INTERNATIONAL STUDENTS' SOCIAL INTEGRATION AND SOCIAL SUPPORT

by

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As members of the Dissertation Committee, we certify that we have read the dissertation prepared by: *Xiaojie Li*, titled: *International Students' Social Integration and Social Support* and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

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Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to the Graduate College.

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Dedication

谨此纪念我亲爱的外婆、外公和父亲。

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Abstract

International student mobility has been increasingly driven by economic rationales. However, the mere presence of international students in US higher education is inadequate to realize the non-economic values of internationalization, such as enhancing intercultural understanding. This dissertation, grounded in a humanistic perspective, examined international students' experiences by exploring their social networks. Drawing on data from 53 in-depth interviews with international students at a four-year public research university in the Southwest US and employing ego-centric social network analysis (SNA), this dissertation comprises three empirical studies, focusing on international students' social integration, social support, and cultural adaptation, respectively.

The first study presented a new scale for assessing international students' social integration, considering their social interactions with cross-national and cross-racial individuals. The findings revealed no significant differences in social integration between Asian and non-Asian international students and constraining and overlapping foci of activity functioned to foster international students' social integration.

Focusing on social support, the second study showed that different social groups provided different types of support, with Americans supporting international students' cultural adaptation and emotional well-being, co-nationals offering life services, and other internationals providing academic support. Network-related characteristics, such as tie strength, degree centrality, and network density, influenced some or all types of social support.

To further explore the nuanced meanings of cultural support, the third study introduced a two-level model for international students' cultural adaptation. The distinction between these two levels was whether students' knowledge and skills are fundamentally required for the function of

their daily lives, as well as for academic and professional success. Americans supported international students' cultural adaptation at both levels, while co-nationals and other internationals' support primarily contributed support at the functional level.

These three studies contributed to the literature by advancing the concepts of international students' social integration, social capital, and cultural adaptation. Methodologically, this dissertation demonstrated the benefits of employing SNA in international student research, including providing rich data on the individual students' uniqueness and their experiences across multiple dimensions. The practical implications of these findings offered actionable solutions for higher education institutions to support international students and facilitate intercultural interactions on campus.

Chapter 1: Introduction

Student mobility is the most referred to activity in higher education internationalization (De Wit & Altbach, 2021). In 2019, before the onset of the COVID-19 pandemic, 6 million higher education students studied outside of their country worldwide (OECD, 2021). The US has been the primary destination for international students, hosting over 1 million in higher education institutions during 2018-19. Despite the significant disruptions caused by the pandemic, international student mobility shows evidence of recovery during 2022-23. A survey conducted among over 900 higher education institutions in the US in 2021 unveiled that a majority (63%) of these institutions identified recruiting international students as their priority for future internationalization efforts (Soler et al., 2022).

International Student Mobility and Social Networks

Over the past 30 years, higher education internationalization has been increasingly shaped by economic motivations (De Wit & Altbach, 2021). International students bring considerable revenues and invaluable human capital to the US. Among these, self-funded international students, in particular, are a vital source of income for universities and colleges. In addition to tuition and fees, international students contributed $40.1 billion to the U.S. economy and supported 368,333 jobs during the 2022-2023 academic year (NAFSA, 2023). In the contemporary knowledge economy, the importance of brain power continues to rise. International students play a critical role in advancing knowledge and innovation in the US. In 2021, 39% of the science and engineering doctorates in the country were conferred to students holding temporary visas (National Science Foundation, 2022).

Consequences emerge when international student mobility is overly influenced by economic considerations. The economic rationale demonstrates universities' self-interest

underscoring the benefits brought by international students to the host country and institution (Geibel, 2020). However, this emphasis on economic benefits poses a potential risk of dehumanizing international students, reducing them to cash cows or a talent pool (Castiello-Gutiérrez & Li, 2020). This perspective tends to neglect the well-being, experiences, and success of international students. Furthermore, other objectives of higher education internationalization, such as intercultural understanding and promoting global peace (Knight, 2004), receive insufficient attention. The mere presence of international students on campus, driven primarily by economic motives, is inadequate to support these non-economic purposes (Geibel, 2020; O'Neil et al., 2023). Knight (2011) argued that assuming the number of international students positively correlates with a more internationalized campus culture is a myth about internationalization, and it may be used to mask institutions' economic motivations.

Emphasizing the importance of social networks, especially with the focus on support exchange, contributes to alleviate the negative impact of the economic rationale driving internationalization. Social networks provide valuable insights into the support system available to international students. Students rely on two primary sources of support: personal social networks and institutional resources. However, institutional support often intersects with personal social connections. While being part of students' social networks, faculty and staff may extend assistance perceived as institutional support. The patterns of one's social interactions not only showcase the availability of support but also shed light on the process through which the support is mobilized. Moreover, social networks serve as the foundation for achieving many non-economic objectives of higher education internationalization. Intercultural growth takes place when individuals encounter and make friends with people from diverse backgrounds (Lilley et al., 2015). The production of knowledge, particularly that addressing global crisis and concerns,

heavily relies on the connections and collaborations among scholars from different countries (J. J. Lee & Haupt, 2021).

Although this dissertation study centers on international students, the insights derived from the findings extend beyond enhancing support for this student population. International students' social networks not only reflect their preferences and skills but also serve as outcomes of their interactions with the surrounding social environment. Various individuals, including family, friends, classmates, colleagues, professors, and acquaintances actively contribute to the formation, maintenance, avoidance, and discontinuation of these social connections. While being support providers for international students, these individuals also benefit from these relationships. For example, research found that interacting with international students sparks an interest in exploring the world among domestic students (Peacock & Harrison, 2009). However, the potential advantages of fostering close cross-cultural connections are likely be underestimated due to the barriers of establishing such relationships.

Social Integration, Social Support, and Cultural Adaptation

I developed the core content of this dissertation, Chapters 3 through 5, based on international students' social networks. Chapter 3 examined the concept of social integration, a widely used indicator for college student success (Tinto, 1975). For international students, it also describes their social mixing with local individuals (Spencer-Oatey et al., 2017). Social networks contain rich data about individuals' social interactions, providing many opportunities for conceptualizing and measuring one's social integration. Chapter 4 delved into international students' social support, viewing it as the outcomes of their social networks. International students access various types of support from their social networks. The absence of adequate social support is a more pressing concern than the lack of social integration alone. Cultural

adaptation, the topic of Chapter 5, is also intricately linked to social networks. International students experience cultural adaptation in the host country partially through their social interactions, and cultural support is one of the forms of social support. Some international students' social contacts, such as host nationals, play a particularly important role in supporting their cultural adaptation, as indicated in Chapter 4. Chapter 5 extended Chapter 4 by focusing on international students' needs regarding cultural adaptation and how they receive cultural support. Overall, the entire dissertation is underpinned by social networks, even though the term itself does not appear in the dissertation title.

The Linkage Between Research and Practices

Throughout the dissertation, I placed the linkage between research findings and higher education practices at the forefront. Drawing from my experience as a former staff member in the international student office of a four-year public university and as a researcher focused on international students' success, I have observed a gap between our practices and research insights. There are challenges to integrate some research findings into practices. For example, research recommended universities to provide training on cross-cultural communication skills, such as high-context vs. low-context communication (Geibel, 2020). However, such workshops are likely to have low attendance even if they are considerately planned. It is nearly impossible to expect a significant number of students to prioritize "cross-cultural communication" within the confines of their busy schedules. This can be disheartening for dedicated staff members seeking to support international students. When confronting obstacles like social segregation between international and domestic students, there is a need for a simplified conceptualization and implementable and measurable solutions. I designed all three studies with the intention of finding

such solutions and discussed how the findings could be used in higher education practices in Chapters 3 through 6.

Chapter 2: Data

Research Site and Participants

I recruited the participants at Desert University (pseudo name, DU hereafter), a four-year public research university located in the Southwestern US. DU hosted over 3,000 international students on campus when data was collected in 2021. Among these students, 37% were female students, and 45% were studying at the graduate level. In addition to immigration advising, DU's International Student Services office provides a buddy program and other opportunities to facilitate international students' engagement in the host community.

Participants were international students who held an F-1 visa and had enrolled in a degree-seeking program for a minimum of one academic year. An email invitation was distributed by the International Student Services office to over 2,600 potentially eligible students. A total of 103 students signed up for the study, and 53 of them participated in the study in 2021. In appreciation of their time, each participant received compensation in the form of a $30 gift card, except one student who opted to decline this compensation.

Among these 53 participants, 31 were from Asia, 7 from Europe, 7 from the Middle East, 7 from Latin America, and 1 from Africa [1]. 21 were undergraduate students, 5 were studying at the master's level, and 27 were pursuing a doctoral degree. 33 participants were female students, 19 were male, and 1 identified as non-binary/non-conforming gender. Overall, graduate students and female students were over-represented in the sample. 25 out of the 53 students had at least

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[1] For the participants who identified with multiple nationalities spanning different regions, I used their primary nationality when grouping them in regions.

one semester of education experience in the US prior to joining the university where the research was conducted. 28 students completed at least 6 semesters at DU. Impacted by COVID-19, 7 participants were primarily living outside of the city where DU is located during the year before the study was conducted. To protect participants' identities, I used P1 to P53 to refer them throughout the dissertation. Table 2.1 shows the information about each participant.

Research Design and Data Collection

The mixed-method study employs an ego-centric network analysis approach. Ego-centric network analysis examines the social relationships surrounding individual participants (Perry et al., 2018). Participants are the egos and their social contacts are alters. An ego network consists of the alters connected to the ego, ties between the ego and alters, and ties among the alters themselves.

I gathered the data through a pre-interview survey and interviews. As part of the request to sign up for the study, participants needed to complete a 3-minute online survey. The survey primarily collected participants' demographic information, such as academic level and major. I conducted all interviews via Zoom. Each interview had three sections. In the initial step, I guided the participants to write in their responses in Google Sheets. I developed the following protocol based on the approach proposed by McCarty et al. (2019):

1. Name generating. Participants list the names of 25 people whom the participants knew by name or by sight and interacted most frequently with either in-person or online over the past year.
2. Alter attributes. Participants identify various attributes associated with each of their 25 social contacts. These attributes included gender, nationality, and whether they first met at DU, etc.

3. Alter support. Participants identify specific types of support received from their social contacts over the past year.
4. Ties among alters. Participants identify whether any interactions existed among their 25 social contacts. A tie between two alters was identified only when the participant believed that these two people had directly interacted with each other.

Each step of the process was managed using separate Google Sheets. Once a participant had completed generating all 25 names (Figure 2.1), these names were automatically filled in the subsequent sheets. For alter attributes (Figure 2.2) and alter support (Figure 2.3), participants wrote their answers in structured tables where each row represented a social contact, and each column represented either an attribute or a dimension of support. Details of the dimensions of support will be discussed in Chapter 4. Participants reported the alter-alter relationships in a 25x25 matrix (Figure 2.4). In this matrix, they marked the check box if the person in the row had interacted with the person in the column. Half of the matrix was blackened out as ties were treated un-directed.

The interviews were recorded upon the completion of the first section. The second section of the interview adopted a semi-structured format, focusing on participants' educational and migratory backgrounds before their enrollment at DU, how they made these social connections, and how their social contacts and the university had supported them. This section aimed to shed light on the formation of participants' networks and the process of receiving support. Before the start of the second section, I downloaded the Google Sheets with the participant's responses in the first section and created a network graph in R. Then I shared this graph with the participants and used it as a visual aid for the discussion on network formation.

The development of the third section of the interview was informed by the insights I gained through initial interviews. Participants described how they were culturally supported by their social networks and the university. I further delved into their perceptions of cultural adaptation in the US. Through a literature search, I was unable to identify an established theory that fully explained the participants' insights. Therefore, I added a new research objective, aiming to conceptualize international students' cultural adaptation.

The following three chapters used different components of the data. To examine international students' social integration, Chapter 3 used the data from Section 1 and Section 2, excluding information regarding alter support. Chapter 4, focusing on international students' social support, relied on data from Section 1. Finally, Chapter 5 utilized data from Section 3, supplemented by data from Section 2, to explore cultural adaptation and cultural support.

Advantages and Disadvantages of the Research Design

Depth

Conducting interviews was a suitable method for generating in-depth network data. The initial section of the interviews, which involved the generation of 25 names and responses based on those names, typically lasted approximately 30 minutes. If this process were conducted through a survey, some participants might have left the survey, resulting in incomplete responses. Despite a few instances where students scheduled interviews but did not attend, all participants who attended the interviews completed all sections. This ensured that there was no missing data. In addition, beyond the structured data collection in the first section, the interviews provided an opportunity for me to gain valuable insights regarding how their networks were formed and how they perceived their networks.

Accuracy

Interviews enhanced the data accuracy as I could validate the data with participants in real time. At the beginning of each interview, I verified participants' responses in the pre-interview survey, ensuring their demographic information was recorded correctly. As participants inputted their network data in Google Sheets, I closely reviewed their entries. For example, if a participant indicated a family member with a different nationality from their own, I would check with the participant if it was an error. Beyond that, presenting participants with their network graphs was the most critical step to enhance the accuracy of their network data. The visual representation prompted participants to naturally speak about any errors they observed. For example, they might identify that Person A should be an American instead of a co-national or that Person B should be connected to Person C. I also probed them with questions to clarify specific relationships, such as whether Person A and Person B, both being their high school friends, had not interacted with each other. Whenever an error was identified, I modified the Google Sheets immediately. After all revisions, I generated an updated network graph and shared it with the participants.

Sample Size

One limitation of this research design was the sample size. Inviting participants for a 90-minute interview was challenging. The mass email sent by DU's international student office and the gift card incentive were two critical strategies for recruiting participants. Despite these efforts, the interviews were time-consuming, making it impractical to reach a sample size comparable to what could be achieved in a survey study. While the data collected from the 53 participants was sufficient for qualitative data analysis, the sample size remained relatively modest for conducting ego-level regression analysis. Consequently, I paid particular attention

when interpreting results that were not statistically significant. Meaningful differences might still exist within a larger sample.

Network Negativity

While Chapter 4 and 5 exclusively focused on social support, one of the positive outcomes of social networks, it is important to acknowledge the potential negative influences of social networks. It is possible that some social contacts offered beneficial support in one aspect while causing harm in another. In fact, several participants shared that they would assign a negative rating to the support from certain individuals in their social networks. Hence, future studies should investigate the complex dynamics underlying the impact of social networks, including both positive and negative dimensions.

Validity Issues

Recalling Names

A common challenge for ego-centric network research is that participants struggle to recall and remember all the people as requested (Perry et al., 2018). In fact, a study has indicated that approximately 20% of the ties are forgotten in a single interview. The rate is lower for important people (6%) and much higher for ties beyond relatives and friends (42%) (Groenou et al., 1990). To address this issue, I used targeted prompts in the name-generating instructions (Perry et al., 2018). I encouraged participants to think about various types of connections, such as family members, professors, classmates, and colleagues, and emphasized that their interactions could be online. Additionally, when participants encountered difficulty in recalling social contacts, I suggested they check their email and social media interactions, which proved to be a helpful aid to recall. Occasionally, participants realized that they had omitted a frequent social contact as the interview progressed. In such instances, I encouraged them to replace a

person from their list whom they interacted with the least, thus ensuring a more accurate representation of their social network.

To assess the influence of name recalling on network composition, I examined the changes in the average percentage of institutional contacts and American contacts within institutional ties when removing the last five and last ten social contacts in each participant's networks. The results show that average network composition in these two aspects remained consistent, suggesting that there was no systematic tendency to omit a particular type of social contact.

Fixed Network Size

Using a fixed network size has its advantages and concerns. McCarty et al. (2019) recommended this approach because people are likely to stop listing names due to fatigue or lack of cooperation without a fixed number. Moreover, network structure measures, such as density, would not be comparable between a network of 20 and a network of 3. The authors suggested utilizing tie strength to reflect the variations in network size. They also proposed a minimum of 25 alters to accurately uncover network structure. While participants generally did not have difficulty in listing 25 names, capping it at this number resulted in the omission of some social contacts. To assess the negative impact of limiting to 25 names, I asked participants how their network graph might differ if they were asked to list more names. While a few participants mentioned that they would add an entirely new group of contacts not initially represented in the graph, most students believed that the expansion would not fundamentally change the overall structure of their networks.

