Exploring Advisor-Advisee Relationship Among International and Domestic Doctoral Students

by

Yankun He

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Approved by

Jonathan Taylor, Chair, Professor in Educational Foundations, Leadership, and Technology
Leslie Cordie, Associate Professor in Educational Foundations, Leadership, and Technology
Jane Teel, Clinical Professor in Educational Foundations, Leadership, and Technology
Chih-hsuan Wang, Professor in Educational Foundations, Leadership, and Technology

Abstract

This study explored the advisor-advisee relationship among doctoral students in the United States, focusing on comparing the experiences of international and domestic doctoral students. The quality of the advisor-advisee relationship has been shown to significantly influence doctoral students' academic success, research productivity, satisfaction, and overall well-being. While a growing body of research has examined graduate advising dynamics, few studies have directly compared the experiences of international and domestic doctoral students. This study aimed to fill that gap using Social Exchange Theory (SET) as the guiding theoretical framework.

This study adopted a multi-phase research design, combining quantitative survey analysis with thematic examination of open-ended responses to explore the measurable dimensions and personal experiences of doctoral advising. Quantitative data were collected from 87 participants (41 international and 46 domestic doctoral students) through an online survey comprising the Advisory Working Alliance Inventory (AWAI) and a satisfaction scale. The survey used in this study assessed four core constructs: satisfaction, rapport, apprenticeship, and identification-individuation. A one-way MANOVA compared international and domestic doctoral students on four subscales. The multivariate test was significant (*Pillai's Trace* = 0.141, $F(4, 82) = 3.38$, $p = 0.013$, partial $\eta^2 = 0.14$). Follow-up analyses showed domestic students reported moderately higher rapport ($d = 0.63$) and identification-individuation ($d = 0.52$), while no group differences emerged for apprenticeship or overall satisfaction.

Qualitative data were collected through open-ended questions designed to capture students' personal experiences and expectations in advising. Thematic analysis revealed four key themes: 1) academic and professional support; 2) emotional and psychological challenges in

advising; 3) alignment and compatibility; 4) structural challenges. Guided by SET, this study highlighted how doctoral students weighed the academic, emotional, and structural dimensions of their advising relationships regarding perceived costs and benefits.

These findings underscore the need for faculty to adopt culturally responsive advising practices and for institutions to address structural challenges like a shortage of faculty advisors and support resources. By attending to relational and institutional factors, universities can better support diverse doctoral students and foster more efficient advising environments.

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List of Abbreviations

ANOVA	Analysis of Variance
AWAI	Advisory Working Alliance Inventory
AWAI-S	Advisory Working Alliance Inventory – Student version
CICT	Collaborative Institutional Training Initiative
IQR	Interquartile Range
IRB	Institutional Review Board
MANOVA	Multivariate Analysis of Variance
NVivo	NVivo qualitative-analysis software (v 15)
SD	Standard Deviation
SDT	Self-Determination Theory
SET	Social Exchange Theory
SPSS	IBM SPSS Statistics (Statistical Package for the Social Sciences)
STEM	Science, Technology, Engineering, and Mathematics
Ph.D.	Doctor of Philosophy

Chapter 1 Introduction

Background

The United States has historically been the most popular destination for international students due to its top-notch education and research, multicultural environment, and professional advancement (Nicholls, 2018). The statistical data from Open Doors (n.d.) demonstrate that approximately 950,000 international students were enrolled in U.S. higher education institutions, despite a minor decline during the COVID-19 pandemic. Enrollment data from the 2022 Open Doors report (n.d.) also show that international students in the U.S. come from 224 nations and almost every continent except Antarctica. China, India, and the Republic of Korea (South Korea) are the top three original countries for international students, and Asia was the most dominant continent of origin in 2022. Other countries, which have not been historically typical countries of origin for international students, have more and more students studying in the U.S. For instance, the 2022 Duolingo Language report (Blanco, 2022) shows that the increased number of Ukrainians who take the Duolingo English Test to demonstrate their English proficiency to study abroad, and Ukrainian test takers increased by 4000% year-over-year. In addition, this report states that the number of students taking English proficiency tests increased by more than 50% year-over-year in 2022, and that the test-takers represented over 213 countries and regions. This trend indicates that a substantial number of students from broader geographic areas are seeking international higher education possibilities.

Not all educational programs are equally popular among international students within the academic disciplines. Science, Technology, Engineering, and Mathematics (STEM) majors dominate the international students' most common fields of study. For example, in the 2021–2022 academic year, nearly 20% (188,194) of international students studied engineering, and approximately 21% (200,301) pursued math and computer science programs (Open Doors, n.d.). The same data source shows that the numbers of international undergraduate and graduate students have remained relatively balanced over the past two decades. In the 2021–2022 academic year, 344,532 international students were enrolled in undergraduate programs, while 385,095 were pursuing graduate studies.

The United States' higher education institutions embrace international students. At the same time, international students also have significant and positive contributions to America in the economic area, innovative activity, intellectual environment, and cultural environment (Adnett, 2010; Andrade, 2006; Chellaraj et al., 2008; Sawir, 2013). During the 2021–2022 academic year, international students at U.S. colleges and universities contributed $33.8 billion to the U.S. economy and supported approximately 335,000 jobs (Ruffner, 2022). Most international students obtain the main part of their funding from sources outside the United States, including personal and family sources, and support from their home country's government or colleges. Moreover, international students are a source of new ideas, talent, and experiences that have driven innovation in the United States. Many successful international students are likely to work in the U.S. after finishing their studies. These immigrants sustain the industrialized nations' competitive advantage in high-tech and university-educated labor-intensive industries (Adnett, 2010). International students boost not just the economy but also promote the intellectual and cultural environment for American domestic students, for they are becoming increasingly significant and relevant contributors to campus diversity (Wu et al., 2015). Their native culture and ethnic backgrounds improve the cultural richness of campuses. Additionally, international students help faculty and students to enhance their cultural awareness and proficiency in collaborating with individuals who have various backgrounds. Also, they can provide opportunities for domestic instructors, students, and U.S. society to encounter diverse cultures, traditions, and languages. For these reasons, understanding the learning experience, retention, and success of international students is an important issue.

International students may have different advisors at the same time, such as professional advisors, international student advisors, and faculty advisors. This dissertation discusses the advisor who is contacted most frequently for academic issues. These are called faculty advisors. The faculty advisor is responsible for supporting students as they navigate academic rules and regulations, and they have the greatest responsibility for helping guide the advisee through the doctoral program (Baker & Griffin, 2010; Schlosser & Gelso, 2001). Moreover, graduate students can consider the faculty advisor to be their academic advisor, research supervisor, or dissertation chair (Rice et al., 2009). Faculty advisors support their students in learning about the academic discipline, the university environment, research, ethics, and a variety of other crucial facets of being an academic professional (Wrench & Punyanunt, 2004). At many higher education institutions in the U.S., new graduate students are assigned or select an advisor as they start their program, and the relationship with an advisor is one of the most influential factors for graduate students' success (Baker & Griffin, 2010; Cross, 2018; Rice et al., 2009). For instance, faculty advisors' mentoring is invaluable for their students who pursue a career in academia (German et al., 2019). It is important to understand the definition of mentoring and advising because these two concepts have common features. Mentoring indicates a positive relationship in which the protégé gains professional abilities (Eller et al., 2014), while advising refers to a potential positive or negative connection in which professional skills development guidance may or may not be supplied (Schlosser & Gelso, 2001). In this dissertation, the objective of the study is to examine doctoral students. Doctoral students' study experiences are sometimes presented as a sacred connection with their advisor, who normally guides their dissertation research to completion and graduation (Taylor et al., 2018). Hilliard (2013) discovered that graduate students' relationships with their advisors had a significant impact on their dissertation progress. Moreover, advisor mentoring adds value to graduate students' research careers, academic production, and academic outcomes (Paglis, Green, & Bauer, 2006). For example, graduate students with advisors tend to have more publications, conference papers, and first-authored articles, as well as being more productive after graduation, compared to graduate students who did not have advisors throughout their graduate study (Wrench & Punyanunt, 2004). Therefore, a good advisor-advisee relationship is frequently the most important professional contact in terms of the student's pursuit of a degree. Moreover, Uy et al. (2019) found that some experiences positively influenced students' career preparation. International students' sense of belonging to U.S. universities is also impacted by the quality of the advising relationship (Mataczynski, 2013). Yuan (2021) figured out the positive effect of advisor-advisee rapport and satisfaction on international students' sense of belonging.

Given the considerable number of international students, their contributions to the United States, and the significance of advisor-advisee relationships, the relationships between international students and their advisors are worthy of examination.

Statement of the Problem

According to a substantial number of studies, academic advising has considerable effects on college students' retention and achievement. For instance, they help students work on their dissertations and the timely completion of the degree (Hilliard, 2013; Lovitts, 2002; Taylor et al., 2018). They also support students' satisfaction (Coll & Zalaquett, 2007; Zhao et al., 2007), research career (Overall et al., 2011; Schlosser& Kahn, 2007), student retention (Hughey, 2011;

Swecker et al., 2013), and career development (Anafarta & Apaydin, 2016; Schlosser &Kahn, 2007). In addition, academic advising also positively influences the sense of belonging for international students (Curtin et al., 2013; Hunter & Devine, 2016; Yuan, 2021).

Scholars have found that the advisor–advisee relationship profoundly affects doctoral education. News reports frequently highlight that an oppressive advisor–advisee relationship can lead to severe incidents or mental health issues. Several studies have found depression, anxiety, and suicidal ideation among doctoral students (Satinsky et al., 2021). Many reasons cause doctoral students' mental problems, such as project-related issues, supervisor-related issues, stress about productivity, uncertain career prospects, and the relationship with advisors (Barry et al., 2018; Mackie & Bates, 2019; Richardson et al., 2020). Such evidence shows the criticality of examining the advisor-advisee relationship between doctoral students and their advisors. Furthermore, international students may face challenges communicating or getting along with their advisors due to different cultural backgrounds, lack of language proficiency, and varying previous educational systems (Hughey, 2011; Nguyen, 2013).

Previous studies have explored the graduate students' perceptions of their advisors and examined the graduate advising relationship from advisor perspectives (Cross, 2018; Schlosser et al., 2003). Moreover, much past research worked on the advisor-advisee relationship among STEM students (Joy et al., 2015; Welde & Laursen, 2008), underrepresented racial minority students (Burt et al., 2019; Burt et al., 2016), and female graduate students (Primé et al., 2015). However, fewer studies focus on comparing different perspectives in advisor-student relationships among international doctoral students.

In conclusion, the advisor-advisee relationship influences students' university experience. Yet existing literature on the effects of advising has primarily focused on specific student groups, especially domestic students, with limited attention paid to international doctoral students. However, international students are playing an increasingly significant role and account for a considerable portion of the higher education population in the United States. Accordingly, it is both timely and essential to investigate the advisor–advisee relationship among international doctoral students.

Purpose of the Study

This section describes the specific goals for this study. The first goal of this study is to explore whether there are statistically significant differences in advising relationship satisfaction, rapport level, identification-individuation level, and apprenticeship level between domestic and international doctoral students. While studying at a university in the United States can be an exciting opportunity for international students, it also presents several challenges, including language barriers, cultural shock, financial stressors, and mental health concerns (Jones, 2017). Rice et al. (2007) explored the graduate advising relationship from international students' perspectives. Their study revealed that international graduate students desired their advisors to comprehend their cultural values and language barriers. Also, the participants in their study regarded financial help from the advisors as an additional crucial aspect of the advising relationship. In addition, Jones (2017) noted that the level of study influences various dimensions of international students' experiences. For example, doctoral students often lack a cohort of peers and engage in more independent research, which can lead to a heightened sense of academic and social isolation. As a result, they may rely more heavily on their advisors for both academic guidance and emotional support. Thus, exploring the different perspectives on the advisor-advisee relationship between domestic and international doctoral students is worthwhile.

The second goal is to find the doctoral students' expectations and concerns for their advisors. To accomplish this task, we will employ open-ended questions at the end of the survey to ask participants about their experience with their faculty advisor. This study aims to provide practical suggestions for advisor to improve their advising efficiency and help them better to understand doctoral students' challenges during their studies. Besides, the findings of this study also contribute to the knowledge that educators and policymakers in higher education institutions need to increase competence to attract doctoral students.

Research Questions

In this study, the following research questions were used:

1. Do international doctoral students' satisfaction with the advising relationship differ from domestic doctoral students?
2. Do international doctoral students rate their advisors for rapport, identification-individuation, and apprenticeship differently from domestic doctoral students?
3. What experiences do doctoral students describe for their relationships with their advisor (open-ended questions)?

Significance of the Study

The findings of this study hold practical significance in the field of doctoral education and cross-cultural advising relationships. First, they contribute to the current literature on the advisor-advisee relationship by offering empirical insights into how international doctoral students perceive their advising relationships compared to their domestic peers. While existing research has focused on international students' academic adaptation, retention rates, or sense of belonging, this study provides a data-driven comparison through students' voices and their lived experiences. The inclusion of both quantitative and qualitative findings allows for understanding of advising relationships, expanding the current knowledge base on international doctoral student development and mentorship in diverse educational contexts.

Second, the identified group differences in advising perceptions can inform faculty advisors and university administrators about the distinct concerns, expectations, and challenges faced by international doctoral students. By highlighting areas such as communication, academic and professional support, research and personality alignment, and emotional support, the study can serve as a resource for designing more culturally responsive and supportive advising practices. This awareness is essential for fostering inclusive academic environments where all doctoral students with any cultural background can thrive both academically and personally.

Finally, the findings have implications for professional development programs aimed at enhancing faculty advising competencies. Faculty advisors who recognize the diverse needs of their advisees ultimately prompt equity and improve retention and satisfaction among international doctoral students.

