

Faculty Mentoring and Financial Support of Graduate Students

¹Joseph Milosch

²Jane M. Tram

Abstract

We examined the relations between faculty mentoring and financial support on the retention of BIPOC and White students enrolled in graduate programs. Mentoring was significantly related to the retention of BIPOC and White students. Beyond the impact of mentoring, financial support had a significant and unique contribution to the retention of BIPOC students but not White students. Our findings suggest that mentoring is vital to both BIPOC and White graduate students. However, financial support seems to only impact the retention of BIPOC students after considering the contribution of mentoring. The implications of our findings are discussed.

Keywords: *BIPOC; Graduate Students; Mentoring; Financial Support; Retention*

¹Joseph Milosch, MA, Graduate, School of Graduate Psychology
Pacific University, Oregon
Email: milo3044@pacificu.edu

²Jane M. Tram, PhD, Professor, School of Graduate Psychology
Pacific University, Oregon
Email: tramjm@pacificu.edu

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The ethnic and racial populace of the United States and academia is continually becoming more diverse. For example, in April of 2021, the U.S. Census Bureau reported that the Asian³ population was the fastest grouping racial group from 2000 to 2019 (82.2%), followed by Native Hawaiian and Other Pacific Islander (72.7%), Black (23%), and White (9.6%) populations. Further, a publication by Passel and Cohn (2020) from the Pew Research Center (2008) estimates that Black, Indigenous, and People of Color (BIPOC) individuals will be the majority population in the United States by 2050. One can clearly see from these data that the national population is becoming more diverse and should consider the ripple effect this has and will continue to have in academia.

Graduate student enrollment is projected to increase to 3.1 million students by 2029 (U.S. Department of Education, 2019), and an increasing proportion is expected to be BIPOC. According to the National Center for Education Statistics (2019), between 1976 and 2018, post-baccalaureate degree-granting institutions experienced a 259% increase in BIPOC student enrollment while White enrollment decreased by 30%. The assemblage of BIPOC students in graduate programs is increasing. According to the American Council on Education (2017), the graduate student body is becoming increasingly diverse. From 1995–96 to 2015–16, Black student enrollment increased 6.7% and Latino student enrollment increased 4.3%, while White student enrollment decreased 19.4%. According to the Council of Graduate School Survey of Graduate Enrollment and Degrees (Okahana & Zhou, 2018), between 2007 and 2017, Latino enrollment increased by 6.1%, Asian enrollment increased by 2.7%, and Black enrollment increased by 1.3%, while American Indian/Alaska Native and White enrollment decreased by 3%. The Council of Graduate Schools also indicates that BIPOC students encompass a higher share of the graduate student population. From 2010 to 2020, graduate enrollment increased 1.7% for Native Hawaiian/other Pacific Islander, 8.8% for American Indian/Alaska Native, 16% for Black, 16.7% for Asian, and 20.4% for Latino students (Zhou & Gao, 2021). Although initial enrollment is not the same as retention, these figures illustrate the need for researchers to identify elements of institutions that provide equitable experiences to the increasingly diverse population of universities.

There is an abundance of literature exploring the numerous barriers BIPOC students experience (Chan et al., 2015; Keels, 2020; Kornbluh et al., 2021; Quarterman, 2008; Quayle & Harper, 2007; Solórzano et al., 2000; Strayhorn, 2018; Tinto, 1993; Williams, 2020). Due to the rapidly increasing representation of BIPOC students in graduate programs, researchers must investigate factors associated with retaining these students. Institutional systems can use this data to reduce attrition of students based on evidence-driven factors associated with program success. Although percentages are rising, the retention of BIPOC students in higher education continues to be an issue (Keels, 2020; Kornbluh et al., 2021).

The importance of mentoring is well-documented in social sciences, such as psychology (Chan et al., 2015; Rogers & Molina, 2006; Tram et al., 2020), and in the natural sciences, such as biomedicine, chemistry, math, and physics (Ma et al., 2020). To our knowledge, there is no empirical research on the impact of satisfaction of financial support over and above satisfaction with faculty mentoring on the retention of BIPOC and White graduate students. Our goal was to

address the differential impact of financial support over and above faculty mentoring for the retention of BIPOC graduate students compared to White students.

Literature Review

Factors Influencing Retention

The increasingly competitive nature of higher education is leading institutions to attend more carefully to student retention. Student retention is arguably one of the most crucial measures of whether an institution is successful. When students search for a graduate program, they are often drawn to institutions with high rankings and a positive reputation. Improving living standards and decreasing social problems are a few of the many reasons students may decide to pursue a graduate degree (McMahon, 2000). However, retention can also have a substantial impact on the institution. Suppose a university cannot graduate students year-to-year. In that case, they will not have a positive reputation or higher rankings, which will deter the most intelligent students and qualified faculty. Moreover, not many institutions have the resources to develop and implement high-quality retention programs. Researchers and institutions cannot ignore the value of student retention, but that begs the question—How should “retention” be defined/measured?

Retention is difficult to define because it is a complex, context-dependent variable. Much of the extant literature separates students into persisters and non-persisters. The former is students who graduate with a degree from the college they enrolled in and the latter is students who depart from the college before earning a degree. Although the terms “retention” and “persistence” are frequently used interchangeably, the National Center for Education Statistics considers “retention” an institutional measure while “persistence” is a student measure (Hagedorn, 2006). Throughout this paper, we use “retention” because this investigation did not collect any academic information about the individual students. Instead, we focus on factors that institutions may attend to when creating policies to “retain” students.