Potential Repetitive Alters

In this study, alters were kept non-identifiable. Unlike the studies that traced alters and invited them to participate in the study (e.g., Krivitsky & Morris, 2017), I only focus on participants' social networks rather than their alters' identities. To protect participants' privacy, they used pseudonyms for their social contacts during the interviews. For analysis, I coded alters into numbers. For example, I referred to P1's alters as A101, A102, and so forth. While this approach served the study's purpose, it led to a potential issue of repetitive alters. It was possible for two or more participants to include the same individual in their respective contact lists. As a result, some alters might be counted more than once in alter-level analysis. To address this, I chose to recruit participants solely through mass email outreach, avoiding snowballing sampling. Two people who are friends are likely to have multiple common contacts. Additionally, given more students signed up for the study than I expected, I prioritized inviting students from countries that were not among the major international student source countries. These steps helped to reduce the likelihood of having repetitive alters, although completely avoiding it was not feasible.

Alter's Nationality

Issues occurred when participants were asked to categorize their social contacts as co-nationals, Americans, or other internationals. They often asked for clarification regarding the term "Americans", especially whether some first-generation immigrant contacts should be considered Americans. Some participants assumed Americans referred exclusively to individuals holding US citizenship. Since the purpose of this question was about nationality rather than citizenship, I guided participants to determine whether they personally perceived a social contact as American, regardless of their citizenship status. Some participants had complex nationality

backgrounds, making it challenging to define whether a social contact was a co-national. For example, P52 identified with Italian, Brazilian, and Lebanese. In such instances, I asked participants to label anyone who shares a part of their nationality as co-national.

One-Time Data Collection

This study captured participants' social networks at the time of the interview. As individuals' social networks never stop evolving, it is unknown how this one-time data represents the average network situation over time. I only invited the students who had enrolled at DU for at least one academic year because one's social networks may experience many changes at the beginning of enrolling in a new institution.

Impact of the COVID-19 pandemic

Although the impact of COVID-19 was not the focus of this group of studies, I recognize the potential differences if the study was conducted at a time when all international students attend the university in person. I had some untested observations regarding students' social networks and the support they received based on interviews. Firstly, the participants rarely made new social connections during the pandemic. The participants who first enrolled at DU in Spring 2020 barely had an opportunity to develop social connections on campus. Participating in classes and other academic activities online was the only time they could interact with new people. Meanwhile, the patterns of social interactions changed during the pandemic. As a result, strong ties might be stronger through exchanging support, especially between individuals who still meet in person. There were cases when faculty members offered support beyond the academic and career aspects, paying more attention to students' mental health and well-beings. In contrast, weak ties became weaker or disappeared. These social ties could not be maintained due to limited meeting opportunities. Lastly, the pandemic also influenced the type and level of support

exchange. Faculty members' support for students tended to expand to students' mental health and well-beings, leading to a higher level of support overall.

Tables

Table 2.1: Participants

Participant	Academic Level	Gender	Nationality	Race
P1	Undergraduate	Male	India	Asian
P2	Doctoral	Female	Iran	Middle Eastern or North African
P3	Doctoral	Female	China	Asian
P4	Doctoral	Female	Italy	White
P5	Master's	Female	China	Asian
P6	Doctoral	Male	Germany	White
P7	Doctoral	Male	South Korea	Asian
P8	Doctoral	Female	Saudi Arabia	Middle Eastern or North African
P9	Doctoral	Female	Spain	Hispanic or Latino, White
P10	Doctoral	Male	Italy	White
P11	Doctoral	Male	China	Asian
P12	Undergraduate	Female	Saudi Arabia	Middle Eastern or North African
P13	Doctoral	Female	United Kingdom	White
P14	Undergraduate	Female	China	Asian
P15	Doctoral	Male	Bangladesh	Asian
P16	Doctoral	Female	Hong Kong	Asian
P17	Undergraduate	Female	Indonesia	Asian
P18	Undergraduate	Female	Saudi Arabia	Middle Eastern or North African
P19	Undergraduate	Female	Vietnam	Asian
P20	Undergraduate	Female	Bangladesh	Asian
P21	Undergraduate	Female	India	Asian
P22	Doctoral	Female	Venezuela	Black or African American, Hispanic or Latino, White
P23	Undergraduate	Non-binary/non-conforming	Vietnam	Asian
P24	Doctoral	Male	South Korea	Asian
P25	Doctoral	Female	China	Asian
P26	Master's	Female	China	Asian
P27	Doctoral	Male	Mexico	Hispanic or Latino
P28	Master's	Female	Venezuela	Hispanic or Latino
P29	Doctoral	Female	Zambia	Black or African American
P30	Doctoral	Female	Brazil	Hispanic or Latino
P31	Doctoral	Male	India	Asian
P32	Doctoral	Female	Iran	Middle Eastern or North African
P33	Undergraduate	Female	Japan	Asian
P34	Undergraduate	Male	India	Asian
P35	Undergraduate	Female	Vietnam	Asian
P36	Master's	Female	India	Asian
P37	Undergraduate	Female	India	Asian

Table 2.1: Participants (Continued)

Participant	Academic Level	Gender	Nationality	Race
P38	Undergraduate	Male	Vietnam	Asian
P39	Undergraduate	Female	India	Asian
P40	Undergraduate	Male	Trinidad and Tobago	Asian
P41	Undergraduate	Female	China	Asian
P42	Undergraduate	Male	China	Asian
P43	Doctoral	Female	Mexico	Hispanic or Latino
P44	Doctoral	Female	Nepal	Asian
P45	Doctoral	Male	South Korea	Asian
P46	Undergraduate	Male	China	Asian
P47	Undergraduate	Male	Kuwait	Middle Eastern or North African
P48	Doctoral	Female	Spain	Hispanic or Latino
P49	Doctoral	Male	Italy, Thailand	White, Asian
P50	Doctoral	Male	Turkey	Middle Eastern or North African
P51	Master's	Female	Vietnam	Asian
P52	Undergraduate	Male	Brazil, Italy, Lebanon	Hispanic or Latino, Middle Eastern or North African,White
P53	Doctoral	Female	South Korea	Asian

Figures

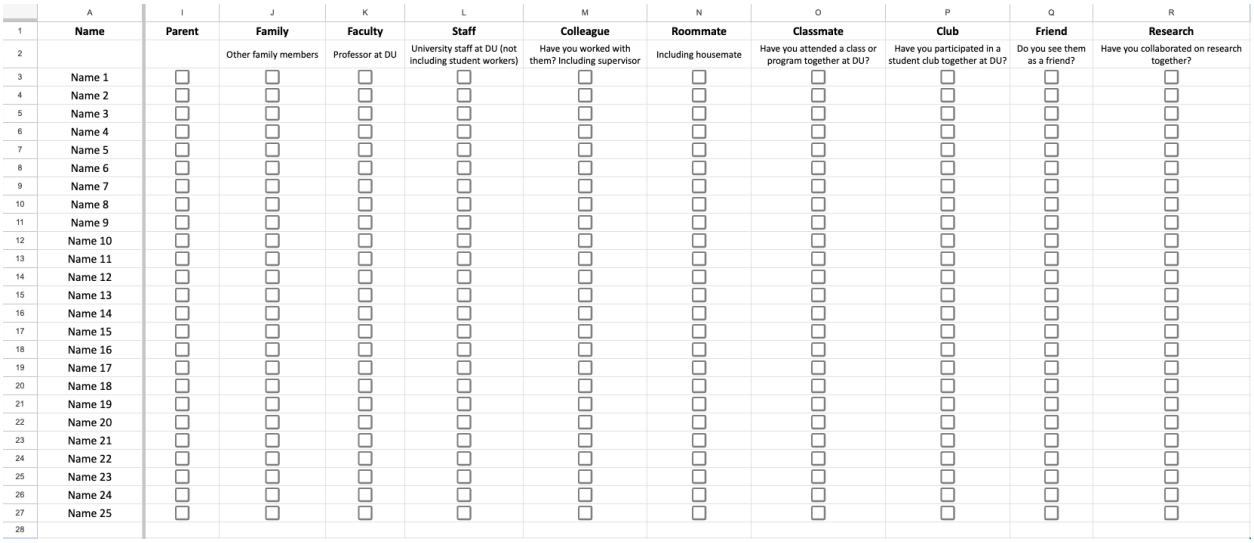
Figure 2.1: Name Generating

	A	B	C	D	E	F	G
1	Please write the names of **25 people** you know and who know you by sight or by name, with whom you have had some contact over the past year, either face-to-face, by phone, zoom, email, or social media.						
2	Name 1						
3	Name 2						
4	Name 3						
5	Name 4						
6	Name 5						
7	Name 6						
8	Name 7						
9	Name 8						
10	Name 9						
11	Name 10						
12	Name 11						
13	Name 12						
14	Name 13						
15	Name 14						
16	Name 15						
17	Name 16						
18	Name 17						
19	Name 18						
20	Name 19						
21	Name 20						
22	Name 21						
23	Name 22						
24	Name 23						
25	Name 24						
26	Name 25						
27							

Figure 2.2: Alter Attributes

	A	B	C	D	E	F	G
1	**Name**	**Gender**	**Nationality**	**Race**	**Location**	**Closeness**	**Length**
2			How would you identify their nationality?	Do you belong to the same racial group?	Where did they live primarily over the past year?	1: Not close all at 5: Very close	Did you know them at DU?
3	Name 1	Male	Same as mine	☐	In my home country	1	☐
4	Name 2	Male	Same as mine	☐	In my home country	1	☐
5	Name 3	Male	Same as mine	☐	In my home country	1	☐
6	Name 4	Male	Same as mine	☐	In my home country	1	☐
7	Name 5	Male	Same as mine	☐	In my home country	1	☐
8	Name 6	Male	Same as mine	☐	In my home country	1	☐
9	Name 7	Male	Same as mine	☐	In my home country	1	☐
10	Name 8	Male	Same as mine	☐	In my home country	1	☐
11	Name 9	Male	Same as mine	☐	In my home country	1	☐
12	Name 10	Male	Same as mine	☐	In my home country	1	☐
13	Name 11	Male	Same as mine	☐	In my home country	1	☐
14	Name 12	Male	Same as mine	☐	In my home country	1	☐
15	Name 13	Male	Same as mine	☐	In my home country	1	☐
16	Name 14	Male	Same as mine	☐	In my home country	1	☐
17	Name 15	Male	Same as mine	☐	In my home country	1	☐
18	Name 16	Male	Same as mine	☐	In my home country	1	☐
19	Name 17	Male	Same as mine	☐	In my home country	1	☐
20	Name 18	Male	Same as mine	☐	In my home country	1	☐
21	Name 19	Male	Same as mine	☐	In my home country	1	☐
22	Name 20	Male	Same as mine	☐	In my home country	1	☐
23	Name 21	Male	Same as mine	☐	In my home country	1	☐
24	Name 22	Male	Same as mine	☐	In my home country	1	☐
25	Name 23	Male	Same as mine	☐	In my home country	1	☐
26	Name 24	Male	Same as mine	☐	In my home country	1	☐
27	Name 25	Male	Same as mine	☐	In my home country	1	☐
28							

Figure 2.2: Alter Attributes (Continued)

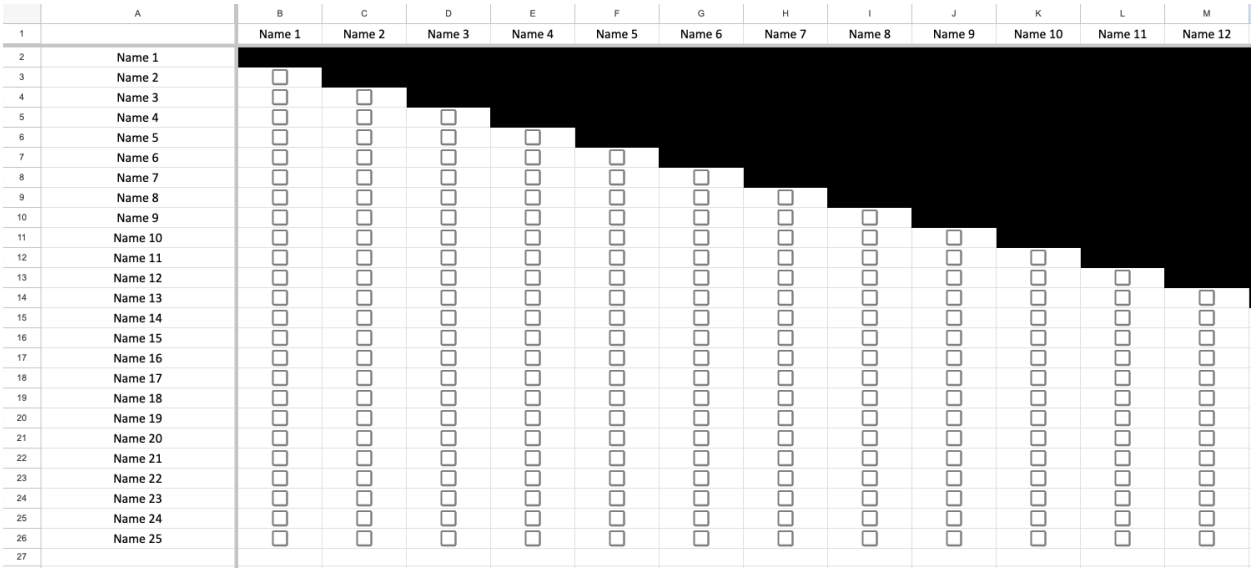


	A	I	J	K	L	M	N	O	P	Q	R
1	**Name**	**Parent**	**Family**	**Faculty**	**Staff**	**Colleague**	**Roommate**	**Classmate**	**Club**	**Friend**	**Research**
2			Other family members	Professor at DU	University staff at DU (not including student workers)	Have you worked with them? Including supervisor	Including housemate	Have you attended a class or program together at DU?	Have you participated in a student club together at DU?	Do you see them as a friend?	Have you collaborated on research together?
3	Name 1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Name 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Name 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	Name 4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	Name 5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	Name 6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	Name 7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10	Name 8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11	Name 9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12	Name 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13	Name 11	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14	Name 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15	Name 13	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16	Name 14	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17	Name 15	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18	Name 16	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19	Name 17	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20	Name 18	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21	Name 19	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22	Name 20	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23	Name 21	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
24	Name 22	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25	Name 23	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26	Name 24	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27	Name 25	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
28											

Figure 2.3: Alter Support

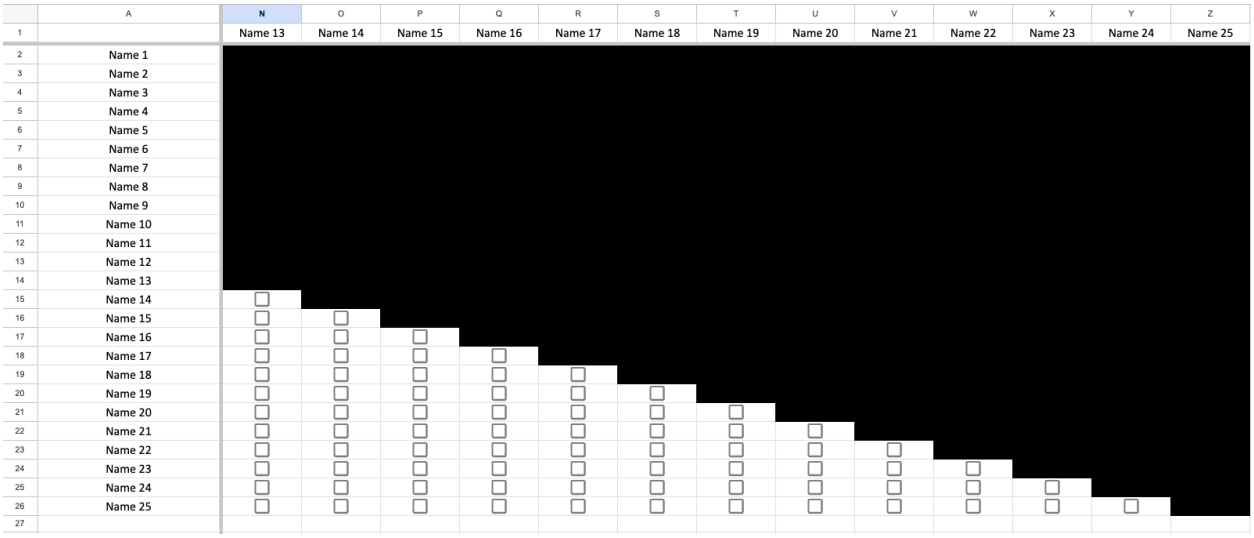
	A	B	C	D	E	F	G	H	I
1		**Academic**	**Career**	**Financial**	**Life**	**Emotional**	**Cultural**		
2	Name 1	0	0	0	0	0	0		
3	Name 2	0	0	0	0	0	0		
4	Name 3	0	0	0	0	0	0		
5	Name 4	0	0	0	0	0	0		
6	Name 5	0	0	0	0	0	0		
7	Name 6	0	0	0	0	0	0		
8	Name 7	0	0	0	0	0	0		
9	Name 8	0	0	0	0	0	0		
10	Name 9	0	0	0	0	0	0		
11	Name 10	0	0	0	0	0	0		
12	Name 11	0	0	0	0	0	0		
13	Name 12	0	0	0	0	0	0		
14	Name 13	0	0	0	0	0	0		
15	Name 14	0	0	0	0	0	0		
16	Name 15	0	0	0	0	0	0		
17	Name 16	0	0	0	0	0	0		
18	Name 17	0	0	0	0	0	0		
19	Name 18	0	0	0	0	0	0		
20	Name 19	0	0	0	0	0	0		
21	Name 20	0	0	0	0	0	0		
22	Name 21	0	0	0	0	0	0		
23	Name 22	0	0	0	0	0	0		
24	Name 23	0	0	0	0	0	0		
25	Name 24	0	0	0	0	0	0		
26	Name 25	0	0	0	0	0	0		
27									

