



HISTORICALLY UNDERREPRESENTED GRADUATE STUDENTS' EXPERIENCES AT A U.S. MAJORITY SERVING INSTITUTION: A NARRATIVE ANALYSIS

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ABSTRACT

Aim/Purpose	This study explored the experiences of a group of historically underrepresented graduate students at a research-intensive university to understand their perceived supports and barriers to academic persistence and success and how these related to their background, socioeconomic status, language, and cultural differences.
Background	Attending graduate school can provide learning in specialized disciplines, creating opportunities for career advancement and gains in income. Underrepresented students (i.e., underrepresented minorities, females in STEM, first-generation students, part-time, and international students) often encounter additional barriers in graduate school, such as a lower sense of belonging, imposter phenomenon, or microaggressions. However, they may find emotional support through family and friends and mentor support through faculty and advisors. Maslow's Hierarchy of Needs was used to understand how these graduate student success factors acted as supports and barriers to motivate students to reach their optimal potential.
Methodology	In this qualitative narrative study, interview transcripts from fourteen graduate students studying at an R1 university in the United States were restoried into narratives. For the typographic analyses, themes emerged from the individuals' stories. Similarities in the data were organized into categories, and relationships were sought between the categories. For the rhetorical analyses, short storylines

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	developed from these cases were used to derive opposition statements and syllogisms.
Contribution	This study illuminates the graduate student experience through novel analytical methods and a well-regarded psychological theory – Maslow's Hierarchy of Needs – tied to graduate student success factors. Although each person's graduate experience is unique, the study findings lead to recommendations to enhance the graduate student experience for <i>all</i> students.
Findings	Case analyses revealed nine major themes linked to students' backgrounds, socioeconomic status, language, and cultural differences: (1) mentor support, (2) sense of belonging, (3) financial support, (4) peer support, (5) community, (6) imposter phenomenon, (7) microaggressions, (8) family obligations, and (9) access and opportunity for academic research and writing.
Recommendations for Practitioners	Universities can better support graduate students by providing better professional development for faculty to serve as mentors, using a cohort-based model for better peer support, financial counseling for graduate students, better mental health services and access, more parental support considerations, and more opportunities for research experiences.
Recommendations for Researchers	Researchers will gain a more nuanced understanding of individuals' circumstances – particularly those students who have many complicating life circumstances (e.g., enrollment status, family, finances, citizenship) – by collecting and analyzing qualitative data. Mixed methods, using validated instruments, could also enhance our understanding of graduate education.
Impact on Society	Universities that follow the recommendations in this study will enhance the experiences of graduate students, likely increase graduation rates, and contribute to a more educated and more diverse workforce.
Future Research	For universities that have already implemented some of the suggested support structures (e.g., mentor professional development, cohort programs, and financial counseling), future research could investigate their utility to graduate students.
Keywords	sense of belonging, mentor support, financial support, peer support, imposter phenomenon, graduate student success

INTRODUCTION

Attending graduate school can potentially increase career opportunities, income, and intellectual gains (Phelan et al., 2010; Y. J. Xu, 2013). However, these opportunities have not equally benefitted all individuals, as the United States (U.S.) graduate student population is typically composed of middle- to upper-class White males (National Science Foundation [NSF], 2020). A traditional graduate student is defined as a full-time student who attends graduate school immediately after completing their undergraduate degree (University of Maryland, Baltimore County, n.d.). Other groups, including females in science, technology, engineering, and mathematics (STEM), underrepresented minorities (URM), and first-generation college students, often have lower enrollment rates and higher attrition rates, indicating additional barriers for these groups (NSF, 2020; Postsecondary National Policy Institute [PNPI], 2021; United States Census Bureau, 2019, 2020). For this study, URM students include individuals who identify as Black, Latino/a, Native American, and Multiracial students. The National Science Foundation (2017) identifies three racial and ethnic groups – Black, Hispanic, and American Indian or Alaska Native – as underrepresented in science and engineering. Asian students are not included in URM groups in STEM because they are considered overrepresented as science and engineering

degree recipients and represent a substantial number of those employed in those fields (NSF, 2017). Other groups, such as part-time students, international students, or students with families, face additional challenges in completing graduate school due to the complexities of their lives (e.g., Gardner & Gopaul, 2012; Nguyen, 2013; Waight & Giordano, 2018).

RACE, ETHNICITY, AND GENDER

A student's race, ethnicity, and gender factor into their level of representation in college and, particularly, college majors. However, these differences begin much earlier. Large-scale research studies have documented great variability in the opportunities and access available to underrepresented students in science, technology, engineering, and mathematics (STEM) subjects and informal education (Southgate et al., 2015). Studies at the middle and high school level have documented how rural and African American students and their parents have felt their teachers had deficit views of their abilities or expectations for their success (e.g., Andrews & Gutwein, 2017; Griffin & Galassi, 2010). Minority students and females in rural areas have fewer role models in these disciplines to whom they can personally relate compared to their White peers (Griffin et al., 2011). Recent studies have emphasized the importance of relatable role models, particularly with ethnic matching, and gaining a sense of what it is like to be on a college campus to stimulate career aspirations for rural youth (Eddy & Easton-Brooks, 2011; Kier & Blanchard, 2021).

Black individuals comprised 13.4% of the U.S. population in 2019, whereas Hispanic individuals accounted for 18.5% (United States Census Bureau, 2019). However, Black individuals only constituted 7.1% of the doctoral degrees given to U.S. citizens and 2.3% of the students enrolled in physical sciences (NSF, 2020; United States Census Bureau, 2019). Similar trends exist among Hispanic individuals, who earned 8.1% of doctoral degrees and accounted for 6.9% of those students enrolled in the physical sciences (NSF, 2020; United States Census Bureau, 2019). Females make up 51.5% of the adult U.S. population and encompass 54.5% of the doctoral degrees in the life sciences. Conversely, females received 25.8% of the doctoral degrees awarded in mathematics and 24.0% in engineering (United States Census Bureau, 2020). Recognizing the homogeneity present in graduate degree recipients, especially in STEM, highlights a need for change in support structures within graduate programs to assist underrepresented students in overcoming the challenges they experience (Allen et al., 2015; Mannix & Neale, 2005; J. A. Miller et al., 2003; Pratt et al., 2017).

FIRST-GENERATION COLLEGE STUDENTS

Students whose parents have not earned a bachelor's degree are considered first-generation college students (Katrechik & Aruguete, 2017), and they comprise 29.8% of doctoral recipients in the U.S. (National Center for Science and Engineering Statistics [NCSES], 2021). First-generation college students comprise a group of students with an intersectionality of multiple identities, contributing to additional academic barriers. As graduate students, they often are older and more likely to attend part-time (PNPI, 2021). These individuals are more likely to be a person of color and come from backgrounds of lower socioeconomic status (Engle & Tinto, 2008).

Many first-generation college students choose STEM because of a passion for research, contributing to society, and future job prospects (Allen et al., 2015). STEM careers have the potential to create positive social change by providing secure job opportunities while alleviating the health and economic disadvantages faced by individuals (Phelan et al., 2010). These students are underrepresented in graduate education, especially in STEM programs (Cataldi et al., 2018; Chen, 2013; Engle & Tinto, 2008; Redford & Mulvaney Hoyer, 2017).

SOCIOECONOMIC STATUS

First-generation students have more financial concerns and lower involvement in the campus community or extracurricular activities (Pratt et al., 2017). The median parental income for first-generation college students is \$41,000, much lower than \$90,000 for continuing-generation college students (Center for First-Generation Student Success, n.d.). Consequently, many first-generation

college students work full-time jobs (Pascarella et al., 2004; Próspero & Vohra-Gupta, 2007) and forego high-impact educational opportunities (Kuh, 2008; Próspero & Vohra-Gupta, 2007). First-generation college students often lack a clear understanding of how graduate programs are structured because they receive undergraduate degrees from universities without doctoral programs and lack the benefit of parental collegiate experience (Gardner, 2013; Hoffer et al., 2001). In addition to lower socioeconomic status, first-generation college students are more likely to be members of underrepresented racial or ethnic groups (Dika & D'Amico, 2016).

PURPOSE STATEMENT

Graduate education holds the potential for upward social and economic mobility. Some recent quantitative studies investigated important factors that influence the experiences of graduate students (Collier & Blanchard, 2023a, 2023b). Yet, there is a paucity of research that investigates the experiences of underrepresented graduate students, usually focused on barriers (e.g., imposter phenomenon, sense of belonging, otherness, cultural capital, and microaffirmations) (Brown et al., 2020; Earley & Ang, 2003; Gardner & Holley, 2011; O'Shea, 2021; Rolón-Dow & Davison, 2018, 2021; Tao & Gloria, 2019). Most of these studies focus on one group of students (e.g., first-generation graduate students).

To address this gap in the literature, this research study focused on the wide range of experiences of graduate students in both STEM and non-STEM degree programs through a narrative analysis. This study focused on students who are traditionally underrepresented (females in STEM, URM, individuals from lower socioeconomic status, or individuals who postponed attending) in graduate school in the U.S. to understand the supports and barriers (e.g., imposter phenomenon, sense of belonging, otherness, cultural capital, and microaffirmations) they encountered as students.

Understanding the experiences of students who have been underrepresented can be enhanced by interviewing them and using analytical techniques (e.g., restorying, typographic analysis, or thematic analysis) that foreground their experiences (e.g., Alfred et al., 2019; Covarrubias et al., 2020; Gardner, 2013; Lovitts, 2001; Martin et al., 2020). Narrative research can be used to analyze stories (Clandinin & Connelly, 2004). For this study, a narrative analysis was used to analyze the stories of graduate students, with a particular interest in students underrepresented in graduate school. The following research questions were addressed:

1. What are the stories of a group of graduate students historically underrepresented in graduate school (i.e., URM, females in STEM, first-generation students, part-time, and international students)?
 - a. What aspects of graduate school do students perceive as supports and barriers to academic persistence and success?
 - b. How do graduate students' perceptions of supports and barriers in graduate school relate to their background, socioeconomic status, language, or cultural differences?

LITERATURE REVIEW

GRADUATE STUDENT RETENTION

Ph.D. programs have an attrition rate of around 50%, whereas professional programs (e.g., law school and medical school) have much lower rates (5% - 15%) (Maher et al., 2013; Sowell et al., 2008; Terrell et al., 2012). The number of students leaving graduate school without a degree is even higher for underrepresented students (Sowell et al., 2008). There are critical gaps in the literature as to why Ph.D. students struggle to complete their programs and what factors contribute to their departure. Logistical regression retention studies have found that increased length of time in the program and additional funding increased the probability of doctoral students graduating (Pyke & Sheridan, 1993). Other retention studies revealed that students are more likely to persist to graduate in settings that:

(1) promote an expectation of success; (2) offer academic, social, and personal support; (3) provide frequent and prompt feedback about students' performance; (4) embrace students as valued members of the institution; and (5) foster learning (Tinto, 1997, 2003; Tinto & Goodsell, 1993).