Educational institutions frequently collect data on retention and attrition to determine what is effective and what needs improvement. However, each student requires different experiences to provide them with the hope that the time and energy invested warrants the debt and mental strain. This is especially true for BIPOC graduate students (Lewis et al., 2004; Maton et al., 2011; Murtaugh et al., 1999). Unfortunately, fewer studies focus on retaining graduate students than the amount of research on undergraduate students (Feldman, 1993; Gandara & Maxwell-Jolly, 1999; Murtaugh et al., 1999; Nora et al., 1996). More recently, researchers have started to examine the impact of interventions (e.g., retention programs, robust orientation, mentoring, stipends) on the retention of graduate students (Bumby, 2020). This type of research is important given how valuable and essential graduate students are in the professional realm.

A qualitative study examining the issues of retention of Black female graduate students discovered that their continued participation hinged on several aspects, including encouragement from program representatives, personal recruitment from Black students and mentors who were familiar with the program, funding, respect from program faculty, supportive Black peer network, and established mentoring or supportive relationships with Black faculty and staff (Patton, 2009). Patton drew two conclusions from their findings “1) there are not enough Black professors to adequately accommodate every Black student who might need help and

opportunities; 2) current interactions between White professors and Black students appear woefully inadequate and or insignificant” (Patton, 2009, p. 340).

Proctor and Owen (2019) identified two studies from 1994 to 2017 examining retention strategies for ethnic minority students in school psychology graduate programs. The studies had four common strategies—inclusive program atmosphere, exposure to diverse professional networks, mentorship opportunities, and program commitment to multicultural issues. Interestingly, neither of the studies identified financial support as a strategy for retaining ethnic minority students; however, participants in Chandler’s (2011) study explicitly mentioned financial support as a potentially helpful strategy, and Rogers and Molina (2006) described the possibility of financial support as a recruitment tool. Similarly, a 2016 review by Grapin and colleagues found mixed results for the importance of financial support for ethnic minorities in school psychology graduate programs.

The literature mentioned above demonstrates the importance of identifying factors contributing to graduate student retention. Specifically, they highlight the vital need for data on what makes some students more willing to stay in their program. It is clear that every student can benefit from mentoring and financial support, but who avails more is still in question. Additionally, the review highlights the need for research examining the correlation between personal or institutional variables and the retention of graduate students.

Faculty Mentoring

In this study, we use an adaptation of Berk et al.’s (2005) definition: “A mentor is defined as an instructor/professor/faculty member that offers useful experiences, knowledge, skills, advice, guidance, or support for your professional development” (p. 67). Research has repeatedly demonstrated the importance of social and academic integration into the graduate program for improving student retention (Saenz et al., 1999; Tinto, 1993). Social integration helps address the struggles with mental health that students face, such as anxiety, depression, and stress. That said, academic integration is crucial for providing students with self-confidence and self-efficacy, encouraging them to stay in the program. Many factors play a role in academic integration and students’ assessment of their intellectual congruence with the program. This includes access to faculty members and the potential to find a suitable mentor (Campbell & Campbell, 1997; Saenz et al., 1999; Tinto, 1993). Faculty behavior within and outside the classroom provides students with standards they use to assess the intellectual ethos of the program. Students in doctoral programs, but especially BIPOC students, are more likely to believe they will complete their degree if they have a good faculty mentor than students who do not (Ellis, 2001; Twale et al., 2016).

Programs aimed at improving BIPOC retention have yielded valuable insight into the importance of faculty mentoring. Clewell (1987) found that faculty mentoring had a significant impact on reducing attrition. Intriguingly in their study, students who benefited most from mentoring were the ones who did not apply for financial aid. Quality mentoring predicts various positive outcomes, such as reduced attrition, higher scholarly productivity, and increased satisfaction with training (Gruber et al., 2020). Research on nursing programs indicates that faculty-student relationships such as mentoring determine degree completion (Ingraham et al., 2018).

The literature review above provides empirical justification for the focus of this study. The support, guidance, knowledge, and so forth that students receive from mentors can motivate them to obtain their degree. Evidence of this has been thoroughly analyzed in the undergraduate population, but the importance of mentoring may prove to be even more vital for graduate students.

Financial Support

The impacts of tuition cost on retention are well-documented for the undergraduate population. Several studies identified positive impacts (Chen & DesJardins, 2008; Dowd, 2004; Jackson & Reynolds, 2013). Others highlighted negative effects (Dowd & Coury, 2006; Ishitani & DesJardins, 2002). However, the unfortunate reality around educational, financial support is the lack of research on graduate student tuition support. Furthermore, the studies on graduate financial support have yielded inconsistent results concerning the relation between ethnicity and financial support. Rapoport (1999) found that underrepresented minority students incurred more debt than White peers, while Price (2004) found that White students from high socioeconomic families acquired more debt than Black peers from low socioeconomic backgrounds. These contradicting findings are troubling and highlight the need for further research into how financial support plays a role in retaining graduate students.

According to the National Center for Education Statistics, the cost of a graduate education increased by more than 50% in a 10-year period (Aud et al., 2011). This number continues to rise even though funding through grants and assistantships continues to decline (Belasco et al., 2014). Rising costs and decreasing availability of funds force students to rely on federal loans, which creates additional stress and may contribute to individual persistence and institutional retention (Kim & Otts, 2010). A study conducted by Mendoza and colleagues' (2014) found that both teaching assistantships and fellowships had a significant positive effect on the retention of PhD students. Receiving teaching assistantships/fellowships increased the likelihood of graduate students staying in their program. Interestingly, they also discovered that teaching assistantships improve retention because of the socialization between faculty members and peers. In contrast to their predictions, research assistantships did not significantly relate to student retention.