Study Design

This study uses Advisory Working Alliance Inventory (AWAI), which was developed by Schlosser and Gelso (2001). Schlosser and Gelso measured three constructs in this inventory: rapport, apprenticeship, and identification-individuation. They mentioned that working alliance in advisory relationships can reflect the connection made because of collaborative work toward common goals between advisor and advisee. I also address additional constructs and questions relevant to international student advising in this study; for instance, I include the construct of satisfaction with the advising relationship, which was established by Rice et al. (2009). Items are responded to using a Likert-type scale rating from 1 (*strongly disagree*) to 7 (*strongly agree*). There are four open-ended questions at the end of the survey, and they are:

1. Would you describe your expectations and experiences for your advisor relationships?
2. What suggestions would you make if you could help your advisor improve her/his advising?
3. What (if any) are the concerns in your current relationship with your advisor?
4. If a new Ph.D. student joins your program, what advice would you offer regarding the selection of an advisor?

The participants in this study were international and domestic doctoral students aged 18 or older, regardless of race, gender, ethnicity, or academic program in the United States. The research invitation email was sent through the institutional email list of Auburn University. Research flyers containing the survey introduction and a QR code linking to the survey were posted in the main academic buildings at Auburn University (Haley Center, Shelby Center, Parker Hall). The survey was distributed via an online survey panel. The survey link was created using Qualtrics and approved by the Institutional Review Board for the Protection of Human Subjects in Research (IRB), with protocol number 24-859 EX 2405.

Assumptions

The following assumptions are made as part of the research:

1. The participants involved in this study will be enrolled in doctoral programs with varied graduation semesters or have already graduated with a doctoral degree.
2. Participants respond truthfully and consistently to all questionnaires.

Limitations

While this study aims to explore the advisor-advisee relationship among international and domestic doctoral students, several limitations should be acknowledged from the outset. First, the research was conducted within a single institution context, and all participants were recruited from Auburn University through the graduate student mailing list. As such, findings may not be readily generalizable to other universities, particularly those in different regions or with different institutional cultures. Furthermore, the participant pool, though diverse in academic discipline and gender, included a greater proportion of female and non-STEM students, which may shape the perspectives captured.

Second, the study employed a multi-phase research design, with qualitative data collected via open-ended survey questions. These questions were optional, which may have led to self-selection bias, as respondents who chose to share their advising experiences might differ in meaningful ways from those who did not. Additionally, variations in response length and depth may have limited the interpretive richness of the qualitative data.

Lastly, qualitative analysis was conducted by a single researcher using thematic coding supported by NVivo software. While strategies such as reflective journaling and code-recoding were employed to enhance rigor, the absence of inter-coder validation introduces the possibility of researcher bias in the interpretation process.

Variables of Study

Apprenticeship

Apprenticeship refers to the part of the advising relationship where advisors help students understand the tasks, goals, and processes associated with graduate study (Schlosser & Gelso, 2001).

Satisfaction

Satisfaction refers to doctoral students' satisfaction with the advising relationship (Golde & Dore, 2001).

Identification-individuation

Identification- Individuation presents the aspects of the advising relationship that illustrate the degree to which students want to be like the advisor (Schlosser & Gelso, 2001).

Rapport

Rapport reflects the advisor's support and encouragement for their students.

Definition of Terms

Doctoral student

A doctoral student is someone who has enrolled in a doctoral degree academic program.

Faculty advisor

Faculty advisor refers to "one faculty member who is the academic advisor, dissertation chair, or research supervisor whom the students consider his or her primary formal advisor." (Zhao et al., 2007, p. 266)

International student

International students are those who pursue all or a portion of their higher education in a country other than their own and move there for the purpose of studying. In the United States, the international student refers to "non-immigrant" visitors who come to America temporarily to take classes or take online programs from anywhere in the globe (University of Southern California, 2022).

STEM

STEM is an abbreviation for Science, Technology, Engineering, and Mathematics.

Non-STEM

Non-STEM subjects are those that do not involve Science, Technology, Engineering, or Mathematics. Thus, this includes the study of Business, Literature, Arts, Education, and Human Sciences, as well as other programs.

Organization of the Study

This study aims to explore the advisor-advisee relationships among international doctoral students. Chapter 2 includes literature reviews of relevant research related to advisor-advisee relationships, the present status of international and doctoral students in United States universities, and a theoretical overview. The research methodology, data collection, and analysis method are discussed in Chapter 3. Chapter 4 presents the analysis and interpretation of the data. Chapter 5 will present the findings, conclusions, limitations, and implications of this study, as well as suggestions for future research. The references are presented after Chapter 5. Supporting materials are provided in the appendices, including the survey items (Appendix 1), the information letter (Appendix 2), and the instrument author's permission (Appendix 3).

Chapter 2 Literature Review

International Students

International Students in the United States

The United States has historically been the most popular destination for international students due to its top-notch research and education, multicultural environment, and professional advancement (Nicholls, 2018). A considerable fraction of individuals who obtain degrees in the United States comprises international students from countries other than the United States. In the 2021-2022 academic year, nearly 1 million international students were enrolled in United States higher education institutions (Open Doors, 2022). Over the past decade, there has been a notable increase in the number of international students enrolled in U.S. higher education institutions, reflecting the sustained global appeal of American higher education. Moreover, the data from Open Doors (2022) indicates that most international students come from China, India, the Republic of Korea (South Korea), Saudi Arabia, and Canada.

International students study in a wide range of fields. However, not all academic programs are equally popular among them. Science, Technology, Engineering, and Mathematics (STEM) majors dominate their most common fields of study. The data from the National Center for Education Statistics (2022) showed that nearly 20% (188,194) of international students studied in engineering programs, and around 21% (200,301) studied in math and computer science programs during the 2021–2022 academic year. While the enrollment of international graduate students in the fields of social science and education represents a smaller proportion relative to STEM disciplines, the overall number of international doctoral students in these domains has demonstrated an upward trend. The same data also shows that 385,095 international students were pursuing graduate study in the 2021-2022 school year.

The Contribution of International Students

The United States colleges and universities embrace international students. At the same time, international students also have made significant and positive contributions to America in the economic area, innovative activity, intellectual environment, and cultural environment (Adnett, 2010; Andrade, 2006; Chellaraj et al., 2008; Sawir, 2013). According to the Association of International Educators, during the academic year 2021-2022, international students attending colleges and institutions in the United States contributed $33.8 billion. They supported 335,000 jobs to the economy of the United States (Ruffner, 2022). Most international students acquire their tuition fee from sources outside the United States, including personal and family sources, as well as government or college financial aid from their home country (Open Doors, 2023). Moreover, they bring a substantial economic boost to the regions in which they study by creating jobs and supporting local companies. Furthermore, according to a report (2022) by the National Foundation for American Policy, international students and immigrants founded roughly half of the $1 billion-plus firms in the United States. These startups, which include Google, Microsoft, and Intel, have produced jobs and fueled economic expansion throughout the United States (Anderson, 2022)

International students also play an essential role in the U.S. innovation ecosystem, assisting in developing new technologies and ideas. They are a source of new ideas, talent, and experiences that have driven innovation in the United States. After completing their education, many successful international students will likely find employment in the United States and contribute to the high-skilled labor supply in the U.S. labor market (Beine et al., 2022). Adnett (2010) stated that these immigrants sustain the industrialized nations' competitive advantage in high-tech and university-educated labor-intensive industries. Libaers (2007) provided a comprehensive analysis of the role that international students were more likely than U.S.-born students to start businesses and pursue careers in the STEM field, bringing valuable skills and expertise to the U.S. workforce. Those pieces of evidence are sufficient to show that international students play a key role in innovative activities in the United States.

Then, international students promote the intellectual and cultural environment for American domestic students. The background and contributions of international graduate students have enhanced the diversity of U.S. higher education institutions (National Science Foundation, 2022). They are becoming increasingly significant and relevant contributors to campus diversity (Wu et al., 2015). International students improve American colleges' intellectual and cultural environment with their diverse cultural, ethnic, and language origins. Research in cross-cultural communication, globalization, and higher education suggests that exposure to diverse perspectives benefits personal and intellectual growth (Gurin et al., 2002; Smith & Schonfeld, 2000).

Furthermore, they bring unique perspectives and experiences to the classroom, enhancing the educational experience for domestic students (De Wit, 2002). They often form close relationships with American students in the cultural area, encouraging cross-cultural understanding and friendship. Such relationships have the potential to last a lifetime and strengthen ties across nations and cultures to promote greater international cooperation and understanding. Also, they served as cultural ambassadors to introduce their customs and traditions to American students. From this point of view, international students help to foster a more diverse and globally oriented campus community, enriching the educational experience for all.

The Challenges for International Students

As a considerable number of international students in the United States, it is crucial to understand and address their challenges. These challenges can substantially impact international students' academic progress and general well-being (Almurideef, 2016; Ching et al., 2017). International students who live and study in the U.S. will face challenges including but not limited to language barriers, cultural adjustment, financial difficulties, academic challenges, the relationship with a faculty advisor, and limited work and internship opportunities.

International students come from various backgrounds and cultures, making navigating American universities' academic and social demands difficult. English is the primary language in the United States in educational and professional settings. International students whose first language is not English may need help communicating outside the classroom. The language barrier can impede communication and comprehension, making it difficult for students to fully join in class discussions and comprehend course material (Andrade, 2006). Earlier research revealed that the biggest impediment to many non-English-speaking overseas students' academic adjustment process is a lack of English proficiency (Andrade, 2006; Peelo & Luxon, 2007; Wang, 2003). Yan and Berliner (2011) reported that the leading causes of language difficulty among international learners were a lack of contextual information or cultural background, the limited opportunity to practice English, and insufficient language training. For international students, the language barrier may make it difficult to complete homework, engage in class discussions, and build relationships with teachers and peers.

Cultural adjustment is another critical challenge faced by international students. Cultural adjustment means the adaptations individuals undertake to establish a relationship with the host society (Gabel et al., 2005). Kagan and Cohen (1990) defined cultural adjustment as a process involving various connected components associated with behavioral, cognitive, affective, and demographic aspects, resulting in varying adjustment levels ranging from cultural assimilation to cultural transmutation. International students face several adjustment problems in social and academic environments when they enter a new country. The U.S.'s cultural norms, values, and customs may differ from the student's home countries, leading to confusion, isolation, and homesickness (Smith & Khawaja, 2011). Social isolation, especially from American peers, is a recurrent theme in the literature about international doctoral students' experiences (Trice, 2007). Previous studies demonstrated that the academic performance of international students is affected by cultural adjustment (Chen et al., 1997; Gabel et al., 2005; Nasir, 2012). For instance, based on the findings of Nasir’s (2021) research, there was a notable difference in the academic performance of international students between high and low levels of cultural adjustment; and academic success among international students can be significantly predicted by cultural adjustment. Therefore, cultural adjustment is crucial to international students' successful completion of academic programs.

Third, financial problems are also common for international students in the U.S. Tuition, housing, health insurance, and living expenses can be expensive. Students who study abroad may struggle to deal with these costs while simultaneously paying for their education. Many previous studies proved that financial problems hurt academic performance and overall well-being (Crocker & Luhtanen, 2003; Ebenuwa-Okoh, 2010; Kapur, 2018). Greater financial burdens lead college students to drop out of school and reduce their coursework to dedicate more time to paid work (Burd, 2004; Joo et al., 2008). Sherry et al. (2010) illustrated in their study that tuition was one of the biggest financial challenges for international students. Tuition fees for international students are generally higher than those for domestic students, and the cost varies widely depending on the institution and program. Consider a large, land-grant research school in the southeast. In-state resident undergraduate students pay $6,397 for full-time student status, while non-resident counterparts pay $16,789. For graduate level, in-state resident students pay $6,085 to maintain full-time status, whereas non-resident graduate students pay $16,471 (Auburn University, 2022). In the study of Sherry et al. (2010), respondents with graduate assistantships reported that the payments were insufficient and needed additional financial aid. In addition to tuition, international students must cover other costs, such as housing, textbooks, food, and transportation.

Furthermore, inadequate employment and internship opportunities present another financial obstacle for international students. Due to visa restrictions and competition for limited positions, it may be difficult for students to find paid employment or internships, limiting their exposure to professional prospects and impacting their career growth. These challenges can also make it difficult for students to produce additional income to balance tuition and living costs.

Besides the challenges mentioned above, international doctoral students face challenges in the academic acculturation (Cai et al., 2019; Park, 2022). Doctoral studies require the mastery of a diverse range of knowledge and skills, such as subject, research, or discipline, related both in formal and tacit ways (Delamont & Atkinson, 2001). They are expected to refine their specialization by completing advanced coursework that involves the application of formal research practices. Also, they must acquire the skills and proficiency necessary to conduct independent and collaborative research with their advisors and colleagues. This entails understanding a broad range of research methodologies and ethical standards for research practice. According to Wisker et al. (2007), doctoral education is inherently high-stress, which may contribute to the growing correlation between engaging in such programs and the negative impact on the mental well-being of doctoral researchers. Scholarly literature highlights that learning a second or foreign language and navigating unfamiliar academic cultures are significant challenges that affect international doctoral students' academic adjustment and success (Andrade, 2006; Wisker et al., 2007). These additional layers of complexity that international doctoral researchers encounter could intensify the negative impact of the Ph.D. experience on their psychological health, sometimes even leading to the decision to discontinue their studies (Laufer & Gorup, 2019).

Besides these challenges mentioned above, international doctoral students face the challenge of advisor-advisee relationships (Knox et al., 2013). In their study, Zhao et al. (2007) indicated that "Graduate students' folklore is replete with stories of egregiously bad advisors." The quality of the relationship between doctoral students and their advisor directly impacts their satisfaction and doctoral education experience. Several studies found depression, anxiety, and suicidal ideation among doctoral students (Satinsky et al., 2021). Many reasons cause doctoral students' mental problems, such as project-related issues, supervisor-related issues, stress about productivity, uncertain career prospects, and advisor relationships (Barry et al., 2018; Mackie & Bates, 2019; Richardson et al., 2020). Such evidence shows the importance of examining the advisor-advisee relationship between doctoral students and their advisors.