Figure 2.4: Ties Among Alters



	A	B	C	D	E	F	G	H	I	J	K	L	M
1		Name 1	Name 2	Name 3	Name 4	Name 5	Name 6	Name 7	Name 8	Name 9	Name 10	Name 11	Name 12
2	Name 1												
3	Name 2	☐											
4	Name 3	☐	☐										
5	Name 4	☐	☐	☐									
6	Name 5	☐	☐	☐	☐								
7	Name 6	☐	☐	☐	☐	☐							
8	Name 7	☐	☐	☐	☐	☐	☐						
9	Name 8	☐	☐	☐	☐	☐	☐	☐					
10	Name 9	☐	☐	☐	☐	☐	☐	☐	☐				
11	Name 10	☐	☐	☐	☐	☐	☐	☐	☐	☐			
12	Name 11	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
13	Name 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
14	Name 13	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15	Name 14	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16	Name 15	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17	Name 16	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18	Name 17	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19	Name 18	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20	Name 19	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
21	Name 20	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
22	Name 21	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
23	Name 22	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
24	Name 23	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
25	Name 24	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
26	Name 25	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
27													

Figure 2.4: Ties Among Alters (Continued)



	A	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1		Name 13	Name 14	Name 15	Name 16	Name 17	Name 18	Name 19	Name 20	Name 21	Name 22	Name 23	Name 24	Name 25
2	Name 1													
3	Name 2													
4	Name 3													
5	Name 4													
6	Name 5													
7	Name 6													
8	Name 7													
9	Name 8													
10	Name 9													
11	Name 10													
12	Name 11													
13	Name 12													
14	Name 13													
15	Name 14	☐												
16	Name 15	☐	☐											
17	Name 16	☐	☐	☐										
18	Name 17	☐	☐	☐	☐									
19	Name 18	☐	☐	☐	☐	☐								
20	Name 19	☐	☐	☐	☐	☐	☐							
21	Name 20	☐	☐	☐	☐	☐	☐	☐						
22	Name 21	☐	☐	☐	☐	☐	☐	☐	☐					
23	Name 22	☐	☐	☐	☐	☐	☐	☐	☐	☐				
24	Name 23	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			
25	Name 24	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
26	Name 25	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
27														

Chapter 3: International Students' Social Integration: An Ego-Centric Social Network Analysis Approach

Many scholars have raised concerns regarding the limited social integration between international and domestic students in host countries (Gareis, 2012; e.g., Nilsson, 2019). The essence of higher education internationalization lies in the interchange of knowledge, perspectives, and resources among individuals from diverse racial, ethnic, and cultural backgrounds. Lacking cross-group social interactions not only negatively affects international students' experiences and satisfaction but also hinders all students from acquiring the necessary knowledge and skills to address global challenges, including issues like climate change and human health.

The mere presence of international students on campus does not ensure meaningful cross-cultural interactions (Spencer-Oatey et al., 2014). Enhancing such interactions requires a comprehensive understanding of international students' social integration and the intricate mechanisms that underlie social relationships between them and host nationals. Previous studies have primarily assessed international students' social integration by focusing on whether they have local friends or interacted with them in social settings (e.g., Gareis, 2012; Ward & Masgoret, 2004). However, a more sophisticated and standardized approach to conceptualize and measure international students' social integration is needed. This measure should consider the quality of their social relationships and various types of relationships beyond friendships. Moreover, while literature has identified that many factors that influence international students' social relationships with host nationals, such as personal characteristics (Spencer-Oatey et al., 2017), shared commonalities (V. Thomas et al., 2018), cultural distance (Pritchard & Skinner, 2002), discrimination (Yao, 2018), and the existence of co-national community (Schoe et al.,

2022), no known study has delved into the role that the context in which international students form social connections plays in their social integration.

Given the gaps in existing literature, this study pursued two main objectives: (a) measuring international students' social integration level and (b) exploring how the context in which social networks form shapes their social integration. To achieve these goals, this study adopted the ego-centric social network analysis (SNA) method and offered a comprehensive investigation of international students' social networks through quantitative and qualitative data collected among 53 international students. The findings provided practical insights for universities to enhance the social interactions between international students and host nationals.

Literature Review

International Students' Social Integration

International students experience challenges in social integration while studying in a host country. Bochner et al. (1977) identified three types of international students' friendship networks: co-national, host national, and non-co-national international, highlighting co-national friendships as the primary network. Subsequent research adopted this categorization, revealing a lack of connections between international students and host nationals. For example, a study by Gareis (2012) found that more than a third of 454 international students across ten US public universities reported having no close American friends, despite their desire to build more and higher quality friendships with American students. Findings from the International Student Barometer, which surveyed around 150,000 international students annually from 20 different countries, showed that nearly 30% of the respondents were dissatisfied with making friends from the host country (Nilsson, 2019). Similarly, a study involving 44 UK institutions found that 31% of international students felt isolated from the university community (Spencer-Oatey et al.,

2014). In New Zealand, over 50% of international students reported never or seldom spending time in social settings with local students (Ward & Masgoret, 2004).

Among all international students, those from Asian countries were particularly isolated. Notably, South East Asian students, in contrast to their counterparts from other regions, were more likely to seek co-national friends (Brown, 2009). Similarly, students from Confucian Asia - encompassing China, Taiwan, Hong Kong, South Korea, Japan, and Vietnam - developed more inward social connections within their cultural group overtime during their undergraduate studies, while their non-Confucian Asian peers demonstrated a greater propensity for external relations (Rienties et al., 2014). Beyond the challenge of establishing local friends, East Asian students expressed lower satisfaction with the quality of these friendships compared to their peers from Anglophone countries and Northern/Central Europe (Gareis, 2012). A UK-based survey involving over 2,000 students revealed that while 79% of the international students from the European Economic Area were satisfied with making friends with domestic students, only 63% of the Chinese students felt similarly (Spencer-Oatey et al., 2017). Furthermore, a study highlighted the disappointment felt by Chinese first-year college students in the US regarding their attempts to foster close relationships with American roommates in residence halls (Yao, 2016). Although they initially requested an American roommate in hopes of improving their English proficiency and understanding of American culture, these students reported unfulfilled expectations.

Formations of International Students' Social Networks

Some scholars posited that international students' social integration is influenced by personal factors such as language proficiency, personality, and motivation. International students with a higher proficiency in the English language were more likely to build friendships with

domestic students (Trice, 2004; Yan & Berliner, 2013; Ying, 2002; Zhou & Zhang, 2014). Extroverted students demonstrated a greater capacity to mix with local students compared to their introverted counterparts (Spencer-Oatey et al., 2017; Ying, 2002). Confidence levels also played an important role in forging connections with individuals from other cultures (Spencer-Oatey et al., 2017). Moreover, the degree of social integration was closely tied to an international student's motivation to make cross-cultural friends (Spencer-Oatey et al., 2017).

Friendships often evolved from shared commonalities among individuals. In a UK classroom setting with a large ratio of international students, a study revealed that while students initially self-selected groups based on nationality, they later formed groups based on shared work orientations and learning motives as the class progressed (Taha & Cox, 2016). Some of such relationships eventually turned into friendships. To facilitate the engagement between international and domestic students, V. Thomas et al. (2018) identified four common grounds: common experience, cultural celebrations, faith, and common challenges. Regarding common experience, Schoe et al. (2022) indicated that international students, sharing the experience of studying abroad, naturally bonded with one another.

As an extension of shared commonalities, cultural similarities also played a crucial role. Students from collectivist backgrounds viewed friendship differently than those from individualist cultures. For example, friendship to Chinese students saw friendship as a reliable support network, contrasting with Americans who did not typically associate friendships with trading favors (Yan & Berliner, 2013). Indian international students defined friendship as having "a constant bubby with you all the time", perceiving American students as too independent (Rose-Redwood & Rose-Redwood, 2013, p. 421). Furthermore, varied interpretations of power distance in different cultures created a barrier to forming cross-cultural friendships. For example,

an international student from Sri Lanka studying in Ireland faced difficulty expressing himself as he perceived local students as teachers and guides. His respectful manner towards them hindered him from forming friendships with Irish students (Pritchard & Skinner, 2002).

In addition to cultural distance, international students' social integration is also influenced by the host nationals' indifferent or negative attitudes towards interacting with international students. Many international students perceived a lack of interest from host nationals in making friends with them or learning about their cultures (Spencer-Oatey et al., 2017; Yao, 2018). An Australian study showed that local students considered friendships with international peers as unnecessary and unimagined, as they believed that friendships should naturally form based on similarities (McKenzie & Baldassar, 2017). Similarly, Peacock & Harrison (2009) found that domestic students held an indifferent attitude about social contact with international students and referred to this phenomenon as passive xenophobia. When international students felt othered, marginalized, or discriminated against, they became reluctant to make friends with host nationals (Briscoe et al., 2022; J. J. Lee et al., 2017; J. J. Lee & Rice, 2007; Tian & Lowe, 2009; Yao, 2018). The longer international students stayed in the host country, the more likely they were to observe negative attitudes from the local people (Ward & Masgoret, 2004).

Being embedded in a compatriot community can also contribute to international students' social isolation. When a majority of their classmates were also international students, interaction with domestic students became challenging (Schoe et al., 2022). A study among Taiwanese exchange students across different US universities revealed that a higher number of Chinese students on campus corresponded to a reduced likelihood of forming cross-cultural friendships (Ying, 2002). Spencer-Oatey et al. (2017) observed a similar phenomenon, noting that a

concentration of Chinese students had limited opportunities for social networking with British students. A year-long study of 150 international graduate students in England explored the psychological reasons behind such social segregation (Brown, 2009). Although the participants recognized the disadvantages of staying within their own ethnic group, such as impeding the improvement of their English skills, they found it challenging to resist the comfort of speaking their native language and relating to their own culture. The author argued that international students faced conformity pressure, defined as "the desire to escape the confines of the ghetto was outweighed by the fear of negative judgment as well as retribution upon re-entry" (p. 191). Consequently, international students tend to maintain rapport with their ethnic group, unless they opt for a complete separation approach to distance themselves from their co-national community and assimilate into the host culture instead.

Despite the wealth of literature on international students' social integration into the host community, several limitations persist. First, most studies have focused on peer relationships or friendships, often neglecting other critical forms of social relationships, such as those with faculty and staff. Additionally, despite the racial diversity, host nationals are usually treated as a homogeneous group, disregarding the nuances in interacting with Americans with varying racial backgrounds. Furthermore, there is an absence of comprehensive measures for international students' social integration beyond the mere count of host national friends. Lastly, while personal characteristics, shared commonalities, cultural distance, discrimination, and co-national community all influence the social mixing between international and domestic students, the context in which social relationships develop has received little attention. For instance, a class and a student organization may have different effects on the development of domestic-international relationships. One related example was a study among 16 international students, in

which McFaul (2016) found that international students were more likely to make diverse types of friends through on-campus student organizations. In light of these gaps, this study sought to conduct a more profound investigation of international students' social integration. This involves examining their social networks, developing a measure based on these networks, and exploring the mechanisms that either facilitate or impede social integration.

Conceptual Frameworks

The concept of international students' social integration lacks clarity. One approach in the literature adopted Tinto (1975)'s Student Departure Theory (Rienties et al., 2012; Zhou & Zhang, 2014). This perspective treated international students no differently than domestic students, viewing social integration as the process of a student integrating into the higher education institution's social system. For example, Rienties et al. (2012) examined whether international students could "adapt to the social way-of-life at the university" (p. 686). Although researchers have argued that Tinto's social integration concept does not apply to marginalized students in two-year colleges, emphasizing the value of social connections to their home community for success in higher education (Deil-Amen, 2011), social integration into higher education institutions remains to be critical for international students. Although the value of their ties with family and friends in their home country cannot be overlooked, international students heavily rely on social connections in the host country for various types of support (Chapter 4), and these local connections primarily originated from the host institution. In this regard, integration into the higher education social systems should still be a valid component of international students' social integration.

Due to international students' foreign status, scholars have not only examined the development of social relationships within higher education institutions but also delved into the

extent to which they can socially connect with host nationals (H. Li & Pitkänen, 2018; Nilsson, 2019; Spencer-Oatey et al., 2017). This perspective interpreted international students' social integration as the degree of intercultural mixing or forming friendships with host nationals. For example, Spencer-Oatey et al. (2017) used international students' satisfaction with making friends from the host and other countries as an indicator of social integration. While this conceptualization of social integration serves to uncover the critical problem of international students' segregation from the host community, it tends to overlook the racial diversity within the international student population and the broader American society. For instance, Asian international students' social integration into the Asian American community should be conceptually different from their integration into the American community without an Asian heritage.

To further explore the intricacies of international student social integration, I employ the concept of homophily. Homophily refers to the tendency for social ties to develop among individuals sharing similar characteristics (McPherson et al., 2001). These characteristics include socio-demographic dimensions like race, ethnicity, age, and education, as well as value dimensions such as attitudes, abilities, beliefs, and aspirations. In this study, I focus on homophily along the lines of nationality and race. Social integration, in this context, manifests in the breaking of such homophily and the cultivation of cross-national and cross-racial relationships.

Drawing on Tinto (1975)'s theory of social integration, the conceptualization of international student social integration by scholars like Spencer-Oatey et al. (2017), and informed by McPherson et al. (2001)'s homophily theory, I use the term international student

social integration to denote their integration into the institution's social system and their cross-national and cross-racial social integration within the institution.

To investigate the factors influencing international students' social integration within higher education, I adopt the concept of foci of activity from social network research. The notion of foci of activity indicates that individuals do not randomly choose their interactions, and many social connections are developed around specific foci of activity (Feld, 1981). A focus is defined as "a social, psychological, legal or physical entity around which joint activities are organized" (Feld, 1981, p. 1016). Examples of foci include families, workplaces, and neighborhoods. Feld (1981) argues that the impact of foci on the formation of social ties is much more compelling than shared similarities in attitudes, attributes, and social positions. The nature of a focus influences the dynamics of the associated social relationships. For example, some foci can be more constraining when associated individuals invest more time and energy in joint activities. This constraining nature results in a dense network where all individuals are more likely to know each other, as is often the case in kin relationships.

Method

Research Questions

This study was guided by the following research questions: To what extent are international students socially integrated? Are Asian international students less socially integrated than non-Asian students? How do foci of activity influence international students' social integration within higher education?

Research Site and Participants

I recruited the participants at Desert University (pseudo name, DU hereafter), a four-year public research university located in the Southwestern US. Participants were international

students who held an F-1 visa and had enrolled in a degree-seeking program for a minimum of one academic year. An email invitation was distributed by the International Student Services office to over 2,600 potentially eligible students. A total of 103 students signed up for the study, and 53 of them participated in the study in 2021. In appreciation of their time, each participant received compensation in the form of a $30 gift card, except one student who opted to decline this compensation.

Among these 53 participants, 31 were from Asia, 7 from Europe, 7 from the Middle East, 7 from Latin America, and 1 from Africa. 21 were undergraduate students, 5 were studying at the master's level, and 27 were pursuing a doctoral degree. 33 participants were female students, 19 were male, and 1 identified as non-binary/non-conforming gender. 25 out of the 53 students had at least one semester of education experience in the US prior to joining the university where the research was conducted. 28 students completed at least 6 semesters at DU. Impacted by COVID-19, 7 participants were primarily living outside of the city where DU is located during the year before the study was conducted. To protect participants and their alters' identities, I used P1 to P53 to reference the participants throughout the paper. Each alter was named in accordance with the participant. For example, P1's alters were designated as A101, A102, …, and A125.