Boyer and Butner (2011) found a significant difference between the funding patterns of Black graduate students compared to White and Latino graduate students. Gururaj and colleagues' (2010) meta-analysis determined that every form of financial aid significantly influences graduate student retention; however, grants have the most significant impact on the students' decision to stay in the program. An essential finding from their analysis is that regardless of student background characteristics (e.g., race, age, gender, income), grants are the best predictor of graduate students' successful degree completion. They assert that increasing federal funding in grants would have the most considerable impact on graduate student retention. Findings from Powell & Scott (2013) illuminate the dual-sided nature of college loans. The researchers discuss how loans may help close the educational inequality gap but could precipitate inequity in the form of loan default. Previous studies found that both students and faculty reported that proper financial support is vital to the retention and timely graduation of BIPOC students (Rogers & Molina, 2006; Vasquez et al., 2006). May and Chubin (2003) found that

shifting only \$1,000 from scholarship financial support to loans reduced students from the poorest family's graduation rates by 17%.

Our research is timely given the salience of student debt in the USA today. Graduate tuition has increased approximately 230% since 1990 (U.S. Department of Education, 2022a). With increased tuition, there is an associated increase in debt. The debt for those completing their degrees rose over 150% between 2000 and 2016 (U.S. Department of Education, 2022b). The studies we reference identify the potentially detrimental impact of debt and the influence increased financial support may have on graduate student retention. Further, they highlight the need for empirical research examining the connection between financial support and retention of graduate students. In conceptualizing this study, we wanted to better understand student willingness to complete their degree in light of financial support. More specifically, higher tuition increases the inaccessibility of higher education, particularly for those who are lower-income. Given the higher representation of BIPOC students among those who are low-income, we were interested in comparing the experiences of BIPOC versus White students in this study. From 1976 to 2020 BIPOC graduate student enrollment has increased 28.6% (U.S. Department of Education, 2021a), the percentage earning masters degrees has increased 25.5% (U.S. Department of Education, 2021b), and the percentage earning doctoral degrees has increased 27% (U.S. Department of Education, 2022c). The increasing representation of BIPOC students highlights the importance of examining the impact of factors such as mentoring and finances on the retention of students. Given that experiences may differ by ethnicity and/or race, we compared the experiences of BIPOC and White students in this study.

Literature Review Summary

The literature discussed points to the importance of research related to graduate student retention. Not only does retention impact the individual student and their family, but it also creates a ripple effect that can influence particular institutions and academia as a whole, the workforce, and ultimately the economy. This potentially powerful effect demonstrates that this complex context-dependent variable goes beyond just the student and cannot be ignored. In some ways, the climate of an institution/program determines if a student feels confident and capable of completing their degree. Faculty mentoring improves the environment of a program by providing support and advice that students need to develop intellectually and professionally. This support is increasingly relevant when the cost of graduate school is skyrocketing and financial aid is difficult to obtain. Increasing debt forces students to question the value of the degree they are pursuing and doubt whether completing their program will offset the cost of continuing. Taken together, financial supports like teaching assistantships provide students access to funds and the ability to benefit from the knowledge the instructor offers. Still, unless the student considers the professor a mentor, this relationship may or may not increase retention.

Research Questions

Previous research indicates that satisfaction with faculty mentoring and satisfaction with financial supports are important considerations for the retention of all students. However, extant literature has not examined the differential role these variables play for BIPOC compared to

White graduate students. Further, to our knowledge, a study that investigated whether financial supports had a unique contribution to retention over and above mentoring does not exist. Thus, in this study, we examined the relations between mentoring and financial support on the retention of BIPOC and White graduate students. More specifically, we examined the following research questions:

1. With regard to BIPOC graduate students
 - a. Is there a significant relation between satisfaction with faculty mentoring and retention? We hypothesized that higher satisfaction with faculty mentoring would significantly correlate with higher retention for BIPOC students.
 - b. Does satisfaction with financial support contribute to retention over and above the impact of faculty mentoring? We hypothesized that higher satisfaction with financial support would significantly correlate with higher retention over and above satisfaction with faculty mentoring for BIPOC students.
2. With regard to White graduate students
 - a. Is there a significant relation between satisfaction with faculty mentoring and retention? We hypothesized that higher satisfaction with faculty mentoring would significantly correlate with higher retention for White students.
 - b. Does satisfaction with financial support contribute to retention over and above the impact of faculty mentoring? We hypothesized that higher satisfaction with financial support would significantly correlate with higher retention over and above satisfaction with faculty mentoring for White students.

Method

Participants

We utilized convenience sampling to gather participants from a list of accredited chemistry programs in the United States, which was obtained from the American Chemical Society. The researchers contacted graduate chemistry programs in the United States, their respective graduate student associations, and multicultural centers at each university if they were listed on the institutions' websites. A total of 243 schools were contacted during the 2019-21 academic year. They were contacted via email, and a link to the online survey was distributed to enrolled students, along with a statement about the study purpose and participation requirements. Graduate students who chose to participate in the study and met the criteria for eligibility (i.e., 18 years or older and were enrolled as a current graduate student in the United States) completed an informed consent form along with the questionnaire through Qualtrics. Participants were excluded from the analysis if they were under the age of 18, were not currently enrolled in a master's or doctoral level program in the United States, and did not provide informed consent.