Despite the possibility of upward social and economic mobility, underrepresented college students (e.g., first-generation females in STEM, or URM) face barriers that inhibit their pursuit of professional careers (Dewsbury, 2017; Katrevich & Aruguete, 2017; Moreira et al., 2019; Park et al., 2019; Pascarella et al., 2004). Understanding the characteristics of underrepresented college students and the factors contributing to their difficulties is critical to developing programs and strategies to increase their representation in STEM fields (Aspelmeier et al., 2012; Canning et al., 2020; Stephens et al., 2012). The following sections discuss the challenges underrepresented students face, followed by support for graduate students.

IMPEDIMENTS TO SUCCESS

Underrepresented students often encounter additional barriers in graduate school (e.g., Bettencourt et al., 2020; Chisholm et al., 2021; Earley & Ang, 2003; O'Shea, 2021). They may have deficits in their cultural capital that are linked to their lower socioeconomic backgrounds, potentially leading to feelings of otherness or a lower sense of belonging (Gardner & Holley, 2011; Kusserow, 2012; Lareau, 2003; Miele & Nguyen, 2020; O'Shea, 2021; Thayer, 2000). Underrepresented students may encounter psychological barriers, such as imposter phenomenon and microaggressions, along with a lack of microaffirmations (Alfred et al., 2019; Byars-Winston & Dahlberg, 2019; Rolón-Dow & Davison, 2018, 2021; Stachl & Baranger, 2020; Tao & Gloria, 2019). Collectively, these aspects can create additional barriers for graduate students who are underrepresented in graduate education.

Cultural capital

Commonly used to understand educational inequalities, the cultural capital theory posits that individuals develop cultural capital – accumulated knowledge, practices, and behaviors – from participating in a particular cultural setting (Bourdieu, 1977). Individuals from middle-class society are taught to explore their feelings and engage in activities related to their talents (Kusserow, 2012; Lareau, 2003). Matching norms in educational settings, this socialization promotes self-expression and individual motivation as individuals progress to higher education (Kusserow, 2012; Stephens et al., 2012). However, individuals from lower socioeconomic status (SES) are generally taught to remain part of their families and follow the rules (Kusserow, 2012), creating a conflict of cultures once they enter an academic setting that promotes individual ideas and independence. Social support and affirmation by family members and peer groups strongly influence college students' STEM interest and achievement (Carrico et al., 2019; Dika et al., 2016), in addition to having a family role model in a STEM profession (Holmes et al., 2018; Xie et al., 2015). Consequently, attending college is often more complex for first-generation college students, possibly due to differences in cultural capital and one's ability to function and manage efficiently in a culturally diverse setting (Earley & Ang, 2003). These students can obtain the cultural capital for succeeding in a college academic setting through alternative means: community members, mentors, peers, personal experience, and teachers (Miele & Nguyen, 2020).

Sense of belonging

Sense of belonging is the extent to which an individual believes they are included and valued as an integral part of a community (Stachl & Baranger, 2020). Perceived success in assignments, affiliation with academic staff, or having a sense of student identity all positively contribute to students' sense of belonging (O'Shea, 2021). O'Shea asserts that lacking a sense of belonging is especially detrimental for underrepresented students because it is considered a critical contributor to student success and retention.

Museus and Chang (2021) explored the impact of the campus environment on first-generation college students' sense of belonging through structural equation modeling. The authors found that campus environments can positively affect students' sense of belonging. To better support students, they

recommend that university educators allow first-generation college students to acquire and exchange knowledge relevant to their backgrounds and identities, in addition to opportunities to give back to their pre-college neighborhoods.

Otherness

A college campus is a physical and social environment alien to first-generation college students, their families, and their peers (Thayer, 2000). A student often feels torn between two worlds – the family culture and the university (Stephens et al., 2012) – with no obvious way to bring these experiences together (Thayer, 2000). Some first-generation college students have feelings of *otherness* resulting from belonging to two worlds (Gardner & Holley, 2011), while others develop feelings of not belonging to either world (Gardner, 2013). Existing in two worlds, students can feel disconnected from traditional university social structures and fear alienating their families if they adopt these changes (Covarrubias & Fryberg, 2015).

In an interpretive phenomenological inquiry, Havlik et al. (2020) explored the experiences of first-generation college students at a predominately White institution. Students in the study experienced a sense of otherness based on the student's race, ethnicity, first-generation status, and SES. Feelings of otherness were exacerbated when these students felt they were being tokenized in class and asked to share information to represent their entire culture. When the authors asked students to describe what allowed them to persist in the face of many stressors and barriers, students shared that they were completing college for the greater good and for family members who lacked those opportunities. The sacrifice of individual needs was implied for these students as they depicted their internal strength with words such as resilient, persistent, passionate, and determined.

In a similar study, Bettencourt et al. (2020) conducted focus groups with 54 first-generation college students who experienced feelings of alterity or otherness from their peers and families. Despite the implications of being first-generation, students in this study felt a deeper connection to their racial or social class. For these students, their families were a source of emotional support but were dismissive at times of the difficulty of college and could not provide guidance. Students in the study saw themselves as pioneers in education by attempting things independently but experienced pressure to be an economic success for themselves and their families.

Imposter phenomenon

The imposter phenomenon occurs when individuals attribute their accomplishments to luck and fear of being exposed as frauds (Tao & Gloria, 2019). Even though they may be high-achieving and successful, these individuals have difficulty maintaining positive self-perceptions of their academic success, especially with peers (Byars-Winston & Dahlberg, 2019; Stachl & Baranger, 2020). Individuals who struggle with the imposter phenomenon often have lower academic self-efficacy and a bleak perspective of their ability to complete their graduate degrees (Tao & Gloria, 2019). Prior research has shown that individuals who identify as a URM may be less susceptible to the imposter phenomenon, as it is countered by their positive association with their racial identity (Lige et al., 2017; Rowley et al., 1998). However, Vaughn et al. (2020) found that 95% of women experience imposter phenomenon out of a research sample of 1,326 female academics (i.e., graduate students, faculty, and administrators in higher education). Vaughn et al. suggested using targeted initiatives in graduate education to assist individuals in integrating feedback from the academy with the values they place on academic careers.

Microaffirmations and microaggressions

Racial microaffirmations support racial identities through positive words or actions (Rolón-Dow & Davison, 2018, 2021), whereas racial microaggressions represent negative stereotypes that invalidate racially minoritized individuals (Pierce, 1974; Sue et al., 2007). The retention of underrepresented students in STEM is negatively affected by a lack of microaffirmations and the competitive and individualistic nature of STEM disciplines (Alfred et al., 2019).

Racial microaggressions have been positively associated with psychological distress, leading to lower levels of belongingness (A. N. Miller & Orsillo, 2020). In a study with URM medical students, Chisholm et al. (2021) discovered that microaggressions negatively impacted students' learning environments, and there was a lack of resources to address the microaggressions. Nadal et al. (2015) explored fourteen females' reactions toward microaggressions through focus groups and found that they were pervasive acts that negatively impacted their mental health and everyday experiences.

SUPPORTS FOR GRADUATE STUDENTS

Developing a community of support can benefit graduate students, especially those who face additional barriers as underrepresented students (Brown et al., 2020). Underrepresented students in graduate education may find emotional support through family and friends, though these individuals may not be able to assist with academic matters (Covarrubias et al., 2020; Hébert, 2018). Mentor support through faculty and advisors can help underrepresented students understand the nuances of graduate education better, whereas opportunities for research and publication can lead to greater academic success (Mireles-Rios & Garcia, 2019; Mullen, 2001; Strayhorn, 2008).

Emotional support

In recent work, Covarrubias et al. (2020) explored the relationship between grades for first-generation college students and academic self-concept, the belief that one's academic ability is shaped by the perceptions of important others (Eccles et al., 1993; Frome & Eccles, 1998). Conversations between first-generation college students and their parents included discussions about their grades and confidence in their academic abilities but primarily focused on emotional support. In contrast, continuing-generation student-parent conversations focused on the importance of networking and advice on navigating college, rarely speaking with their parents about emotional support (Covarrubias et al., 2020). For first-generation college students, positive messages and emotional support predicted more positive self-concepts and higher grades, in addition to helping shape the students' accomplishments (Covarrubias et al., 2020; Hébert, 2018).

In a study investigating students' persistence in engineering and its relationship to their social capital, first-generation college students described their family members' substantial emotional support, which Martin et al. (2020) label *expressive social capital*. Families provided strong support when students selected a major and encouraged them to persist in their academic pursuits. Parents of first-generation college students often could not provide structural support for their children (e.g., financial support and academic advice) but could provide emotional support (Covarrubias et al., 2020; Martin et al., 2020).

Community support

Brown et al. (2020) used a phenomenological approach to investigate what supported first-generation college students to complete their graduate studies. The graduate students expressed courageous attitudes toward the foreign culture of academia, where they had to learn a new way of speaking and cultural norms. Several sources of motivation were shared: the influence of growing up in poverty, the encouragement and support of their church community, and sharing their experiences with other students.

Mentoring

Underrepresented minorities can experience the academic environment as alienating and incompatible with their culture or values (Tierney, 1992), especially given a shortage of faculty of color to serve this growing demographic (Mireles-Rios & Garcia, 2019). Mireles-Rios and Garcia assert that underrepresented students need relatable role models who can relate to first-generation life experiences while helping them navigate college. Increased social interactions can help students adjust to college (Pascarella & Terenzini, 2005; Tinto, 1993), and positive interactions with faculty can improve a student's sense of belonging (Strayhorn, 2008).

Mentoring relationships can assist all graduate students, especially URM students, in navigating graduate school's new cultures and expectations (Wilson et al., 2012). Opportunities to complete research allow students to experience immersion in learning while applying the methodologies of their respective fields (Hébert, 2018). Hébert (2018) found that working on research with faculty allows students to engage in authentic problem-solving, which increases students' self-confidence and self-awareness.

Historically Black Colleges and Universities (HBCUs) have been a positive source of support for many URM students. Twenty percent of Black graduates received degrees from HBCUs despite comprising only 3% of the colleges and universities in the U.S. (United Negro College Fund [UNCF], 2023; United States Commission on Civil Rights [USCCR], 2010). Forty percent of Black engineers receive their degrees from HBCUs (USCCR, 2010). HBCUs are characterized as providing deeply supportive educational environments abundant with cultural capital (USCCR, 2010). Research has shown that Black graduates of HBCUs are more likely to thrive compared to Black graduates who attend majority-serving institutions (Gasman & Commodore, 2014; USCCR, 2010). Student success at HBCUs is attributed to a student-centered culture and supportive faculty and mentors (Buzzetto-Hollywood, 2023; Buzzetto-More & Mitchell, 2009; Seymour & Ray, 2015).

