias & Fryberg, 2015). These studies demonstrate that while family influence is vital for shaping the perceptions of higher education for FGCS, it can also create additional barriers and may lead students to question their educational advancement and sense of belonging within higher education.

An additional study examined first-generation students' self-determination in their college search. It found that self-determination was enhanced when parents were involved in the college search, maintained high academic standards, and provided a positive example. The student's motivation was diminished when the student's choices were limited, expectations for going to college were unclear, little feedback was provided, and family obligations were emphasized (Mitchall & Jaeger, 2018). While these studies demonstrate the dominant impacts of FGCS' decision to attend college, it is also essential to acknowledge the challenges that may arise when children obtain more education than their parents.

### **Challenges to Persistence**

Additional research highlights that FGCS experience struggles surrounding academic achievement and completing their degrees. Navigating the higher education system is challenging. The complex system of bureaucratic rules and relationships can be overwhelming, even with support systems. The structures of higher education often assume a shared knowledge that first-generation students do not yet have. The National Center for Education Statistics shared a Postsecondary Education Descriptive Analysis Report (Warburton et al., 2001) that claims that FGCS faced struggles persisting in higher education.

Persisting in college after enrollment encompasses the rate at which students continue in the programs and the rate at which students graduate. The report analyzed high school coursework achievement and found a correlation between the academic rigor in high school course selection for FGCS and their likelihood to persist in higher education. The study also found that only nine percent of FGCS took rigorous courses compared to twenty percent of continuing education students. By selecting less rigorous coursework in high school, FGCS needed more preparedness for college-level coursework. The report also asserted that these students' struggles were independent of other factors such as demographic features, programs, or involvement (Warburton et al., 2001).

Another National Center for Education Statistics study examined college outcomes and persistence in FGCS. Their study notes the twelve percent increase in college graduates from 2005-2017; this increase in college graduation rates coincided with a slight decrease in FGCS from thirty-seven percent in 2000 to thirty-three percent in 2011. "Although it has become proportionally smaller over time, the group of U.S. undergraduates whose parents had not attended college remains sizable: one-third of students enrolled in U.S. postsecondary institutions in 2011-12" (Cataldi, 2018, p. 2). Knowing that FGCS represents a significant portion of college students reinforces the importance of understanding this population. The study found that nineteen percent more FGCS left college within three years of enrolling than their continuing education counterparts (Cataldi, 2018).

Overall, these studies demonstrate that even though a significant portion of college students are first-generation, the institutions may not be set up to support their additional needs. The university system reinforces the structural domain of power. Additionally, the Center for First Generation Student Success claims that only 20% of FGCS students complete a bachelor's

degree in six years, compared to 49% of continuing education students. FGCS are also more likely to drop out in their first year, less likely to be enrolled full-time, and 16% less likely to utilize financial aid services (RTI International, 2019). Understanding FGCS's challenges to persistence highlights the need to understand better the factors that influence why they are admitted but do not enroll.

### **Support for First-Generation College Students**

When considering first-generation college students and factors that influence college enrollment, it is essential first to understand the current state of higher education. Higher education enrollment rates are declining nationally for various reasons, including fewer high school graduates due to declining birth rates during the Great Recession of 2008. While the number of high school graduates decreases, the diversity of the students will increase dramatically. According to the Western Interstate Commission for Higher Education, by 2030, the number of high school graduates is expected to decrease by up to eight percent. Higher education professionals are well aware of the demographic cliff that will result in significantly fewer high school graduates in the coming years due to fewer babies being born during the Great Recession.

These demographic changes provide an opportunity to look more closely at race and gender to understand enrollment patterns. As previously stated, the 2022 Bureau of Labor Statistics report shows that 62% of students who graduated high school in 2022 are enrolled in college. Of the graduated seniors in 2022, the following shows the breakdown by group of those who enrolled in college:

- 57.2% were men
- 66.1% were women

- 72% were Asian
- 64.1% were Blacks
- 61.8% were Whites
- 58.1% were Hispanics.

The report did not share any other demographic information. With the potential for half or more of the students enrolled to be FGCS, institutions of higher education must develop a way to address the structural barriers that FGCS face. The first step would be examining what motivates these students to enroll and how to support them best (Bransberger, 2017). Considering how the structural domain of power works, FGCS only sometimes come to college with a complete understanding of navigating the institution and are often at a structural disadvantage.