The final sample ($N = 141$) consisted of participants ranging from 22 to 44 years old ($M = 25.98$, $SD = 5.07$). In terms of ethnic and racial identity, 0.7% ($N=1$) identified as Pacific Islander, 1.4% ($N = 2$) identified as African/ Black/African American, 2.1% ($N = 3$) identified as Middle Eastern, 7.1% ($N = 10$) identified as Hispanic/Latino(a)/Latinx, 17% ($N = 24$) identified as Asian/South Asian, and 67.4% ($N = 97$) identified as White/European. Further, 0.7% ($N = 1$) of the participants identified as Multiracial and 3.5% ($N = 5$) identified as Biracial. In terms of gender identity, 31.2% ($N = 44$) identified as Man, 63.8% ($N = 90$) identified as Woman, 1.4%

($N = 2$) identified as Genderqueer, 2.8% ($N = 4$) identified as Non-binary, and 0.7% ($N = 1$) identified as Other. Please refer to Table 1, below, for additional demographic and education information such as field of study, generational status, and year in program,

Table 1
Demographics and Education of Sample (N = 141)

Characteristic	<i>n</i>	%
<i>Ethnicity</i>		
BIPOC	46	30.7
White	95	63.3
<i>Field of Study</i>		
Humanities and social sciences	11	8.1
Natural sciences	114	83.8
Formal sciences	3	2.2
Professional and applied sciences	8	5.9
<i>First Generation</i>		
Yes	32	23.5
No	99	72.8
Other	5	3.7
<i>Current Year in the Program</i>		
First	24	20.9
Second	27	23.5
Third	20	17.4
Fourth	19	16.5
Fifth	16	13.9
Fifth	16	13.9
Sixth	5	4.3
Seventh	4	3.5

Concerning income, 8.7% ($N = 11$) of the participants reported their household income, excluding loans, to be less than or equal to \$1,000, 3.2% ($N = 4$) reported \$1,001 to \$10,000, 7.1% ($N = 9$) reported \$10,001 to 20,000, 37.3% ($N = 47$) reported to be \$20,001 to \$30,000, 28.6% ($N = 36$) reported \$30,001 to \$50,000, 7.1% ($N = 9$) reported to be \$50,001 to \$75,000, 5.6% ($N = 7$) reported \$75,001 to \$100,000, 1.6% ($N = 2$) reported \$100,001 to \$175,000, .8% ($N = 1$) reported \$175,001 or more. Please refer to Table 2 for additional information related to participant financial status such employment status, loan amounts, and whether students are receiving scholarships (with or without required service).

Table 2
Financial Status of Sample (N = 141)

Characteristic	<i>n</i>	%
<i>Beyond [school loans, scholarship with or without service], I am employed</i>		

Full-time	8	6.4
Part-time	12	9.6
Not employed	91	72.8
Not eligible	8	6.4
Other	6	4.8
<i>Annual Loan Amount</i>		
None	97	78.9
\$1-\$10,000	11	8.9
\$10,001-\$20,000	8	6.5
\$20,001-\$40,000	6	4.9
\$40,001-\$60,000	1	.8
<i>Scholarship with Required Service</i>		
Yes	92	74.2
No	21	16.9
Does not apply	11	8.9
<i>Scholarship without Required Service</i>		
Yes	54	43.5
No	56	45.2
Does not apply	14	11.3

Measures

The questionnaire from Tram et al. (2020) was modified, with research group feedback, to generate a 72-item questionnaire to collect demographic and factor-related information. The questionnaire was composed of domains—satisfaction with financial support, satisfaction with faculty mentoring, and retention. Participants responded to most items as percentages where 0% indicated no support/satisfaction and 100% reflected complete support/satisfaction.

Retention was assessed via five items—the mean of the items after they were standardized. Cronbach’s alpha for the 5-item retention subscale was .85. Satisfaction with faculty mentoring was assessed via three items—the mean of the items after they were standardized. Cronbach’s alpha for the 3-item mentoring subscale was .97. Satisfaction with financial support was assessed via four items where participants were asked to rate their satisfaction with the amount of financial support they received (e.g., loans, scholarship with required service (i.e., teaching and graduate assistantships), scholarships without required service (i.e., grants, tuition scholarships), and overall financial satisfaction). Financial support was the mean of the items after they were standardized. Cronbach’s alpha for the 4-item financial support subscale was .87.

Results

The unstandardized means, standard deviations, frequencies, and percentages for the items of each subscale (i.e., retention, satisfaction with faculty mentoring (M), satisfaction with financial support (F)) are presented in Table 3. Please note that we provide these numbers for all students (regular font), BIPOC students (*italicized font*), and White students (**bold font**).

Table 3
Unstandardized Means, Standard Deviations, Frequencies, and Percentages for Subscale Items (N = 141)

Subscales and Specific Items	M	SD	n
Retention			
I am confident I made the right decision in choosing to attend this institution.	70.25	31.10	89
	66.50	28.02	22
	71.48	32.15	67
I am certain this institution is the right choice for me.	66.80	32.54	90
	63.61	30.46	23
	67.90	33.37	67
I feel I belong at this institution.	63.36	31.36	90
	56.78	31.59	23
	65.61	31.20	67
It is very important for me to graduate from this institution as opposed to some other school.	43.15	35.90	89
	54.30	35.04	23
	39.26	35.64	66
How likely is it that you will stay and graduate?	91.18	15.37	90
	85.43	23.99	23
	93.15	10.55	67
Satisfaction with Faculty Mentoring (M)			
Overall, I am receiving the amount of mentoring that I would like from my primary mentor	67.11	31.35	94
	62.84	33.37	25
	68.65	30.69	69
Overall, I am receiving the quality of mentoring that I would like from my primary mentor	69.58	32.67	95
	66.20	34.43	25
	70.79	32.19	70
Taking into account both amount and quality, I am ___% satisfied with my primary mentor.	71.14	29.94	95
	66.12	32.75	25
	72.93	28.92	70
Satisfaction with Financial Support (F)			
I am ___% satisfied with the amount of school loans I receive.	72.11	31.76	35
	80.56	25.30	9
	69.19	33.65	26