Access and opportunity for career advancement

Most graduate students are continuing-generation students (71%), and nearly half have a parent with a graduate degree (44%; NCSSES, 2021). Their family members' past experiences or collective history with college provide social capital to guide their graduate school experiences (Gardner, 2013; Lovitts, 2001). First-generation graduate students, in contrast, are often reluctant to engage with faculty members and need help to gain social capital due to their financial and work commitments (Jenkins et al., 2009; Pratt et al., 2017). Deficits in students' social capital could inhibit their ability to have relevant experiences, such as conducting research, writing academic papers, or attending conferences. Mullen (2001) argues that higher education needs to provide graduate students with additional support to publish research.

THEORETICAL FRAMEWORK

MASLOW'S HIERARCHY OF NEEDS

Maslow's Hierarchy of Needs (1987) can be used to understand how these graduate student success factors (Collier & Blanchard, 2023b) act as supports and barriers to motivate students to reach their optimal potential. Maslow (1987, 2022) explains that students need to feel emotionally and physically safe and accepted before reaching their full potential. As depicted by Maslow's hierarchy, an individual's behavior will first be motivated by physiological needs (e.g., food, shelter, and warmth [Maslow, 1943, 1987]). After an individual's basic needs are mostly met, according to Maslow, they can focus on safety needs that entail security, order, stability, and freedom from fear. Mentors and peers can provide students with greater insight into completing a graduate program, creating feelings of security, stability, and freedom from fear, thus providing a sense of security as students progress through their program of study (Figure 1).

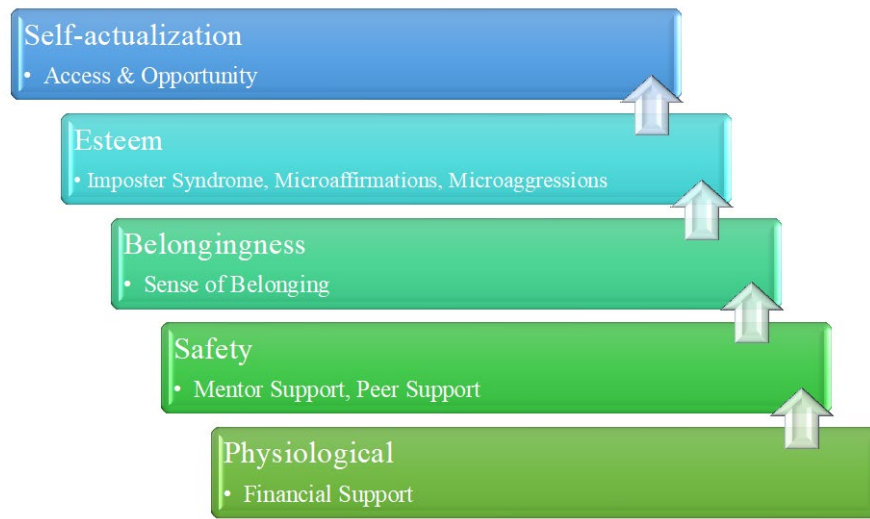


Figure 1. Maslow's Hierarchy of Needs aligned with graduate student success factors (adapted from McLeod (2007) and Collier and Blanchard (2023b))

Maslow's third level involves a human's need for interpersonal relationships and belonging to a group (e.g., family, friends, work). A student's belongingness relates to their sense of social connectedness to their community. Esteem is the last level in the deficient needs. Maslow divided this into (1) esteem for oneself, as with achievement and independence, and (2) reputation and respect from others. Measuring esteem could be done inversely through the imposter phenomenon; reputation and respect from others could be measured through one's perceptions of microaffirmations and, inversely, through measuring one's perceptions of microaggressions (Collier & Blanchard, 2023b).

Students in research-based programs (e.g., thesis-based masters or Ph.D. programs) reflect their sense of self-actualization (Maslow, 1943, 1987) through opportunities to go beyond course requirements and participate in conferences, publish papers, and conduct research (Collier & Blanchard, 2023b). Collectively, these aspects can be referred to as access and opportunity, representing the aspects of graduate school that allow students to reach their full potential as researchers through creative activities. Students who have deficits in the lower Maslow levels may struggle to reach self-actualization. Graduate programs can better support students by seeking to understand their needs from a holistic perspective, allowing students to reach their academic potential through self-actualization.

METHODS

RESEARCH DESIGN

This study used a transformative qualitative approach to focus on the experiences of diverse groups who are underrepresented in higher education (Mertens, 2019). A narrative analysis (Clandinin, 2016; Clandinin et al., 2018) was used to analyze the stories of graduate students. Maslow's Hierarchy of Needs (1943, 1987) was used to frame the narrative analysis. Typography (Smith & Sparkes, 2005) was used to identify the primary themes that impacted the students, and rhetorical analysis (Feldman & Almquist, 2012; Feldman et al., 2004) was used to create a storyline, identify opposition statements, and develop syllogisms (see sections **Typography** and **Rhetorical Analysis** for detailed descriptions).

Narrative analysis (Clandinin, 2016; Clandinin et al., 2018; Clandinin & Connelly, 2004) maintains an analytical focus on the concepts of meaning. It is premised on the idea that people live and understand their lives in story form, connecting events in a plot-like manner (Sarbin, 1986). Narrative analysis is concerned with a holistic, interpretive approach focusing on form and content (Lieblich et al., 1998). In a study on racial microaggressions, Rolón-Dow and Bailey (2021) shared stories documenting the experiences of individuals central to narrative research. The narrative begins with the experiences expressed in lived and told stories of individuals while exploring the social, cultural, familial, linguistic, and institutional aspects (Clandinin et al., 2018; Creswell & Poth, 2018).

Narrative research aims not to generalize to a population but to examine the meaning-making process for individuals; therefore, random or probability sampling is unnecessary (Josselson & Hammack, 2021). Josselson and Hammack believe the sample selection should be based on conceptual questions and diversity within a broader category. They assert that narrative researchers need to think about diversity but not necessarily investigate all aspects in one study and that “depth is often more valuable than breadth” (p. 19). A collaborator or co-coder is helpful in narrative analysis because of the interpretive nature of the research; this assists in ground interpretations of the data and prevents the projection of the researcher’s concern or prior understanding (Josselson & Hammack, 2021).

PARTICIPANTS

The participants had previously completed the Graduate Student Success Survey (GSSS) (Collier & Blanchard, 2023b) and were invited to participate in an interview through Zoom. They attended North Carolina State University (NC State), located in the southeastern U.S. This institution enrolled approximately 36,000 students, with 5,400 graduate students. The overall graduate student population at the university was composed of slightly fewer females (48.4%), 24% of the students identified as a racial/ethnic minority, and 31% were international students. Fifty percent of the faculty members at the university were female, and 79.4% were White. There were twelve colleges at this university, each with its own dean, and, in many ways, they operated independently of each other.

NC State is a public land-grant institution that began in 1887 (North Carolina State University, n.d.). A land-grant college or university receives benefits as designated by its state legislature (Association of Public and Land-grant Universities, 2024). In their initial conception, these institutions sought to teach agriculture, military tactics, and the mechanic arts in addition to classical studies. They functioned to provide members of the working classes with a liberal, practical education. The institutions are provided with grants in the form of federal land and direct payment of federal grant funds to establish agricultural experiment stations. Research at the institutions is disseminated through the Cooperative Extension Service associated with each land-grant institution.

NC State is classified as a Research 1, or R1, university. This classification is part of the Carnegie Classification, a United States-based framework describing institutions in higher education (Carnegie Foundation, n.d.). A classification system for colleges and universities was developed by the Carnegie Commission on Higher Education in 1970 to support its research and policy analysis programs. The framework was first published in 1973 and is updated every three years. R1 universities encompass a tier of research universities in the U.S. that grant doctoral degrees, carry out research projects, and contribute to the academic field (Thompson, 2023).

NC State is considered a majority-serving institution or a college or university whose student population comprises a smaller segment of ethnic minority students. In contrast, minority-serving institutions (MSIs) serve a student population made up of a majority of ethnic minority students based on historical origin or enrollment criteria. The U.S. Department of Education designates MSIs either on legislation (e.g., Historically Black College and University, Tribal Colleges and Universities, Hispanic-serving Institutions, and Asian American and Pacific Islander-serving Institutions) or percentage of minority enrollment (10%-40% from a particular minority group) (Carlton, 2023; United States Department of the Interior, n.d.). Some of these colleges and universities are located in urban areas, whereas others are in remote segments of the country (United States Department of the Interior,

n.d.). MSIs receive federal funding to assist them in recruiting, enrolling, and retaining historically excluded students (Carlton, 2023). These institutions endeavor to provide ethnic minority students the social and education skills necessary to overcome racial inequity in restricted economic prospects (United States Department of the Interior, n.d.).

Graduate students who had taken a survey (Collier & Blanchard, 2023b) volunteered to be interviewed. Interviews were conducted either as focus groups or individual interviews. A total of 38 students participated in focus group interviews and individual interviews. Twelve students participated in focus group interviews organized by students' program area of study (e.g., Humanities, STEM), lasting approximately 1-1.5 hours. Individual interviews were conducted with 26 participants and lasted 30-60 minutes. Sample interview questions were: *What do you think have been your greatest struggles as a graduate student*, and *What has helped to support you through these struggles or generally, as a graduate student?* Field notes were recorded during the interviews, and transcripts were produced via an audio recording from Zoom and a professional transcriptionist. IRB approval was obtained for the interviews, and participants gave informed consent. Participants' names were changed to pseudonyms, and other identifying factors were either removed or generalized to maintain the anonymity of the participants.

After the interviews were transcribed, journaling was used for sample selection. The transcripts were read several times as the researcher wrote brief descriptions of the interviews. The researcher described significant factors that impacted the students' stories (i.e., financial concerns, mentor relationships, mental health, and belongingness) along with important characteristics (i.e., females in STEM, URM, first-generation students, international study, and part-time students). After reviewing the variations in the interviews, the researcher selected those whom she believed represented the best range of experiences in graduate school.

Of the 38 graduate students who participated in focus group interviews and individual interviews, 14 were chosen to be a case in the narrative analysis. A purposeful sampling for maximum variability was employed to accomplish these goals of depth, not breadth (Josselson & Hammack, 2021). One participant was from a focus group (Judith); the other graduate students participated in individual interviews. The cases selected included two part-time, nontraditional age students (14%); two international students (14%); nine URM (60%); nine females (64%); five females in STEM (36%); two mothers with young children (14%); and two first-generation college students (14%).

DATA ANALYSIS

After the participants were selected, the interview transcripts were analyzed in a series of steps: restorying, typographic analysis with memoing, and rhetorical analysis. The following sections provide more detail on each type of analysis.