Furthermore, international students may face challenges communicating or getting along with their advisors due to different cultural backgrounds, lack of language proficiency, and varying previous educational systems (Hughey, 2011; Nguyen, 2013). For instance, international students from China may be used to receiving explicit instructions and detailed feedback from their advisors. However, U.S. advisors might expect the student to be more self-directed and active in seeking clarity, which could result in unfulfilled expectations and inadequate guidance.

Advisor-Advisee Relationships

The faculty advisor refers to a faculty member whom graduate students can consider to be an academic advisor, research supervisor, or dissertation chair (Rice et al., 2009). Faculty advisors serve as intellectual and professional mentors who socialize doctoral students into the norms of their disciplines, help them navigate institutional policies, and model responsible, ethical research practice (Barnes & Austin, 2009). Beyond guiding dissertation research, effective advisors also provide tailored advice on coursework, timely feedback on academic progress, and structured support for career exploration and professional skill development, thereby promoting each student's long-term success (Graduate Council of the University of California, Berkeley, 2006; Stanford Office of the Vice Provost for Graduate Education, 2025). In the U.S. academic environment, the relationship with an advisor is among the most influential factors for graduate students' success (Cross, 2018; Rice et al., 2009). A good relationship between a faculty advisor and advisee impacts international students' academic performance, students' satisfaction, students' retention, career readiness, research career, mental health, and sense of belonging (Mataczynski, 2013; Uy et al., 2019; Wrench & Punyanunt, 2004). Doctoral students' study experiences are sometimes presented as a sacred connection with their graduate advisor, who typically guides their dissertation research to completion and graduation (Taylor et al., 2018). Studies indicate that doctoral students fail to get their degrees because of an incompatible or unclear advisor-advisee relationship (Craft et al., 2016; Golde, 2005). Several scholars have emphasized the factors that impact effective doctoral advising, encompassing the characteristics and responsibilities of the advisors (Petress, 1996; Welde & Laursen, 2008). Practical and positive advisor-advisee relationships positively impact students' academic outcomes, personal growth, and well-being (Curtin et al., 2013; Rice et al., 2009). In the following part, I will explain these statements in detail.

Faculty Advisor's Role

As noted in the previous section, a faculty advisor may serve as an academic advisor, research supervisor, or dissertation chair. These responsibilities suggest faculty advisors fulfill multiple roles in supporting doctoral students' academic and personal development.

First, faculty advisors are resource people with a well-versed knowledge in their field of study, allowing them to provide students with guidance on academic and career issues. From this perspective, faculty advisors are key in securing students' footing in their field. The majority of doctoral students' experiences with navigating coursework, comprehensive exams, selecting courses or research groups, and other obligations occurred at the department rather than the university level (Ehrenberg et al., 2006). Faculty advisors help their doctoral students understand their discipline and make connections between academics and future goals (Hart-Baldridge, 2022). While it is critical for advisors to help students feel grounded in their department and disciplined at the beginning of the Ph.D. program, career guidance assumes an increasingly vital role as the program progresses. Whether it is guiding students in choosing a career path that aligns with their interests and strengths, providing advice on job interview skills, or assisting with networking, faculty advisors can help students navigate the often-challenging transition from student to professional. Universities have career centers or career guidance departments; when mentioned, they were deemed unhelpful because the career advice they provided needs to be more specific. Doctoral students expect to receive direct, personalized, and multi-faceted career advice from their advisors, recent graduates, or current postdocs from their research group

(Welde & Laursen, 2008). Faculty advisors bring students into the discipline and help them confidently transition from graduate school into the professional world.

According to previously published studies, faculty advisors are academic counselors and mentors supporting students' academic journey and meeting their degree requirements (Lonn et al., 2012; McGill et al., 2020). They provide guidance on course selection, program requirements, and degree planning. Although most universities offer a structured curriculum to develop research capabilities and skills for doctoral students, each student's program should be unique. Doctoral students' programs should be flexible, and they rely on the help of advisors to organize their schedules (Pace & Danali, 2002). Doctoral students often proceed from fundamental to advanced courses in an organized manner, and class sequencing is critical. In addition, they tend to choose electives centered around particular career routes. Due to the distinctiveness of the optional courses, they are not likely to be offered multiple times throughout the year (Ryan & Martens, 1989). Sutton and Sankar (2011) conducted a study to show that students perceived the most satisfaction from course-related information provided by their advisors, such as course sequencing advice and course schedules.

Furthermore, faculty advisors also help students develop study skills, problem-solving skills, and time management strategies, which are all important for academic success. They can help students identify their learning styles, choose effective study strategies, and develop good study habits. Also, they can help students to set achievable goals, create schedules, and manage distractions. In their study, Young-Jones et al. (2013) indicated that study skills significantly contributed to predicting grade point average (GPA) and were related to academic success in college. With their extensive knowledge and experience, faculty advisors are well-equipped to provide personalized guidance and support to meet the unique needs of each student.

Besides the roles mentioned above, faculty advisors also serve as trusted friends for international students to help them navigate the challenges of studying in a new country (Beres & Dixon, 2016). Petress (1996) described the general challenges for students entering university and their advisors' responsibilities: "Students typically enter university lonely, away from home, confused, in a strange environment, and in need of an anchor, their advisor, to provide stability, assurance, consistency, an outlet for frustrations, someone to hear them out and to answer questions, and a source of confidential guidance, affirmation, and support" (p.92). As mentioned, international students face unique challenges due to cultural differences and language barriers; faculty advisors who offer guidance or emotional support beyond academics can significantly impact their overall well-being and success. By providing reassurance, guidance, and affirmation, advisors can help alleviate the loneliness and confusion many students experience at the beginning of their academic journey. Ultimately, these professionals can help international students thrive academically and socially by acting as advisors and friends, creating a positive and enriching experience for all involved.

Advisor-Advisee Relationship Impacts

The advisor-advisee relationship plays a key role in shaping both academic and personal outcomes for doctoral students. Effective and supportive relationships between advisors and advisees can foster trust, facilitate open communication, and provide crucial guidance and support in navigating the academic and professional realm. This can result in improved academic outcomes and greater well-being, self-esteem, and overall life satisfaction. In the U.S. academic environment, the relationship with an advisor is one of the most influential factors for graduate students' success (Cross, 2018; Rice et al., 2009), and it profoundly affects doctoral education.

The following paragraphs will introduce the impacts of the advisor-advisee relationship on students' academic and non-academic outcomes.

Empirical research has consistently demonstrated the advisor-advisee relationship's influential role in determining graduate students' academic success (Barnes, 2009; Young-Jones et al., 2013). The quality of the doctoral education experience is intrinsically linked to the nature of the relationship between the doctoral student and their advisor. First, whether positive or negative, this relationship directly impacts the overall quality of the doctoral education experience (Zhao et al., 2007). Specifically, a positive and supportive advisor-advisee relationship has been shown to facilitate the effective navigation of the complex academic and professional landscapes, resulting in enhanced academic performance. For instance, faculty advisors support doctoral students in developing their dissertations and ensuring timely degree completion (Hilliard, 2013; Lovitts, 2002; Taylor et al., 2018). Girves and Wemmerus (1988) discovered that doctoral students' perceptions of the quality of their interactions with advisors were correlated with their sense of alienation (or acceptance) within their department and their level of engagement in their doctorate programs. Research conducted by Pascarella and Terenzini (2005) highlighted that students who reported having a positive relationship with their advisor were more likely to persist in their program and complete their degree within a shorter timeframe. Students ' academic benefits continue to increase once they collaborate well with their faculty advisor. Furthermore, a good advisor-advisee relationship and academic advising strongly correlate with retention rates (Campbell & Campbell, 1997; Cuseo, 2003; Drake, 2011; Lotkowski et al., 2004). Multiple compelling arguments support the significant influence of academic advising on student retention, which is mediated by the positive correlation between academic advising and various factors strongly associated with student persistence (Cuseo, 2003). A poor advising relationship is strongly related to many students' decisions to leave doctoral study (Golde, 2005). At the same time, in a positive advisor-advisee relationship, professional faculty advisors are motivated to positively impact students' academic achievement and retention, foster the development of critical thinking and reasoning skills, and cultivate a sense of global awareness and social responsibility among students (Hughey, 2011). Furthermore, a constructive relationship between advisors and their advisees is linked to adequate socialization within the department and the broader disciplinary community (Welde & Laursen, 2008).

Second, the positive advisor-advisee relationship significantly benefits graduate students' research careers and academic productivity. Specifically, graduate students with access to advisors are more likely to produce more publications, conference papers, and first-authored articles during their studies. Furthermore, they tend to exhibit greater post-graduation productivity relative to those who do not have advisors throughout their graduate education (Wrench & Punyanunt, 2004). The effects of the advising relationship extend well beyond the duration of doctoral study. One such effect is the enduring influence of an advisor's recommendation letter on the career prospects of their former students and helping with networking (Welde & Laursen, 2008; Zhao et al., 2007). Previous research supports the relationship between the advisory working alliance and students' research outcomes. The concept of the advisory working alliance is a relatively recent development that draws heavily from prior research on supervisory and therapeutic relationships. The working alliance in the advising relationship represents the component of the connection between advisor and advisee that emerges during collaborative work aimed at shared objectives (Schlosser & Gelso, 2001). Schlosser and Gelso (2001) discovered a positive correlation between the Advisory Working

Alliance Inventory (AWAI) and advisees' research self-efficacy and attitudes toward research. Similarly, Schlosser and Kahn (2007) found that advisory working alliances positively related to advisees' research self-efficacy but not to science interests. In contrast, Kahn and Schlosser (2010) demonstrated a positive association between the advisory working alliance, research self-efficacy, research interest, and research productivity.

Third, a relationship between advisors and advisees is associated with student satisfaction with graduate school experience. Student satisfaction plays a crucial role in evaluating the quality of education in higher education institutions (Razinkina et al., 2018). Many scholars have explored topics about student satisfaction, and the prevailing consensus among them is that students who express higher levels of satisfaction are more inclined to persist and ultimately graduate from college successfully (Tessema et al., 2012). Research has established a robust empirical connection between the level of satisfaction that students experience with their postsecondary institution and their retention rate at that same institution (Aitken, 1982; Schreiner, 2009). The literature consistently indicates that high levels of student satisfaction are positively associated with greater academic achievement and performance among students (Kirmizi, 2015; Martirosyan et al., 2014). The significance of faculty-student connections was reinforced by Hawthorne and Young's (2010) study, which revealed that both instructor satisfaction and satisfaction with faculty support substantially influenced students' overall satisfaction with the college environment. Consequently, this heightened satisfaction significantly predicted students' intentions to complete undergraduate, graduate, or doctoral degrees. Furthermore, the duration and the quality of student-faculty interactions are statistically significant predictors of academic advising satisfaction (DeLaRosby, 2017).

Previous studies also investigate the advisor-advisee relationship's impact on students' non-academic outcomes in terms of mental health, work-life balance, and personal growth and development. First, a positive relationship can develop a sense of belonging for international students, which can help them to reduce stress and anxiety when they study in a new country (Curtin et al., 2013; Mataczynski, 2013; Yuan, 2021). Lovitts (2002) found that international doctoral students who completed their programs were more integrated into their department communities than those who did not. Glass et al. (2015) revealed that professors and advisors played a pivotal role in fostering a sense of inclusion among international students. In a study examining the relationship between advisors' support and international students' sense of belonging, Yuan (2021) provided statistical evidence demonstrating the impact of academic advising on fostering a sense of belonging among international students. These previous studies proved that advisor support and the relationship between advisors and advisees critically influence a sense of belonging. Second, the advising relationship provides emotional support for students (Hobman et al., 2009; Primé et al., 2015; Schlosser et al., 2011). Although previous studies stated that academic support could enhance productivity, such as in the form of publications and presentations, providing psychosocial support to students can promote higher levels of satisfaction with both their mentor and the program and foster greater self-sufficiency as a researcher (Forehand, 2008). Moreover, Emotional support is a key attribute within the psychosocial domain. Emotional support is furnishing encouragement, comfort, and reassurance in response to an individual's emotional requirements. This category of support can help individuals in regulating their emotions and coping with anxiety, stress, and other difficulties. In education, emotional support can help students manage stress and other challenges, leading to improved mental health and well-being. Emotional support encompasses the student's emotional health in addition to the academic information an advisor teaches and the guidance about research conduct and dissertation preparation (Yob & Crawford, 2012). According to Barnett (2008), advising relationships frequently entail a higher level of boundary crossing: sharing personal life elements, viewpoints, and activities between advisors and advisees. In summary, the advising relationship is essential to helping students receive emotional support that can lead to increased job satisfaction and increased independence as researchers.

Factors Influencing Advisor-Advisee Relationships

The preceding section mentions the advisor-advisee relationship as a critical component of doctorate students' academic and professional lives. However, several variables that impact advisees' and advisors' interaction and collaboration can also affect the dynamics of the advisor-advisee relationships, making them complex. To effectively collaborate and accomplish their goals, both parties must understand the factors impacting this relationship. The following paragraphs examine several variables that influence the advisor-advisee dynamic.