I am ____% satisfied with the amount of scholarships, without required service, I receive.	70.46	34.11	61
	<i>79.88</i>	<i>28.02</i>	<i>17</i>
	66.82	35.81	44
I am ____% satisfied with the amount of scholarships, with required service, I receive.	69.05	28.43	95
	<i>71.32</i>	<i>30.48</i>	<i>28</i>
	68.10	27.72	67
When I take into account school loans and scholarships, I am ____% satisfied with the amount I am receiving overall.	68.23	26.48	122
	<i>68.86</i>	<i>27.17</i>	<i>35</i>
	67.98	26.35	87

Note. Regular font represents all students; *Italicized* font represents BIPOC students; **Bold** font represents White students

We used hierarchical regression to examine the relations between retention (R), faculty mentoring (M), and financial support (F). The summary of the regression analyses for BIPOC students are presented in Table 4. In the first step, when considered alone, we found that mentoring had a significant positive relation to retention and accounted for 57.5% of its variance for BIPOC students. In step two, above and beyond mentoring, financial support had a significant and positive relation to retention with a unique effect of 12.1%.

Table 4
Summary of Hierarchical Regression Analyses for BIPOC Students

Step	Predictor	Unstandardized Coefficients		Standardized Coefficients		R^2	ΔR^2	ΔF	p
		<i>B</i>	<i>SE</i>	<i>B</i>	<i>p</i>				
1	$R = \beta_0 + \beta_1 M$.575	.575	27.084	<.001
	M	.635	.122	.758	<.001				
2	$R = \beta_0 + \beta_1 M + \beta_2 F$.697	.121	7.602	.013
	M	.626	.106	.747	<.001				
	F	.330	.120	.349	.013				

We used comparable hierarchical regression analyses to examine the relations between retention (R), faculty mentoring (M), and financial support (F) for White students. The summary of the regression analyses for White students are presented in Table 5. First, when considered alone, mentoring had a significant positive relation to retention and accounted for 29.9% of its variance. Beyond mentoring, financial support uniquely accounted for 1.3% of the variance of retention. This contribution was not significant.

Table 5
Summary of Hierarchical Regression Analyses for White Students

Step	Predictor	Unstandardized Coefficients		Standardized Coefficients		R^2	ΔR^2	ΔF	p
		B	SE	β	p				
1	$R = \beta_0 + \beta_1 M$.299	.299	275.36	<.001
	M	.429	.082	.547	<.001				
2	$R = \beta_0 + \beta_1 M + \beta_2 F$.312	.013	1.189	.280
	M	.405	.085	.516	<.001				
	F	.108	.099	.118	.280				

Discussion

Study Summary and Overview

The current research focused on factors that contribute to the retention of BIPOC and White graduate students. Specifically, the variables of satisfaction with faculty mentoring and financial support were offered as elements that increase the likelihood the graduate student will complete their program. Three out of our four hypotheses were supported. The findings are summarized below, and implications are discussed.

BIPOC Students

We hypothesized that satisfaction with mentoring would be significantly correlated with higher retention rates for BIPOC students. A statistically significant positive relation between mentoring and retention was found. In other words, mentoring was associated with an increased likelihood the BIPOC student will remain in the program. This finding supports the research that quality mentoring promotes BIPOC graduate students to stay in their program. Additionally, we hypothesized that satisfaction with financial support would correlate with higher retention rates over and above that of mentoring. We found a statistically significant relation between financial support and retention when accounting for mentoring. In other words, financial support has a unique influence on BIPOC graduate students' decision to continue in their program over and above the impact of quality mentoring. Taken together, we found support for hypotheses one and two.

White Students

We hypothesized that satisfaction with mentoring would be significantly correlated with higher retention rates for White students. A statistically significant positive relation between mentoring and retention was found. Thus, mentoring was associated with increased retention of White students. This finding supports the research that quality mentoring promotes White student retention. Additionally, we hypothesized that financial support would correlate with higher retention rates over and above that of mentoring. Unfortunately, we did not find a significant relation between financial support and retention when accounting for mentoring. In other words, financial support did not have a unique influence on White graduate students' decision to stay in the program over and above the impact of mentoring. Thus, we only found support for our hypothesis for research question three.

Implications

Based on the results of the study, research questions one, two, and three were supported. Increased satisfaction with faculty mentoring was associated with an increase in retention of BIPOC and White students. This finding suggested that all students can benefit from improved mentoring and demonstrated how influential this factor is in increasing retention. BIPOC students in graduate programs may encounter difficulties with finding a mentor who understands and appreciates them; however, results from this study indicate that financial support accounts for a significant amount of variability in retention beyond what faculty mentoring explains. Thus, programs implementing mentoring programs need to also consider how financial support in combination with quality mentoring can improve retention.

These findings support the assertion in Gunderson (2014) that financial supports improve retention, especially when they relate to socialization with faculty mentors. Hence, this current study added to the literature by finding empirical support for the relation between mentoring, financial support, and retention for BIPOC students in graduate programs across the United States (Rogers & Molina, 2006; Vasquez & Jones, 2006). Our finding increases cognizance of the institutional and program level policies that serve to challenge the selective nature of mentorships, and its influence on BIPOC retention. Additionally, this outcome increases our knowledge base for faculty and administration eyeing to support BIPOC students in graduate programs.