Restorying

Restorying (Clandinin, 2016) is an approach in which the researcher prioritizes describing one's individual experiences as they occur through temporality, sociality, and place (a three-dimensional approach). The restorying reduced the narratives to approximately two to three pages of double-spaced text from eight to twenty-two double-spaced pages of interview transcripts, averaging fourteen and one-half pages. Member checking (Cho & Trent, 2006; Mertens, 2019) was used to increase the validity or trustworthiness of the data. Participants were contacted through email to ask if they would review their narratives, suggest changes, add comments, or include additional information. Eleven participants provided feedback for the narratives.

Typography

A typographical approach (Smith & Sparkes, 2005) was used to identify the major themes or threads connecting the cases based on a study of racial microaggression in college students (Rolón-Dow & Bailey, 2021). In an inductive manner, themes were allowed to emerge, and concepts were developed from the individuals' stories. Similarities in the data were organized into categories, and relationships were sought between the categories (Smith & Sparkes, 2005).

After reading the narratives, short phrases were recorded describing how students had expressed the impact of their circumstances on their experiences, and the first author identified the topics of those impacts. Deductive codes were based on an a priori coding methodology (Collier & Blanchard, 2023b) developed from the constructs of Maslow's Hierarchy of Needs (1943, 1987) and applied to the significant statements (e.g., community support, financial concerns, imposter phenomenon; Table 1). As a reflexive practice, narratives were reread, and memoing was used to include subcodes that impacted students' stories (i.e., imposter phenomenon, sense of belonging, microaggressions, microaffirmations, mentor relationships, and financial support). Memoing was used to identify unique or influential characteristics in the student's journey, including race, gender, international status, part-time student, international status, or female in STEM.

Table 1. A priori codes for narrative analysis

Code	Description	Restored narrative example
Access and Opportunity	Self-actualization: a need to become everything one is capable of becoming (Maslow, 1987).	<i>After seeking advice from his advisor, she reassured John was doing fine and then found a paper for him to work on, for which he was later included as the third author.</i>
Imposter Phenomenon	Impostor phenomenon, or imposter syndrome, refers to the experience of high-achieving, successful individuals who attribute their accomplishments to luck and fear of being exposed as a fraud (Tao & Gloria, 2019).	<i>When Sydney first came to the program, she felt overwhelmed by being in a new place with "all of these smart people."</i>
Micro-affirmations	Racial microaffirmations are words or actions experienced that support racial identities, recognize racialized realities, and advance social justice (Rolón-Dow & Davison, 2018, 2021; Sue et al., 2007).	<i>Everyone has been very welcoming to Sydney, from other graduate students supporting her while studying for qualifying exams to her cohort being a unit. She has also met a lot of grad students through the Black grad student association and through other people she knows.</i>
Micro-aggressions	Racial microaggressions are words and actions that stereotype or invalidate racially minoritized individuals (Rolón-Dow & Davison, 2018).	<i>In teaching courses, Sarah was not taken seriously as an Asian woman. White male students questioned her grading, though she used a rubric and provided detailed feedback.</i>
Sense of Belonging	Sense of belonging is the extent to which an individual believes they are included and valued as an integral part of a community. This can be provided through fellow graduate students and faculty (O'Shea, 2021; Stachl & Baranger, 2020).	<i>Melissa shared about a fellow student whose father and grandfather were renowned in their field. Melissa felt that their educational pedigree would prevent her classmate from understanding the stress she experienced as a first-generation student and the current disconnection she felt with her family.</i>
Financial Support	The financial support students receive during graduate school represents the basis they have to meet their psychological needs (e.g., food, shelter, and warmth; Maslow, 1943, 1987).	<i>Seth ended up giving the majority of his paycheck back to the school for housing, fees, and insurance.</i>

Code	Description	Restoried narrative example
Mentor Support	Students may receive mentor support from advisors, faculty, or other individuals at the university who provide academic and/or emotional support in completing various aspects of graduate school (Mireles-Rios & Garcia, 2019; Wilson et al., 2012).	<i>Her advisor's prior experiences have helped guide Alaina because she knew exactly what steps needed to be taken.</i>
Community Support	Family and friends can support students by providing motivation and assistance with daily life events (Brown et al., 2020; Covarrubias et al., 2020).	<i>Azra's family supported her in waking up in the middle of the night [from an international location] for class.</i>
Peer Support	Fellow graduate students can support students by providing motivation, assistance, and insight into the graduate school experience (Lamb & Jacobs, 2009).	<i>Alaina and the other graduate students had offices together with their advisors and were able to work together. She described their relationship as close-knit, seeing each other two or three times a week.</i>

After reviewing the cases, the researcher looked for similarities between stories to identify types of impact or themes across the fourteen cases. Thematic analysis is a qualitative analytic method that involves inductive and deductive coding and theme development (W. Xu & Zammit, 2020). For the fourteen cases, themes (i.e., mentor support, financial support, sense of belonging, peer support, access and opportunity, imposter phenomenon, microaggression, community, and family obligations) were assigned based on the researcher's analysis of the primary, secondary, and tertiary issues that the graduate students expressed.

Rhetorical analysis

As the second method of analysis, a rhetorical analysis was completed based on a study analyzing employees' responses to changes in administration (Feldman et al., 2004). Storylines were developed for each case, describing the premise of the themes in a few sentences. The storylines were broken apart into segments and included demographic or personal circumstance aspects that were influential in their story (e.g., part-time student, first-generation student, mother of small children) and the salient themes that impacted their cases (e.g., mentor support, peer support, or financial concerns), which were tied to graduate student success factors affiliated with Maslow's Hierarchy of Needs (see Figure 1, adapted from McLeod, 2007; Collier & Blanchard, 2023b).

Opposition statements (Feldman & Almquist, 2012; Feldman et al., 2004) were developed for each case, whether implicit or explicit, in the students' narrative. For example, if a student shared, *I really struggled due to financial concerns*, an opposition statement that could be derived was, *If I had more financial support, I would have been less stressed and done better in school*. A syllogism, or a logical argument, was built from the storyline and opposition statements. For example, *Graduate students need sufficient financial support to be able to focus on their studies and obtain academic success*. A second round of member checking was used after completing the typography and rhetorical analysis, for which three participants provided feedback. All fourteen narratives were utilized in the study regardless of the degree of member checking the participants provided. Table 2 provides an example of rhetorical analysis for one participant.

Table 2. Example of rhetorical analysis for John

Storyline
<p>John was a part-time student who was married and of nontraditional age. In pursuing a Ph.D., financial concerns were most prominent. He found emotional support from his wife, financial support through his job, and support from his supervisor with a flexible work schedule. His advisor also played an instrumental role in minimizing concerns with imposter syndrome and providing opportunities to complete research and write academic papers. During his program, John struggled with a lower sense of belonging but felt his peers and professors supported him if he asked for assistance. John described a strong sense of community and support in his academic, professional, and personal circles. Although he sometimes felt like an outsider due to being a part-time student, he still felt connected to and supported in his program. His financial support also allowed him to pursue his graduate studies.</p>
Oppositions
<ul style="list-style-type: none"> • If John did not have support from his job (class waivers and a supportive boss), he could not complete the program. • If John had been a full-time student and spent more time on campus, he might have felt a deeper sense of belonging. • If John did not have a supportive advisor, he might have experienced more feelings related to imposter phenomenon, lacked research opportunities, and had less success in his program. • If John did not have the support of his wife, John would have had less time to dedicate to his academic work. • If John had been pursuing his graduate program when he was younger, he might not have been as successful.
Syllogisms
<p>Part-time students face many challenges in graduate school. With less financial support, many students maintain full-time employment. The time spent working limits their interactions with peers and professors, inhibiting their sense of community and sense of belonging at the university. Part-time students often miss opportunities to participate in research and teaching, possibly negatively impacting their future careers. Mentors provide a valuable role in guiding students through the nuances of graduate school. Without this leadership, students can feel lost and isolated, causing them to take longer to complete their program.</p>

Reliability

An experienced co-coder (a postdoctoral fellow) independently coded a minimum of 20% of the analysis, or three cases (Josselson & Hammack, 2021), for the typographic and rhetorical analysis. Each part of the analysis was broken into a segment, henceforth referred to as an item (e.g., the impact on the recipient, the story's topic, subcodes, personal characteristics, oppositions, and syllogisms). The percentage of agreement for each case was determined by dividing the matched number of items between the researcher and co-coder by the total number. Agreement ranged from 61% to 70% for the three cases, with an average of 67%. The items not identified by both coders were reviewed collaboratively, and the decision was made to remove, modify, or retain the item. This process was completed until a 100% agreement was reached for all three cases, after which the primary researcher analyzed the remaining cases (Feldman et al., 2004).

FINDINGS

TYPOGRAPHIC ANALYSES FINDINGS: SUPPORTS AND BARRIERS FOR GRADUATE STUDENT

Through a typographic analysis and memoing, themes were designated for each case based on the codes and types of impacts that were identified for each case. Themes were designated based on the factors that were most salient to the cases. Each case was given three themes – primary, secondary, and tertiary – based on the level of impact expressed by the graduate students. Figure 2 represents the different themes from the interviews. The size of the circle and the n value reflect the frequency of the themes by the individuals, and adjacent circles represent the overlap of the themes in the narratives.