First, an increasing body of research has shown that perceived similarities, gender, and racial similarity affect how connections and mentoring relationships are formed (Turban et al., 2002). People generally form first impressions of others based on their most noticeable aspects, and individuals with similar gender and ethnic features are more likely socially integrated within communities (Brickson, 2000; Tsui et al., 1995). These demographic variables affect how competent, recognizable, and comfortable people feel around each other, which affects how relationships are formed (Ragins, 1997). Ragins and Cotton (1999) found that the gender makeup of mentoring relationships influenced how mentors functioned, and compensation was reported. For instance, one of the findings in their study showed that female protégés in same-gender mentoring relationships were significantly more likely to report participating in after-work and social activities with their mentors compared to those with male mentors. Kato and Song (2018) investigated the extent to which STEM students reported having mentors of the same race and gender and the extent to which they believed race and gender matching is significant. Students with mentors of the same gender or race reported receiving more assistance, but matching by gender or race did not influence academic outcomes in their study. The analyses from this study also revealed that women and students of color believed it was important to have a mentor who shared their gender or race. Furthermore, Turban et al. (2002) find that the duration of the relationship moderates the effects of both gender similarity and perceived similarity on mentoring received. As predicted, at the early stages of the relationship, students in gender-dissimilar dyadic relationships reported receiving less mentoring. However, the negative impact of gender dissimilarity diminishes over time, so there are no effects of gender similarity in long-term relationships. Few studies investigated the influence of gender and race differences on advisor-advisee relationships among international doctoral students.

Second, the level of similarity between an advisor and advisee has been shown to impact the advising relationship's strength significantly (Damaceno et al., 2019). Schlosser et al. (2011) indicated that as the level of similarity between the two individuals increases, it becomes easier to establish a connection and build a positive and productive advising relationship. Scholars conceptualized perceived similarity as a deeper level of similarity than gender or race similarity, which refers to one person's belief that another person shares similarities in underlying attitudes, culture, values, and beliefs (Ragins & Cotton, 1999). Key factors for advisor-advisee matching may encompass research and professional interests, personality traits, values, racial identity, and other considerations. Existing studies have suggested that perceived similarity influences the advising relationship (Damaceno et al., 2019). Cultural mistrust plays a role in establishing advising relationships between advisees of color and European American advisors (Terrell & Terrell, 1981). Hence, it is reasonable to hypothesize that international doctoral students may also face cultural mistrust in the multicultural advising relationships with their advisors in U.S. academic settings. The quality and value of the multicultural advising relationship are determined by the degree of agreement on strategies for overcoming cultural differences (Thomas, 2001). The congruence of research interests between doctoral students and their faculty advisor is another aspect of perceived similarity. This idea has been examined and explored in earlier research, and many previous works emphasized the value of common interests in fostering constructive advising relationships (Barnes & Austin, 2009; Knox et al., 2006; Rice et al., 2009). Doctoral students can easily build mutual respect, trust, and understanding with their faculty advisor, who shares the same research interests with them. In addition, doctoral students thought that the mismatch of research interests is one of the reasons for changing or wanting to change advisors (Rice et al., 2009). With the same research interests, doctoral students and advisors may have more meaningful, fruitful, and efficient collaboration experience on their projects. Furthermore, they will have a positive advising relationship.

Advisor-Advisee Relationship Theories and Models

The good advisor-advisee connection is essential for doctoral students' academic outcomes, personal development, and mental health. Several theories and models, such as social exchange theory, self-determination theory, and working alliance, have explained the dynamics of this relationship. These theories and models offer a framework for comprehending the interactions, communication, and teamwork between advisors and advisees. The following part will briefly introduce two major theories and one model and explore their relevance and application to the advisor-advisee relationship in graduate-level education.

Social Exchange Theory

George Homans first proposed social exchange theory (SET) in the 1950s. This theory explains societal development and stability as a process of negotiated exchange between parties from the perspectives of social psychology and sociology (Cook et al., 2013). Homans' original idea centered on dyadic relationships, or connections between two individuals (Homans, 1958). Scholars then broadened this theory to encompass group dynamics and extensive social networks. For example, Lambe et al. (2001) proposed that social exchange could occur not only between individuals and groups but also between broader social systems such as cultures, societies, and organizations. SET posits that human relationships are established through subjective cost-benefit evaluations and by weighing alternative options, which means individuals choose to participate in relationships and social interactions where benefits outweigh the costs (Cropanzano & Mitchell, 2005). SET is one of the most significant concepts for understanding high-quality relationships (Cropanzano & Mitchell, 2005), including marital relationships (Nakonezny & Denton, 2008), workplace relationships (Chernyak-Hai & Rabenu, 2018; de Souza Meira & Hancer, 2021), and interpersonal relationships (Mitchell et al., 2012).

SET can be used to examine the advisor-advisee relationship by analyzing the connection's costs and benefits for both parties. According to SET, individuals tend to remain in relationships when the perceived benefits outweigh the costs and are likely to withdraw when the costs exceed the benefits.

Researchers have employed SET to study advisor–advisee relationships from two key perspectives: benefits and costs. From the benefit perspective, studies have examined the resources each party contributes to the relationship. Faculty advisors often offer expertise, knowledge, and access to professional networks or institutional resources that are valuable to advisees. In return, advisees may contribute fresh perspectives or assist with research projects, thereby providing intellectual or labor support.

From the cost perspective, advisors invest time and energy in mentoring and supporting advisees, which can be demanding alongside other academic responsibilities. Conversely, advisees are expected to devote significant effort to meet their advisors' expectations, including meeting deadlines, maintaining research productivity, and navigating academic pressures.

Several studies employ SET to study advising relationships or mentoring relationships in general. Olian et al. (1993) used this theory to examine the relationship between mentoring and career success. The study discovered that career success and mentoring were positively correlated and that this link was mediated by the protégé's perceptions of the benefits and costs of the mentoring relationship. Ensher et al. (2001) applied SET to examine the mentor-entrepreneur relationship in small businesses. They discovered that entrepreneurs who perceived mentoring as offering high benefits and low costs held more positive attitudes toward mentoring and were more inclined to engage in mentoring relationships. In addition, Wang et al. (2010) demonstrated the potential usefulness of SET for examining mentoring and advising interactions to investigate the mentor-protégé relationship among college students. They revealed that the protégé's perceived benefits were positively correlated with the quality of the mentor-protégé relationship. These results highlight the application of SET in understanding mentor-protégé relationships and imply that other types of advising relationships, such as those between faculty advisers and advisees, might be studied through the lens of this theory.

Self-Determination Theory

Self-Determination Theory (SDT) is a motivational theory that aims to explain why some people are more invested and motivated in their activities than others. SDT says humans have basic psychological needs for autonomy, relatedness, and competence. Autonomy is the perception that one's actions are chosen independently rather than influenced by others, and these actions are coherent with one's interests and values (Deci et al., 2013). Relatedness involves feeling liked, appreciated, and valued in a specific environment. Competence is recognized when individuals' complete tasks and interactions (Moss, 2018).

The concept of SDT was first introduced by Deci and Ryan (2013) and has since been further developed by researchers across disciplines such as psychology (Gagné & Deci, 2014) and education (Reeve, 2002). Researchers have used SDT in the context of education to investigate how different elements, like the environment in which students learn and teach, the types of instruction used, the tasks and assignments that are assigned, and the interactions between teachers and students, can either support or undermine students' psychological needs and, consequently, their motivation and engagement (Hsu et al., 2019; Reeve, 2012).

SDT has also been employed as a fundamental theory to examine how motivational components impact the process of establishing and maintaining close relationships (La Guardia, 2008; Vallerand et al., 2008). According to La Guardia and Patrick's (2008) perspective, the SDT framework offers valuable insight into the motivational basis of key relational processes, including attachment, intimacy, communality, and interdependence, and how this motivational structure contributes to predicting personal growth and development. Thus, SDT serves as a valuable paradigm for generating fresh perspectives and expanding our knowledge of the intricate interactions between relationship outcomes and motivating variables.

Previous research has employed SDT as the theoretical framework to investigate teacher-student relationships (Jungert et al., 2016; Reeve, 2012). According to SDT, individuals possess inherent psychological needs for autonomy, competence, and relatedness, which foster greater well-being and motivation. When students can express themselves, follow their interests and values, and develop positive new sources of motivation, the dialectical result of student-teacher interactions can result in synthesis, leading to increased student autonomy, engagement, and well-being. However, if controlling classroom dynamics disrupt and hinder students' autonomous involvement, synthesis will be obstructed, interpersonal conflicts will emerge, new sources of motivation will be dismissed, and less favorable student outcomes will result (Reeve, 2012).

Furthermore, research has shown that when teachers provide autonomy support to their students, students are more likely to experience greater intrinsic motivation and overall satisfaction (Deci & Ryan, 2000). Another critical dimension of the teacher-student relationship explored through the lens of SDT is competence support, which involves teachers offering resources and feedback that help students develop skills and confidence. When teachers set clear and achievable goals, present appropriately challenging tasks, and provide constructive feedback, students are more likely to feel engaged and capable of attaining their academic objectives (Pekrun et al., 2009).

Additionally, students are more likely to experience greater well-being and persevere in their goals when professors support relatedness by creating a sense of connection and belonging between themselves and their pupils (Guo et al., 2020). These results demonstrate that SDT can be used to evaluate how well students' psychological needs are being fulfilled and to identify areas where additional support may be needed to enhance their motivation and overall well-being.

Based on the above literature, SDT can be a valuable perspective to understand the form and quality of the advisor-advisee relationship by considering the extent to which advisers satisfy the core psychological requirements of autonomy, competence, and relatedness. Despite the limited research on this topic, applying SDT to the study of advising relationships may prove beneficial, as it can help identify the factors that either facilitate or obstruct both advisees and advisors in achieving optimal outcomes.

Working Alliance

The concept of the working alliance originated from the psychoanalytic tradition but was later developed across various theoretical perspectives by Bordin (Schlosser & Gelso, 2001). Bordin (1983) proposed that the three key components of a working alliance are agreement on goals, agreement on tasks, and the development of a positive therapeutic bond. Numerous studies have examined Bordin's concept of the working alliance, demonstrating that it is a reliable predictor of successful psychotherapy outcomes (Horvath & Symonds, 1991). Moreover, Bordin's theoretical framework provided the foundation for developing the Working Alliance Inventory (Horvath & Greenberg, 1989).

The working alliance concept was proposed to apply to the teacher-student relationship (Bordin, 1983). In advising relationships, the working alliance represents the relationship aspect that indicates the connection between advisor and advisee as they collaborate toward achieving shared goals. The advisory working alliance is not intended to encompass the entire advising relationship. Instead, it focuses on the part of the relationship that represents explicitly the connection formed through collaborative efforts toward shared goals (Schlosser & Gelso, 2001). Schlosser and Gelso (2001) used the Advisory Working Alliance Inventory (AWAI) to evaluate the graduate advising relationship from both advisor and advisee perspectives, and AWAI showed good internal consistency reliability. The AWAI is a concise, self-reported evaluation tool intended to appraise the advisee's subjective appraisals of the working alliance between the advisee and their faculty advisor. There are three factors in AWAI, which are rapport, apprenticeship, and identification-individuation, respectively.

Schlosser and Gelso (2001) defined these three factors. Rapport encompasses the component of the advising relationship that pertains to the advisor's provision of support and motivation to the advisee. It also denotes the segment of the emotional connection between the advisor and advisee that is established because of their collaborative efforts. The apprenticeship dimension pertains to the segment of the advising relationship where advisors facilitate the advisee's comprehension of the requirements, objectives, and procedures entailed in graduate school. Moreover, it refers to the advisor providing guidance to their advisees regarding research techniques, effective problem-solving strategies, and personal and professional growth strategies. The identification-individual dimension denotes the aspect of the advising relationship that pertains to the extent to which the advisee seeks to emulate the advisor and encompasses the admiration that the advisee may harbor towards the advisor. Schlosser and Gelso formulated two versions of the AWAI: one that assesses the advising relationship from the viewpoint of the advisor (Schlosser & Gelso, 2005) and another that gauges the relationship from the perspective of the advisee (Schlosser & Gelso, 2001). Later, many studies utilized AWAI to evaluate the advisor-advisee relationship. For instance, Primé et al. (2015) employed a student version of AWAI to evaluate the perception that women in STEM graduate programs had of their advising alliance. In addition, Rice et al. (2009) investigated foreign students' opinions on graduate advising relationships using AWAI and extra questions pertinent to international student advising.

Summary

This chapter has addressed three key areas. The first section discusses international students studying in the United States, including an overview of their population, primary countries of origin, contributions to the U.S., and the challenges they encounter. The second section explores the advisor-advisee relationship, highlighting the roles of academic advisors, the importance of these relationships, and the factors that influence them. The final section introduces theoretical frameworks that inform the advisor-advisee dynamic, with particular focus on Social Exchange Theory, Self-Determination Theory, and the concept of Working Alliance. Through this comprehensive review, the chapter lays a strong foundation for understanding both the complex experiences of international doctoral students and the critical role of advisor-advisee relationships in their academic journey.

Chapter 3 Methods

Participants

A sample of 46 (52.9%) domestic and 41 (47.1%) international students participated in this study. The study population comprised full-time doctoral students pursuing higher education in the United States with faculty advisors. Irrespective of ethnicity, gender, or race, eligible candidates were required to be at least 18 years old. Participants were enlisted via a web-based Qualtrics survey that guaranteed anonymity and was disseminated across various platforms, including Auburn University's institutional email lists, social media (Facebook and WeChat), and flyers. Before starting the survey, all participants consented to the information letter (see Appendix 2). This study received approval from the Institutional Review Board (IRB) in April 2024. The survey began in September, and the study received 105 responses by mid-October 2024.

Research Design

This study utilized a multi-phase research design, employing quantitative methods to assess students' satisfaction, rapport, apprenticeship, and identification-individuation through a Likert-scale survey. Qualitative thematic analysis was conducted separately on open-ended responses to explore differences in advisor-advisee relationships among international and domestic doctoral students. The quantitative and qualitative components were analyzed independently, providing complementary insights into the research questions.

Instruments

The survey instrument consisted of 49 items divided into four sections. Detailed descriptions of each section are provided below, with the specific item listed in Appendix 1.

The initial section of the survey included screening questions to check participants' eligibility. This part included four items, such as “Are you doctoral students?”