Limitations and Future Research

The purpose of this study was to investigate the relation between satisfaction with faculty mentoring and financial support on graduate student retention. The American Psychological Association (2015) estimates that the majority of the United States population will be ethnic minorities by the year 2060. Consequently, there will be more ethnic minority students seeking doctoral degrees. Although the representation of ethnic minorities in higher education is increasing, equity in this domain still remains an issue and demonstrates the potential impact the results from this study and future analyses can have on the retention of BIPOC graduate students. Although three significant results were found, our study has a number of limitations.

First, our sample was predominately (i.e., 63.3%) White. Thus, our conclusions about BIPOC students may generalize to a larger sample. The current was also limited in the variables that were assessed. As stated earlier, retention is a complex, context-dependent construct and numerous statisticians have attempted to develop formulas to accurately define retention rates. However, in our study, we focused on the subjective self-report answers from participants, who may or may not be truthful or conscious of their intent. A multitude of institutional, personal, and sociopolitical elements can encourage or discourage the decision to continue. Thus, other factors beyond the ones we examined in this study possibly contribute to increasing retention of BIPOC students. This project addressed contemporary issues that can be highly influential for the individual, the institution, and the economic well-being of society. The findings from this study may inform the policies institutions have in place, to potentially save institutional resources and improve students' experience.

Given the increasing representation of BIPOC graduate students, it is important for us to investigate the domains in which the needs of BIPOC versus White students may differ. The

results from our study indicate that financial support is one of these domains. Due to the fact that this is a preliminary study with a smaller sample size, it is important for our findings to be considered with caution. Additional research in this realm would help confirm and/or clarify our findings. However, the data that is consistent with existing research (e.g., Tram et al., 2020) is the importance of faculty mentoring for graduate students. Our research extends the research conducted by Tram et al. but includes both BIPOC and White students. It is crucial for the academic research community to hold institutions of higher education responsible for providing equitable support to the diverse student body they will serve. The results from this study indicate that although quality faculty mentoring is important for all students, financial supports are especially vital to retaining BIPOC students. This suggests that institutions can implement systems to support the financial need of BIPOC students. Unfortunately, institutions of higher education have limited resources to generate and employ systems without removing funds from another area, making it difficult to justify changes. Our research can help inform administrators of how they may best allocate their resources in order to benefit all students.

References

- American Council on Education. (2016). *Race and ethnicity in higher education: A status report*. <https://www.equityinhighered.org/indicators/postsecondary-faculty-and-staff/>
- American Council on Education. (2017). *Race and ethnicity in higher education: A status report*. <https://www.equityinhighered.org>
- American Psychological Association (2015). The current status of ethnic minorities in psychology. <http://apa.org/divisions/div45/images/statusofethnicminoritypsychologists.pdf>
- Aud, S., Hussar, W., Kena, G., Bianco, K., Frohlich, L., Kemp, J., Tahan, K. (2011). The condition of education 2011 (NCES 2011-033). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office. https://nces.ed.gov/pubs2011/2011033_1.pdf
- Berk, R. A., Berg, J., Mortimer, R., Walton-Moss, B., & Yeo, T. P. (2005). Measuring the effectiveness of faculty mentoring relationships. *Academic Medicine*, 80(1), 66–71. <https://doi.org/10.1097/00001888-200501000-00017>
- Belasco, A. S., Trivette, M. J., & Webber, K. L. (2014). Advanced degrees of debt: Analyzing the patterns and determinants of graduate student borrowing. *The Review of Higher Education*, 37(4), 469-497. <https://eric.ed.gov/?id=EJ1032722>
- Boyer, P. G., & Butner, B. (2011). Advancing or hindering the next generation? A look at financial aid for minority graduate students, *Journal of Student Financial Aid*, 41(2), Article 2. <https://ir.library.louisville.edu/jsfa/vol41/iss2/2>
- Bumby J. C. (2020). Evidence-based interventions for retention of nursing students: A review of the literature. *Nurse Educator*, 45(6), 312–315. <https://doi.org/10.1097/NNE.0000000000000797>
- Campbell, T. A., & Campbell, D. E. (1997). Faculty/student mentor program effects on academic performance and retention. *Research in Higher Education*, 38(6), 727-742. <https://link.springer.com/article/10.1023/A:1024911904627>