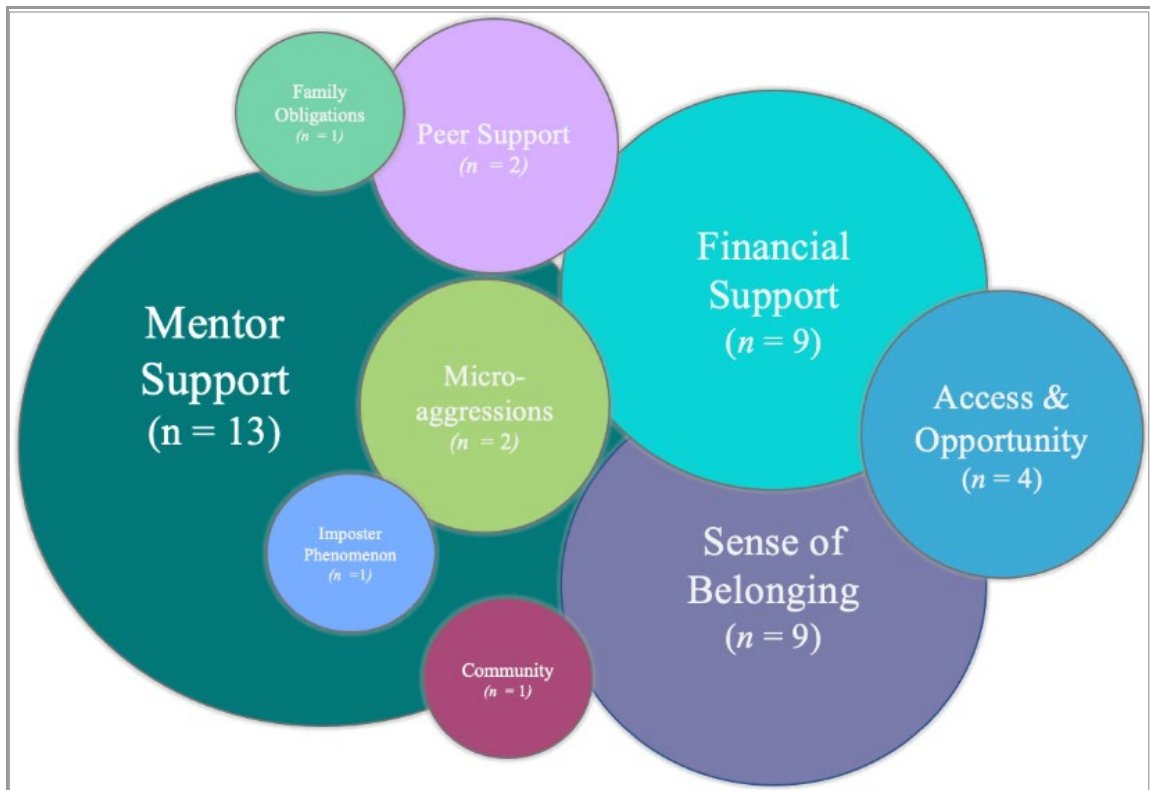


Figure 2. Themes derived from graduate student interviews

Note: n represents the frequency of themes among the fourteen cases; adjacent circles represent the overlap of the themes in the narratives.

The analysis produced nine themes: mentor support, sense of belonging, financial support, access and opportunity, peer support, community, microaggressions, and family obligations. Mentor support was the most common theme, appearing in thirteen of the fourteen cases. Mentor support was the primary theme in ten cases and the secondary theme in three cases. The second most common themes were sense of belonging and financial support, both appearing in nine cases. Sense of belonging was the primary theme in two cases, secondary in four cases, and tertiary in three cases. Financial support was the primary theme in one case, and the secondary and tertiary themes in four cases.

Several themes were less represented across the cases. Access and opportunity was a theme that appeared in four cases as the tertiary theme, whereas imposter phenomenon was the primary theme in one case. Community and peer support were present as the secondary themes in one and two cases,

respectively. Microaggressions was the tertiary theme in two cases, and family obligations was the tertiary theme in one case.

The relationship between the themes was examined as theme pairs. As seen in Figure 3, the lines between the circles represent the connections between themes identified in the narratives, and the thickness of the line represents the frequency of those patterns. For example, mentor support and a sense of belonging appeared as two of the three themes for eight students and, therefore, have the thickest line ($n = 8$). The same frequency occurred between mentor support and financial support. The third most common pairing was between financial support and sense of belonging ($n = 6$). In contrast, family obligations and peer support only appeared in one narrative and have the thinnest line ($n = 1$). Eight of the 16 theme pairs, or 50%, appeared together one time ($n = 1$). Below is a description of the themes and abbreviated narratives for the participants. As three themes were identified for each student, the abbreviated narratives have components contributing to several themes.

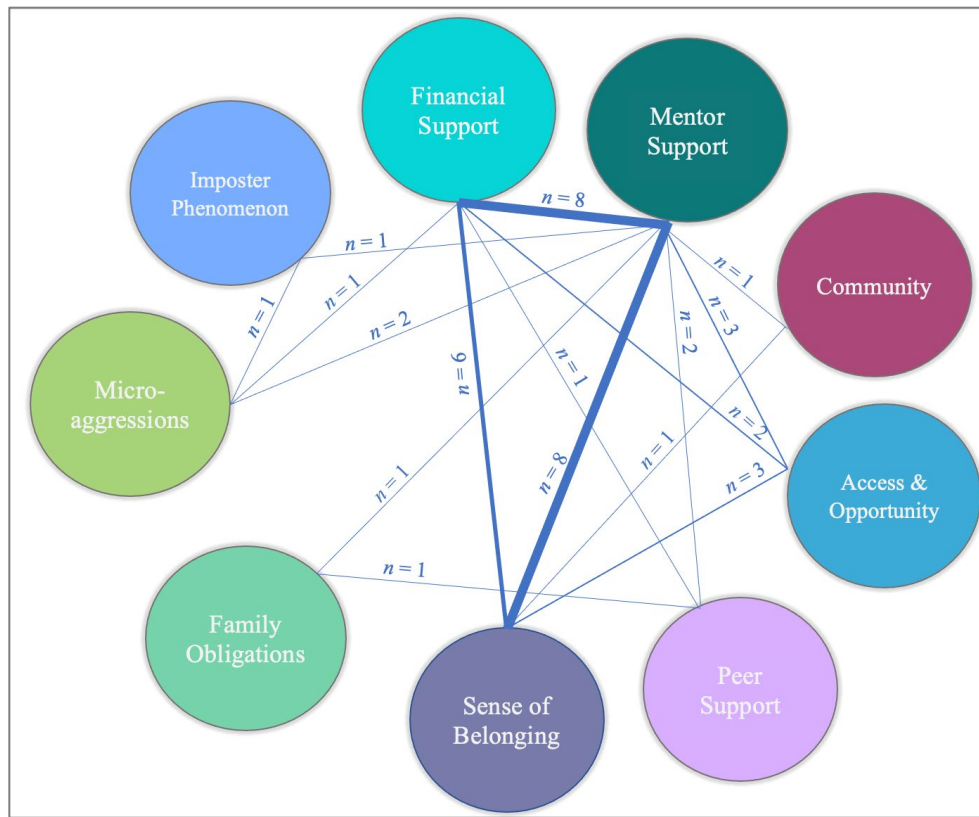


Figure 3. Connections between themes in graduate students

Note: The n value on each line represents the number of times the pair of themes were repeated in the fourteen cases.

Mentor support

Mentor support was an instrumental support for the success for some individuals, whereas other students lacked positive mentor relationships and suffered negative consequences. The stories of Judith, Amy, and Isabella provide insight into the different types of support students receive from advisors.

Judith: Part-time student, poor initial mentor support. Judith is a White female who began a Ph.D. program in education as a part-time student and a full-time public school teacher. The financial support from an assistantship could have allowed Judith to retire a couple of years earlier and become a full-time student. However, if she had left teaching, she would have needed more financial support to fill the economic gap than an assistantship typically offers. As a part-time

student, Judith desired more opportunities for research and teaching. Judith worked to form relationships with her peers, but full-time graduate students who progressed faster moved on after graduation, which led her to feel a lower sense of belonging. Judith struggled with a lack of mentorship with her first advisor and felt they needed to be more involved in her progress. She relied on conversations with fellow students to determine how to move forward in the program while feeling like individuals at the university level needed to communicate with her. Judith often felt alone in her studies and had to figure things out herself. Judith referred to the period as “being thrown to the wolves.” After a few years in the program, Judith decided she needed to change advisors and Googled “how to break up with your advisor” for assistance. The support from the second advisor provided Judith with more support and insight into completing her program.

Amy: First-generation student, strong mentor support. Amy is a Black female and a first-generation student in a STEM Ph.D. program. She returned to school after working full-time while earning her master’s degree. Beginning as a part-time doctoral student, Amy struggled to have enough time for her school work and had a lower sense of belonging as she was less involved on campus. Amy transitioned to a full-time student after being offered an assistantship with her mentor but experienced financial stress with the lack of a full-time salary. As a full-time student, Amy could attend professional development events, which assisted her in developing a sense of belonging with other students. Amy also struggled with imposter phenomenon as a first-generation college student, exacerbated by her program’s lack of structure. Mentor support from her advisor and committee members alleviated these concerns while providing research and writing opportunities. Her advisor assisted her in making decisions related to graduate school and provided insight on who would be good individuals to ask to be on her committee. Amy shared the following thoughts about her committee:

One of my other committee members sent me things for writing groups, and they checked in at the end of every semester to see if I needed anything. Another committee member sent me job announcements ... My committee has been very supportive in that way.

At the end of her program, Amy felt a sense of urgency to complete it to regain a sense of quality in her life and lessen the impact of financial stress. Amy shared that “even with my family ... they’ve been understanding. But it does wear on me that I feel like I’m absent a lot from some of the things that mean a lot to me.”

Isabella: Mental health concerns, declining mentor support. Isabella is a female international student from South America in a STEM Ph.D. program. She encountered many challenges, including financial stress and poor mentor relationships. When Isabella was accepted into her program, she was unaware that the recruitment scholarship did not continue past the first year, nor was she aware that her stipends would be taxed or that she would have to pay student fees. Isabella was part of a strong peer group at the beginning of her program, but that support dissipated as students graduated. She initially excelled in her research group, winning her advisor’s approval. This situation changed after a family tragedy caused Isabella’s mental well-being to decline. Isabella was less motivated to work but felt uncomfortable sharing the situation with her advisor, who became critical of her performance. Isabella sought mental health counseling but had to rely on her mother to assist with the additional cost. Though Isabella eventually shared her family situation with her advisor, she did not feel supported. Isabella shared, “[My advisor] expects me to be as productive as before; I expected [them] to understand my personal moment.” Isabella felt isolated as she completed her program. She shared the following:

The first few years were easier because there was a whole cohort ... We took classes together. We got together on the weekends ... and became friends ... After two years, a number of the master’s students graduated, some of the Ph.D. students left the program, and others finished ... As you get closer to the third and fourth year, we’re just doing things in ... an individual way ... You don’t have classes, so you don’t see them anymore ... We kind of grew apart.

Sense of belonging

Graduate students can struggle with developing a sense of belonging when their lives are complex puzzles of family, children, full-time employment, and international status. As Brooke and Carlos shared, their effort to be part of the academic community did not translate into developing a sense of belonging, creating feelings of isolation.

Brooke: Research-focused, low sense of belonging. Brooke is a White female in a STEM Ph.D. program who began graduate school with a research grant she obtained through a national research entity. Though the outside grants provided a source of autonomy and academic success for Brooke, they caused her to feel disconnected from the university, creating a lower sense of belonging. Brooke shared, "For me, it's always been a struggle finding a home and finding a way to fund my research." Brooke lacked a formal mentor, though she worked out of two lab areas. Brooke was often promoted at academic events for all she had accomplished, but she felt her path in graduate school had been isolating and stressful. Brooke shared the following about her experiences as an independent researcher:

Everyone's like, 'Oh, you should talk to Brooke ... [She] gets in [grant] money and all this stuff.' And so, I feel like I get put on the spot when, like, really, I just wanted to tell them there's really no support for projects like this here. And I don't know why I'm here. And I don't know why they're pushing you to come here because you're going to have a very difficult time.