Because their parents did not attend college, FCGS may also have less access to interpersonal and cultural power domains than their continuing education counterparts. Their inability to draw on their parent's personal experience and knowledge, as explained in the cultural domain of power, means they often try to navigate these systems in addition to the general stress a new college student faces. For example, they are less likely to understand higher education terms like syllabus, faculty, and office hours. They are less likely to know what resources are available to them for support (Cataldi, 2018). In addition, they may not know they can ask for these support systems or feel insecure asking questions that might expose their lack of understanding. Therefore, it is crucial to understand what support is needed for FGCS and what existing research says.

Fallon (1997), an assistant professor at The Citadel, a military college in South Carolina, completed research that further expands on the characteristics of FGCS and a potential solution to providing support for these students. Her research highlights how high school counselors can

play a pivotal role in addressing some of FGCS's concerns. She also found that family support was crucial in the decision to attend college and attrition once in college. Fears of the unknown among the parents of FGCS include a fear that students will not return to their communities after college, lose touch with their culture, or they will adopt belief systems that fall outside of their upbringing. Fallon references this challenge, coined by Brooks-Terry, as the double assignment of college as first-generation students, meaning that FGCS have to discover and adapt to the lifestyle of the college-educated world that they are striving to be a part of, which often requires them to reject the values of their upbringing and community. FGCS may need help understanding the complexities of financial aid, course loads, and the endless vernacular in higher education institutions. These students also tend to be more outcome-oriented, caring more about graduating on time, getting a well-paying job, and choosing programs with reliable jobs than their continuing education counterparts.

With all of these factors in mind, the high school counselor was identified as a potential catalyst for the success of FGCS. School counselors can have a significant role in addressing their concerns and challenges, and they can address these issues before the student struggles in an unfamiliar institution. As Fallon (1997) states,

School counselors are in a powerful position to significantly impact minority, economically disadvantaged, first-generation students as they consider college options and prepare for higher education in a country that promises equal educational opportunity. Counseling and guidance services in schools constitute an essential element in making the promises a reality for all students. (p. 386)

While Fallon highlighted hopefulness in addressing some of FGCS's struggles, challenges persist as high school counselors are underutilized, especially by FGCS.

Some individuals have sought to equip higher education institutions with tangible ways to support FGCS. For example, Lisa Nunn expanded on research regarding FGCS and looked specifically at their sense of belonging. She asserted, “Belonging must be given. It is a gift and only exists when a group collectively offers it to a member” (Nunn, 2021, p. 8). Her notion of belonging put the onus back on the institution and the student to get involved and find their place. Her goals of listening to students, honoring their requests, and using campus structures to aid instead of hinder students serve as the backbone for addressing FGCS’s barriers (Nunn, 2021). This study begins to address how institutions may be able to combat some of the many challenges that FGCS face, including a sense of belonging and academic unpreparedness. However, it does not address how these changes may impact a first-generation college student’s search and selection process.

Another experiment was conducted to uncover the influence of exposing FGCS to college campus visits in their eighth-grade year. The study found that those who visited the colleges showed higher levels of college knowledge, a higher likelihood to converse with school personnel about college, and higher levels of grit (Swanson et al., 2021). These studies tell a story about the intersecting challenges that FGCS faces and provide insight into opportunities to support FGCS better. In my research, I want to contribute to further understanding of what factors influence their likelihood of attending college.

### **Purpose of the Study**

Acknowledging and understanding the various intersectional factors that an FGCS may experience as part of their college search allows institutions to more effectively support FGCS and understand why they apply but do not enroll. Therefore, I aim to contribute to first-generation student research by demonstrating the impact of race, family income levels, visiting

campus, gender, a student's high school grade point average (GPA), and the interaction of some of these factors on their likelihood to enroll at Upper Midwest University.