- Clewell, B. (1987). Retention of Black and Hispanic doctoral students. *ETS Research Report Series, 1987(1)*, i-89. <https://doi.org/10.1002/j.2330-8516.1987.tb00214.x>
- Chan, A. W., Yeh, C. J., & Krumboltz, J. D. (2015). Mentoring ethnic minority counseling and clinical psychology students: A multicultural, ecological, and relational model. *Journal of Counseling Psychology, 62(4)*, 592–607. <https://doi.org/10.1037/cou0000079>
- Chandler, D. R. (2011). Proactively addressing the shortage of Blacks in psychology: Highlighting the school psychology subfield. *Journal of Black Psychology, 37(1)*, 99–127. <https://doi.org/10.1177/0095798409359774>
- Chen, R., & DesJardins, S. L. (2008). Exploring the effects of financial aid on the gap in student dropout risks by income level. *Research in Higher Education, 49(1)*, 1-18. <http://doi.org/10.1007/s11162-007-9060-9>
- Connor, H., Tyers, C., Modood, T., & Hilage, J. (2004). Why the difference? A closer look at higher education minority ethnic students and graduates. *Department for Education*. https://www.researchgate.net/publication/265080860_Why_the_Difference_A_Closer_Look_at_Higher_Education_Minority_Ethnic_Students_and_Graduates
- Dowd, A.C. (2004). Income and financial aid effects on persistence and degree attainment in public colleges. *Education Policy Analysis Archives, 12(21)* 1-35. <https://doi.org/10.14507/epaa.v12n21.2004>
- Dowd, A., & Coury, T. (2006). The effect of loans on the persistence and attainment of community college students. *Research in Higher Education, 47(1)*, 33-62. <https://doi.org/10.1007/s11162-005-8151-8>
- Ellis, E. M. (2001). The impact of race and gender on graduate school socialization, satisfaction with doctoral study, and commitment to degree completion. *The Western Journal of Black Studies, 25(1)*, 30-45. <https://psycnet.apa.org/record/2002-02718-001>
- Feldman, M. J. (1993). Factors associated with one-year retention in a community college. *Research in Higher Education, 34(3)*, 503-512. <https://eric.ed.gov/?id=EJ467194>
- Gandara, E. W., & Maxwell-Jolly, J. (1999). Priming the pump strategies for increasing the achievement of underrepresented minority undergraduates. *College Board*. <https://eric.ed.gov/?id=ED562803>
- Grapin, S. L., Bocanegra, J. O., Green, T. D., Lee, E. T., & Jaafar, D. (2016). Increasing diversity in school psychology: Uniting the efforts of institutions, faculty, students, and practitioners. *Contemporary School Psychology, 20(4)*, 345–355. <https://psycnet.apa.org/doi/10.1007/s40688-016-0092-z>
- Gruber, J., Borelli, J. L., Prinstein, M. J., Clark, L. A., Davila, J., Gee, D. G., Klein, D. N., Levenson, R. W., Mendle, J., Olatunji, B. O., Rose, G. L., Saxbe, D., & Weinstock, L. M. (2020). Best practices in research mentoring in clinical science. *Journal of Abnormal Psychology, 129(1)*, 70–81. <https://doi.org/10.1037/abn0000478>
- Gururaj, S., Heilig, J. V., & Somers, P. (2010). Graduate Student Persistence: Evidence from Three Decades. *Journal of Student Financial Aid, 40(1)*, 31-46.
- Hagedorn, S. L. (2006). How to define retention: A new look at an old problem. Paper sponsored by the Transfer and Retention of Urban Community College Students Project (TRUCKS) funded by the Lumina Foundation (Grant # 1415). <https://eric.ed.gov/?id=ED493674>

- Ingraham, K. C., Davidson, S. J., & Yonge, O. (2018). Student-faculty relationships and its impact on academic outcomes. *Nurse Education Today*, 71, 17–21. <https://doi.org/10.1016/j.nedt.2018.08.021>
- Ishitani, T. T., & DesJardins, S. L. (2002). A longitudinal investigation of dropout from college in the U.S. *Journal of College Student Retention: Research, Theory & Practice*, 4(2), 173–201. <https://doi.org/10.2190/V4EN-NW42-742Q-2NTL>
- Jackson, B.A., & Reynolds, J. (2013). The price of opportunity: Race, student loan debt, and college achievement. *Sociological Inquiry*, 83(3), 335-368. <https://doi.org/10.1111/soin.12012>
- Keels, M. (2020). Campus counterspaces: Black and Latinx students' search for community at historically White universities. Cornell University Press. <http://doi.org/10.7591/cornell/9781501746888.003.0001>
- Kim, D., & Otts, D.C. (2010). The effect of loans on time to doctorate degree: Differences by Race/Ethnicity, field of study, and institutional characteristics. *The Journal of Higher Education*, 81, 1-32. <https://doi.org/10.1080/00221546.2010.11778968>
- Kornbluh, M., Bell, S., Vierra, K., & Herrnstadt, Z. (2021). Resistance capital: Cultural activism as a gateway to college persistence for minority and first-generation students. *Journal of Adolescent Research*. <https://doi.org/10.1177%2F07435584211006920>
- Lewis, C. W., Ginsberg, R., Davies, T., & Smith, K. (2004). The experiences of African American Ph.D. students at a predominantly White Carnegie I- research institution. *College Student Journal*, 38(2), 231-245. <https://psycnet.apa.org/record/2004-16679-010>
- Ma, Y., Mukherjee, S., & Uzzi, B. (2020). Mentorship and protégé success in STEM fields. *Proceedings of the National Academy of Sciences*, 117(25), 14077 LP – 14083. <https://doi.org/10.1073/pnas.1915516117>
- Maton, K. I., Wimms, H. E., Grant, S. K., Witting, M. A., Rogers, M. R., & Vasquez, M. J. T. (2011). Experiences and perspectives of African American Latina/o, Asian American and European American psychology graduate students: A national study. *Cultural Diversity and Ethnic Minority Psychology*, 17(1), 68-78. <https://doi.org/10.1037/a0021668>
- May, G.S. and Chubin, D.E. (2003), A retrospective on undergraduate engineering success for underrepresented minority students. *Journal of Engineering Education*, 92, 27-39. <https://doi.org/10.1002/j.2168-9830.2003.tb00735.x>
- McMahon, W. W. (2000). *Education and development: Measuring the social benefits*. Clarendon Press.
- Mendoza, P., Villarreal, P., III, & Gunderson, A.L. (2014). Within-year retention among Ph.D. students: The effect of debt, assistantships, and fellowships. *Research in Higher Education*, 55, 650-685. <https://doi.org/10.1007/s11162-014-9327-x>
- Murtaugh, P. A., Burns, L. D., & Schuster, J. (1999). Predicting the retention of university students. *Research in Higher Education*, 40(3), 355-371. <https://doi.org/10.1023/A:1018755201899>
- Nora, A., Cabrera, A., Hagedom, L. S. & Pascarella, E. (1996). Differential impacts of academic and social experiences on college-related behavioral outcomes across different ethnic and gender groups at four-year institutions. *Research in Higher Education*, 37(4), 427-457. <https://doi.org/10.1007/BF01730109>