Research Design and Data Collection

The mixed-method study employs an ego-centric SNA approach. Ego-centric SNA examines the social relationships surrounding individual participants (Perry et al., 2018). Participants are the egos and their social contacts are alters. An ego network consists of the alters connected to the ego, ties between the ego and alters, and ties among the alters themselves.

I gathered the data through a pre-interview survey and interviews. As part of the request to sign up for the study, participants needed to complete a 3-minute online survey. The survey

primarily collected participants' demographic information, such as academic level and major. I conducted all interviews via Zoom between March and July 2021. Each interview had two sections. In the initial step, I guided the participants to write in their responses in Google Sheets. I developed the following protocol based on the approach proposed by McCarty et al. (2019):

1. Name generating. Participants list the names of 25 people whom the participants knew by name or by sight and interacted most frequently with either in-person or online over the past year.
2. Alter attributes. Participants identify various attributes associated with each of their 25 social contacts. These attributes included gender, nationality, and whether they first met at DU, etc.
3. Ties among alters. Participants identify whether any interactions existed among their 25 social contacts. A tie between two alters was identified only when the participant believed that these two people had directly interacted with each other.

The second section of the interview adopted a semi-structured format focusing on how students made the 25 social connections. I also showed the participant the visualized graph of their social network and discussed the patterns with them. Examples of questions included (a) Why do you think your network mainly consists of White Americans? (b) Is there any particular reason why you only wrote a few social contacts from DU? This section of the interview was audio recorded.

International Student Social Integration Measure

I developed the social integration measure based on the composition and quality of alters in one's social network. An alter was considered institutional if the initial meeting occurred at DU. Table 3.1 shows the four types of institutional alters grouped by their race and nationality:

Americans with a different race (AD), Americans with the same race (AS), internationals with a different race (ID), and internationals with the same race (IS). Although many previous studies examined three groups of social contacts, host nationals, co-nationals, and other internationals (e.g., Gareis, 2012), I merged co-nationals and other internationals into a single international group since there was a limited number of students from certain countries studying at DU, making the sizes of participants' co-national networks cannot be directly compared. In addition to the size of each alter group, the quality of the relationships with these alters also matters. During interviews, participants rated their perceived closeness of each alter on a scale ranging from 1 (not close at all) to 5 (very close). The social integration scale considered the average closeness ratings of alters in each group. For each participant, the absolute value of social integration is calculated as follows:

$$SI = \sqrt{2 * N_{AD}C_{AD} + N_{ID}C_{ID} + N_{AS}C_{AS}},$$

where N is the number of alters in a specific group, and C is the average perceived closeness of the alters in this group. Since alter group AD breaks two dimensions of homophily, indicating cross-national and cross-racial social relationships, the value of $N_{AD}C_{AD}$ is multiplied by 2. Simultaneously, the IS group, representing ties the participant shares the same racial background and international student status with, is not included in the social integration formula. The total value is square-rooted to achieve a normal distribution. The possible range for SI is between 0 and 15.8. To make the measure more intuitive, I adjusted the absolute SI value to a scale potentially ranging from 0 to 1 using the following formula:

$$SI_a = \frac{SI}{\sqrt{25 * 5 * 2}}$$

Overall, the closer the SI value is to 1, the more socially integrated the international student is. SI is positively associated with the number of institutional ties. Additionally, the more American and/or cross-racial alters that international students have within the institution, the higher SI they have. Beyond that, having close relationships with American and/or cross-racial alters leads to a higher SI.

Data Analysis

Based on the SI_a value, I ran a t-test to compare the differences between Asian and non-Asian international students' social integration levels. Additionally, I conducted ordinary least squares (OLS) regression analyses to examine the effect of being Asian or not on students' social integration level while controlling other relevant variables, including being female, being a graduate student, having studied in the US before attending DU, having studied at the DU for six semesters or longer, and primarily living in the area where DU is located over the past year. To investigate the role of foci of activity, I examined the network size and density of individuals' social networks associated with specific foci. Network size is the number of individuals to whom a participant is connected, and density measures the degree that alters are connected to each other (Perry et al., 2018). Network density is calculated as "the number of ties among the alters divided by the number possible" (p. 175).

I used the qualitative data in two ways. While participants identified the identities of each contact and their relationships with them (e.g., whether one was a classmate, a professor, and/or a research collaborator at DU) in the first section of the interview, I used the qualitative data to confirm or correct which foci that each contact was associated with. Furthermore, I analyzed the qualitative data that explained the network formation through the lens of foci of activity. I coded

the data by using a descriptive approach (Saldana, 2016). Specifically, the codes included names (e.g., class) and characteristics (e.g., constraining) of different foci.

Findings

Social Integration Level

Fifty-three participants reported a total of 1,325 alters. Among these, 640 (48.3%) were developed at DU. Table 3.2 shows the number of alters in each ethnoracial category. American alters with a different racial background comprised 39.4% of the institutional ties, followed by international alters of the same race (37.7%), same-race Americans (12.7%), and internationals with a different race (10.3%). Overall, about half (52.0%) of the institutional ties were Americans, and about half (49.7%) were alters with a different racial background.

Within a range from 0 to 1, the SI_a scale had a mean value of 0.33, a median of 0.35, a minimum of 0, and a maximum of 0.71. Figures 3.1, 3.2, and 3.3 provide examples of network graphs corresponding to SI_a values of 0, 0.35, and 0.71. The student with a SI_a of 0 had few institutional ties or same-race international ties at DU. At a SI_a of 0.35, a student had a mix of cross-racial and/or cross-national ties at DU. For instance, P6 only had Americans of the same race and internationals of different races. Students with a SI value of 0.71, had many American ties with a different racial background within the institution.

There was no significant difference in SI_a between Asian and non-Asian students. The average SI_a for Asian students was 0.34, marginally higher than that among non-Asian students (0.32) with no significant statistical difference (t = -0.279, p = 0.782). Even when considering other relevant variables, being Asian did not exhibit a significant association with SI_a (β = 0.005, p = 0.931), as illustrated in Table 3.3. This result suggested that Asian international students were not inherently more socially segregated than their non-Asian counterparts. The R-

squared value of this regression model was 0.115, indicating that the variables incorporated in the analysis explained 11.5% of the variance in participants' SI_a. It is evident that social integration is a complex process, and attributing it solely to one's country of origin or the variables within the models oversimplifies it. The following section sought to further unpack the mechanisms that influenced the social integration of these students.

Shaping Social Integration: The Role of Foci of Activity

Two characteristics of foci of activity played a critical role in facilitating international students' social integration: (a) constraining and (b) overlapping. Constraining foci of activity typically required repetitive participation and tended to generate networks where nearly all individuals were interconnected. The degree to which international students interacted with Americans and those with different racial backgrounds largely depended on the proportion of these individuals associated with the given foci. Figure 3.4 demonstrates the network of an Asian doctoral student in Geosciences (P44) with a SI_a of 0.63. Notably, 17 of her 21 institutional ties were linked to her academic department including faculty, staff, and peer students whom she regarded as friends. Facilitating constant interactions through classes, research, and work, her academic department functioned as a constraining focus. The density of her academic network within the institution was 1, indicating that individuals were fully interconnected. Being part of such focus, this student did not intentionally choose her social interactions:

> They're mostly I would say racially White. So A4409 and A4421 from the UK, A4412 from Australia, A4411 from Italy. A4419 is from Chile. She's the only POC, international student. So yeah, I mean, it's just a reflection of the field in general. (P44)

Like P44, it was not uncommon for doctoral students to be embedded in a closely-knitted academic network. Their engagement in academic studies and work naturally gave rise to the development of social relationships that transcended national and racial boundaries.

Another example of constraining foci was Greek organization. P40 was an undergraduate student from Trinidad and Tobago (Figure 3.5). His relatively high SI_a (0.6) was primarily attributable to his involvement in a fraternity. He reported a total of 18 institutional ties, with 15 of them being associated with the fraternity. Through the fraternity, he developed friendships with both American and international students, regardless of whether they shared racial backgrounds. Interactions within his fraternity assisted him in overcoming initial language difficulties:

> When I first came here… I had a very strong accent, the Trinidadian accent, similarly to Asian accents when I try to speak English. So I had a terrible time, just to talk to people in the class, even to professors, sometimes they might ask [me] to repeat what I say. And I was like, oh, wow, this is kind of rough. But then, so I saw them. One of them was on the mall of the university. They said, hey, do you want to check this opportunity? I wasn't really into those fraternity stuff. But I was like, why not this one. (P40)

Consistent with findings from previous research (Su, 2018), campus employment was also a significant facilitator of international students' social integration. For example, an undergraduate student from India (P1) held two campus jobs. these roles resulted in the formation of two separate but internally dense components (Figure 3.6). The first component comprised 8 contacts (from A107 to A113), all of whom were Americans with whom he did not share a racial background. The second component consisted of 3 contacts (from A121 to A123). These 11 ties greatly contributed to his SI_a value of 0.53.

Beyond the influence of constraining foci of activity, overlapping foci also played a crucial role in fostering international students' social integration. Overlapping foci of activity refer to a group of individuals sharing more than one focus. Social connections established within specific foci, such as a class, may naturally diminish as the foci end. However, these connections are more likely to endure if the original focus leads to additional foci. For example, if students who initially met in a class decide to collaborate on a research project, their relationship is sustained through research, the new focus of activity. While graduate students often shared academic foci through classes, department gatherings, and research projects, undergraduate students were less likely to share other foci with classmates. An undergraduate student from China found it challenging to maintain connections with American classmates beyond the focus of class:

> I could make a lot friends in class. The problem was that we did not contact each other afterwards… Most of my American classmates love football, but I'm really not interested in that. I know if I went to football games with them, we might maintain our friendship. But I just didn't want to join. (P42)

While going to football games together could be another focus that originated from the class, this student chose not to engage in this new focus. Consequently, this student had a SI_a of 0.

In light of the aforementioned effects of foci, not all campus resources and programs contribute equally to international students' social integration. Some resources and programs tended to create constraining foci by requiring repetitive participation. For instance, three students listed contacts established through a university program that pairs international students with local community members. These students developed close friendships with American nationals through consistent meetings. However, many other resources and programs, such as

new student orientation, were weak in forming cross-national and cross-racial social ties due to a lack of continuity. This result echoed Güvendir (2018)'s findings, suggesting that while the international student orientation sessions strengthened students' institutional and goal commitments, they did not effectively facilitate students' interactions with peers or faculty.

It is worth noting that the effects of constraining and overlapping foci of activity were not impervious to structural barriers like racism. Despite the academic department typically serving as a constraining focus for doctoral students, P43, a doctoral student from Mexico highlighted the social segregation between American and Latin American students within her department:

> I feel like [there is] kind of a division in [department name], and isolation. I feel like, okay, is this because I'm Mexican or something? I feel that all the conversations were always between Americans… When I sometimes asked something, just a few commented, whereas when someone else who is not Mexican commented, the conversation followed… And if you didn't catch the first thing or the topic, you were completely out… There was an informal meeting organized by an American student… It was very weird because the Latin Americans were at one table and the non-Latin Americans were at another table, which is funny. (P43)

This student only reported 3 institutional contacts, all of whom were international students from Latin America. This particular case resonated with earlier research indicating that international students might be marginalized and discriminated against based on their race, ethnicity, country of origin, and cultural background (J. J. Lee & Rice, 2007; Yao, 2018). While P43 was the sole participant in this study demonstrating social segregation within a constraining focus, this finding implies that foci of activity did not counteract segregation resulting from racism.

A Case Analysis

I use case analysis to further demonstrate how an international student's social network pattern is shaped by foci of activity. P51 was a master's student from Vietnam. Before enrolling at DU, she obtained her bachelor's degree from a different US university. As Figure 3.7 illustrates, her social network comprised two main components, excluding the link between A5106 and A5111. The one on the left side was associated with the academic focus, including professors (A5108, A5013) and fellow students in her academic program (A5109, A5110, A5111, A5121). With the exception of two international students, A5110 (same race) and A5111 (different race), other social ties surrounding the academic focus were Americans of a different race. The right component of her network was more complex. Within the institution, she was part of a Vietnamese student community (A5101, A5104, A5117, A5118, A5119), but this community remained separate from her academic network. Among her 14 non-institutional ties, 13 were co-national friends or family members. These social ties were heavily connected to her Vietnamese student group at DU, as she facilitated introductions among them. Overall, the right component represented non-academic co-national social ties associated with activities like cooking and playing games. These activities were, to some extent, culturally exclusive:

> Because a lot of the time, I'd like to make Vietnamese food. And even if I can invite people over, like not Vietnamese people to enjoy it, it's not going to be like that every day, every time, right? So, it's just easier to do those gatherings, like potluck, with people that actually enjoy the food, and understand how the food is made, instead of me explaining and trying to justify a lot of the food choices that I make. If you play board games, it's just easier to play it in your native language because of how the game is built

> and how the dynamics of the group are. It's just easier to do that with Vietnamese friends. (P51)

This case analysis prompted a critical question: can P51 be considered as a socially integrated international student? The answer was likely negative, given that a majority of her social contacts were co-nationals and her SI_a score was 0.32, lower than the median value SI_a 0.35. However, this did not imply her inability to form social connections with Americans and/or individuals of non-Asian backgrounds. In fact, within her academic department, she considered her peer students as good friends (A5109, A5110, A5111, A5121). They attended classes and worked together, and hung out outside of the academic settings. Overall, her level of social integration was compatible with her needs as a graduate student:

> In regard to friends from other cultures or American friends, I think it's definitely because now that I'm a graduate student, and a lot of that is built with my research and also my study. So there's a little bit of a professional kind of feeling to the whole setting. And even we have a lot of my cohorts we hang out outside of class, but there, we also totally could still talk about our research or talk about what we're doing currently, what we study. So I think it's not really so much about the culture, but also about the dynamics. (P51)

Conclusion and Discussion

This study measured and examined the mechanisms influencing international students' social integration. Using ego-centric SNA, this study developed a new approach to gauge international students' social integration level. The scale ranging from 0 to 1, indicates a higher level of social integration as the score approaches 1. Based on this measure, no significant difference was found between Asian and non-Asian international students in terms of their social

integration. Through the lens of foci of activity, the study revealed that constraining and overlapping foci of activity facilitated international students' social integration. Examples of constraining foci included Greek organizations, campus jobs, and doctoral students' academic departments. These foci created tightly-knit sub-networks, fostering interactions between international students and individuals with different national and/or racial backgrounds. Overlapping foci were effective in sustaining these social connections. As a result, undergraduate students faced challenges in maintaining inter-group connections due to a lack of foci overlapping with their classes.

The scholarly contribution of this study is twofold. Firstly, it introduced a new measure for assessing international students' social integration, considering their integration into the higher education institution and their social connections with Americans and/or individuals with a different racial background within the institution. The ego-centric SNA method provided a comprehensive view of international student social networks by incorporating various types of social contacts beyond friends. This approach contributed to a more accurate representation of international students' network compositions. Secondly, this study explored the factors that shape international students' social integration from a social network perspective. Aided by the visualized networks, the concept of foci of activity shed light on the network formation, thereby uncovering the mechanisms of social integration.

However, a limitation of this study is insufficient evidence on how foci of activity interact with other factors influencing international students' social integration identified by previous literature, such as discrimination (Yao, 2018). In particular, this study highlighted one instance suggesting that foci of activity did not effectively counteract the negative effects of

racial segregation. Future research should explore the nuanced interactions between foci of activity and structural social segregation.

Practically, the study suggests that universities should carefully consider the type of foci of activity they foster through student programs and services. Prioritizing constraining foci that are not culturally exclusive, such as campus jobs and non-ethnicity-based student organizations, is crucial for building cross-national and/or cross-racial relationships. Universities should not rely on one-time resources or events like new student orientation to enhance intercultural mixing. Instead, they should invest in opportunities for repeated interactions among individuals with diverse national and racial backgrounds, such as a buddy program (Nilsson, 2019) and a student volunteer organization (O'Neil et al., 2023). For undergraduate students, focused activities, such as post-class projects, could assist international students in maintaining cross-group connections developed during class.