## **CHAPTER THREE: METHODS**

### **Data and Analysis Process for the Study**

This study aims to extend research on higher education enrollment and why students enroll by examining the influence of factors on a student's enrollment status at an Upper Midwest University. The dataset included three cohorts of first-year, domestic, undergraduate students from a mid-sized university in the upper Midwest with start terms of 2020, 2021, or 2022. This dataset of 10,849 students allowed a thorough examination of the selected factors to understand better why a student may be admitted but chose not to enroll. The full dataset of admitted students consisted of 10,849 students. However, only 3,903 (36%) students were first-generation. Given the focus of this research, the analyses will focus exclusively on these first-generation students. In addition to the models below, I conducted the same analyses with the admitted student population. I found no significant difference in visits' effect on whether the student was first-generation or continuing education. Additionally, when comparing all the students and FGCS, similar patterns were found for the importance of visits and race. I used anonymized data with variables of enrollment status, number of campus visits, estimated family contribution, first-generation or not, gender, race, and high school GPA. The number of campus visits, a student's estimated family contribution, race, gender, and high school GPA were used as focal variables to analyze the dataset of first-generation college students at this university. My dependent variable was enrollment status. These variables were selected based on Collin's assertion that race, class, and gender serve as interlocking systems of oppression (Collins, 1991). By utilizing these variables, I hope to uncover patterns that may explain why first-generation students are admitted but do not enroll at this university.

## Independent Variables

- **Campus Visit:** This field shows how many times a student has visited this university. While informal visits may also occur, this variable only tracks official visits scheduled through the Office of Admission and can include virtual or in-person options. At this university, a campus visit typically includes an admission presentation, a student-led campus tour, and optional academic sessions. Special events may include other programming such as breakout sessions, panels, or tours of academic facilities. First-year students must attend orientation, which is not included in the number of official campus visits. The mean number of visits for first-generation admits was .83. Some students never visited, while others visited as many as 11 times.
- **Estimated Family Contribution (EFC):** EFC measures how much money a student and their family can be expected to contribute to the student's cost of education. This figure is used to measure eligibility for various types of financial aid. It is calculated using a specific formula based on income, assets, and household size and ranges from 0 to \$999,999 (U.S. Department of Education, 2021).<sup>1</sup> In this dataset, EFC was collected from the Office of Admission for those who submitted an FAFSA. This university does not require submitting a FAFSA, but it is strongly encouraged. Of the FAFSAs that were submitted, EFCs ranged from 0 to \$673,827, with a mean of \$222,606. 2734 (70%) of the first-generation students submitted an FAFSA, and of those who did submit an FAFSA, 2148 (78% enrolled).

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<sup>1</sup> For the 2024-2025 FAFSA, the Estimated Family Contribution is now called Student Aid Index. The formula for calculating a student's amount of aid also changed. Since this dataset filed FAFSA's before this change, I am using the term of that time, EFC.

- Race: Race/ethnicity was also collected from the student's application for admission using the categories specified by the Integrated Postsecondary Education Data System (IPEDS). Race/ethnicity is not a required field, but 94.52% of students reported their race/ethnicity. When analyzing the data, I accounted for students who identified as two or more races by combining all students in this scenario into the overarching category of "two or more." Most first-generation admits were white, accounting for 73% of the students, followed by Black/African American at 7.6%, Two or more races at 5%, Hispanic/Latino at 3%, Asian at 2%, American Indian/Native American at 2%, Native Hawaiian/ Pacific Islander a .1%, and those who did not specify their race at 5.8%.
- High school grade point average: The students' high school grade point average was collected from their application for admission. All GPAs are converted to a 4.0 scale. The average GPA of first-generation admitted students at this university was 3.4 compared to 3.5 for all students. Nine students had no official GPA, likely because they never submitted an official high school transcript.
- Gender: A student's gender was also collected from their application for admission. On the application for admission at this university, gender is a required field, and the only options provided are male and female. However, one student in the dataset was listed as non-conforming. The reason for the outlier is unknown and could be an error in the data. Since it is only one student, the results are not affected.

### **Dependent Variable**

My dependent variable is enrollment status. This variable is yes, the student enrolled, or no, they did not enroll. Enrollment is determined by whether or not a student is enrolled in 1+

credit hours on the 20th day of classes (known as census). See Table 2 for a summary of the enrollment status for each variable.

**Table 1.** Numeric Variable Statistics

<b>Variable</b>	<b>n</b>	<b>Nwith outNA</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
<b>EFC</b>	3903	2734	222,606.5	45,759.3	0	673,827
<b>Visits</b>	3903	3903	.83	1.15	0	11
<b>HS GPA</b>	3903	3894	3.4	.43	0	4

**Table 2.** Categorical Variable Statistics

<b>Variable</b>	<b>n</b>	<b>Enrolled</b>	<b>Not Enrolled</b>
<b>FGCS</b>	3903	61%	39%
<b>White</b>	2869	64%	36%
<b>Black/African American</b>	299	39%	61%
<b>Hispanic/Latino</b>	129	49%	51%
<b>Asian</b>	88	48%	52%
<b>American Indian/Alaskan Native</b>	68	50%	50%
<b>Native Hawaiian/Pacific Islander</b>	7	14%	86%
<b>Two or More</b>	213	51%	49%
<b>Not Specified</b>	230	55%	45%
<b>Male</b>	1399	64%	36%
<b>Female</b>	2500	57%	43%