In the second section, participants completed the questions about satisfaction with advising relationship and AWAI-S (Rice et al., 2009; Schlosser and Gelso, 2001). Satisfaction survey adapted from Rice et al. (2009), and consisted of four items, for example: “I currently have the faculty advisor I want.” The AWAI-S consisted of 30 items categorized into three subscales to evaluate the standard of multiple essential facets of advising relationships. Schlosser and Gelso (2001) reported evidence of validity and reliability for the AWAI-S. They evaluated the internal consistency, test-retest reliability, and criterion and construct validity of this inventory. The inventory demonstrated good construct validity, as the factor structure of the scale aligned well with the theoretical constructs it was designed to measure. The AWAI-S also exhibited strong internal consistency reliability, with Cronbach's alpha values ranging from 0.77 to 0.95 for the three subscales. In addition, Rice et al. (2009) reported satisfactory two-week test–retest reliability, with Pearson correlation coefficients ranging from 0.75 to 0.92.

According to Schlosser and Gelso (2001, p. 162), 11 items are Rapport, which refers to the extent of the interpersonal compatibility between the advisor and advisee (some reserve-scored; a sample item is “My advisor does not encourage my input into our discussion”); 14 items are Apprenticeship, which means the tasks carried out within the advising relationship, and the degree to which the advisor aids in the professional development of the advisee (a sample item is “My advisor helps me establish a timetable for the tasks of my graduate training”), and five items are Identification–Individuation, measures the extent to which the advisee desires to emulate their advisor (all reverse-scored; a sample item is “I do not want to feel similar to my advisor in the process of conducting work”). Participants responded to the survey items using a

Likert-type scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*. Upon reversing the items inversely, the measure is graded based on an item metric, with scores ranging from 1 *(indicating a low alliance)* to 7 *(indicating a high alliance)*. Consequently, higher scores signified stronger rapport, more favorable task experiences and facilitation of professional growth, and a greater inclination to identify with the advisor. In the original validation study, the Advisory Working Alliance Inventory-Student version (AWAI-S) demonstrated strong internal-consistency reliability: Rapport, $\alpha = 0.84$–0.95; Apprenticeship, $\alpha = 0.85$–0.91; and Identification–Individuation, $\alpha = 0.57$–0.77 (Schlosser & Gelso, 2001).

The third section of the survey asked respondents to provide demographic information, including their country of origin, gender, age, and sources of financial support during graduate school. Additional items addressed the duration of their advising relationship with their current advisor(s), the typical number of hours spent per week engaging in academic and non-academic discussions, and whether they had changed advisors since beginning their program. This section also included questions about how the advising relationship was initially established—for example, whether the advisor was assigned, selected after program admission, matched before entry, or changed after the initial assignment ended (Rice et al., 2009).

The final section of the survey consisted of four open-ended questions with no restrictions on response length. Adapted from Rice et al. (2009), these questions allowed participants to provide narrative responses. The four questions were:

1. What (if any) are the concerns you have in your current relationship with your advisor?
2. If you could help your advisor to improve her/his advising, what suggestions would you make?

3. Have you changed your advisor? If yes, please indicate up to three reasons for changing your advisor.
4. If a new Ph.D. student joins your program, what advice would you offer regarding the selection of an advisor?

Data Collection

The population in this study consisted of 87 doctoral students, with 41(47.1%) international and 46 (47.1%) domestic students. The inclusion criteria for this study focused on doctoral students with faculty advisors, irrespective of their gender, ethnicity, age, nationality, and study programs or departments. To protect the anonymity of the participants, the survey was administered through a web survey tool, Qualtrics, which ensured a secure environment for data collection. Participants' responses were de-identified by assigning a unique code to each participant. Any personally identifiable information was stored separately from the main dataset and not used during data analysis. Additionally, the research invitation email was sent through the institutional email list of Auburn University Graduate School, emphasizing the anonymous nature of the survey. Research flyers with the QR code of the survey link and introduction posted in the main teaching buildings at Auburn University (Haley Center, Shelby Center, and Parker Hall) and on social media (Facebook and WeChat).

Participants accessed the Qualtrics link or scanned the QR code provided in the recruitment materials, which included an information letter. Before beginning the anonymous survey, they were required to answer screening questions to confirm that they agreed with the information letter and were 18 years of age or older. If participants met the eligibility criteria, the remaining survey questions were displayed; otherwise, the survey was terminated. The survey was launched on May 11, 2024, following approval from the Institutional Review Board (IRB).

All responses were recorded and stored on the password-protected Qualtrics platform to ensure the confidentiality and security of the participants' data. Access to the data was strictly limited to the research team. After data collection, the dataset was downloaded and securely stored using the Horizon Auburn VPN Client, which ensured that only authorized individuals had access to the information, thereby safeguarding participant privacy.

In compliance with Auburn University's requirements, the researcher completed the Collaborative Institutional Training Initiative (CITI Program), including modules on Defining Research with Human Subjects, Social and Behavioral Emphases, Internet Research, and AU Basic RCR Training for All Faculty, Staff, Postdocs, and Students. This study received approval from Auburn University's Institutional Review Board for the Protection of Human Subjects in Research (IRB), under protocol number 24-859 EX 2405.

Data Analysis

Preliminary Analysis

Before analysis, all responses were screened for data-entry accuracy, missing values, and distributional assumptions. Quantitative analyses were conducted with IBM SPSS Statistics (Version 27), a widely used package that provides efficient data management and robust statistical procedures. Mean substitution was applied when a respondent had fewer than three missing items across all scales; respondents with three or more missing items were removed. Of the 105 surveys returned, 87 met the inclusion criteria, yielding a usable-response rate of approximately 83 % (87/105).

Internal-Consistency Reliability Assessment

To evaluate the extent to which the items within each subscale function cohesively, internal-consistency reliability was examined with Cronbach's alpha (α) in IBM SPSS Statistics

27. Cronbach's alpha estimates the average inter-item correlation and is widely regarded as an appropriate index when items are scored on Likert-type scales (Tavakol & Dennick, 2011). Following conventional guidelines, values of $\alpha \geq 0.70$ were considered acceptable, ≥ 0.80 good, and ≥ 0.90 excellent for research purposes (Nunnally & Bernstein, 1994). For each subscale (Satisfaction, Rapport, Apprenticeship, and Identification–Individuation), SPSS produced (a) the overall alpha coefficient, (b) item-total correlations, and (c) "alpha if item deleted" diagnostics. Items that displayed corrected item–total correlations below 0.30 or whose removal increased the subscale's alpha by more than 0.02 were earmarked for closer inspection and potential modification. Reporting these coefficients provides evidence that the retained items reliably capture a single latent construct prior to subsequent statistical analyses.

Multivariate Analysis of Variance (MANOVA)

This study employed multivariate analysis of variance (MANOVA) as the primary data analysis technique to examine potential differences between international and domestic doctoral students' perceptions of the advisor-advisee relationship. MANOVA was chosen because the study involved multiple interrelated dependent variables (satisfaction, rapport, apprenticeship, and identification-individuation), which were theoretically and empirically linked. By considering these dimensions simultaneously, MANOVA reduces the risk of Type I error and offers a more comprehensive understanding of group differences.

Upon obtaining a significant multivariate result, subsequent univariate ANOVAs were performed to determine the specific dependent variables accounting for the observed group differences. In addition, effect sizes were calculated using partial eta squared (η^2) to interpret the magnitude of the observed effects, with values of .01, .06, and .14 representing small, medium, and large effects, respectively (Cohen, 1988). This multi-step approach enabled a deeper and more statistically rigorous understanding of how international and domestic doctoral students differ in their perceptions of the advisor-advisee relationship.

Researcher positionality

Before conducting the thematic analysis, it is essential to acknowledge the researcher's positionality. As an international doctoral student, the researcher shares similarities with part of the participant group, which offers unique insights into the challenges faced by international students. However, the researcher remained vigilant of potential biases that could influence the coding and interpretation processes. Reflexive practices were employed throughout the data analysis, including maintaining a research journal and regular self-questioning. The researcher documented initial thoughts and potential biases, reflected on why particular codes were salient, and considered whether personal experiences as an international student might have shaped the interpretation.

Thematic Analysis

Thematic analysis is a widely recognized and rigorous approach that involves identifying and analyzing patterns or themes within the data (Braun and Clarke, 2006). Thematic analysis systematically examines the qualitative data obtained from the open-ended questions. To facilitate this process, the researcher utilized NVivo 15, a robust qualitative data analysis software that aided in organizing, coding, and interpreting the data consistently and efficiently. The thematic analysis was conducted through six phases based on the guidance from Braun and Clarke (2006), including familiarizing with the data, generating initial codes, developing a coding scheme, assigning codes to relevant text segments, defining the themes, and refining themes based on emerging patterns. I maintained a reflexive and critical approach throughout the thematic analysis process, continually revisiting and adjusting the coding scheme and interpretation to accurately represent the respondents' viewpoints.

Two strategies were employed to ensure the credibility and dependability of the thematic analysis. A code-recode strategy was applied to assess dependability. The researcher recoded the same data after a certain period (e.g., two weeks) to ensure consistency in the coding approach (Miles et al., 2014). Then the researcher compared the initial codes and the recoded data to assess the level of consistency between the two sets of codes. This can be done using percentages of agreement or statistical measures such as Cohen's Kappa, which considers the possibility of agreement occurring by chance (McHugh, 2012). Suppose the level of consistency between the initial and recoded data is high (e.g., a minimum threshold of 70% agreement or a Kappa value of 0.70 or above). In that case, it suggests that the coding process is reliable (Campbell et al., 2013).

Then, the research employed content validity to assess the credibility of four open-ended questions, starting by reviewing the existing literature and theories related to the research topic. These four open-ended questions came from the study of Rice et al. (2009). Next, the researcher engaged with the dissertation committee members, experts in the research area, to review and provide feedback on the open-ended questions. Based on the feedback, a pilot study was conducted with a small representative sample to assess the open-ended questions’ clarity, relevance, and appropriateness. By gathering feedback from the pilot participants regarding the wording, phrasing, and understandability of the questions, the researcher made necessary revisions based on their input.

Chapter 4 Results

The purpose of this study was to examine the differences in the advisor-advisee relationship between international and domestic doctoral students in terms of satisfaction, rapport, identification-individuation, and apprenticeship. Additionally, the study explored students' perceptions of their experiences within these relationships. This chapter presents the study's findings, including demographic information, preliminary analyses, confirmatory factor analysis, exploratory factor analysis, the quantity and satisfaction of advising relationships, and qualitative insights.

Demographic Information

Participants in this study were full-time doctoral students in the United States who had faculty advisors. A survey invitation with a Qualtrics survey link was distributed to doctoral students at Auburn University through the graduate school email listserv. A total of 105 responses were recorded in Qualtrics. After reviewing the data, 18 responses were excluded due to incompleteness, leaving a total of 87 valid responses for inclusion in the final analysis, resulting in a completion rate of approximately 82.9%. There were 46 (52.9%) domestic and 41(47.1%) international doctoral students who participated in this study. To provide context for the sample, Table 1 summarizes the demographic background of the participants involved in the study.

Table 1

Demographic Features of Participants (N = 87)

	Groups	*n*	Percentage (%)
Student type	International doctoral student	41	47.1%
	Domestic doctoral student	46	52.9%
Gender	Male	31	35.6%
	Female	54	62.1%
	Prefer not to say	2	2.3%

Age	18-29	41	47.1%
	30-39	30	34.5%
	40-49	13	14.9%
	50-59	3	3.5%
Doctoral year	First year	7	8.0%
	Second year	11	12.6%
	Third year	21	24.1%
	Fourth year	21	24.1%
	Fifth year or beyond	27	31.0%
Field of study	STEM	33	37.9%
	Non-STEM	54	62.1%
Ethnicity	Caucasian	36	41.4%
	Asian	34	39.1%
	African American	4	4.6%
	African	3	3.4%
	Mix/Multiple Ethnicities	2	2.3%
	Hispanic or Latino	1	1.5%
	Middle Eastern	1	1.5%
Change of faculty advisor	No	72	82.8%
	Yes	15	17.2%
Initial advisor association	Selected by me after program admission	27	31.0%
	Matched with me before program entry	26	29.9%
	Assigned by the program upon admission	19	21.8%
	Switched to after concluding an initial advising assignment.	9	10.3%

Note. N = 87. Percentages are calculated based on the total number of participants. STEM fields include science, technology, engineering, and mathematics disciplines. Percentages may not sum to 100% due to rounding

The respondents included 46 (52.9%) domestic doctoral students and 41 (47.1%) international doctoral students. There were more female participants (n = 54, 62.1%) than male participants (n = 31, 35.6%), and more non-STEM participants (n = 54, 62.1%) than STEM participants (n = 33, 37.9%). The majority of participants were aged 18-29 years (n = 41, 47.1%), followed by those aged 30-39 years (n = 30, 34.5%). Participants aged 40-49 years represented 14.9% of the sample (n = 13), and a small proportion were 50-59 years old (n = 3, 3.5%). The sample included participants from all stages of their doctoral studies. The majority were in their fifth year or beyond (n = 27, 31.0%), with equal proportions in the third and fourth years (n = 21, 24.1% each). Students in their second year represented 12.6% (n = 11), while

8.0% (n = 7) were in their first year. Participants' ethnic backgrounds were diverse, with Caucasian (n = 36, 41.4%) and Asian (n = 34, 39.1%) students representing the majority. Smaller groups included African American (n = 4, 4.6%), African (n = 3, 3.4%), Mixed/Multiple Ethnicities (n = 2, 2.3%), Hispanic or Latino (n = 1, 1.5%), and Middle Eastern (n = 1, 1.5%) participants. Regarding advising experiences, most participants (n = 72, 82.8%) reported not changing their faculty advisor, while a smaller portion (n = 15, 17.2%) indicated they had. The initial association with their faculty advisors varied, with the largest group selecting their advisor independently after program admission (n = 27, 31.0%), followed closely by those who were matched with an advisor before program entry (n = 26, 29.9%), and those assigned an advisor by the program upon admission (n = 19, 21.8%). A smaller group of participants (n = 9, 10.3%) switched advisors after concluding an initial advising assignment.