While promoting engagement between international and domestic students, higher education institutions should avoid stigmatizing ethnic-based foci of activity. The question of whether having co-national friends hinders the development of social relationships with host nationals remains debatable. For example, Spencer-Oatey et al. (2014) argued that having a substantial proportion of co-national friends impeded the formation of cross-cultural friendships, whereas Trice (2004) found that the frequency of international students' interactions with co-national peers was not significantly associated with those with local students. This study found that being associated with co-national based foci of activity did not necessarily hinder international students from developing cross-group social ties through other foci. The case analysis of the Vietnamese doctoral student suggested the potential for simultaneous integration into both ethnic and non-ethnic social networks.

Tables

Table 3.1: Four Types of Institutional Alters

	Different Race	Same Race
American	AD	AS
International	ID	IS

Table 3.2: Number of Alters by Race and Nationality

	Different Race	Same Race
American	252	81
International	66	241

Table 3.3: Regression Results on Adjusted Social Integration

	Coffecient (Std. Error)
(Intercept)	0.198 (0.083)*
Asian	0.005 (0.055)
Female	0.106 (0.052)*
Graduate student	-0.031 (0.058)
Having received US education Before Attending DU	0.003 (0.054)
Having attended DU for 6 semesters or longer	-0.007 (0.055)
Primarily living locally over the past year	0.097 (0.084)

Note. * $p < 0.05$; R-squared = 0.115

Figures

Figure 3.1: Participant's Ego Network (P10)

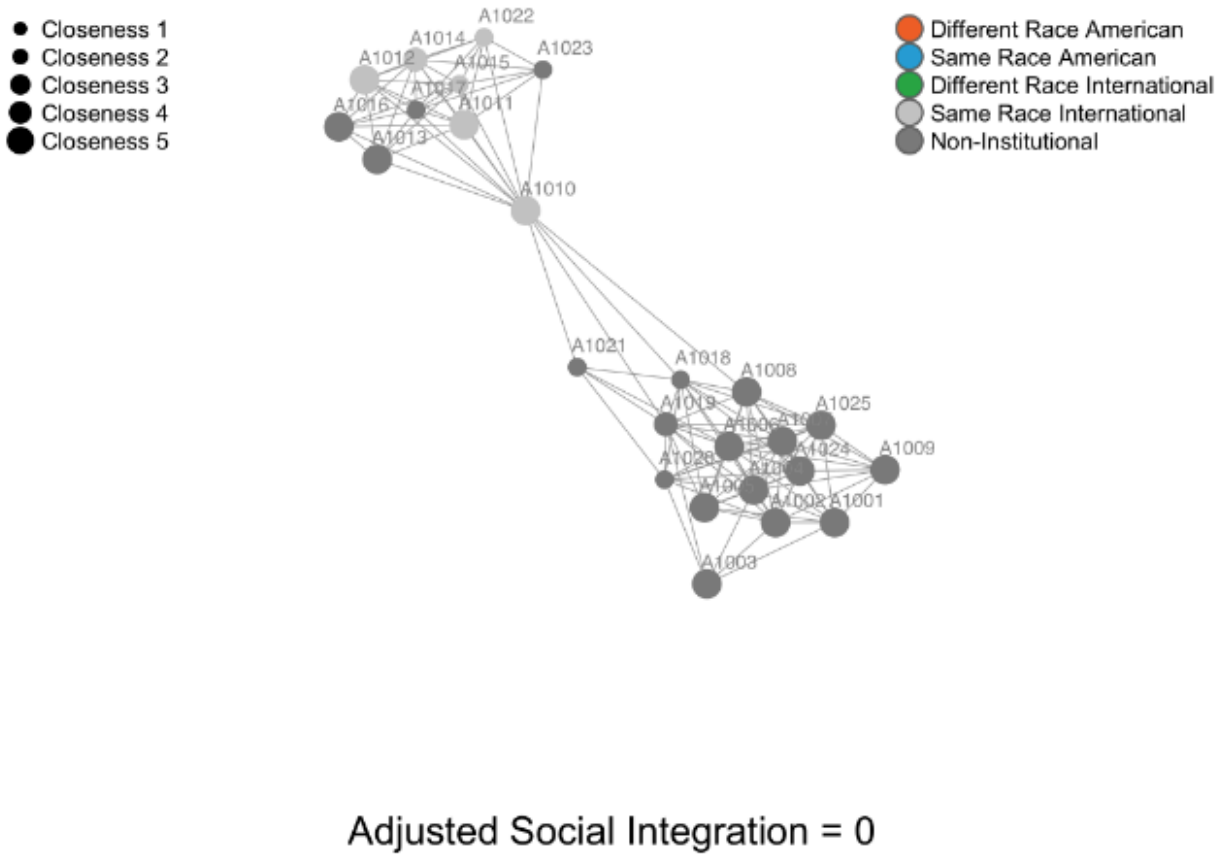


Figure 3.2: Participant's Ego Network (P6)

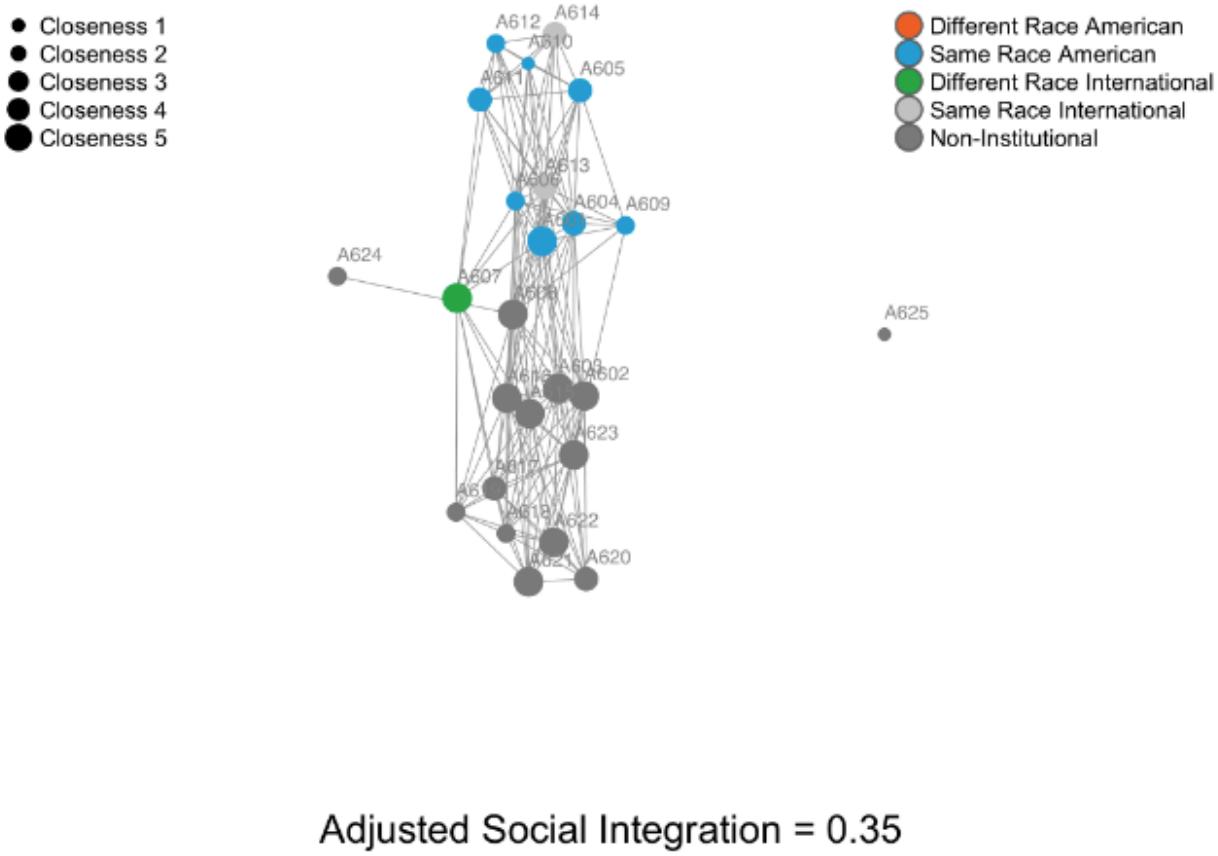


Figure 3.3: Participant's Ego Network (P33)

Figure 3.4: Participant's Ego Network (P44)

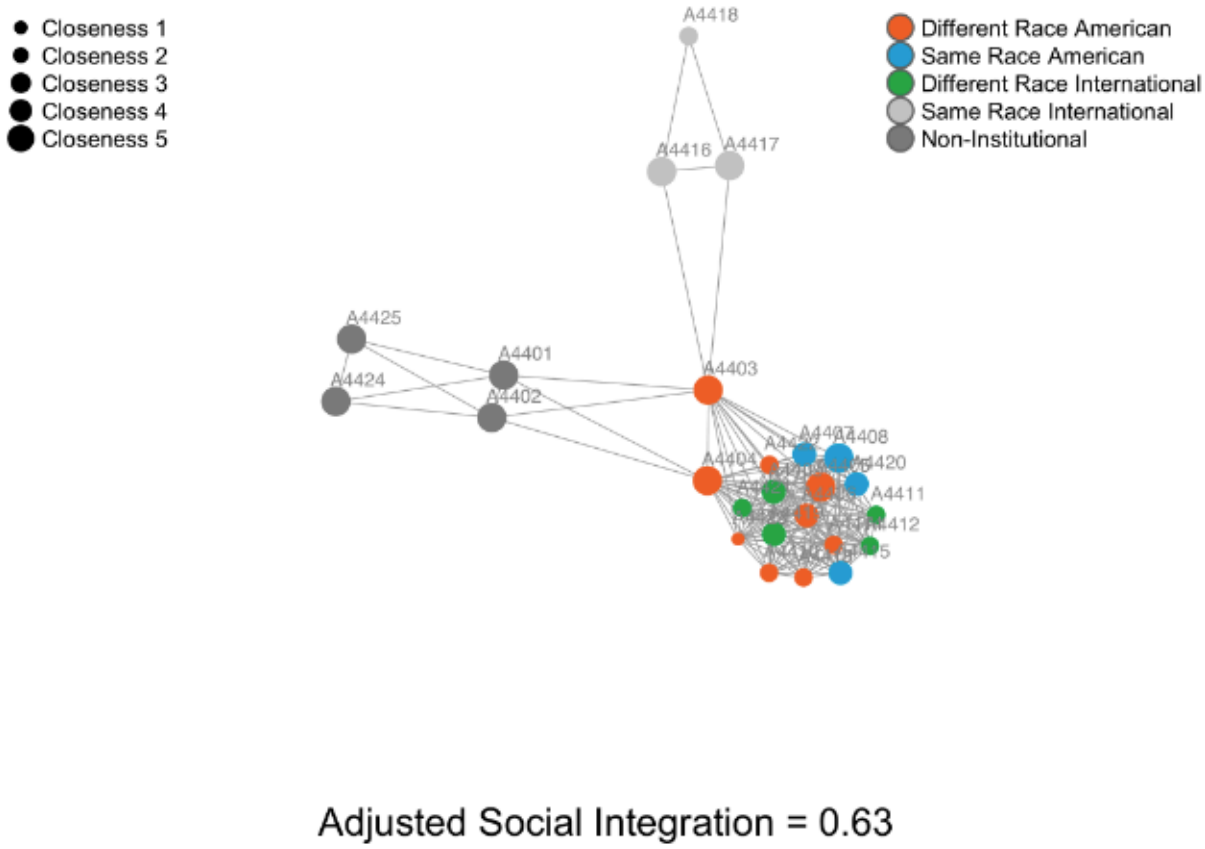


Figure 3.5: Participant's Ego Network (P40)

Figure 3.6: Participant's Ego Network (P1)

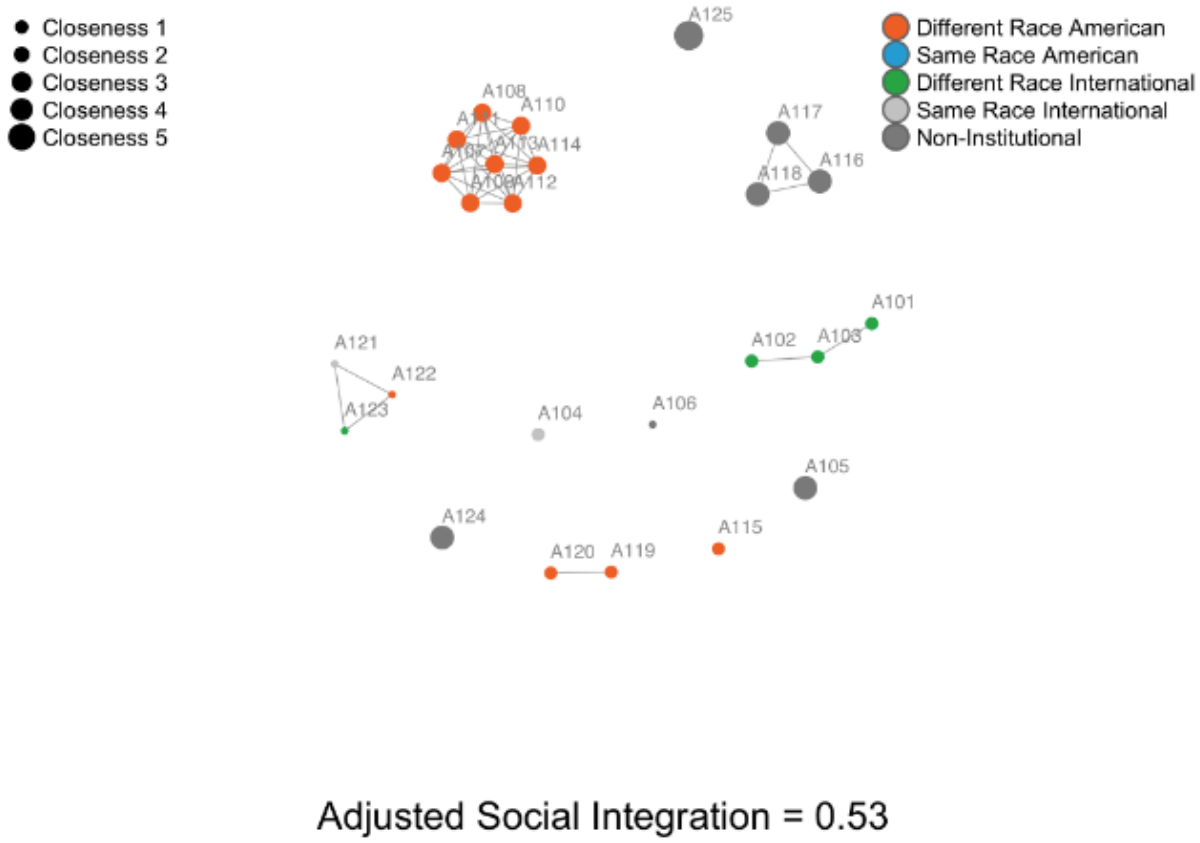
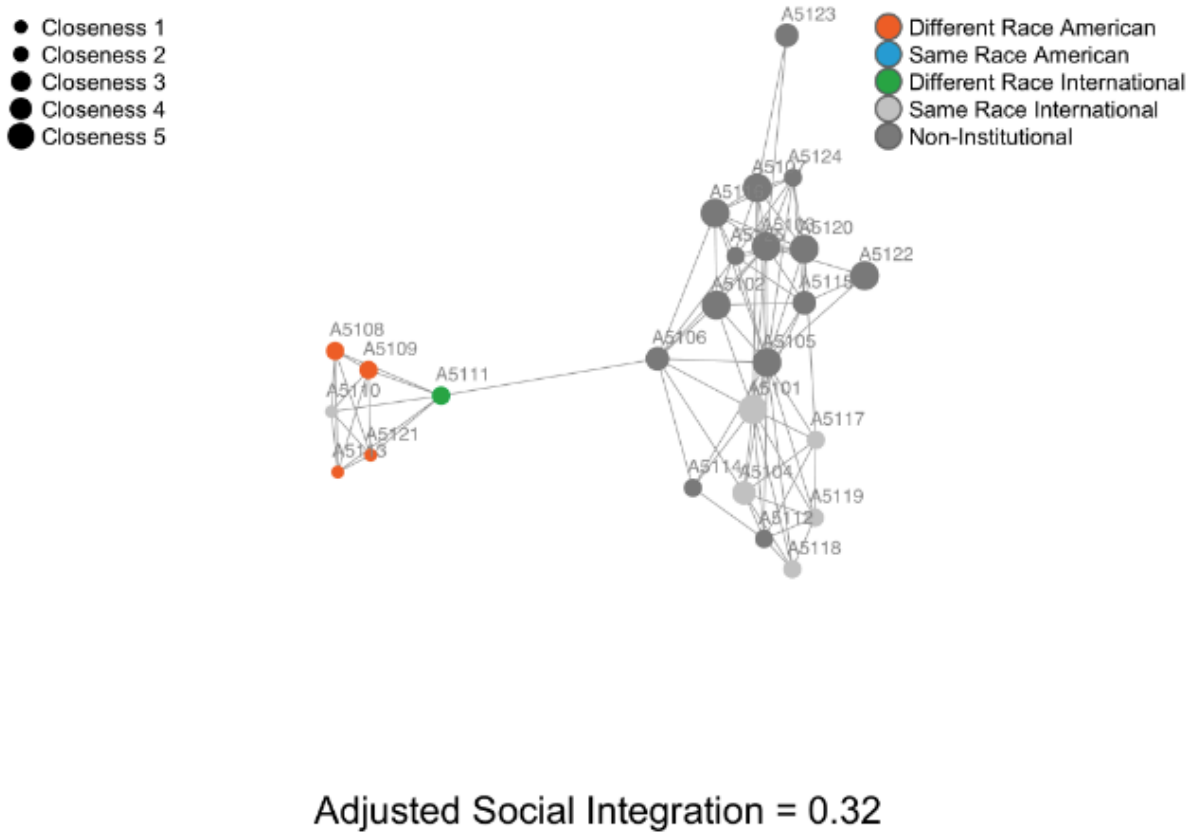


Figure 3.7: Participant's Ego Network (P51)



Chapter 4: How Are International Students Supported? The Roles of Social Networks

Nearly one million international students enrolled in US higher education in 2021/22 (Institute of International Education, 2022). While international students bring economic contribution, scientific research capacity, and diverse cultures to US higher education, they are not as equally supported as their domestic peers (Squire, 2019). Scholars have long argued that universities should invest more resources to support the international student population (Arthur, 2017). However, how to support international students at the institutional level is a question that cannot be answered without understanding international students' support system.