## **Analysis Methods**

I formed four hypotheses to guide this research inquiry:

### Hypotheses

1. Campus visits increase the likelihood of students enrolling at this university.
2. The race/ethnicity of first-generation college students will impact their enrollment likelihood.
3. First-generation college students' family income, as identified by their estimated family contribution (EFC), predicts their enrollment.
4. The high school GPA and gender of first-generation college students will impact their enrollment likelihood.

Logistic Regression was used to test these hypotheses. Logistic Regression is a statistical analysis tool known as a log-linear model. Various models can be used depending on the types of variables in the dataset and allow for testing of the interactions between variables. Logistic Regression is helpful when analyzing categorical variables like those enrolled in this study (Long, 1997). Since my dependent variable was binary, OLS regression, a standard log-linear model, will yield inaccurate results (Jenkins-Smith & Ripberger, 2017). Logistic regression was used for my analysis, and the output was interpreted using an odds ratio. The odds ratio is a measure of association that shows the ratio of two odds (Morgan & Teachman, 1988). In this dataset, I am comparing the odds of enrolling against the variables of number of campus visits, race, estimated family contribution, gender, and high school GPA. Various hypotheses were formed in this study, and each was tested using logistic regression and then converted to an odds ratio (see Table 3). I discuss the results in Chapter four.

## CHAPTER FOUR: RESULTS

The following analysis consists of four parts designed to test my four hypotheses. First, I ran a logistic regression model examining the impact of each variable: number of campus visits, EFC, race, high school GPA, and gender, Model 1. This served as my base model and showed significant results for the impact of visits, high school GPA, gender, and race when the admitted student was Black/African American, Hispanic/Latino, or two or more races. Second, I ran an interacted logistic regression model to identify if the significance of campus visits was contingent on the student's race, Model 2. This model showed significant results for admitted Black/African American students and those who did not specify their race. Next, I ran an interacted logistic regression model to identify if EFC was significant for students of various races, Model 3. Since Model 1 did not show any significant p-values, this model was to confirm that no significance for EFC was still valid when you looked specifically at each race/ethnicity. This model did not find any significant variables. Lastly, I ran the base model with all students to see if there was any difference in the variables with significance, Model 4. This model showed significant p-values for campus visits, Black/African American, Hispanic/Latino, two or more race and female students, those who did not specify their race, high school GPA, and EFC.

### **Hypothesis 1: Campus Visits Increase the Likelihood of Students Enrolling at Upper Midwest University**

I formed this hypothesis based on the limited research that signifies students who visit campus are more likely to enroll (Swanson et al., 2021) and my own experience as a professional in college admissions. My base logistic regression model (Table 3) examined the impact of each variable: number of campus visits, EFC, race, high school GPA, and gender, which showed significant impacts of the number of campus visits on enrollment. When converted to odds ratio,

as the number of campus visits increased, we can expect the odds of enrolling to increase by 2,409%. Based on these results, as the number of campus visits increases, the chances of enrolling also increase.

My next logistic regression model showed the interaction of visits and race to identify whether the significance of the number of campus visits was dependent on a student's race. This model again showed the significance of the relationship between enrollment, the number of campus visits, and race. As shown in Table 3, as the number of campus visits increased, we can expect the odds of Black/African American students enrolling to decrease by 73% compared to white students' increase in the number of visits. Additionally, as the number of campus visits increased, we can expect the odds of admits who did not specify their race enrolling to decrease by 69% compared to white students. Based on these findings, we can conclude that for most first-generation students who are admitted at this university, the more they visit campus, the greater chance they have of enrolling; however, for first-generation students who are Black/African American or have not specified their race, their chances of enrolling decline with additional campus visits.