Preliminary Analysis

The survey results were downloaded from Qualtrics as Excel files. The dataset included 105 responses. The data cleaning and screening procedures involved assessing the dataset for missing values, unengaged responses, and outliers, as well as removing responses that failed the attention check questions to ensure data quality and reliability. The downloaded dataset was imported into SPSS 27.0 for further analysis. Frequency tests revealed the extent of missing values for each variable. For items with Likert-scale responses, missing values within a row were replaced with the median, as the mean was less appropriate in these contexts (Lynch, 2007). Boxplots were used to detect outliers because the sample size was relatively small. Extreme outliers were marked and deleted, as they tend to have more influence on the results in smaller datasets compared to the larger ones (Osborne & Overbay, 2019).

The 105 returned surveys were screened for data quality before statistical analysis. Six cases exhibiting "straight-line" responding (item-level $SD = 0$) were deleted. To detect additional extreme observations, the researcher generated two diagnostic plots in IBM SPSS Statistics (Version 27): (a) boxplots of each composite score to identify univariate outliers, and (b) standardized-residual-versus-fitted scatterplots to detect multivariate extremes. Following Field's (2018) guidelines, observations were flagged as potential outliers if they simultaneously (a) lay outside $\pm 1.5 \times IQR$ in the boxplot and (b) had standardized residuals exceeding $|3.0|$. Visual inspection confirmed 12 unduly influential questionnaires, which were removed. Combined with the six straight-line cases, 18 surveys were excluded, leaving 87 usable responses, a usable-response rate of 82.9 % (87 / 105).

This study used multiple items to measure four variables: Satisfaction, Rapport, Apprenticeship, and Identification-Individuation. Given that individual item responses were typically ordinal categorical data, conducting normality tests directly on them may not be appropriate (Agresti, 2010). However, when the scores of multiple related items are aggregated (e.g., by computing total or mean scores), the resulting distribution is more likely to approximate normality due to the Central Limit Theorem (Harpe, 2015). Preliminary screening included Shapiro–Wilk tests of normality and Levene's tests of homogeneity of variances on each composite score. Normality was violated for Satisfaction ($p = .045$), Rapport ($p = .002$), and Identification-Individuation ($p = .029$), whereas Apprenticeship met the assumption ($p = .230$). Levene's test indicated unequal variances for Satisfaction ($p = .040$) and Rapport ($p = .003$); Apprenticeship ($p = .804$) and Identification-Individuation ($p = .230$) satisfied the homogeneity assumption.

Despite these violations, MANOVA is generally considered robust to moderate deviations from univariate normality and variance homogeneity, particularly when group sizes are similar (Tabachnick & Fidell, 2021). Therefore, a one-way MANOVA was conducted to compare international and domestic students across the four subscales. Box's M test revealed a significant violation of the homogeneity of covariance matrices ($p = .002$); consequently, Pillai's Trace was used instead of Wilks' Lambda, as it is more robust under such conditions. No additional transformations or corrections were applied, as the analytic approach incorporated robust statistics where appropriate. Follow-up univariate ANOVAs were conducted to identify the subscales contributing to the overall multivariate effect.

Internal-Consistency Reliability Analysis

The internal consistency reliability of each subscale was assessed using Cronbach's alpha. The results indicated that all four subscales demonstrated good to excellent reliability. Specifically, the Satisfaction subscale yielded a Cronbach's alpha of .868, the Rapport subscale .957, the Apprenticeship subscale .914, and the Identification-Individuation subscale .834. These values suggest that each subscale reliably measured its intended construct.

Quality of and Satisfaction with Advising Relationship

A one-way MANOVA was conducted to examine potential differences between international and domestic doctoral students on four advisor-advisee relationship subscales: Satisfaction, Rapport, Apprenticeship, and Identification-Individuation. Before the analysis, Box's M test indicated that the assumption of homogeneity of covariance matrices was violated (Box's M = 29.690, $p = .002$). Therefore, Pillai's Trace was used as the multivariate test statistic due to its robustness under such violations.

The multivariate result was statistically significant, Pillai's Trace = 0.141, $F(4, 82) = 3.377$, $p = .013$, partial $\eta^2 = 0.141$, indicating that overall advisor-advisee relationship perceptions differed significantly between domestic and international students.

Follow-up univariate ANOVAs revealed that domestic doctoral students reported significantly higher levels of Rapport ($F(1, 85) = 6.106$, $p = .015$, $d = .63$) and Identification-Individuation ($F(1, 85) = 5.170$, $p = .026$, $d = .52$) than international students. No statistically significant differences were found in Satisfaction ($F = 1.646$, $p = .203$) or Apprenticeship ($F = 0.015$, $p = .902$). Table 2 presents the results of the MANOVA, including associated effect sizes, to illustrate the extent and significance of group differences across the dependent variables.

Table 2

MANOVA Results with Effect Sizes

Variable	Mean (*SD*) for International Doctoral Students	Mean (*SD*) for Domestic Doctoral Students	$F(1, 85)$	p-value (Sig.)	Partial η^2
Satisfaction	4.90 (1.42)	5.20 (1.40)	1.646	.203	.019
Rapport	5.16 (1.30)	5.93 (1.11)	6.106	.015*	.067
Apprenticeship	4.84 (1.28)	4.86 (1.27)	.015	.902	.000
Identification-Individuation	4.18 (1.15)	4.77 (1.13)	5.170	.026*	.057

Note. $p < .05$ indicates statistical significance. Mean (*SD*) values are reported for each group. p values marked with an asterisk (*) indicate statistically significant differences.

Qualitative Analysis

This study included four open-ended questions in the survey to explore the perceptions of international and domestic doctoral students' experiences with faculty advisors. A total of 87 participants completed the survey, with 72 responding to at least one open-ended question.

Thematic analysis was conducted on the 72 participants with qualitative data, while the remaining 15 were excluded from this analysis due to non-response to all open-ended questions. The characteristics of participants are shown in Table 3.

Table 3

Characteristics of participants

	Groups	N	Percentage %
Student type	International doctoral student	34	47.2%
	Domestic doctoral student	38	52.8%
Gender	Male	24	33.3%
	Female	47	65.3%
	Prefer not to say	1	1.4%
Age	18-29	38	52.8%
	30-39	22	30.6%
	40-49	11	15.3%
	50-59	1	1.4%

Note. N = 72. Percentages are calculated based on the total number of participants who complete at least one open-ended question. Percentages may not sum to 100% due to rounding

Table 4 provides an overview of the response rates for each open-ended question, highlighting the distribution of responses between international and domestic doctoral students. Most participants responded to at least one open-ended question, with the highest response rate for the question on advice for new students (80%) and the lowest for reasons for changing advisors (24%).

Table 4

Response Rates and Distribution of Open-Ended Questions by Student Type

Question	Responses (*n*/72, %)	International doctoral students *n* (%)	Domestic doctoral students *n* (%)
Q1: Please describe any concerns you have in your current relationship with your faculty advisor.	60/72 (83.3%)	35 (58.3%)	25 (41.7%)
Q2: If there are ways you believe your faculty advisor could improve their advising approach or methods.	55/72 (76.4%)	30 (54.5%)	25 (45.5%)

Q3: What reasons that influenced your decision to change faculty advisor?	21/72 (29.2%)	15 (71.4%)	6 (28.6%)
Q4: if a new Ph.D. student joins your program, what advice would you offer regarding the selection of a faculty advisor?	70/72 (97.2%)	40 (57.1%)	30 (42.9%)

Note: Response rates are calculated based on the 72 participants who provided at least one response to the open-ended questions.

I conducted line-by-line coding using NVivo 15, and I employed an inductive approach, allowing codes to emerge directly from data rather than being pre-determined by existing theories. To ensure the dependability of the thematic analysis, I employed a code-recode procedure, as described in Chapter 3. Specifically, I recoded the same dataset after an interval of two weeks. Then, I compared the recoded data to my initial coding to evaluate the consistency between the two coding rounds. The agreement between the initial and recoded data was calculated using Cohen's Kappa statistic, which measures inter-rater reliability by accounting for agreement occurring by chance. The formula used for calculating Cohen's Kappa (κ) is:

$$\kappa = \frac{P_o - P_e}{1 - P_e}$$

where P_0 refers to the proportion of observed agreement and P_e represents the proportion of agreement expected by chance. The results showed an overall percentage of agreement of 84.92%, and the Cohen's Kappa value was 0.76, indicating a high level of dependability and conscience in the coding process, well above the commonly accepted threshold of 0.70.

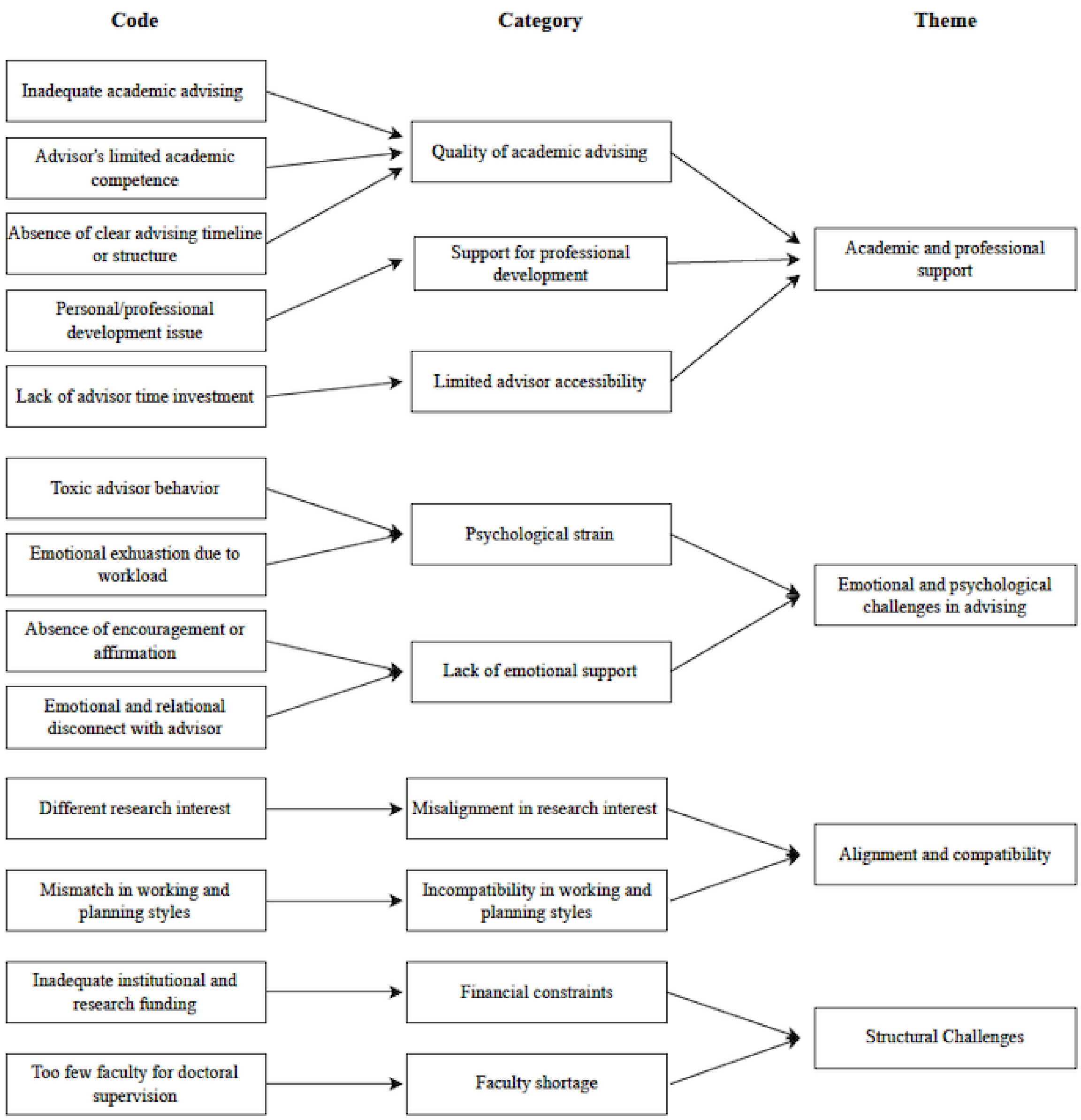
Following Braun and Clarke's (2006) thematic-analysis guidelines, I treated the responses to all four open-ended prompts as a single data corpus because each prompt elicited reflections on the same overarching phenomenon, which is doctoral advising experiences. Combining the questions was warranted for two reasons. First, the prompts showed conceptual coherence: participants often linked their current concerns (Q1), desired improvements (Q2), reasons for changing advisors (Q3), and advice to newcomers (Q4) within the same narrative, indicating that the questions tapped a common construct rather than four discrete topics. Third, aggregation ensured data sufficiency and saturation**.** The merged dataset yielded $N = 183$ meaning units, and no new codes emerged after the 152nd unit; by contrast, Q3 alone (21 responses) did not reach saturation.

Related codes were grouped into clusters after merging and refining the overlapping and redundant codes. Candidate themes were continuously reviewed and considered valid if they demonstrated internal homogeneity, external heterogeneity, relevance to the research questions, and adequate supporting data. As the process progressed, five themes emerged: a) academic and professional support; b) emotional and psychological challenges in advising; c) alignment and compatibility; d) structural challenges. The coding process of themes is shown in Figure 1. This flowchart shows how individual codes, such as “Inadequate academic advising” and “Toxic advisor behavior,” are grouped into categories like “Quality of academic advising” and “Psychological strain,” which then roll up into higher-level level

themes such as “Academic and professional support” and “Emotional and psychological challenges in advising.”