Literature indicated that co-national, host national, and other international social contacts provided different types of support for international students. Co-national friends formed a space for international students to express their ethnic and cultural identity (Bochner et al., 1977) and provided instrumental support (Brown, 2009). Host nationals were critical in reducing international students' cultural loneliness (Sawir et al., 2008), enhancing their life satisfaction, and alleviating their homesickness (Hendrickson et al., 2011; Mak et al., 2015). Support provided by other internationals was under-researched. One case study revealed that an international learning community strongly supported international students' academic success (Montgomery & McDowell, 2009).

Despite the amount of literature on the roles of social ties of different nationality groups, a comprehensive view of international students' social support system is still missing. Many studies focused on international students' friendships or peer networks in the host country while omitting other important relationships such as family, faculty, and university staff. Especially, research showed that family and friends in the home country were still the primary sources of social support for new international students (Bhochhibhoya et al., 2017). In addition, whether

international students receive support does not only depend on who they socialize with but also the patterns of the networks they are part of. Individuals and the support exchanges among them are not independent of the network context in which they are embedded. For example, high-density networks provide more social support (Hurlbert et al., 2000). Therefore, this study adopted the ego-centric SNA and collected the network data from 53 international students. The network data incorporated a total of 1,325 social contacts that were not limited to friends or ties in the host country, as well as the structures of students' social networks. Based on such data, this study aimed to identify the unique effects of social contacts' nationality, geographic location, and role, as well as network characteristics, on providing support for international students.

Literature Review

Social support is resource embedded in one's social networks that assists one in addressing everyday problems to serious crises (Walker et al., 1993). Studies have indicated that social support contributed to international students' psychological well-being. Specifically, higher perceived social support led to less acculturative stress (Poyrazli et al., 2004; Sullivan & Kashubeck-West, 2015; Yeh & Inose, 2003), lower levels of depression (Dao et al., 2007; Sumer et al., 2008) and better adjustment (Shu et al., 2020). In addition to the overall positive effect of social support, researchers have also identified the types of support provided by different social ties.

Effect of Support Providers' Nationality

Building upon Bochner et al. (1977)'s work on the functional model of international student friendships, the majority of the studies on international students' social networks focused on the effects of having co-national, host national, and other international peers.

International students' co-national social ties provided practical and psychological support, validated their cultural identity and enhanced their sense of belonging on campus. Ethnic social groups effectively enhanced international students' social adjustment as students could exchange information and knowledge about life in the host country (Ye, 2006). Psychologically, co-national ties assisted international students in coping with negative emotions, loneliness, and relationship issues (Ward & Masgoret, 2004). In addition, international students could affirm and express their cultural identity through cooking ethnic food and attending sports events that were related to their culture (Bochner et al., 1977). When confronting many challenges of socializing with American roommates in college residential halls, Chinese international students with compatriot roommates showed a higher sense of belonging (Yao, 2016). Similarly, living with other students from the home country provided a buffer for Indian students from segregation on campus (S. Thomas, 2014).

Scholars held different views on whether interacting with co-nationals impedes international students' integration to the host society. While Geeraert et al. (2014) found that having more close co-national contacts was associated with more stress and lower levels of cultural adjustment, H. Li & Pitkänen (2018) argued that co-national friendships did not necessarily hinder international students' academic and social integration in the host country. Brisset et al. (2010) indicated that satisfaction with ingroup social support was even positively associated with self-identification with host culture. Another study that examined the functions of the Chinese Students and Scholars Association at a US university uncovered that ethnic organizational communications had a long-term positive impact on students' cultural adjustment; internally sharing the experiences and strategies regarding intercultural communications helped to enhance its ethnic members' intercultural competence (C. Lin, 2006).

Despite the importance of co-national ties, international students' connections with local peers could not be replaced (Sawir et al., 2008). In Australia, students' self-reported feelings of loneliness or isolation were strongly associated with the difficulties of building friendships with local students. Therefore, the authors concluded that bonding with local peers helped reduce international students' cultural loneliness, which was caused by being away from the cultural and/or linguistic environment they were used to. Similarly, Hendrickson et al. (2011) found that the international students with a larger ratio of host national peers in their friendships had stronger feelings of social connectedness, higher levels of satisfaction with life, and lower levels of homesickness. Even having one host national in support network could make significantly enhance international students' cultural adjustment (Shu et al., 2020). Also, social support from hosts significantly predicted international students' satisfaction with personal and university life (Mak et al., 2015).

Researchers explored the mechanisms underlying the positive effects of interacting with local friends on international students' acculturation. Social contact with host nationals not only strongly predicted Asian international students' sociocultural adjustment but also partially mediated the relationship between cross-cultural self-efficacy and sociocultural adjustment (A. Li & Gasser, 2005). In other words, social interactions with host nationals could improve international students' cross-cultural self-efficacy. In line with this study, Ng et al. (2017) found that social support from local friends was positively associated with international students' integration strategy and negatively associated with their marginalization strategy. Integration strategy referred to embracing the local culture while maintaining their original cultural identity, and marginalization strategy was defined as not maintaining their home culture and also not making social connections with host nationals.

In contrast to the amount of literature on international students' social relationships with co-nationals and host nationals, social support from other internationals was understudied. Schartner (2015) indicated that these groups of social contacts could compensate for the function of domestic students and serve as an alternative way of building cross-cultural connections. Beyond that, a study that investigated a learning community of exclusively international students at a British university indicated that other international students provided strong support in academic studies for each other (Montgomery & McDowell, 2009). With the shared academic goals, senior international students' experiences were circulated within the community, and newer members benefited.

Effect of Support Providers' Role

The role of a support provider refers to whether one is a faculty member, a family member, a friend, etc. This paper focused on the roles of faculty and staff members in providing support for international students in particular. Previous studies on international students' social networks overwhelmingly focused on peers or friendships and overlooked faculty members. In fact, faculty members are often an essential part of international students' social networks and play an integral role in shaping international students' experiences. Research indicated that international students preferred to firstly turn professors instead of their US peers for academic and practical support (Glass et al., 2015). The authors added that culturally inclusive teaching practices led to better academic and social adjustment for international students. In addition, faculty members were the key people to identify international students who were in need and direct them to relevant resources (Arthur, 2017). Interacting with faculty members outside of classroom resulted in higher participation in co-curricular activities and a greater sense of community among international students (Glass et al., 2017). For international graduate students

in particular, support from faculty advisors contributed to a stronger sense of fitting in their department and higher confidence in academic success (Curtin et al., 2013). Moreover, faculty advisors were the most critical point of contact to connect international graduate students to their future careers (Yan & Berliner, 2011).

Although literature rarely examined the interactions between international students and university staff members, research on international students' use of university resources provided some relevant insights. Student support services, such as academic advising, writing support, and immigration services, significantly enhanced international students' academic and social adjustment (Cong & Glass, 2019). Career services were particularly needed by international students who were self-funded or family-funded, suggesting a possible positive effect of career services on international students' financial well-being (X. Li & Lee, 2018). In addition, universities have developed programs particularly for international students, such as pairing them with domestic students. These programs successfully assisted international students in expanding their social networks with local students and enhancing their social adjustment and overall satisfaction (Nilsson, 2019).

Effect of Network Related Characteristics

Little is known regarding whether international students' support mobilization was influenced by the characteristics of the networks they are embedded in. Social network researchers have indicated that support is highly associated with tie strength, and strongly connected people tend to feel obligatory or empathy to help one another (Walker et al., 1993). Compared to weak ties, strong ties provided a broader range of support, especially emotional aid and companionship (Wellman & Wortley, 1990). In an individual's social network, the position of each social contact matters. The people with a higher degree centrality in a network are those

who are more connected to others, so they potentially provide more emotional support for the individual (Borgatti et al., 2018). When it comes to the network structure as a whole, specific network compositions, such as the proportion of kinship, influenced one's mobilization of support (Hurlbert et al., 2000). High network density was associated with stronger support (Hurlbert et al., 2000). In an individual's personal social networks, network density refers to the degree that this person's social contacts are connected to each other.

Overall, this study sought to fill the literature gap in two aspects. Firstly, although previous studies identified the types of support provided by co-national, host national, and other international ties, the results could be confounded by other characteristics of the individuals who provided or received the support. This study controlled for those relevant factors and discerned the unique effect of support providers' nationality, role relationship, etc. Secondly, this study did not only examine how different social contacts played different roles in supporting international students but also how the network patterns influenced the international students' access to social support. The latter are the less visible factors that shape the social support mobilization process. Combining these two aspects, this study aimed to demonstrate how the international students' social support system functions.

Theoretical Framework

According to Bourdieu (1986), social capital refers to resources one can obtain by being a group member. A group holds collectively owned capital that is presented in the form of economic, cultural, and symbolic value. The volume of social capital one possesses is associated with the size of the networks this individual can mobilize and how much capital can be obtained through these networks. N. Lin (2001) pointed out that social capital can also be seen at an individual level without the closed groups. Therefore, social capital can be generally defined as

"investment in social relations with expected returns" (p. 6). Resources are embedded in social networks so that individuals can better themselves through social ties to access resources.

The social capital theory has been applied in the research of international students' social networks. Trice (2004) defined international students' social capital as "relationships with individuals who are able and willing to provide, or negotiate the provision of, institutional resources and opportunities" (p. 672). The author believed that institutional resources are valuable for international students. The more they access, the better they can adjust to the host country's culture. A primary way of accessing institutional resources is to build social networks with host national students.

However, other scholars have challenged such perspective of international students' social capital. Rose-Redwood & Rose-Redwood (2013) argued that an internationalist perspective is more appropriate than the institutional view demonstrated by Trice (2004). From this perspective, international students' social capital "is not reducible to the level of adjustment to the dominant institutional culture alone but also includes the social resources and opportunities provided by the international social networks that may offer support both during and after a student's university experience" (p. 416). International students are more than minorities who must adapt to the host culture. They are individuals who seek to pursue their academic, career, and life aspirations, which is not different from any domestic students. Adopting the internationalist perspective of social capital, this study examined the social support that facilitated international students' well-being and success. Specifically, this study sought to answer this research question: How are the forms of support received by international students influenced by social contacts' nationality, location, role, and network characteristics?

Method

Research Site and Participants

I recruited the participants at Desert University (pseudo name, DU hereafter), a four-year public research university located in the Southwestern US. Participants were international students who held an F-1 visa and had enrolled in a degree-seeking program for a minimum of one academic year. An email invitation was distributed by the International Student Services office to over 2,600 potentially eligible students. A total of 103 students signed up for the study, and 53 of them participated in the study in 2021. In appreciation of their time, each participant received compensation in the form of a $30 gift card, except one student who opted to decline this compensation.

Among these 53 participants, 31 were from Asia, 7 from Europe, 7 from the Middle East, 7 from Latin America, and 1 from Africa. 21 were undergraduate students, 5 were studying at the master's level, and 27 were pursuing a doctoral degree. 33 participants were female students, 19 were male, and 1 identified as non-binary/non-conforming gender. 25 out of the 53 students had at least one semester of education experience in the US prior to joining the university where the research was conducted. 28 students completed at least 6 semesters at DU. Impacted by COVID-19, 7 participants were primarily living outside of the city where DU is located during the year before the study was conducted. To protect participants' identities, I used P1 to P53 to refer them throughout the dissertation.

Research Design and Data Collection

The quantitative study adopted an ego-centric SNA approach, which examines the social relationships surrounding individual participants (Perry et al., 2018). Participants are the egos,

and their social contacts are alters. An ego network consists of the alters connected to the ego, ties between the ego and alters, and ties among alters.

I gathered the data through a pre-interview survey and interviews. As part of the request to sign up for the study, participants needed to complete a 3-minute online survey. The survey primarily collected participants' demographic information, such as academic level and major. I conducted all interviews via Zoom. Each interview had three sections. In the initial step, I guided the participants to write in their responses in Google Sheets. I developed the following protocol based on the approach proposed by McCarty et al. (2019):

1. Name generating. Participants list the names of 25 people whom the participants knew by name or by sight and interacted most frequently with either in-person or online over the past year.
2. Alter attributes. Participants identify various attributes associated with each of their 25 social contacts. These attributes included gender, nationality, and whether they first met at DU, etc.
3. Alter support. Participants identify specific types of support received from their social contacts over the past year.
4. Ties among alters. Participants identify whether any interactions existed among their 25 social contacts. A tie between two alters was identified only when the participant believed that these two people had directly interacted with each other.

Variables

All variables used in the regression analyses are presented in Table 4.1. In the parenthesis, I noted whether a variable is at the alter, ego-alter, ego, or network level. An alter level variable is about characteristics of social contacts such as their gender identity. An ego-

alter variable is similar to an alter-level variable but emphasizes the relationship between ego and alter, such as whether ego and alter share racial identity. An ego level variable is about the participant's characteristics, such as the participant's academic level and country of origin. A network level variable indicates characteristics of an ego's network, such as the number of American contacts in a participant's network.

Dependent Variables. Dependent variables are whether one received different forms of support over the past year: academic, career, life, emotional, and cultural. Academic support was helping students to solve academic problems and perform better in their academic studies. Career support included helping students make career plans, referring to a job, and writing recommendation letters. Life services referred to practical assistance with life-related issues, such as giving a ride and lending objects. Examples of emotional support included listening to them and making them feel better when they feel down. Cultural support took place when someone helped the student understand the American culture better, or introduced students to know American people.

Independent Variables. ***Nationality-Location Class.*** The nationality-location class contained five categories: American in the US, co-national in the US, other international in the US, co-national in their home country, and other. Participants reported whether a social contact's nationality was the same as theirs, American, or different from theirs but not American. They also indicated whether a social contact primarily lived in the US, their home country, or other country over the past year. Among the total of 1,325 social contacts, 31.5% were American in the US, 28.6% were co-nationals in their home country, 20.9% were co-nationals in the US, 10.3% were other internationals in the US, and 8.8% were other. The "other" group included co-nationals, other internationals, and Americans in a third country (4.2%, 3.2%, 0.3%,

respectively), American and other internationals in one's home country (0.08%, 0.08%, respectively), and the social contacts whose location of living was not known by the participants (0.8%). In general, a majority (62.6%) of the international students' social contacts were in the US, and co-nationals made up more than half (53.7%) of all the social contacts.

Role Relationship. The role variable included friend, life partner, family, faculty, university staff, and other. These groups were mutually exclusive. For example, if a social contact was identified as a partner, family member, faculty member, or university staff member, this contact was not counted as a friend. Also, a partner was not counted as a family member. Faculty and staff specifically referred to those who were affiliated with DU. The "other" group included acquaintances the participants did not perceive as friends. Overall, over half (51.2%) of the total social contacts were friends, followed by family members (17.6%), other (16.8%), faculty (8.2%), staff (4.1%), and partner (2.1%).