## **Hypothesis 2: The Race/Ethnicity of First-Generation College Students Will Impact Their Likelihood of Enrolling**

I formed this hypothesis based on the evidence that first-generation students are often more diverse (Cho et al., 2008) and Collin's assertion that race is a critical tenant in oppression within the matrix of domination (Collins, 1991). The race/ethnicity of students in this dataset was viewed through various lenses as I modeled the significance of race on enrollment, the interaction of race and the number of campus visits, and the interaction of race and EFC, as shown in Table 3. The base model that examined the impact of enrollment based on the number

of campus visits, race, high school GPA, EFC, and gender found significant p-values for admits who are Black/African American, Hispanic/Latino Students, and two or more races. For Black/African American first-generation students admitted to Upper Midwest University, we can expect their chances of enrolling to decrease by 65 percent compared to white students. Similarly, we can expect the enrollment rate for Hispanic/Latino students to decrease by 65% and the rate of students with two or more races to decrease by 48% compared to white students. As outlined in hypothesis one, significant outcomes for the number of campus visits compared to a student's race were also found.

**Hypothesis 3: First-Generation College Students' Family Income, as Identified by Their Estimated Family Contribution (EFC), Predicts Their Enrollment**

I formed this hypothesis based on Collin's inclusion of class in the matrix of domination (Collins, 1991) and evidence that first-generation college students have lower family income levels than their continuing education peers (Freeman & Wilson, 2022). As shown in Table 3, the base model that examined the impact of enrollment based on the number of campus visits, race, high school GPA, EFC, and gender did not find a significant p-value for EFC. Next, I wanted to see if the significance of EFC would change when interacting with the admitted student's race. As shown in Table 3, Model 3, when comparing a first-generation admitted student's EFC with their race, there was no significance for any race/ethnicity. One area of significance for EFC was found when looking at all students, as discussed in footnote 3.<sup>2</sup> Based on this information, it can be concluded that EFC is not a contributing factor for enrollment in this dataset.

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<sup>2</sup> When looking at all students in the dataset, as EFC increased, the chances of enrolling decreased by a factor of .99.



#### **Hypothesis 4: The High School GPA and Gender of First-Generation College Students Will Impact Their Enrollment Likelihood**

This hypothesis was not initially part of my research inquiry, but I added it during my research based on Collins' inclusion of gender in the matrix of domination (Collins, 1991). I also wanted to look at high school GPA to see if its inclusion changed the significance for any variables. I wondered if a higher academic profile in high school would diminish the impact of campus visits, race, EFC, or gender on the student's enrollment. As shown in Table 3, Model 1, the base model that examined the impact of enrollment based on the number of campus visits, race, high school GPA, EFC, and gender, showed significant p-values for high school GPA and females. Results showed that as high school GPA increased in admitted first-generation students, their enrollment likelihood decreased by 39%. For female admitted first-generation students, their chance of enrolling decreased by 31% when compared to males. Based on these results, it can be concluded that high school GPA and gender did impact first-generation students' enrollment in this dataset.

#### **All Students**

While I did not form any hypotheses surrounding the entire dataset of students, I wanted to compare all students to the first-generation student dataset to see if the factors influencing enrollment varied for first-generation students compared to all admitted students. Similar to Model 1, Model 4 examined the impact of each variable: number of campus visits, EFC, race, high school GPA, and gender, but looked at the entire dataset of 10,849 students. As shown in Table 3, Model 4, significant p-values were found for the number of campus visits, Black/African American Students, Hispanic/Latino Students, students who did not specify their race, students with two or more races, EFC, high school GPA, and female students. Results show

that visits are significantly impactful for both groups but are more impactful for first-generation students. When looking at all students, students who did not specify their race and students with two or more races are significantly less likely to enroll at this university when compared to white students. Significance for EFC was also found when looking at all students, as discussed in footnote 2. Overall, the factors influencing enrollment are similar, and this comparison further emphasizes the importance of examining the intersectionality among the variables.

The analysis supported three of my four hypotheses. These results indicate the apparent significance of campus visits. These findings also indicate that Upper Midwest University has more significant challenges enrolling students of color compared to white/Caucasian students, students with higher high school GPAs, and females. I was surprised that EFC was not a significant factor for first-generation college students, especially since it is a topic of conversation in my work in college admission.