Figure 1

Coding Process for Themes



Academic and Professional Support

There was a strong theme that both international and domestic doctoral students need academic and professional support during their studies with their faculty advisor. The theme of academic and professional support reflects participants' experiences regarding the quality, availability, and scope of guidance their faculty advisor provides. Both international and domestic doctoral students (21 participants) reported that they hoped their faculty advisor would give specific, effective, clear, and sufficient advising, which would promote their academic and professional development. Fifteen students expressed their concerns about the quality of academic advice they received. They noted that their faculty advisor's guidance was inconsistent, vague, or insufficiently informed. Some students felt that their faculty advisor lacked expertise in their research area (e.g., "I'm worried that my advisor lacks the basic knowledge of what we're trying to do, it's a new area, and he is giving me the wrong advice and directions"). Others expressed a need for more structured and proactive mentorship to support their academic progress and professional development. One participant explained:

> Walking me through the process of graduate school/my specific program or providing an overview/orientation, stating clear expectations, providing information on research and professional development opportunities when made aware of them (this can also include general resources), etc.
>
> (Domestic student, Male, Age 30-39)

Six international students highlighted the importance of having advisors who can offer a clear academic plan. They stressed that such guidance was especially crucial during their first year, as it offered a roadmap for navigating their doctoral study. An international student described:

> [My faculty advisor] should have a clear plan for how to educate the students to graduate. If students failed in any paper submissions or encountered any progress left behind, the

advisor should be patient and helpful. The advisor should be able to help find a solution and plan via insightful discussion.

(International students, Female, 40-49)

Concerns about unclear and inconsistent academic guidance were also raised by both international and domestic students. One participant described shifting requirements as especially frustrating, particularly when previous agreed-upon plans were changed without a clear rationale.

[My advisor] does not remember agreements and goes back on his word when things like classes are waived and changes requirements. Does not communicate requirements well, easily misunderstanding. He has many ideas, but does not do a good job of narrowing down the focus of the research to a manageable size.

(Domestic student, Female, Age 30-39)

Sixteen participants noted a perceived lack of advisor time investment in their academic work. They felt that their faculty advisors were limited in their engagement in their study progress, and they received less regular and sustained guidance. One international student shared:

I don't think my advisor has time for his grad students. He helps as needed, but I am primarily self-directed in all of the work that I have done. He is only marginally knowledgeable about what my aspirations and research objectives are.

(International student, Female, Age 18-29)

Another participant described a similar experience during a critical stage of the doctoral journey: “He has left me mostly on my own to write my dissertation, and I am googling how to do things.”

Emotional and Psychological Challenge in Advising

In addition to academic and professional concerns, many participants, especially international doctoral students, described emotional and psychological challenges within their advising relationships. These difficulties were related to faculty advisors’ inappropriate behaviors, excessive pressure, and the absence of emotional support. Two key categories emerged: psychological strain caused by toxic advisor behavior and heavy workload, and a perceived lack of emotional connection or affirmation from advisors.

Fifteen international doctoral students and two domestic doctoral students reported experiencing psychological stress as a result of their faculty advisors’ behavior and expectations. They described feeling disrespected, micromanaged, or pressured in ways that negatively affected their mental well-being. An international participant shared: “[My advisor] threatened to fire me if I do something where he disagrees—even if I am suggesting the right protocol or trying to reduce errors in data collection.”

Participants also noted a sense of power imbalance in the advisor-advisee relationship. They perceived their faculty advisors as treating them as mentees, but as subordinates undeserving of basic respect. Their responses reflected a need for a more equitable advising relationship. For instance: “When criticizing, be constructive. If the writing lacks in any way, show examples of how it can be improved. If the problem remains, sit down and talk it through and actively write together to show the way.”

In addition to interpersonal strain, students also described emotional exhaustion stemming from overwhelming workloads. Some felt that the quantity or intensity of tasks assigned by their advisors exceeded what was reasonable, often without sufficient support (e.g., "Expected to work day and night, including weekends").

In contrast to the direct psychological pressure, some participants highlighted a more subtle but equally impactful issue: the lack of emotional connection and positive reinforcement from their advisors. Students described feeling emotionally disconnected, unacknowledged, or consistently criticized without encouragement. For instance:

> She never says hello to me in the mornings, and the only advice I seem to get is criticism like: 'this paper is soulless,' or she is seriously worried that I 'don't understand what I'm doing.
>
> (International student, Male, Age 30–39)
>
> If students failed in any paper submissions or encountered any progress left behind, the advisor should be patient and helpful. The advisor should be able to help find a solution and plan via insightful discussion.
>
> (International student, Female, Age 40-49)
>
> I would also appreciate if my faculty advisor would be a little more understanding and compassionate and communicate with me in a way that does not make me feel like I am constantly waiting for an outburst or the other shoe to drop.
>
> (Domestic student, Female, Age 18-29)

Another participant shared a sense of isolation and abandonment in their academic environment:

> I am a bit of an orphan in my department in that one professor I was working with was a toxic individual that I transitioned away from, and the other professor I was working with

left the university.

(International Student, Male, Age 30–39)

Misalignment in Research Interest and Career Trajectory

Thirteen participants emphasized the importance of alignment and compatibility in the advisor-advisee relationship. This theme encompassed academic alignment, such as shared research interests, interpersonal compatibility, and differences in work habits and planning styles. When alignment was lacking, students described reduced satisfaction with their advising relationship.

Several participants expressed that a lack of shared research interests with their faculty advisor negatively impacted their academic experience and motivation (e.g., "We have different research interests, and it is making my graduate studies regrettable."). Beyond academic focus, students also highlighted a mismatch in work habits. Differences in how advisors and students preferred to plan, organize, or carry out tasks often created confusion or stress. One participant described:

> I have known my advisor for some time, so I am aware of differences in our approach—I prefer a big picture approach but with a detailed, clear path; my advisor is more fluid in their approach, which leaves me feeling unorganized.
>
> (International Student, Female, Age 30–39)

These differences in working and planning styles may not be inherently problematic, but when not acknowledged or negotiated, they can undermine the efficiency and satisfaction of the advising relationship.

Structural Challenges

Nine participants highlighted systemic or institutional barriers that shaped their advising experiences. These structural challenges included limited access to research funding, insufficient lab resources, financial assistance for doctoral study, and an overall lack of faculty available to support doctoral students adequately. In some cases, the lack of funding led students to change faculty advisors or leave research groups. One participant shared:

> My previous advisor is a gem of a person, extremely knowledgeable and a thorough human being. I would have never left that lab had it not been for the lack of interest on the advisor's part since the advisor was moving on to other things in life and the lab was not on their priority list. There was no research funding and no advanced equipment in the lab to conduct meaningful research.
>
> (Domestic student, Male, Age 30–39)

Another structural barrier mentioned by participants was the shortage of available faculty members for doctoral supervision. In programs with limited staffing, students expressed concern about whether they could receive sufficient support and guidance from their faculty advisors. One international student explained: “My advisor is currently the only faculty member for my program. I am concerned about his ability to provide adequate attention to me and my peers.”

These examples illustrate how structural constraints can significantly affect doctoral students’ advising experiences, regardless of their faculty advisor’s intentions or advising expertise. When institutional support systems are lacking, even well-meaning faculty members may struggle to provide adequate mentorship. As a result, doctoral students may encounter substantial barriers to academic progress.

Chapter 5 Discussion and Conclusion

Overview

This chapter presents a comprehensive discussion of the findings from a multi-phase study that explored advisor-advisee relationships among doctoral students in the United States. The study examined whether differences existed between international and domestic students in terms of satisfaction, rapport, identification-individuation, and apprenticeship within the advising relationship. A qualitative component was integrated into the research design through four open-ended survey questions, which were intended to explore how doctoral students described their advising experiences. By examining both statistical differences and qualitative feedback, the study aimed to gain a deeper understanding of how advising relationships were experienced and what students needed from their advisors.

This chapter interprets the results by considering the previous literature and identifying implications for doctoral advising practice. In addition, it addresses the study's limitations and offers recommendations for further research to build on these findings.

Discussion of Quantitative Findings

The quantitative phase of this study examined the differences in doctoral advising experiences between international and domestic students across four dimensions: satisfaction, rapport, apprenticeship, and identification-individuation. This study used one-way multivariate analysis of variance (MANOVA) to reveal a significant overall effect of student type on the combined set of advisor-advisee relationship variables, Pillai's Trace = 0.141, $F(4, 82) = 3.38$, $p = .013$, partial $\eta^2 = .14$. Follow-up univariate ANOVAs indicated that the multivariate difference was driven by two subscales: Rapport ($F(1, 85) = 6.11$, $p = .015$, $d = .63$) and Identification–Individuation ($F(1, 85) = 5.17$, $p = .026$, $d = .52$). Domestic doctoral students reported moderately higher rapport with their advisors and more substantial alignment with their advisors' professional identities than did their international peers. These findings suggest that domestic doctoral students may feel more connected to their advisors both interpersonally and in terms of modeling or aligning with academic identity. However, no significant difference were found between the two groups in overall satisfaction with the advising relationship (($F(1, 85) = 1.65$, $p = .203$)) or perceptions of apprenticeship ($F(1, 85) = 0.02$, $p = .902$), indicating that both international and domestic doctoral may receive comparable levels of academic guidance and similar overall satisfaction with their advising relationships. These results may reflect shared experiences between the two groups in areas such as academic progress, degree support, and advisor availability.

These results are consistent with existing literature emphasizing the interpersonal and cultural challenges international students face in the United States' higher education. As noted by Hughey (2011) and Nguyen (2013), international students may struggle to build rapport with advisors due to language barriers, cultural differences in communication styles, and unfamiliar academic expectations. The significantly lower identification-individuation scores among international students support Rice et al.'s (2009) findings that international advisees may find it more difficult to see their advisors as role models or to feel inspired by them, potentially due to perceived cultural distance or lack of shared background. Furthermore, the literature on perceived similarity (Damaceno et al., 2019; Schlosser et al., 2011) also helps explain these results. When students perceive greater cultural, academic, or interpersonal similarity with their advisor, they are more likely to feel emotionally connected and personally invested in the advising relationship. Domestic students, sharing more common cultural norms and communication practices with faculty advisors, may find it easier to build such connections. In contrast, international students, particularly those from collectivist cultures, may expect more structured, emotionally supportive, and hierarchical relationships (Yan & Berliner, 2011). This leads to mismatched expectations with faculty advisors who emphasize autonomy and independence. The lack of significant group differences in satisfaction and apprenticeship aligns with research emphasizing the consistent academic roles of faculty advisors for program guidance, research support, and degree planning (Lonn et al., 2012; McGill et al., 2020). These structural and task-oriented aspects of advising relationships are likely more standardized within programs, contributing to similar ratings between groups in these areas.

In summary, the quantitative findings indicate that while international and domestic doctoral students report comparable levels of academic support and overall satisfaction in their relationships, domestic students tend to report higher levels of rapport and identification with their advisors. These results are consistent with previous studies on advising relationships and may reflect differences in cultural expectations, communication styles, and relational dynamics across student groups.

Discussion of Qualitative Findings

The qualitative data revealed four major themes that shaped doctoral students' advising experiences: 1) academic and professional support, 2) emotional and psychological challenges in advising, 3) alignment and compatibility, and 4) structural challenges. These themes emerged across responses from international and domestic doctoral students, highlighting shared expectations for advisor support and common barriers to effective advising.

Participants frequently emphasized the importance of academic and professional support, including effective academic advising, meaningful assistance in preparing for future careers, and consistent access to their faculty advisors. When faculty advisors were perceived as disengaged, difficult to reach, lacking the ability to provide effective guidance, or unhelpful in career planning, students described frustration and dissatisfaction with the advising relationship. Several students also noted the absence of a clear advising timeline, which led to confusion and delayed academic progress.

The theme of emotional and psychological challenge reflected the strain that advising relationships could place on students' emotional well-being. Feelings of stress, discouragement, and emotional neglect often relate to their faculty advisors' behavior, such as harsh criticism or emotional unavailability. While both international and domestic doctoral students discussed emotional strain, this theme was more prevalent among international doctoral students; 15 out of 17 participants who reported psychological stress were international.

The third theme, alignment and compatibility, centered on whether students felt their advisor's working style and research direction aligned with their own. When alignment was present, students described the advising relationship as smoother and more motivating. In contrast, mismatches in goals or work style often resulted in limited productivity, a loss of direction, reduced motivation, or even the decision to change advisors.

The fourth theme, structural challenges, included institutional or departmental factors that limited students' access to effective advising support. These included a shortage of available faculty advisors and a lack of financial resources to support doctoral students.

Taken together, these themes demonstrate that doctoral students assess their advising relationships not only in terms of academic support, but also through emotional, relational, and structural dimensions. These patterns can be further understood through the lens of Social Exchange Theory (SET), which offers insights into how students evaluate the costs and benefits of their advising experiences.

SET suggests that individuals assess their relationships by weighing perceived rewards and costs (Cropanzano & Mitchell, 2005). When the perceived benefits of a relationship outweigh the costs, individuals are more likely to view the relationship as positive and sustaining. In advising, rewards may include support, respect, and academic guidance, while costs may involve stress, neglect, or emotional strain. In the context of this study, the theme of academic and professional support highlights a form of "relational reward" that students expected from their advisors but often found lacking. Many participants desired clearer academic guidance, professional development support, and more consistent access to their advisors. However, when these anticipated forms of support were not provided, students described feeling unsupported. From the perspective of SET, these unmet expectations illustrate an imbalance in the advisor-advisee relationship, where students' continued investment of time and emotional energy was not met with equivalent relational benefits.

Similarly, the theme of emotional and psychological challenges illustrates another dimension of "costs" students experienced in their advising relationships. Participants described experiences of emotional neglect, verbal threats, and a lack of encouragement or affirmation. From a SET perspective, these behaviors diminish the perceived value of the relationship and increase its psychological cost. For international students, especially, the absence of empathy, recognition, or positive reinforcement was perceived not only as a lack of reward but as an emotional burden, exacerbating feelings of vulnerability and isolation. As the emotional costs of the relationship increased and were not offset by relational or academic benefits, students' dissatisfaction intensified, and their motivation and sense of belonging were negatively affected.