Brooke had to write grants periodically to maintain a source of support for her research, as it was not affiliated with the university. In addition to completing her own research and taking classes, Brooke worked as a teaching assistant to cover tuition costs and health insurance. Brooke reflected on her financial situation in the following statement:

I've pretty much funded my entire four years of my Ph.D. on outside grants and [a teaching assistantship]. My school has not paid for any of my research. I've gotten fellowships outside of school and stipend money outside of school from grants. I supplement that with teaching, which pays my tuition and my health care.

However, Brooke knew and was concerned that the tuition support she received through the teaching assistantship would run out before she completed her program.

Carlos: International student, low sense of belonging. Carlos is a male international student from South America in a STEM Ph.D. program. Although he made good grades throughout school, he was ashamed that he barely maintained the minimum grade point average (3.0/4.0) during graduate school. Carlos worked diligently to be creative and produce quality work when he began working with his research group. He spent most of his time working in the lab and did not develop a peer group. Carlos became discouraged and unmotivated when his efforts were met with his advisor's criticism. Reflecting on his advisor, Carlos shared the following:

The lack of feedback and reassurance that I am doing a good job makes it really hard for me to bring myself to do anything, basically, because it feels like there is no point. I sit on my computer to write a paper. And I know the second that I show it to my advisor, it's just going to become something that they'll find the things I did wrong to fix and not give me any positive feedback.

He soon felt overwhelmed by the never-ending papers and reduced his efforts to the minimum that was required of him. He even said to his mother, "As you finish writing a paper, you start writing another one at the same time. It seems that no matter how much you work on it, it never ends." Carlos also feels distraught over trying to complete research for his research assistantship while taking classes. Carlos shared, "I am three years in, and I still feel like I don't know what I'm doing because no-

body told me what I am supposed to do.” Carlos often felt isolated as an international student, especially on holidays when other students visited their families. Carlos shared, “I came here to be part of the university, but I am just an underpaid employee.”

Financial support

Many graduate students struggle with the cost of tuition and rely on assistantships to fund their studies. However, students are still responsible for fees and other expenses, such as travel for conferences. Living on a tight budget exacerbates other issues when more expenses arise, as with medical care. In the stories of Samuel and Seth, the burden of financial stress created substantial barriers for both students, inhibiting their academic progress.

Samuel: Mental health concerns, lack of financial support. Samuel is a White male in a STEM Ph.D. program who struggled with mental health concerns most of his life. When he began graduate school, things were off to a great start. However, he was concerned about support from his advisor, which Samuel shared in the following statement:

I think I’ve gotten a lot of good experience directing my own projects, but I don’t feel like my advisor has given me much input as far as where I need to go with my research or really feedback on my research that helps me develop skills ... Coming up on graduation [for the Ph.D.], I feel kind of underprepared ... because I feel like I don’t have the skills that most companies are looking for.

Samuel received a fellowship that provided financial support for the first two years and completed research in a lab. At this point, Samuel’s depression and anxiety became a problem, and he took a break from graduate school and moved away for a few months. When Samuel felt he was well enough to return, he planned to re-enter his place in graduate school. Unfortunately, the fellowship had stopped, and the grant he was working on had ended. He could return to his research, but his work would be unpaid. Samuel shared,

I went on a leave of absence and didn’t get paid for the spring semester. And then, when I came back, I assumed that I would be paid for working in the lab. But it turned out that wasn’t the case. So that’s really been a real struggle.

As a graduate student, Samuel was unable to apply for unemployment and could not receive health insurance from the university. Samuel shared, “Thankfully, [a neighboring university] has a program where I get free healthcare, which has saved me thousands of dollars.” After Samuel’s depression worsened, he could no longer work in the lab where he had previously worked. He felt isolated working alone and experienced a lot of stress from having no income. After many months without any progress on his research, Samuel shared, “I am desperate to return to my work, finish my degree, and move on with life.”

Seth: Left Ph.D. program, lack of financial support. Seth is a White male who was accepted into a Ph.D. program in STEM and has been working on assistantships for seven years but had not yet earned his Master’s degree. While in the program, he spent his assistantship teaching labs, although he wanted to pursue a career in industry. Seth lacked research experience and had not attended conferences due to insufficient grant funds and lack of university support. Seth received a stipend as part of his assistantship but returned the majority of his paycheck to the university for housing, fees, and insurance. Although the stipend was modest, Seth budgeted his experiences to continue working toward his dissertation. Throughout his time in graduate school, Seth’s goals to pursue research were not reflected by his teaching assistantship duties or the attitudes of his professors. Seth lacked a formal plan for his program, and his mentors had not worked with him to develop one. Seth shared the following when asked if he was on track for attaining his goals:

I should have been graduated three years ago ... Again, knowing what comes next, and I think that’s a huge detriment, especially in the sciences ... [Professors on campus] are not

going to be able to help you with what's it like to go be in industry, what's it like to go be in government, [or] what is the world outside of here. And I think that's a huge detriment.

In lieu of spending another year for a master's degree, Seth "walked away from years of work and stress with literally nothing to show for it." Seth believed the lack of mentor support and depression were the primary reasons he left the program. After leaving, Seth found happiness in teaching and mentoring college students in STEM in an instructor position at a local college.

Access and opportunities

Graduate students are expected to conduct research, write academic papers, and present their research at conferences, all of which tend to be closely tied to the access and opportunities provided by their mentors. Some of the challenges they face to develop these skills are shared through the stories of Ryan and Azra.

Ryan: Left Ph.D. program, difficult research environment. Ryan is a White male in his fourth year as a Ph.D. student in STEM. He often felt behind in his research because he spent his first year in a teaching assistantship. Ryan also believed his advisor was not supportive of his work. A lack of emotional support and guidance created many obstacles for Ryan, ranging from a lower sense of belonging to being unsure of how to complete his program's milestones. Ryan perceived that his advisor had little confidence in his work and lacked respect for him as a fellow researcher. He shared:

Because of the specialized nature of what we're studying, it can be very isolating. And it's hard to realize how well you're doing without some kind of point of comparison ... And I tend to work harder on the rare occasions when I do get explicit positive reinforcement from my advisor.

Ryan often felt micromanaged in his research duties but failed to receive important information for budgets and timelines, causing him to miss project deadlines. The implications of a poor mentor relationship and a tedious work environment – compounded by the COVID pandemic – were detrimental to Ryan's efforts to complete research and pursue his degree. Ryan shared, "This lack of trust and exclusion from a metaphorical place at the table eroded any desire I had to continue my studies." After four years, Ryan left the university with a master's degree and began a position in industry.

Azra: International student, lack of research opportunities. Azra is a female international student from Eastern Europe who was awarded a prized fellowship and began a Ph.D. program in education during the COVID pandemic. Due to travel restrictions, Azra remained in her home country during her first semester. The time differences caused her classes to occur before dawn. Her family supported her by waking her up for classes in the middle of the night. Azra's fellowship provided financial support but did not have a work requirement, limiting her research and publishing experiences. As an international student, Azra struggled to participate in some class discussions as they focused on the American education system, with which she had no experience. Azra shared:

The first time I was involved in such discussions [about American education systems], I needed some time to understand what was going on ... In the middle of the semester, I visited with my instructor in their office hours, and I said, ... I'm hearing these discussions for the first time, and I am expected to contribute. But at some point, I am really stuck; I cannot contribute.

Azra worked to develop a sense of belonging with her classmates by actively participating in discussions, but she often felt alienated.

Microaggressions and imposter phenomenon

Graduate students can face a variety of psychological barriers, including microaggressions and imposter phenomenon. The negative impact of microaggressions in graduate school was prominent in Sarah's story, creating additional stress in an already complex chapter of her life. Sydney's story contained elements of microaggressions from her undergraduate studies and imposter phenomenon.

Sydney: Community of support, microaggressions, and imposter phenomenon. Sydney is a Black female in STEM whose undergraduate experiences with microaggressions led to a low sense of belonging. During her undergraduate work, Sydney felt like an outsider at her first university. She was the only Black female in the group of students in her program and in her dorm. She lacked anyone to vent to, and she felt alone. The friends she had made did not understand her feelings, and other people made mean or negative comments to her. Sydney transferred to another college where she felt a greater sense of community. Sydney said, “No matter how smart you are, no matter how you know you might have all of these things together, but being in a place where you don’t belong . . . was detrimental to my ability to do well.” Given these past experiences, she carefully selected a graduate program and developed a strong sense of community and belonging with supportive mentors and peers. Sydney explained:

The professors that I had were invested in me doing well and passing my qualifying exams. The first semester, I passed both of my qualifying exams, even though I didn’t do the best in my classes. And the second semester, I did better in my classes and passed both of those exams, as well. I feel as [if] I was struggling through the course, [but] I was being supported enough that I still grew enough to pass my exams and also sort of managed my workload better . . . Talking to my professors in those classes and feeling like they wanted me to succeed is extra motivation.

Sydney experienced some aspects of imposter phenomenon, but her professors reassured her of her academic ability. When Sydney first came to the program, she felt overwhelmed by being in a new place with “all of these smart people.” She studied “in the vicinity” of peers, and “when people would want to talk about questions, I would chime in because I knew that I was a little bit more behind.” Sydney tutored high school students to supplement her assistantship stipend, which also provided opportunities to mentor young girls in STEM. She explained:

I just love tutoring! I love my students . . . It’s just something that keeps me motivated in my work [and] in my schoolwork . . . I have students that look up to me, and [I] like sharing struggles and successes with them . . . I love having the high school girls that I tutor talk to me about their aspirations in science and math and encouraging them to stick with it.

Sarah: Lack of community support, microaggressions. Sarah is an Asian female working toward a Ph.D. in the humanities. She had the financial support of her spouse and the family responsibilities of a school-age child. Sarah was working as a teaching and research assistant to support her tuition and fees throughout her program. During her teaching experiences, White male undergraduate students periodically questioned her grading practices, which her White male peers had never experienced. These microaggressions negatively impacted how Sarah viewed teaching classes at the university and probably contributed to her not pursuing a professorship. She said,

Because I am an Asian woman, I really don’t get taken seriously. [It] would always be the White boys that are like, “Well, I think I wrote an excellent essay. Why didn’t I get a good grade?” Well, I have this rubric . . . to show here’s where you could have improved . . . Teaching, in general, was not going to provide any benefit or reward for me for fulfillment personally. So, I ended up applying for evaluation research jobs where I could actually make use of my research skills.

Finding a balance between needing to work for financial stability and focusing on her courses and research was often difficult for Sarah. At the beginning of her program, she had a positive relationship with her advisor and was able to co-author a paper. In her fourth year, as Sarah began to transition toward her dissertation research, her mentor relationship deteriorated, and her advisor left the university, requiring Sarah to find a new advisor and a new dissertation topic. Sarah described her program’s approach as “you can do whatever project you want, which is great for autonomy . . . [but it] is basically apprenticeship by osmosis rather than actual guidance,” which left students “to do everything and to manage your own time and your own research.” During her dissertation work, Sarah

had a low sense of belonging at the university and with her peers, as much of her work was isolated. She received a dissertation completion grant at the end of her program, which provided financial, academic, and emotional support through a peer cohort model. After nine years of pursuing a Ph.D., Sarah graduated and obtained a job at a research entity.