**Table 3.** Results as Odds Ratios

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Visits</b>	25.09***	31.92***	26.12***	20.3***
<b>American Indian/Alaska Native</b>	.55	.65	2.54	.61
<b>Asian</b>	.88	.85	1.37	.89
<b>Black/African American</b>	.35***	.42***	.39	.43***
<b>Hispanic/Latino</b>	.35**	.30**	.28	.59*
<b>Native Hawaiian/Pacific Islander</b>	.03	.00000002	.0000004	.13
<b>Not Specified</b>	.62	.72	.61	.64***
<b>Two or More</b>	.51*	.51*	.59	.54***
<b>EFC</b>	.99	.99	1.0	.99**
<b>High School GPA</b>	.61***	.60	.59	.69***
<b>Gender-Female</b>	.69**	.69**	.69	.75***
<b>Gender-Non-Conforming</b>	.0000002	.00000001	.0000002	.71
<b>Visits*American Indian/Alaska Native</b>		.45*		
<b>Visits*Asian</b>		225538		
<b>Visits*Black/African American</b>		.27*		
<b>Visits*Hispanic/Latino</b>		2.20		
<b>Visits*Native Hawaii/Pacific Islander</b>		989383		
<b>Visits*Not Specified</b>		.31*		
<b>Visits*Two or More</b>		.91*		

**Table 3.** Results as Odds Ratio (continued)

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>EFC*American Indian/Alaska Native</b>			.99	
<b>EFC*Asian</b>			.99	
<b>EFC*Black/African American</b>			.99	
<b>EFC*Hispanic/Latino</b>			1.0	
<b>EFC*Native Hawaii/Pacific Islander</b>			1.0	
<b>EFC*Not Specified</b>			1.0	
<b>EFC*Two or More</b>			.99	

*Notes: Table 3 shows the odds ratio of each model.*

*Model 1 compared the impact of the number of visits, EFC, race, high school GPA, and Gender of first-generation students on their enrollment.*

*Model 2 compared the interaction between campus visits and race for FGCS*

*Model 3 compared the interaction of EFC and race for FGCS*

*Model 4 compared the impact of the number of visits, EFC, race, high school GPA, and Gender of all students on their enrollment.*

(\*p<= .05; \*\*p<=.01; \*\*\*p<=.001)

## **CHAPTER FIVE: DISCUSSION AND CONCLUSION**

Through this examination of existing research surrounding higher education, the college search process, first-generation college students, and Patricia Hills Collins's conceptual framework of intersectionality and the matrix of domination, I hope to summarize the implications of these findings. In the final chapter, I will discuss the results of this research, its implications for higher education, its impact on theory, the limitations of the study, and finally, the conclusion and recommendations for future research.

### **General Discussion of Results**

Despite the amount of research examining first-generation college students and the higher education landscape, only some studies exist that examine why students are admitted but do not enroll; research needs to be more comprehensive when looking at the effects of various populations and the intersection of those populations. This study demonstrates that first-generation college students who visit campus are more likely to enroll than those who do not. It also calls for a closer look at the campus visit experience of various populations, given that an increase in campus visits for Black/African American, Native American/American Indian, Hispanic/Latino, students with two or more races, and those who did not specify their race results in a decrease in their likelihood of enrolling when compared to white students. A significant p-value was found for this decrease for Black/African American students. Given that Upper Midwest University is a predominately white institution, increasing visits could diminish these students' sense of belonging, making them more likely to pursue a more diverse student body. Aside from visits, Black/African American and Hispanic/Latino first-generation students are significantly less likely to enroll when compared to white students. When looking at all

students, females and students with higher GPAs are less likely to enroll. This calls for further examination to understand better if these populations are underserved at this university.

Results also found no significance for a first-generation student's EFC on their enrollment likelihood. This unexpected outcome led me to interact the variables of race and EFC to see if EFC was significant when accounting for the student's race. Model 3 shows that the interaction of race and EFC results were also insignificant. As discussed in footnote 3 and shown in Model 4, when looking at all students, as EFC increased, the chance of enrolling decreased by a factor of .99; however, this significant p-value was not found when examining the first-generation student population. The significance found in the larger dataset could result from higher income levels, suggesting that students whose families have more significant financial means are less likely to attend Upper Midwest University. While this dataset cannot tell us what those students did instead of enrolling at Upper Midwest University, I suspect they are more likely to pursue more prestigious or costly universities. This assumption is supported by research demonstrating the impact of parental influence, particularly for FGCS (Mitchall & Jaeger, 2018).

### **Study Limitations**

Limitations throughout this study included constraints to the variables available and timelines of the research. Ideally, the study would have included more details on the types of campus visits. A deeper look at the types of campus visits and their impact on enrollment may have better explained the differences in enrollment by race. Additionally, since the applicants were not required to list parent information on their application for admission, it is possible that other students in the dataset were first-generation. This study also only examined undergraduate

first-year students. Including international students and students who transfer from other colleges may yield different results.