Tie Strength. While there are various approaches to operationalize tie strength, such as intimacy, frequency of interaction, and duration of contact, Marsden & Campbell (1984) indicated that closeness was the best indicator. Following this finding, I used participants' self-reported closeness with each alter to measure tie strength. Tie strength was treated as a continuous variable ranging from 1 (not close at all) to 5 (very close). The mean value of tie strength was 3.422.

Degree Centrality. Degree centrality measures the number of ties one has in a network (Borgatti et al., 2018). In an ego network, an alter's degree centrality is the number of ties with other alters. The mean value of degree centrality is 5.789.

Number of American Ties. On average, 7.9 out of 25 social contacts were Americans in the US. The highest number was 23, reported by an undergraduate student from Japan. Four participants did not report any American contacts in the US.

Network Density. Network density is measured by "the number of ties among the alters divided by the number possible" (Perry et al., 2018, p. 175). Therefore, the range of density is 0 to 1. In a network of high density (i.e., close to 1), alters tend to be connected with each other. In this study, the mean density value was 0.241, with the lowest value of 0.057 and the highest of 0.677.

Control Variables. Control variables included whether a participant (a) was a graduate student, (b) received education in the US for at least one semester before attending DU, (c) was from Asia, (d) was female, (e) shared the gender identity with social contacts, (f) shared the racial identity with social contacts, and (g) primarily lived in the city where DU is over the past year. I added the last variable because I conducted the study during the COVID-19 pandemic, and not all participants (86.8%) lived in the city where DU is located. Not living near the university might prevent them from receiving support.

Data Analysis

Beyond descriptive analysis, I used hierarchical logistic regression analysis because the dependent variables are binary and ego-network data has a multilevel structure with alters or ego-alter ties being nested under egos or ego-networks (Vacca, 2018). Therefore, alters and ego-alter ties are the level 1 data, while egos and networks are at the level 2. Specially, I use random intercept fixed slope models:

$$\pi_i = \frac{exp\left(\beta_{0,ego(i)} + \beta_i x_i\right)}{1 + exp\left(\beta_{0,ego(i)} + \beta_i x_i\right)}$$

$$\beta_{0,ego(i)} = \gamma_{00} + \gamma_{01}\omega_{0,ego(i)} + u_{0,ego(i)}$$

I used likelihood ratio tests to ensure whether variance of the random intercept was significantly different from zero, which demonstrates the appropriateness of the hierarchical logistic models (Vacca, 2018). In the findings, I reported the average marginal effects (AME) instead of regression coefficients because the interpretations of AME were more intuitive.

Findings

Descriptive Analysis

A higher percentage of the social ties within the US provided academic, career, life, and cultural support for international students than those who lived overseas, while exchanging emotional support was not restricted by the geographic locations (Table 4.2). Over 60% of the social contacts outside the US provided emotional support, while only under 50% of the US ties did so.

Among social contacts in the US, Americans, co-nationals, and other internationals played different roles in supporting for international students. International students relied more on co-nationals for life services (40.1%) as opposed to other internationals (26.5%) and Americans (23.3%). Americans were the primary source of cultural support (51.8%), followed by other internationals (27.9%) and co-nationals (22.4%). More than half (54.4%) of the other international ties provided academic support, which was slightly higher than American (49.4%) and co-national (42.6%) in the US. In terms of career support, Americans (30.9%) and other internationals (29.4%) were more helpful than co-nationals (21.3%).

The forms of support provided were also associated with the roles of social contacts (Table 4.3). Faculty members led in providing academic (92.7%) and career support (69.7%) for international students. In addition to that, students also received academic support from their

partner (60.7%) and friends (40.4%) and career support from university staff members (40.7%) and partners (39.3%). Partners were particularly critical in providing emotional support (96.4%) and life services (85.7%), followed by family (64.4%, 20.6%, respectively) and friends (58.8%, 27.8%, respectively). Regarding cultural support, the participants reported that 41.3% of faculty members and 33.3% of the university staff members provided cultural support. In contrast, the more of the partners (57.1%) provided such support.

To explore the relationship between network-related variables and providing support, I compared the mean values of tie strength, centrality, number of Americans, and density between the ties that provided and did not provide support in all five aspects (Table 4.4). On average, participants reported significantly stronger social ties with the people who provided career (3.61 vs. 3.37, $p < 0.05$), life (4.09 vs. 3.22, $p < 0.001$), and emotional support (4.09 vs. 2.74, $p < 0.001$) compared to those who did not respectively. The social contacts who provided academic (6.22 vs. 5.49, $p < 0.05$), career (6.46 vs. 5.59, $p < 0.05$), and life support (7.1 vs. 5.4, $p < 0.001$) had a significantly higher degree centrality, respectively. Career (9.08 vs. 7.51, $p < 0.001$) and cultural support (9.22 vs. 7.39, $p < 0.001$) were more likely to take place within networks that had more Americans who lived in the US. Emotional support was more likely to happen within networks that had lower density (0.23 vs. 0.25, $p < 0.05$).

Regression Analysis

The regression analysis results confirmed that international students were more likely to receive support from social contacts in the US than overseas, holding other variables constant (Table 4.5). The average probabilities for Americans in the US to provide cultural, life, academic, and emotional support were 462.2% ($p < 0.001$), 191.6% ($p < 0.001$), 79.1% ($p < 0.05$), and 67% ($p < 0.05$) higher than co-national contacts in their home country respectively.

For the social ties in the US, different nationality groups provided different forms of support for international students. The international contacts who were not from the participants' home countries had a positive effect on supporting international students' academic studies. Compared to American ties in the US, other internationals increased the probability of providing academic support by 66.9% on average ($p < 0.05$). There was no significant difference between co-national and American contacts in the average probability of providing academic support. This finding echoed Montgomery & McDowell (2009)'s study, which indicated that an international learning community facilitated its members' academic success. Also aligning with previous research (Brown, 2009), this study found that international students relied on co-nationals for practical support. Specifically, co-nationals were 55.1% more likely to provide life services ($p < 0.05$) to international students than Americans. With shared language and culture, international students might find it easier to ask for life-related assistance and find that the advice from their compatriots in the US was particularly relevant. Co-nationals and other internationals also supported international students' career development. These two groups were 58.2% ($p < 0.05$) and 68.4% ($p < 0.05$) more likely to provide career support than Americans. This result was inconsistent with the descriptive analysis after controlling for other variables. The finding suggests that some career-related capital could be particularly owned within the co-national and the broader international community. These people were more likely to understand the specific career challenges that international students face and have the resources to facilitate international students to develop careers in their home country and transnational settings.

Despite the value of co-national and other international social ties in the US, Americans played an irreplaceable role in supporting international students' cultural integration and served as an essential source of emotional support. American contacts were 200% ($p < 0.001$) and

126.1% ($p < 0.001$) more likely than co-nationals and other internationals to provide cultural support. There was no better way to understand and adjust to a new culture than directly socializing with local people. In addition, the average probability for Americans to provide emotional support was 71.6% ($p < 0.05$) higher than co-national contacts. While different studies indicated that co-nationals (e.g., Ward & Masgoret, 2004) and Americans (e.g., Hendrickson et al., 2011) enhanced international students' emotional well-being respectively, this study tested these two arguments. It revealed that Americans were more likely to provide emotional support. This result suggested that international students' emotional needs might be more related to reducing cultural loneliness, which could only be relieved through interactions with local people (Sawir et al., 2008).

The support provided by faculty and university staff was limited to certain aspects. Compared to friends, faculty members were 317% ($p < 0.001$) and 307.3% ($p < 0.001$) more likely to provide academic and career support, respectively, and 166% ($p < 0.001$) and 56.6% ($p < 0.05$) less likely to provide life and emotional support. Regarding the probability of providing cultural support, there was no significant difference between friends and faculty. Staff members played a similar role as faculty members, except that they were not as likely to provide academic support (only 9.5% higher than friends) and the probability for them to provide cultural support was 70.5% ($p < 0.05$) lower than friends.

Not all network characteristics influenced the probability of social contacts providing support. Consistent with existing literature (Walker et al., 1993), tie strength was positively associated with support provision in all aspects ($p < 0.001$). The social contacts who had a high degree centrality were more likely to provide support on academics ($p < 0.001$), career development ($p < 0.05$), and life-related issues ($p < 0.001$) while providing emotional and

cultural support was not significantly affected by degree centrality. Although American contacts were more likely to provide emotional and cultural support as mentioned above, a higher number of Americans in the network did not further increase the probability of supporting international students. Lastly, support for international students was more likely to occur in loosely knitted networks. This result was contradictory to Hurlbert et al. (2000)'s argument that strong support came from dense networks, while it could be explained by Burt (1992)'s structural hole theory. Dense networks result in redundant information, and students are more likely to access unique sources of information from relatively disconnected social contacts. In particular, the negative effect of density on providing support was significant in the academic ($p < 0.001$) and career ($p < 0.05$) aspects.

Conclusion and Discussion

This study revealed many factors that influenced the forms of support received by international students. Different groups of social contacts provided different types of support. Specifically, while Americans were integral in supporting international students' cultural integration and emotional well-being, co-nationals were more important in providing life services, and other internationals were more likely to provide academic support. Faculty support concentrated more on the academic and career realms than friends. University staff members were also important in providing career support. Beyond this, social support was also associated with network-related factors. Strong ties were more likely to provide all aspects of support. Academic, career, and life support tended to come from people who were more central in students' personal social networks. Having more host nationals did not increase the probability of receiving support. Lastly, academic and career support was more likely to originate from loosely knitted networks.

Adopting the ego-centric SNA method, this study provided the first known example to demonstrate a comprehensive view of international student social networks and identify the mechanisms of their social support system. Soliciting the 25 most frequent social contacts from each participant helped to incorporate various types of social contacts and nearly all of those who provided support. Based on the extensive data on a total of 1,325 social contacts, this study discerned the unique roles of different social ties in providing support for international students. In addition, this study also explored how support was influenced by the characteristics of the network that an individual student was embedded in. The effects of tie strength, centrality, and network density added novel knowledge to the literature and emphasized that not only whom international students interact with but also the network context of these interactions mattered.

Another major contribution of this study was enhancing the concept of international students' social capital. Students access social capital from their social networks in the form of support. As social support has different aspects, social capital consists of multiple dimensions. Following Rose-Redwood & Rose-Redwood (2013)'s internationalist perspective, international students' social capital should incorporate all types of valuable resources that support their well-being and success, including but not limited to those that facilitate students' adaptation to the host culture. This is a more humanized perspective that recognizes international students' needs in well-being, academic and career success without reducing them only to individuals who lack language proficiency and cultural awareness. Overall, international student social capital is a multifaceted concept, and its various dimensions should be specified, such as academic capital, career capital, etc.

Although international students maintained social relationships with family and friends outside of the host country, they heavily relied on the connections in the host country for social

support. Universities are the main venue where international students develop their social networks and access social capital to maintain their well-being and pursue academic and career goals. Higher education institutions need to understand how international students mobilize the support they need and facilitate the process. The results of this study provided some implications for higher education practices. Firstly, given that different dimensions of social capital were embedded in different groups of social contacts, universities should not disproportionately emphasize the importance of interacting with host nationals or problematize international students' interactions within their co-national and international communities. The so-called "comfort zones" contain unique social capital that host nationals cannot replace. Also, while host nationals were likely to provide emotional and cultural support, having a higher ratio of host nationals in one's networks did not further increase the likelihood of receiving support. Secondly, universities should consider how to foster the development of strong ties. International students tended to mobilize all forms of social support from the people they felt closer to. Rather than creating more social opportunities for international students to meet new friends, universities should focus more on facilitating in-depth interactions, which pave the way for developing strong ties. Finally, universities should explore the barriers that impede international students from accessing cultural-related capital from faculty and staff members. It is fair to assume that faculty and staff own the knowledge and resources related to the host culture. However, they were not as likely to provide cultural support for international students compared to their friends. This suggests that faculty and staff may need to intentionally facilitate cultural integration in and outside the classroom in addition to providing academic and career support.

Tables

Table 4.1: Variables Used in the Regression Analysis

Variable	Range	Mean
Support		
Academic	1 = Yes, 0 = No	0.403
Career	1 = Yes, 0 = No	0.228
Life	1 = Yes, 0 = No	0.229
Emotional	1 = Yes, 0 = No	0.506
Cultural	1 = Yes, 0 = No	0.26
Nationality-location classes		
Co-national in the US (alter, ref: American in the US)	1 = Yes, 0 = No	0.209
Other international in the US (alter, ref: American in the US)	1 = Yes, 0 = No	0.103
Co-national in the home country (alter, ref: American in the US)	1 = Yes, 0 = No	0.286
Other (alter, ref: American in the US)	1 = Yes, 0 = No	0.088
Role relationships		
Faculty (alter, ref: friend)	1 = Yes, 0 = No	0.083
Staff (alter, ref: friend)	1 = Yes, 0 = No	0.041
Partner (alter, ref: friend)	1 = Yes, 0 = No	0.02
Family (alter, ref: friend)	1 = Yes, 0 = No	0.176
Other (alter, ref: friend)	1 = Yes, 0 = No	0.168
Network related characteristics		
Tie strength (alter)	Min = 1, Max = 5	3.422
Degree centrality (alter)	Min = 0, Max = 21	5.789
Number of Americans in the US (network)	Min = 0, Max = 23	7.868
Network density (network)	Min = 0.057, Max = 0.677	0.241
Control variables		
Graduate student (ego)	1 = Yes, 0 = No	0.604
Received US education before attending DU (ego)	1 = Yes, 0 = No	0.472
From Asia (ego)	1 = Yes, 0 = No	0.585
Female (ego)	1 = Yes, 0 = No	0.623
Gender homogeneity (ego-alter)	1 = Yes, 0 = No	0.612
Race homogeneity (ego-alter)	1 = Yes, 0 = No	0.7
Primarily lived in the city where DU is over the past year (ego)	1 = Yes, 0 = No	0.868

Table 4.2: Providing Support by Social Contacts' Nationality-Location Class

	Academic	Career	Life	Emotional	Cultural
American in the US	49.4%	30.9%	23.3%	43.2%	51.8%
Co-national in the US	42.6%	21.3%	40.1%	48.0%	22.4%
Other international in the US	54.4%	29.4%	26.5%	36.0%	27.9%
Co-national in the home country	26.6%	14.0%	14.2%	62.5%	3.4%
Other	30.2%	18.1%	5.2%	62.1%	12.9%

Table 4.3: Providing Support by Social Contacts' Role

	Academic	Career	Life	Emotional	Cultural
Friend	40.4%	16.1%	27.8%	58.8%	29.0%
Faculty	92.7%	70.0%	6.4%	30.0%	41.8%
Staff	37.0%	40.7%	9.3%	27.8%	33.3%
Partner	59.3%	37.0%	85.2%	96.3%	55.6%
Family	21.9%	20.6%	24.5%	64.4%	9.9%
Other	32.0%	16.2%	10.4%	21.6%	20.3%

Table 4.4: Providing Support by Network Related Characteristics

	Academic			Career			Life			Emotional			Cultural		
	Yes	No	t	Yes	No	t	Yes	No	t	Yes	No	t	Yes	No	t
Tie Strength	3.47	3.39	-1.22	3.61	3.37	-2.997*	4.09	3.22	-12.26**	4.09	2.74	-22.064**	3.41	3.43	0.16
Degree Centrality	6.22	5.49	-2.823*	6.46	5.59	-2.802*	7.1	5.4	-5.298**	5.9	5.67	-0.915	5.83	5.77	-0.214
Number of Americans	8.22	7.63	-1.819	9.08	7.51	-4.046**	8.48	7.68	-1.952	7.78	7.96	0.572	9.22	7.39	-4.965**
Network Density	0.23	0.25	1.922	0.23	0.24	1.107	0.25	0.24	-1.343	0.23	0.25	2.637*	0.23	0.24	1.701

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 4.5: Marginal Effects of Providing Support