Peer support

Peer support can assist students in developing a stronger sense of belonging while providing academic support with writing groups and accountability partners. Melissa relied on her peers throughout her program as an additional source of guidance that helped her navigate the nuances of graduate school as a first-generation college student.

Melissa: First-generation student, strong peer support. Melissa is a Latina, first-generation college student pursuing a Ph.D. in STEM. Her parents were from Latin America and had obtained a middle school-level education. When Melissa began graduate school, her advisor shared that there were only four years of funding, motivating Melissa to complete her studies within that time frame. Melissa occasionally felt isolated from her family, sharing, “It feels like the more educated I’ve gotten, the further not only physically...but also just [in] life [I am from my family].” At other times, she felt disconnected from her continuing-generation peers as they did not understand her first-generation background. Melissa explained:

It feels very lonely, and a lot of my lab mates [are] very close and connected to their families. One of the other Ph.D. students in my lab ... comes from generations of [ecologists] ... His great-grandfather was this amazing [ecologist], and his father was also a really great, well-known [ecologist]. And now that’s what he’s doing. So, in that sense, it’s like [my peers] will never understand what this feels like.

As a source of support, Melissa joined an accountability group with her peers, providing each other guidance on research, writing, and other aspects of graduate school. Her advisor and committee members also provided guidance for navigating graduate school, which she found motivating.

Community

Part-time students often rely on sources of support beyond their classmates as they spend much of their time off campus. John gained support for his academic journey from his family and place of employment, which assisted him in completing many of his program’s milestones.

John: Part-time student, strong community of support. John is a White male pursuing a Ph.D. in education as a part-time student. He lessened the financial burden of graduate school by maintaining full-time employment at the university and taking a loan from his elderly mother. John’s wife was an additional source of support as she proofread his papers, helped complete extra chores around the house, and provided encouragement during his program. Reflecting on his wife, John shared, “No papers that I have submitted have gone in without being proofread by her.” Through his job, John received class waivers each semester, and his supervisor provided a flexible schedule, allowing him to work on projects. John’s advisor was “very supportive, and it has enriched my experience.” His advisor played an instrumental role in minimizing John’s concerns with imposter phenomenon and providing opportunities to complete research and write academic papers, including having him help co-author (third author) a paper that was in progress. Though John felt like an outsider due to being a part-time student, he felt connected to his program through the community of support he received. He reflected, “You know, if I needed someone, I’ve been able to contact them [classmates and professors], whether – you know, whether through a Zoom like this, or phone or text or meet for coffee. And people are available as I need them.”

Family obligations

Many graduate students have responsibilities beyond coursework and assistantships; they may have families with dependent children. The additional complexity of being a mother added to the stress Alaina experienced in graduate school.

Alaina: Research-focused, family obligations. Alaina is a White female in a STEM doctoral program who is married and the mother of two small children. She received a stipend from her research assistantship for the first three years of her studies, then began a full-time position at a different university during her fourth year. Alaina was fortunate to have the financial support of her spouse, but she had to provide health insurance for her family through her assistantship. Alaina found the classwork was challenging but felt it would have been much easier if she was not trying to “juggle having kids” with the time commitment of her research assistantship. She perceived that the university support resources were not oriented to support a student who had a family. Her mentor was supportive of her family obligations and provided strong guidance throughout her program. Reflecting on her advisor, Alaina said,

[They have] three priorities in life: number one is family, number two is school, [and] number three is work. That’s what [they] always told [their] graduate students, family always comes first. So, if I had a day where I had to be home because the kid was sick, that was fine.

In her research group, the other students provided peer support as an accountability group. Alaina described having the support of advisors and other Ph.D. students as the most helpful part of her journey.

RHETORICAL ANALYSES FINDINGS: KEY CHARACTERISTICS THAT INFLUENCED GRADUATE STUDENT EXPERIENCES

Students were organized into categories based on the characteristics they shared in the interviews that were most salient to their graduate school experiences. Although multiple students could have been placed in several groups, as with mental health concerns, they were categorized by the factor that seemed most influential in their graduate student experience.

Part-time students

Judith and John are both part-time students with full-time positions in education. Judith was a classroom teacher who decided to remain in the classroom because the potential funding from an assistantship would not have been enough financial support. John remained in his position because he could take a loan from his mother to assist with tuition costs, and he received some class waivers through his job.

Part-time students’ syllogisms. Part-time students face many challenges in graduate school, including deficits with financial support and fewer opportunities for research and academic writing. Given limited interactions with peers and mentors, these students may be more susceptible to feeling a lower sense of belonging and struggle with the implications of imposter phenomenon. Mentors serve a valuable role in guiding students through the nuances of graduate school. Mentors can mediate psychological barriers while providing opportunities for research and publication. Community support can assist students emotionally as well as provide financial support.

Left graduate school

Ryan and Seth are White males in STEM fields who encountered barriers with mentor relationships and research opportunities. The culmination of the negative experiences propelled Ryan to leave the program with a master’s degree and enter a position in industry. Seth left his program with no degree due to the poor mentor relationship, lack of research opportunities, and depression issues.

Syllogisms for students at risk of leaving graduate programs. Many doctoral programs are unstructured, and students rely on mentors to assist them in completing their Ph.D. journey. Mentors influence students' success by guiding them through graduate programs and providing entry into academic research. If students experience a deficiency in mentor relationships, they may lack confidence in their efforts and feel a lower sense of belonging. If mentors provide a negative work environment, students' efforts to persist may diminish until the student leaves the program. It is important that advisors help students develop research plans and alert students when they are not making progress. It is also important that graduate programs provide opportunities outside of higher education and assist students who want to enter industry-based positions.

International students

Azra and Carlos are international students who traveled to the United States for graduate school. Carlos struggled to develop peer connections and felt isolated when most students visited their families during holidays. Azra could not travel to the university during her first semester due to COVID-related travel restrictions, creating a lower sense of belonging and a lack of social connections with faculty and peers.

Syllogisms for international students. Graduate program faculty need to be cognizant of how their program's design impacts international students. International students may face additional barriers, such as (COVID-based) travel restrictions, limiting students' development of a sense of belonging. In addition, differences in time zones may create difficult circumstances for those attending synchronous classes. Modifications need to be created to provide supportive learning environments and assist students in developing peer connections. International students living close to campus may need additional support as they may not have a driver's license or transportation to visit places on the weekend and may need to be included when the campus is closed for holidays. Universities can assist international students by scaffolding peer groups and hosting activities focused on international students.

Mental health concerns

Mental health concerns were common among the graduate students interviewed but most prominent with Isabella and Samuel. Isabella faced a major life event that created anxiety and depression that negatively impacted her work with her assistantship. Due to circumstances connected to his mental health concerns, Samuel lost the support of his advisor and lacked a physical area to complete his research, halting his academic progress.

Syllogisms related to mental health concerns. Mental wellness is integral to students' abilities to succeed in graduate school, especially in research. Students need greater access to resources and information if they encounter a mental health crisis. Advisors need additional professional development on handling mental health situations and not inflaming already difficult circumstances. Universities need to provide additional mechanisms to find financial support if students have to take a leave of absence or if a student is unable to acquire an assistantship.

First-generation students in STEM

Two students included in the narrative analysis are female, first-generation college students in STEM doctoral programs, Melissa and Amy. A common concern among the students was the need to finish to avoid additional financial burdens. Both students' strengths were strong mentor support, peer support, and a sense of belonging at the university.

Syllogisms for first-generation students. First-generation students may have deficits in understanding the nuances of graduate school and feel a sense of urgency to complete their program to minimize financial debt. However, attempting to complete a program quickly causes students to sacrifice their quality of life by increasing stress levels, limiting social activities, and creating a sense of burnout. Greater financial support and financial counseling can alleviate stress related to financial concerns, allowing students more time to complete their degrees. Mentor support through advisors

and committee members can provide students with knowledge about how to successfully pursue a graduate degree while offering information and possible opportunities related to research and publishing. Peer support groups (e.g., writing groups and accountability groups) can be beneficial for graduate students to stay motivated and provide emotional support and support in writing papers, reviewing drafts, and sharing ideas.

Research focused in STEM

Alaina and Brooke are females in STEM with a focus on research. Though their primary obstacles differed, they shared a driven nature that allowed them to find success. Brooke had a unique situation in that she came into graduate school with outside funding and maintained her research grants throughout graduate school. Alaina was able to participate in a research-based assistantship and developed strong bonds with her peers.

Syllogisms linked to research-focused students. Students begin graduate school, risking financial uncertainty in the hopes that they can obtain a position on a grant. If they do not, they often complete teaching assistantships to cover tuition costs while completing their research beyond that work. Universities can reduce financial stress by providing greater transparency for potential funding while also providing financial counseling for graduate students. Graduate students may lack formal mentor support for their research if they are teaching assistants. Professional development in mentoring could assist advisors in providing better support for students. Graduate students with families may have the financial support of a partner but need to provide health insurance for the family. They may also have to balance the requirements of an assistantship with taking care of children. Mentors and other university faculty need to provide support and flexibility in work assignments for students who are also parents. Cohort-style programs can help create peer support and accountability groups within graduate programs.

Community of support

In the analyzed cases, two students reflected on the impact of communities of support. Sarah's story shows the negative effects of lacking a support system, whereas Sydney reflects on the benefits it can provide students.

Community of support syllogisms. Graduate students rely on mentors and peers to guide them through the academic journey of completing a Ph.D. When this support is limited, students feel more stressed, may take longer to finish their program, and may struggle to know how to complete the process. If a structured cohort model was implemented in graduate programs, students could have a starting point to develop peer support groups that would assist them with various aspects of graduate school (e.g., program nuances, writing groups, accountability partners, and emotional support).

Graduate students often need more financial support than is provided by assistantships, especially if they lack summer support. When students feel financially secure, they can focus more on activities related to their coursework and research. Financial counseling could benefit many students by reducing the stress of managing the cost of graduate school.

LIMITATIONS

As a first-generation college student, the first author struggled with feelings of imposter phenomenon and a lower sense of belonging. Employing a co-coder and member checking were used to avoid bias in the narrative study analysis. In addition, member checking took place approximately eighteen months after collecting initial data. The extended time from initial interviews to member checking may have helped to make the analysis less about a short-term crisis and more about their overall experiences as graduate students.

DISCUSSION

This study used narrative analysis – both typological and rhetorical – to elucidate the experiences of a diverse group of graduate students and to highlight supportive aspects and areas that need additional support.