The depth of examination in this study is seemingly endless. Future research could examine distance from home, zip code, high school GPA breakdown by scholarship eligibility, EFC by category based on Pell Grant eligibility, and more are possible avenues for additional research to shed light on why first-generation students were admitted but did not enroll at this university. Adding these variables would allow admission professionals to understand better why first-generation students are less likely to attend college than their continuing education peers and would allow them to hone their support on the factors that have the most significant impact on their enrollment.

### **Implications for Theory**

Patricia Hill Collins identifies race, class, and gender as interlocking systems of oppression and calls for a holistic look at the domains of power in our society (Collins, 1991). The results of this study support the importance of examining the intersection of factors and considering more than one factor of influence. For example, if we had only examined the impact of visits, we may have assumed that all students should visit and will have positive outcomes. However, the interaction of visits and race showed us that Black/African American students are less likely to enroll as the number of visits increases. This intersection is critical in future planning. While EFC, which was used to measure class, was not found to be a significant factor in this study, gender and race were. The results of this study also call for an examination of the domains of power that first-generation females and students of color navigate as they consider their college choices. Individual structures are likely at play as they navigate various levels of oppression by identifying in one or more of these groups. However, Upper Midwest University

may also contribute through structural or cultural power domains. I will later discuss recommendations to assess these domains further.

### **Implications for Upper Midwest University**

With the number of high school graduates declining and an increase in the diversity of those students, it will be critical for Upper Midwest University to explore why it has a more challenging time enrolling a diverse student population. As discussed in Chapter Two, scholars examining FGCS and the college search fail to examine intersectionality. This study proves the importance of using intersectionality as an analytic tool, as Collins urged (Collins & Bilge, 2021). Examining how this university supports students who do not fall within its dominant population is also essential. It is important to consider why students of color, females, and students with higher GPAs choose to apply but not enroll. Upper Midwest University is a land grant institution with a commitment to serving all students. If numerous marginalized groups are enrolling at a significantly lower rate than students with dominant identities, it is essential that this university ask why.

Based on my findings and the limitations of this study, I have several recommendations for future research. First, I recommend an examination of enrollment by type of campus visit to gain insights into what kinds of visits have the most significance on enrollment. This would also provide insight into whether Black/African American and Latino/Hispanic students are less likely to enroll with all visit types or just the most common. For example, do events targeted at specific populations help or hurt? Secondly, I recommend continued examination of various intersecting identities. For example, are females in underrepresented groups even less likely to enroll? It is also important to note that this university only allows for the selection of male or female as a gender on the application, resulting in non-binary, transgender, and other gender



identities not being able to be analyzed in this study. Next, based on the existing research surrounding the importance of belonging (Nunn, 2021), I recommend a qualitative study examining the impact of campus visits on a first-generation college student's sense of belonging. A qualitative study may also help answer some of the unanswered questions surrounding why campus visits do not encourage some students to enroll and their perceptions of Upper Midwest University within their various identities. Finally, considering that only 27% of first-generation students graduate in four years (RTI International, 2019), I recommend a longitudinal study examining how many first-generation students who enroll at this university persist until graduation.

### **Conclusion**

Conversations surrounding the college search, first-generation college students, and the impacts of race, family income levels, gender, high school GPA, and campus visits are likely to continue. Guided by my research inquiries of whether visiting campus increases enrollment for first-generation college students at Upper Midwest University and whether race, gender, and class impact FGCS enrollment at Upper Midwest University, this study's results show clear evidence of the relationship between these factors and a student's likelihood of enrolling at this university. Furthermore, these results call for a more significant consideration of the intersectionality of factors that influence enrollment. Higher education professionals should not assume that any identity ( i.e., first-generation, female, African American, low-income) can determine the likelihood of a student's enrollment. As the demographics of high school graduates continue to become more diverse, it will be critical for colleges and universities to assess and improve how they address diversity on campus to ensure students feel a sense of belonging.

Considering how impactful campus visits are to potential students, it is important for Upper Midwest University to take a closer look at how campus visits are structured. While the campus visits increase the likelihood of white students enrolling at this university, these visits decrease the likelihood of Black/African American students attending. This study suggests that higher-achieving students and females are more likely to enroll elsewhere. Upper Midwest University should examine how these students experience campus and how institutions may improve their experience if they hope to enroll more students from these intersecting identities.

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