- Okahana, H., & Zhou, E. (2018). *Graduate enrollment and degrees: 2007 to 2017*. Council of Graduate Schools. https://cgsnet.org/ckfinder/userfiles/files/CGS_GED17_Report.pdf
- Passel, J. S., & Cohn, D. V. (2020, May 30). U.S. Population Projections: 2005-2050. Pew Research Center's Hispanic Trends Project. <https://www.pewresearch.org/hispanic/2008/02/11/us-population-projections-2005-2050/>
- Patton, L. D. (2009). My sister's keeper. A qualitative examination of mentoring experiences among African American women in graduate and professional schools. *The Journal of Higher Education*, 80(5), 510-537. <https://www.jstor.org/stable/27750743>
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.710.1061&rep=rep1&type=pdf>
- Powell, H., & Scott, J. A. (2013). Funding changes and their effect on ethnic minority student access. *National Forum*, 7(1). <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Powell,%20Hattie%20Funding%20Changes%20and%20Their%20Effect%20on%20Ethnic%20Minority%20Students%20Access%20FOCUS%20VV7%20N1%202013.pdf>
- Price, D.V. (2004). Educational debt burden among borrowers: An analysis of the baccalaureate & beyond panel, 1997 follow-up. *Research in Higher Education*, 45(7), 701-737. <https://link.springer.com/article/10.1023/B:RIHE.0000044228.54798.4c>
- Proctor, S.L. Owens, C. (2019) School psychology graduate education retention research characteristics: Implications for diversity initiatives in the profession. *Psychology in the Schools*, 56(6), 1037– 1052. <https://doi.org/10.1002/pits.22228>
- Quarterman, J. (2008). An assessment of barriers and strategies for recruitment and retention of a diverse graduate student population. *College Student Journal*, 42(4), 947-967.
- Quaye, S. J., & Harper, S. R. (2007). Shifting the onus from racial/ethnic minority students to faculty: Accountability for culturally inclusive pedagogy and curricula. *Liberal Education*, 92(3), 19-24
- Rapoport, A.I. (1999). Does the educational debt burden of science and engineering doctorates differ by race/ethnicity and sex? *National Science Foundation*.
- Rogers, M. R., & Molina, L. E. (2006). Exemplary efforts in psychology to recruit and retain graduate students of color. *American Psychologist*, 61(2), 143–156.
- Solórzano, D., Ceja, M., & Yosso, T. (2000). Critical race theory, racial microaggressions, and campus racial climate: The experiences of African American college students. *Journal of Negro Education*, 69(1/2), 60.
- Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students*. Routledge.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. The University of Chicago Press.
- Tram, J. M., Nwankwo, N., Khan, A. N., & Sabado, J. A. (2020). Impact of faculty mentoring on ethnic and racial minority student program satisfaction. *Scholarship of Teaching and Learning in Psychology*. Advance online publication.

- Twale, D. J., Weidman, J. C., & Bethea, K. (2016). Conceptualizing socialization of graduate students of color: Revisiting the Weidman-Twale-Stein framework. *Western Journal of Black Studies*, 40(2), 80-94.
- U.S. Census Bureau, (2021). *A more diverse nation*. The United States Census Bureau.
- U.S. Department of Education, National Center for Education Statistics, (2019), Spring 2001 through Spring 2019, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2029. *Digest of Education Statistics 2019* https://nces.ed.gov/programs/digest/d19/tables/dt19_303.10.asp
- U.S. Department of Education. (2021a). *Digest of Education Statistics, 2021*. National Center for Education Statistics (NCES). https://nces.ed.gov/programs/digest/d21/tables/dt21_306.10.asp
- U.S. Department of Education. (2021b). *Digest of Education Statistics, 2021*. National Center for Education Statistics (NCES). https://nces.ed.gov/programs/digest/d21/tables/dt21_323.20.asp?current=yes
- U.S. Department of Education. (2021c). *Digest of Education Statistics, 2021*. National Center for Education Statistics (NCES). https://nces.ed.gov/programs/digest/d21/tables/dt21_324.20.asp?current=yes
- U.S. Department of Education. (2022a). *Digest of Education Statistics, 2021*. National Center for Education Statistics (NCES). https://nces.ed.gov/programs/digest/d21/tables/dt21_330.50.asp?current=yes
- U.S. Department of Education. (2022b). *Digest of Education Statistics, 2021*. National Center for Education Statistics (NCES). https://nces.ed.gov/programs/digest/d21/tables/dt21_332.45.asp?current=yes
- Vasquez, M. J. T., & Jones, J. M. (2006). Increasing the number of psychologists of color: Public policy issues for affirmative diversity. *American Psychologist*, 61(2), 132–142. <https://doi.org/10.1037/0003-066X.61.2.132>
- Williams M.T. (2020). Psychology cannot afford to ignore the many Harms caused by microaggressions. *Perspectives on Psychological Science*, 15(1), 38-43. <https://doi.org/10.1177/1745691619893362>
- Zhou, E., & Gao, J. (2021). *Graduate enrollment and degrees: 2010 to 2020*. Washington, DC: Council of Graduate Schools.

Footnote

³ For the purpose of this manuscript, the term Black will be used to refer to a person who is African American or of African ancestry. The term Latino will be used to refer to a person of Cuban, Mexican, Puerto Rican, South or Central American or other Spanish culture. Similarly, we use the term Asian to refer to a person who is Pacific Islander, Asian American, or of Asian ancestry, and White to refer to a person who is of European American or European ancestry.