RQ.1A: SUPPORTS AND BARRIERS IMPACTING GRADUATE STUDENTS

The typographic analysis revealed nine themes from the fourteen cases; mentor support, sense of belonging, and financial support were the most common themes among the narratives. The other themes included access and opportunity, peer support, community, imposter phenomenon, microaggressions, and family obligations. Depending on the cases, these factors could be supportive or inhibitory, as with mentor and financial support. When some factors were strained, it created additional burdens for students. Students who felt they lacked adequate financial support did not participate in conferences, felt an urgency to finish, and took on additional jobs, postponing their research. In contrast, factors that were well supported created opportunities for academic success.

The primary themes for most students were mentor support, a sense of belonging, and financial support, mapping onto the bottom three levels of Maslow's Hierarchy of Needs (safety, belonging, and physiological needs) (Collier & Blanchard, 2023b; Maslow, 1943, 1987). These three factors may have been most common because they were the most prominent and important needs that must be satisfied before moving toward esteem (imposter phenomenon, microaggressions, and microaffirmations) and self-actualization (access and opportunity).

Resonant with the findings of this study, Benson and Dundis (2003) investigated the experiences of healthcare employees with Maslow's Hierarchy of Needs. They found that employees wanted to feel secure, needed, and appreciated and that considering the individual's needs enhanced employee motivation and commitment. Although there are many differences between the lives of graduate students and those of full-time professionals, there are parallels in the role of mentor support, sense of belonging, and financial support that emerged in the graduate students' narratives.

RQ.1B: INTERSECTION OF SUPPORTS AND BARRIERS WITH BACKGROUND CHARACTERISTICS

The rhetorical analysis highlighted factors that dominated these graduate students' experiences. Looking over Figure 4, it is clear that several aspects led to overwhelmingly negative experiences for these graduate students: those who were international, those who had mental health concerns, and those who ultimately decided to leave the program. For the others, their experiences were a mixture of positive supports and negative experiences.

Maintaining full-time employment can provide students (e.g., Judith, John) with greater financial security but necessarily also reduces time focused on university work. For some of these students, being part-time students limited interactions with peers and professors, decreased their opportunities for research and teaching, and potentially lowered their sense of belonging. Strong mentors can mediate this situation by providing opportunities for research/publication. However, this choice likely means a longer time to graduation and fewer peer interactions. In a study by Gardner and Gopaul (2012), part-time doctoral students in different disciplines struggled with balance, lacked peer support, and expressed feelings of otherness and isolation. Although these were not unique to part-time students in Gardner and Gopaul's study, addressing these needs required flexible efforts (i.e., online access, night hours, or weekend hours for library materials, writing centers, counseling centers, and childcare centers).

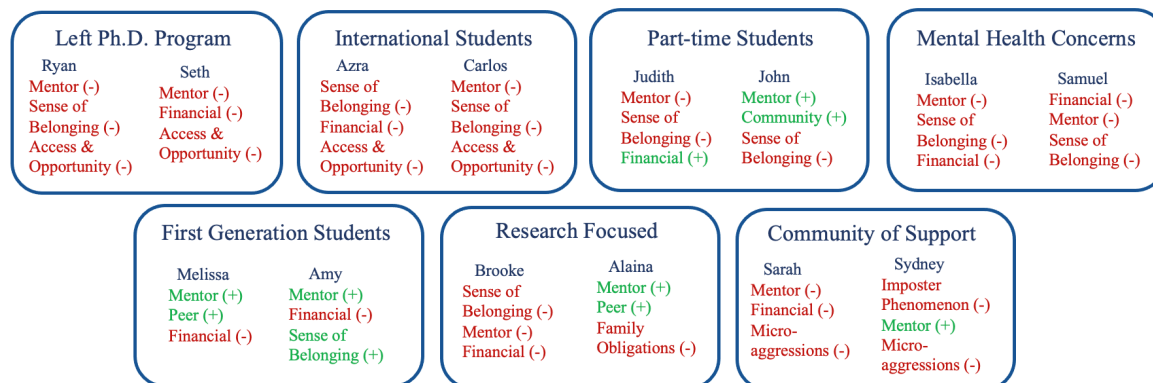


Figure 4. Differences in supports and barriers by student characteristics

Note: The primary, secondary, and tertiary themes are listed in order for each student, with the top theme being the primary theme. The themes written in red with a (-) represent areas where students encountered barriers, whereas themes written in green with a (+) represent areas where students found additional support.

The unstructured nature of Ph.D. programs can lead students who feel they need more mentor support to leave graduate school (e.g., Ryan, Seth). In a study by Welde and Laursen (2008), STEM doctoral candidates who received little support from their advisors felt abandoned, disrespected, and not valued. Most students with poor advisors found other individuals to fill the gaps (i.e., other students, support groups, or other researchers), but those who did not (two females) left science completely. The quality of mentors and peer support students receive during the academic journey influences their experience.

Limited support adds stress and can extend the time to graduation (e.g., Sarah). Strong mentor and peer support can help build students' confidence, helping them overcome experiences with microaggressions and imposter phenomenon and develop a stronger sense of belonging (e.g., Sydney). In a case study of sociology graduate student teaching assistants (Hunt et al., 2012), students relied heavily on informal ties in their graduate student community to share teaching-related resources, which assisted them in balancing those duties with their research activities. In a similar study, doctoral students moving into academic careers used a systemic, community-based approach to professional development (Foote, 2010). This helped to support a more diverse range of participants and perspectives.

There can be unique challenges for international students (e.g., Carlos, Azra). For students who were unable to travel to the U.S. during Covid shut-downs, this contributed to time zone navigation issues. The lack of in-person classes undermined the development of a sense of belonging. Other barriers were logistical, such as lacking a driver's license, being alone on campus when other students went to visit nearby family and friends, and dealing with cultural differences. Wan et al. (1992) found that international students with stronger support networks could handle stressful academic situations better. As with this study, the reaction of individual international students will vary; those who absorb themselves in their academic struggles can further exacerbate their academic stress and isolation.

Mental well-being impacted some of these graduate students' ability to succeed in graduate school (e.g., Seth and Isabella), especially when advisors were unwilling or unable to handle their situations. Mousavi et al. (2018) conducted a student health survey and found that most graduate students were more likely to approach a friend rather than an advisor, counselor, or physician with mental health concerns, even when they believed stress negatively affected their health. The prior study reveals the importance of social support (i.e., friends and family) and an open and friendly environment for graduate students.

First-generation students in this study faced additional barriers in graduate school, including feelings of otherness, a lower sense of belonging, and a sense of urgency to finish (e.g., Amy and Melissa). Consistent with the findings of this study, Gardner and Holley (2011) found that first-generation doctoral students expressed feelings related to a low sense of belonging and imposter phenomenon. In addition, these students also lacked the tacit knowledge necessary to pursue a college degree and shared concerns over debt load. Gardner and Holley suggested that university structures and guidelines be more elucidated and better communicated, in addition to creating first-generation support groups.

Some students in this study struggled to balance the requirements of a research assistantship with family obligations but found support from mentors and peers (e.g., Alaina). Other students experienced a deficit in mentor and peer support, necessitating a greater sense of autonomy in completing research (e.g., Brooke). Similar to this study, a case study of a doctoral student mentor program that targeted underrepresented students found that peer-mentor relationships fostered intellectual and social network connections, creating an inclusive community (Holley & Caldwell, 2012). The study suggested the importance of deliberate mentor selection with consideration of academic disciplines and individual characteristics.

CONCLUSION AND RECOMMENDATIONS

Through narrative analysis, this study identified the factors that influence the experiences of graduate students. The techniques used allowed for insight into the experiences of a wide range of graduate student situations. Many students have unique needs (i.e., international and part-time students), whereas some students face additional barriers (i.e., first-generation students and mental health concerns). Their stories were most often impacted by the supports they received (e.g., peer, mentor, community, and financial support). The syllogisms developed from the rhetorical analyses helped to highlight supports that could make a difference in addressing the issues faced by graduate students.

RECOMMENDATIONS

Based on the findings of the narrative analysis, recommendations are listed in Table 3. Incorporating various aspects in graduate programs can assist students in meeting their physiological needs (financial support) and emotional needs (mentor support, sense of belonging, and esteem) to ultimately allow them to thrive with self-actualization (academic research, writing, presentations, and conferences).

Table 3. Concerns and recommendations based on narrative analysis

Concerns	Recommendations and roadmaps
Mentor Support	Professional development for advisors on mentor relationships Institutional initiatives (Dawson et al., 2020; Fisher et al., 2019; Kricorian et al., 2020; Mackie & Bates, 2019)
Peer Support	Cohort model in graduate programs Program-based student work sessions Positive psychology (Heekerens & Eid, 2021; Jeong et al., 2023; A. N. Miller & Orsillo, 2020)
Financial Support	Financial counseling Assistance finding scholarships, fellowships, and loans
Mental Health	Greater access to mental health counseling Graduate student support groups

Concerns	Recommendations and roadmaps
	Mental Health First Aid (Harris et al., 2022; Liao et al., 2023)
Family Obligations	More support for students who are parents (i.e., flexible hours for assistantships, online courses, working remotely)
Access and Opportunities	A course that provides rotation in different faculty's research groups Summer opportunities in research groups Travel scholarships

Many students relied on mentor and peer support to navigate graduate school. Universities can facilitate more positive mentor relationships through mentoring professional development opportunities for advisors. Similarly, cohort-based programs could be implemented to provide a springboard for peer support. Advisors should become more aware of the particular needs of graduate students with parental responsibilities. Possible accommodations include considering flexible work hours, as possible with assistantships, and consideration of some remote work.

Other concerns that were common among the study's participants were financial support and mental health. Universities need to address the length clearly and the total amount students will receive in fellowships and stipends and provide financial counseling for graduate students. In addition, universities could better support students' mental health through seminars on mental well-being and greater access to mental health services (e.g., virtual counseling or graduate student support groups) to assist them with psychological barriers they may face (e.g., imposter phenomenon, microaggression, or depression).

Lastly, many of the students shared concerns about completing research and publishing papers. Graduate programs can create opportunities for students to gain research experiences beyond assistantships. Short summer research opportunities for students to work with faculty - within or outside of their program - could give students more exposure to research, provide additional funding, and connect them with mentors beyond their advisors. Graduate students face various challenges (e.g., first-generation, imposter phenomenon, and microaggressions) and unique circumstances (e.g., parental status, international students, or part-time students) that can inhibit their success. Using a narrative analysis has illuminated their experiences as graduate students, highlighting the complex terrain they navigate. Translating students' opposition statements into syllogisms helped to understand supports that could ameliorate their struggles. For universities that have already implemented some of the suggested support structures (e.g., mentor professional development, cohort programs, and financial counseling), future research could investigate their utility to graduate students.

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