Participants also described challenges related to alignment and structural constraints, both of which further disrupted the perceived balance in the advising relationship. Misalignment between students and their faculty advisors, including differences in academic focus, advising approach, or professional goals, was a recurring theme in participants' reflections and was often linked to relational strain. From the lens of SET, these mismatches reduced the perceived value of the advising relationship, as students struggled to receive mentorship that felt relevant, motivating, or collaborative. When the advisor's expectations or direction conflicted with the student's academic or professional trajectory, the relationship often felt unproductive or emotionally draining. In some cases, students reported reduced motivation, shifting their research direction, or even changing advisors entirely. At the same time, structural challenges such as limited faculty availability and insufficient funding compounded these relational difficulties. These structural barriers further limited the potential "rewards" students could obtain from the relationship, regardless of their level of effort or engagement.

While each theme represents a distinct aspect of the advising relationship, participants' responses suggest that these dimensions often interact and reinforce one another. For example, the absence of academic and professional support was frequently linked to emotional and psychological strain, particularly when students felt they had no one to turn to for guidance or encouragement. Similarly, misalignment in working styles or research direction not only limited the effectiveness of the relationship but also contributed to emotional fatigue and, in some cases, decisions to change advisors. Structural challenges, such as limited advisor availability and funding shortages, further compounded these issues by constraining access to timely support or alternative mentorship. Taken together, these themes reveal a layered and interconnected advising experience, where challenges in one area can intensify difficulties in others, especially for international doctoral students navigating multiple sources of vulnerability.

Implications

The findings of this study have important implications for faculty advisors, doctoral program administrators, and prospective doctoral students. By highlighting key relational and structural dynamics that influence doctoral advising experiences, the study offers actionable insights for improving advising practices and doctoral student outcomes.

This study underscores the critical role faculty advisors play in guiding students' academic progress and shaping their emotional well-being and sense of belonging. Many participants desired more consistent academic feedback, more precise guidance, and stronger mentorship in professional development. To improve advising relationships, faculty advisors could consider regularly checking in with students to clarify expectations, monitor progress, and offer guidance that addresses both academic and emotional needs. Furthermore, given the unique challenges faced by international doctoral students, such as cultural adjustment or language barriers, advisors should consider adopting a more culturally responsive advising style. This includes being mindful of communication differences, providing affirmation and encouragement, and being accessible beyond formal academic discussions.

The findings also suggest that structural and institutional factors significantly shape advising quality. Several students noted that limited faculty availability and high student-to-advisor ratios created barriers to receiving adequate support. Doctoral programs should consider more intentional faculty-student matching processes that consider advising styles, research interests, and student needs. Enhancing structural support for doctoral students, including ensuring sufficient advising resources and financial support, can help improve the advising experience for both domestic and international students.

Finally, the study offers insights that may help current and prospective doctoral students make more informed decisions in managing their advising relationships. Students should be encouraged to consider academic alignment, interpersonal compatibility, and communication style when selecting an advisor. Building a strong advising relationship also requires proactive communication, including articulating expectations, seeking feedback, and addressing misalignments early.

Limitations

While this study provides valuable insights into the advisor-advisee relationship among international and domestic doctoral students, several limitations should be acknowledged.

First, the participants in this study were all doctoral students from Auburn University, recruited through a university-wide email list distributed by the Graduate School. While this sampling approach facilitated access to a diverse group of students, it also limited the generalizability of the findings beyond a single institutional context. The sample consisted of 87 students, including 31 males and 54 females, as well as 33 students from STEM fields and 54 from non-STEM disciplines. Although the study included both international and domestic students with varied academic backgrounds, the overrepresentation of non-STEM participants and the focus on a single university may not reflect the full range of doctoral advising experiences across institutions, regions, or disciplines.

Second, the qualitative data in this study were collected through four open-ended survey questions, which participants could choose to answer optionally. As a result, not all participants responded to every question, and some responses were brief or incomplete. This optional format may have introduced response bias, as those who chose to share their experiences might differ systematically from those who did not. In addition, some answers were brief or lacked contextual detail, which limited the ability to fully interpret the emotional tone, interpersonal nuances, or situational background of the advising experiences described. Consequently, certain themes may have been overrepresented or underexplored, and the findings may not fully reflect the breadth and nuance of all students' advising experiences.

Third, the qualitative analysis was conducted by a single researcher using a thematic approach with the assistance of NVivo software. Although efforts were made to enhance reliability through reflective journaling and a code-recode process, the absence of external verification may have introduced subjectivity into the coding and interpretation. As the sole coder, the researcher's academic background and experiences as an international doctoral student may have influenced how participant responses were categorized and interpreted. While steps were taken to minimize personal bias, the lack of collaborative coding or external audit remains a limitation to the credibility of the qualitative findings.

Future Research

Building on the current study, future research can be developed along the following directions:

Sample Expansion

Future studies should consider expanding the participant pool beyond a single institution to improve the generalizability of findings. Recruiting doctoral students from broader geographic locations and institutional types, such as public, private, research-intensive, and teaching-focused universities, would offer more comprehensive insights. Online platforms such as Amazon Mechanical Turk or academic listservs could be utilized to capture a more diverse and representative sample of doctoral experiences across different contexts.

Disciplinary Comparison

Future research could examine how advisor-advisee relationships vary by academic discipline. Comparing perceptions between STEM and non-STEM doctoral students may reveal important disciplinary differences in advising styles, expectations, and support systems. As STEM fields often have more structured research pipelines and grant-funded expectations, these contextual distinctions could affect the emotional and academic dimensions of advising. Understanding such variation would be beneficial for tailoring advising practices across disciplines.

Analytic Methodology

Future research may employ advanced quantitative approaches such as structural equation modeling (SEM) to analyze the complex interplay of factors influencing advising satisfaction. SEM allows for the examination of direct and indirect relationships, such as how perceived advisor support (e.g., accessibility, guidance, emotional encouragement) affects overall satisfaction, potentially mediated by advisor-student alignment. Moreover, SEM can test whether variables like international status or discipline type moderate these effects. Such a model provides a robust framework to explore both psychological and structural dimensions of the advising experience.

Conclusion

This study aimed to explore the doctoral advising experiences of international and domestic students in a U.S. university, with a particular focus on differences in advising satisfaction, rapport, apprenticeship, and identification-individuation. Drawing on Social Exchange Theory as the guiding framework, the study employed a multi-phase research design to investigate both the measurable and nuanced dimensions of the advisor-advisee relationship.

Quantitative analyses revealed that while international and domestic doctoral students reported similar levels of satisfaction and perceptions of apprenticeship, domestic students experienced significantly higher levels of rapport and identification-individuation with their advisors. These findings suggest that international students may face unique challenges in developing close advising relationships, possibly due to cultural differences, language barriers, or mismatched expectations.

The qualitative analyses uncovered four major themes that shaped advising experiences: academic and professional support, emotional and psychological challenges, alignment and compatibility, and structural constraints. Notably, international students were more likely to report emotional strain, highlighting the complexity of their advising experiences.

While the study offers important insights, it is also constrained by its single-institution sample and reliance on optional, open-ended qualitative responses. Future research should expand the participant base across multiple institutions and explore disciplinary differences. Continued attention to the advisor-advisee relationship among doctoral students will be essential to improving graduate education for an increasingly diverse student population.

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Appendix 1 Survey Items

Section A

1. Are you an adult of at least 18 years old?
2. Are you a doctoral student?
3. Do you have a faculty advisor?
4. Do you consent to the information letter?

Section B

Satisfaction with the advising relationship

1. I currently have the advisor I want.
2. I am satisfied with the process by which I came to have my current advisor.
3. I am satisfied with the amount and quality of time spent with my advisor.
4. If I did it over, I would select a different advisor.

Rapport

1. I get the feeling that my advisor does not like me very much.
2. I do not think that my advisor believes in me.
3. My advisor does not encourage my input into our discussions.
4. My advisor is not kind when commenting on my work.
5. I do not feel respected by my advisor in our work together.
6. My advisor offers me encouragement for my accomplishments.
7. My advisor welcomes my input into our discussions.
8. My advisor takes my ideas seriously.
9. I do not think that my advisor has my best interests in mind.
10. I feel uncomfortable working with my advisor.

11. I am often intellectually "lost" during meetings with my advisor.

Apprenticeship

1. My advisor introduces me to professional activities (e.g., conferences and submitting articles for journal publication).
2. My advisor helps me conduct my work within a plan.
3. My advisor has invited me to be a responsible collaborator in his/her own work.
4. My advisor helps me establish a timetable for the tasks of my graduate training.
5. Meetings with my advisor are unproductive.
6. My advisor helps me recognize areas where I can improve.
7. My advisor facilitates my professional development through networking.
8. I consistently implement suggestions made by my advisor.
9. I learn from my advisor by watching him/her.
10. I am an apprentice of my advisor.
11. My advisor does not help me stay on track in our meetings.
12. My advisor strives to make program requirements as rewarding as possible.
13. My advisor does not educate me about the process of graduate school.
14. My advisor is available when I need her/him.

Identification-Individuation

1. I do not want to be like my advisor.
2. I tend to see things differently from my advisor.
3. I do not want to feel similar to my advisor in the process of conducting work.
4. My advisor and I have different interests.
5. I feel like my advisor expects too much from me.

Section C

1. Please describe any concerns you have in your current relationship with your advisor. If you have no concerns, simply write 'None'.
2. If there are ways you believe your advisor could improve their advising approach or methods, please list your suggestions here.
3. If you have changed advisors during your program, please state up to three reasons that influenced your decision to change. If you have not changed advisors, you can skip this question.
4. If a new Ph.D. student joins your program, what advice would you offer regarding the selection of an advisor?

Section D

1. How do you describe yourself in terms of gender?
2. Which year of your doctoral study?
3. What is your doctoral program?
4. What is your current age in years?
5. Please specify your ethnicity.
6. What is your grade point average (GPA)?
7. What are your sources of financial support while attending graduate school?
8. The duration of their advising affiliation with their current advisor(s),
9. How many hours do you spend with your advisor per week engaging in academic and non-academic discussions?
10. Have you changed advisors since joining the program?

11. What is the nature of the initial association between you and your advisor (assigned, selected after program admission, matched before program entry, or switched after the initial advising assignment concluded)?

Appendix 2 Information Letter

AUBURN UNIVERSITY

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INFORMATION LETTER

for a Research Study entitled

Comparative Analysis of Advisor-Student Relationship: Rapport, Apprenticeship, Identification-individuation and Satisfaction Perceptions Among International and Domestic Doctoral Students in STEM and Non-STME Programs

You are invited to participate in a research study to explore differences in advisor-student relationships between international doctoral students and domestic doctoral students in the U.S. The study is being conducted by Yankun He, a doctoral candidate, under the direction of Dr. Jonathan Taylor, an associate professor in the Auburn University Department of Educational Foundations, Leadership, and Technology. You are invited to participate because you are a doctoral student and are age 18 or older.

What will be involved if you participate? If you decide to participate in this research study, you will be asked to complete an online survey. Your total time commitment will be approximately 30 minutes to read the information letter and complete the online survey.

Are there any risks or discomforts? This study is considered to be of minimal risk, as none of the research procedures are expected to cause participants any physical or psychological discomfort beyond what they would typically experience in their daily lives.

Are there any benefits to yourself or others? Participants in this study will not experience direct benefits.

Will you receive compensation for participating? This study will not provide compensation for participating.

Are there any costs? If you decide to participate, there are no direct costs associated with participating in the study. Auburn University has not provided any payment if you are harmed as a result of participating in this study.

Version Date (date document created): 04/25/2024

4036 Haley Center, Auburn, AL 36849-5221; Telephone: 334-844-4460: Fax: 334-844-3072

www.auburn.edu

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If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Educational Foundations, Leadership, and Technology, or any associated parties.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by securely storing the data. Information collected through your participation may be used to fulfill educational requirements, published in a professional journal, and/or presented at a professional conference.

If you have questions about this study, please ask them now or contact Yankun He at yzh0074@auburn.edu or Dr. Jonathan Taylor at jonathan.taylor@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or by e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

____

Investigator's signature Date

____

Printed Name

The Auburn University Institutional Review Board has approved this Document for use from
05/11/2024 to ---------------
Protocol # 24-859 EX 2405

Version Date (date document created): 04/25/2024

Appendix 3 Instrument Author's Permission

Open-ended Questions Permission

Subject: [EXT] Re: [EXTERNAL] Request for Permission to Use Survey Items in Dissertation Research
Date: Thursday, November 7, 2024 at 10:06:56 Pacific Standard Time
From: Villegas, Jorge
To: Yankun He

CAUTION: Email Originated Outside of Auburn.

Hi Yankun,

Many thanks for your request.

I have no problem with you using the questions.

Good luck with your research!

Jorge

Jorge Villegas, Ph.D.
Associate Dean & Professor of Marketing
College of Business and Management
University of Illinois Springfield
Follow and connect with the CBM on LinkedIn

From: Yankun He <yzh0074@auburn.edu>
Date: Thursday, November 7, 2024 at 10:00 AM
To: Villegas, Jorge <jvill2@uis.edu>
Subject: [EXTERNAL] Request for Permission to Use Survey Items in Dissertation Research

Dear Dr. Villegas,

I hope this message finds you well. My name is Yankun He, and I am a Ph.D. candidate in the Adult Education program at Auburn University. I am currently working on my dissertation, which explores the advisor-advisee relationship among international doctoral students.

In your insightful article, "International Student Perspectives on Graduate Advising Relationships," I found the open-ended questions and advising experience survey items highly relevant to my research objectives. I would like to request your permission to use these survey items in my dissertation study. I will, of course, provide proper citation and attribution to your work.

Thank you for considering my request, and please let me know if you require further details about my research.

Warm regards,
Yankun He
Ph.D. Candidate, Adult Education Program