	Academic	Career	Life	Emotional	Cultural
(Intercept)	-0.663	-3.379**	-2.854**	-3.59**	1.266
Nationality-location classes					
Co-national in the US (alter, ref: American in the US)	-0.028	0.582*	0.551*	-0.716*	-2**
Other international in the US (alter, ref: American in the US)	0.669*	0.684*	0.551	-0.205	-1.261**
Co-national in the home country (alter, ref: American in the US)	-0.791*	-0.18	-1.916**	-0.67*	-4.622**
Other (alter, ref: American in the US)	-0.549*	0.057	-2.529**	-0.241	-2.686**
Role relationships					
Faculty (alter, ref: friend)	3.17**	3.073**	-1.66**	-0.566*	-0.306
Staff (alter, ref: friend)	0.095	1.664**	-1.009*	-0.694*	-0.705*
Partner (alter, ref: friend)	0.031	0.281	1.834*	1.219	0.717
Family (alter, ref: friend)	-0.943**	0.363	0.269	-0.722**	-0.165
Other (alter, ref: friend)	0.198	0.827*	-0.356	-0.636*	-0.688*
Network related characteristics					
Tie strength (alter)	0.412**	0.585**	0.746**	1.222**	0.359**
Degree centrality (alter)	0.083**	0.058*	0.074**	0.014	-0.007
Number of Americans in the US (network)	-0.014	0.039	0.041	0.028	-0.042
Network density (network)	-5.138**	-2.918*	-1.958	-2.966	-2.209
Control variables					
Graduate student (ego)	0.499	-0.016	0.043	0.821*	0.4
Received US education before attending DU (ego)	-0.287	-0.203	0.025	0.205	-0.534
From Asia (ego)	-0.424	0.133	0.311	0.796*	0.134
Female (ego)	0.174	0.134	-0.039	0.745*	-0.06
Gender homogeneity (ego-alter)	0.048	0.014	-0.363*	-0.196	0.007
Race homogeneity (ego-alter)	-0.225	-0.767**	0.025	0.603*	-0.332
Primarily lived in the city where DU is over the past year (ego)	-0.085	-0.255	-1.073*	-1.526*	-0.817
-2LogLikelihood	388.036	265.181	392.432	724.845	441.11
Likelihood ratio tests	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; for all models: N = 1325

Chapter 5: Functional and Beyond: International Students' Cultural Adaptation and Support

International students face significant challenges arising from cultural differences between their home and host country. These challenges include language proficiency, navigating a new academic system, and negotiating a new cultural identity (Ammigan et al., 2023; Smith & Khawaja, 2011). While many studies have focused on identifying these cultural challenges and exploring international students' coping strategies, some scholars have questioned whether cultural adaptation should be considered an ideal outcome for these students (Heng, 2020; Yao, 2015). Treating cultural adaptation as an ultimate goal perpetuates a deficit view, portraying international students as lacking cultural knowledge and skills (Jones, 2017). Additionally, it fails to acknowledge the diversity among international students, assuming that cultural adaptation is universally desirable and achievable.

Previous research on international students' cultural adaptation was mainly quantitative. These studies developed or adopted various scales to measure international students' cultural adaptation levels. While qualitative research uncovered international students' experiences of cultural differences and challenges, there still lacks a conceptualization of cultural adaptation based on international students' voices. A missing component is how international students perceive their cultural adaptation and what ideal status of cultural adaptation they pursue. It is unfair for higher education institutions to assume what cultural support international students need simply based on the challenges they experience. Therefore, this grounded theory study aims to develop a framework for international students' cultural adaptation and the cultural support they receive. This framework serves as a practical guide for higher education institutions to revisit their stance and strategies in supporting international students' cultural adaptation.

Cultural Adaptation

While cultural adaptation may be used interchangeably with acculturation, acculturation is a broader concept referring to "the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members" (Berry, 2005, p. 698). For two cultural groups, acculturation depicts the interactions of the two cultures, with changes taking place in both the non-dominant and dominant cultures. During this process, two cultures may become similar, whereas the non-dominant culture may resist the influence of the dominant culture. At the individual level, acculturation can involve changes in migrants' behaviors, such as ways of speaking, dressing, and eating. These behavior shifts also lead to changes in cultural identities. Acculturation at the individual level is equivalent to adaptation, adjustment, or accommodation (Searle & Ward, 1990).

According to Searle & Ward (1990), migrants' adaptation contains two dimensions, psychological and socio-cultural. Psychological adaptation refers to the "feelings of well-being or satisfaction" (p. 450), and Socio-cultural adaptation (SCA) denotes the "ability to 'fit in' and negotiate interactive aspects of the new culture" (p. 450). In other words, SCA is the acquisition of cultural skills needed to achieve one's goals in a new environment effectively. These two dimensions are conceptually related but empirically distinct. While sojourners' psychological adaptation tends to follow a U-curve, their ability to interact with the host society is improved over time in a linear manner. When conceptualizing cross-cultural adaptation specifically for international students, Schartner & Young (2016) introduced academic adaptation as an additional dimension. Closely associated with the other two aspects of adaptation, academic adaptation means meeting specific academic expectations, such as teaching and learning styles. Academic adaptation improves steadily, like SCA.

Another two terms that may be mixed up with cultural adaptation are cultural assimilation and cultural integration. According to Berry (2005), these are two acculturation strategies. Although both terms indicate participation in the dominant society, integration differs from assimilation because it refers to maintaining rather than abandoning one's own cultural heritage. Putting it differently, Kim (2001) states that cultural assimilation does not only involve one's external behavior changes but also requires shifts in core values so that their internal conditions are similar to the natives. Therefore, cultural assimilation is difficult to achieve and may take generations. Although cultural assimilation is rarely the goal of the non-dominant groups, cultural integration is not always possible since it depends on to what extent the host society can be culturally inclusive (Berry, 2005).

These concepts related to cultural adaptation, including acculturation, SCA, academic adaptation, cultural assimilation, and cultural integration, provide an essential foundation for conceptualizing international students' cultural adaptation. In this chapter, I use the term cultural adaptation to refer mainly to SCA while acknowledging that international students' SCA is often shown as a form of adaptation in academic studies and other activities they engage in higher education settings. Rather than a fixed outcome, cultural adaptation is a process that may involve different strategies, such as cultural assimilation and cultural integration.

International Students' Cultural Adaptation

Measures

Most studies that focus on international students' cultural adaptation are quantitative, and Ward & Kennedy (1999)'s SCA scale has been frequently used (Brisset et al., 2010; Jackson et al., 2013; Kashima & Loh, 2006; J. Lee & Ciftci, 2014; A. Li & Gasser, 2005; Razgulin et al., 2023; Sadewo et al., 2020; Yang & Noels, 2013). This scale contains 41 items, and its validity

has been tested through multiple samples of international students in New Zealand and Singapore. The authors identified two factors underlying these items: (a) cultural empathy and relatedness, and (b) impersonal endeavors and perils. The first factor includes cognitive and communicative skills needed to live in a host country, such as understanding local perspectives and making oneself understood. The second factor refers to managing impersonal interactions (e.g., bureaucracy) and/or awkward situations (e.g., unpleasant people). The items can be tailored to the population (Ward & Kennedy, 1999). Razgulin et al. (2023) adopted the first ten items, while most studies used a wider range of items.

Some researchers modified Black (1988) adjustment scale, which was originally developed to examine American expatriates' adjustment in Japan (Chai et al., 2020; Shu et al., 2020). Black (1988) argued that cross-cultural adjustment for expatriate managers involves three dimensions: (a) work roles, (b) interacting with host nationals, and (c) general culture and everyday life. As adjusting to work roles does not apply to international students, researchers made corresponding modifications. Shu et al. (2020) revised work adjustment to school-related adjustment by asking, for example, the research participants how they adjusted to their responsibilities as a student instead of a supervisor. Chai et al. (2020) removed items involving supervisory roles.

In a study investigating international students from Mainland China in Hong Kong, Ng et al. (2017) adopted an SCA measure specifically developed by Chan (2002) for this population. While Chan (2002) designed the scale for young students at the primary and secondary levels, Ng et al. (2017) applied the scale in higher education. The measure includes adaptation to the physical environment, interaction with family members, interactions with the same/different ethnic groups, relationships with teachers/schoolmates, and participation in social life. Unlike

other SCA measures that mainly focus on international students' social relationships with host nationals, this measure also concerns sojourners' SCA within their family and co-ethnic groups in the host region.

Cultural Adaptation and Social Networks

Using one of the aforementioned SCA measures, researchers have explored the relationship between international students' social networks and SCA. Many studies have found that international students' social contact with host nationals supports their SCA. Based on a survey of 117 Asian international students in the US, A. Li & Gasser (2005) found that students' perceived quantity and quality of contact with Americans are positively associated with their SCA. The positive effect of students' cross-cultural efficacy on their SCA is also mediated by their connection with the hosts. Chapdelaine & Alexitch (2004) reached a similar result in their study among 156 male international students at a Canadian university. The students with a greater level of social interaction with hosts had a lower level of culture shock. In line with these findings, Shu et al. (2020) found that having at least one host national who supports international students' socio-emotional needs contributed to a significantly higher level of adjustment to interacting with local people. In a study in Australia, although there was no significant relationship between the number of international students' social contacts from Australia and their SCA levels, international students with more local ties had greater knowledge of the host culture (Kashima & Loh, 2006).

When treating SCA as an independent variable, Sadewo et al. (2020) revealed that international students' SCA is associated with their friend selection. Specifically, international students tended to be friends with other international students whose SCA levels differed. A possible explanation for this phenomenon is that the students who have adapted to the host

culture better might take the representative role when interacting with hosts, while those with lower SCA might choose to remain loyal.

Qualitative Research on Cultural Adaptation

Compared to the amount of quantitative research on international students' cultural adaptation, fewer studies took a qualitative approach. Based on the voices of international students in the US, Ammigan et al. (2023) argued that cultural adjustment has many different aspects. Academically, international students needed to adapt to a new way of interacting with professors. The students with weaker English proficiency had challenges in collaborative assignments. Additionally, they experienced many cultural differences in life, including food, weather, transportation, and use of technology. Focusing specifically on Chinese international students, Yan & Berliner (2011) found that students reported similar challenges in adjusting to American academic settings, language barrier, and student-advisor relationship. Students needed to develop self-management and self-discipline as they were used to being given directions.

Gaps in the Current Literature

Existing literature on international students' cultural adaptation is inadequate to provide practical guidance for higher education institutions to support international students. The design of the SCA scales has some drawbacks. Some measurement items lack specific contexts. For example, in Ward & Kennedy (1999) SCA measure, the difficulty of "communicating with people of a different ethnic group" is likely to depend on the topic of the conversation. International students may feel comfortable discussing class-related topics with host nationals, whereas they find it difficult to join a conversation on a local football team. Furthermore, some items ignore the heterogeneity of the host nationals. For instance, "understanding locals' worldview" assumes locals share the same worldview. This is unlikely true for a racially and

ethnically diverse country like the US. For these reasons, the conceptualization of international students' cultural adaptation needs to be improved. Qualitative research should fill this gap by exploring the meaning of cultural adaptation for international students. Unfortunately, existing qualitative research on this topic has focused on students' experiences of cultural differences rather than their perceptions. Understanding students' experiences of cultural conflicts alone is inadequate to generate solutions for higher education institutions to enhance international students' cultural adaptation. It is essential to examine how international students make sense of cultural adaptation and whether any of their needs for cultural adaptation were unmet.

Method

To address the literature gap discussed above, this chapter sought to answer the following research questions: What does cultural adaptation mean for international students? What is the relationship between international students' cultural identity and their cultural adaptation? How does the inclusiveness of the host culture influence international students' cultural adaptation? How do international students receive support from their social networks and the university about their cultural adaptation?

Research Site and Participants

I recruited the participants at Desert University (pseudo name, DU hereafter), a four-year public research university located in the Southwestern US. Participants were international students who held an F-1 visa and had enrolled in a degree-seeking program for a minimum of one academic year. An email invitation was distributed by the International Student Services office to over 2,600 potentially eligible students. A total of 103 students signed up for the study, and 53 of them participated in the study in 2021. In appreciation of their time, each participant

received compensation in the form of a $30 gift card, except one student who opted to decline this compensation.

Among these 53 participants, 31 were from Asia, 7 from Europe, 7 from the Middle East, 7 from Latin America, and 1 from Africa. 21 were undergraduate students, 5 were studying at the master's level, and 27 were pursuing a doctoral degree. 33 participants were female students, 19 were male, and 1 identified as non-binary/non-conforming gender. 25 out of the 53 students had at least one semester of education experience in the US prior to joining the university where the research was conducted. 28 students completed at least 6 semesters at DU. Impacted by COVID-19, 7 participants were primarily living outside of the city where DU is located during the year before the study was conducted. To protect participants' identities, I used P1 to P53 to refer them throughout the dissertation.

Research Design and Data Collection

This chapter adopts the grounded theory methodology. As one of the qualitative research methods, grounded theory generates theory from data. It focuses on the social processes and describes "the ongoing and changing forms of action/interaction/emotions that are taken in responses to events and the problems that arise to inhibit action/interaction" (Corbin & Strauss, 2008, Chapter 1). As international students are exposed to a different cultural environment, grounded theory does not only help to uncover what they experience but also how they interact with the host culture.

The interviews were guided by only two broad questions. I asked participants what cultural adaptation meant to them. I encouraged them to share specific examples explaining how they have culturally adapted in the US and their perceived ideal status of cultural adaptation. Also, by relating to the participants' social network data collected for the previous two chapters,

I invited them to reflect on who and what influenced their cultural adaptation. I recorded the audio of all the interviews and transcribed them with the assistance of Otter AI.

Data Analysis

Following the data analysis approaches suggested by Corbin & Strauss (2008), I coded transcripts and wrote memos to generate concepts and subconcepts using MaxQDA. Then I integrated these concepts and developed categories. The existing literature on international students' cultural adaptation did not guide the theory building. Instead, it served as a source for making comparisons with the findings.

Findings

A Two-Level Model of Cultural Adaptation: Functional and Beyond

International students' cultural adaptation has two levels: functional and beyond functional. Functional cultural adaptation refers to having adequate language proficiency, cultural knowledge, and skills to manage one's daily life and accomplish one's academic and career goals. To perform specific tasks, from opening a bank account to completing a course, international students must understand the relevant rules, practices, and expectations in the US. In addition, understanding and practicing social etiquette in everyday social settings, such as visiting an American's house and attending a party, is also a key component of functional cultural adaptation. Using a participant's words, cultural adaptation at the functional level is knowing "what you should do and what you should not do" (P21).

Functional cultural adaptation often involves behavioral changes. International students perceived these changes as necessary for functional purposes. For example, a student from Italy changed her meal schedule to fit into the living conditions in the US:

> In Italy, we have dinner at 9 pm. And here we have dinner at 6pm. So cultural adaptation means sometimes letting go…Because restaurants close at 9 pm, there's no way I can go out with friends at 9pm to have dinner. So I kind of see it as a process of recalibrating and adjusting my own behaviors so that I can be functional in the United States. (P4)

Similarly, international students could also incorporate certain behaviors to achieve academic and professional success. A Chinese student intentionally used more praising words in her teaching, while such practice is less common in the Chinese culture:

> People like to encourage others in the US. They always say "good idea" or "excellent". I think it's a good thing to learn. I gradually adopted this approach. If a student in my class asks a question, I would say "good question". (P3)

Beyond the functional level, cultural adaptation refers to knowledge and skills not directly tied to international students' basic life needs or academic and professional success. It embodies a broader and deeper understanding of the host country. Participants provided many examples, including American politics, movies, music, geography, history, sports, etc. Additionally, as American culture incorporates various racial and ethnic sub-cultures, participants often perceived obtaining knowledge about specific races and ethnicities, such as Native American or Hispanic culture, as examples of cultural adaptation in the US beyond the functional level. Furthermore, while language proficiency is part of the functional cultural adaptation, understanding slang, idioms, and jokes goes beyond the functional level. Overall, participants agreed that cultural adaptation at this level was usually difficult to reach, but lacking it was not a problem. For example, one student said:

> Politics is a big thing. Sports, it's a completely different game here. It's something I still don't get. And I just accepted it. It's fine. There are other things I could talk to people about. (P44)

Cultural adaptation beyond the functional level did not necessarily involve changing their behaviors or values. It is common for international students to experience conflicts with the values prevalently held in the host country. When facing these conflicts, many participants did not feel they had to adjust their perceptions and choices as long as they respected the host culture. Unlike functional cultural adaptation, cultural adaptation at this level was seen as optional:

> Some of the things like free speech no matter what, or the right to guns, some of the core values of this country, I just don't share. And I don't think I ever will. Yeah, I don't feel I need to in my life. (P13)

> I still believe in collectivism. In terms of wearing a mask or not, I will stay with what I believe and what I do. I respect you, and you should respect me too. If you want to force me to be like you, that's the opposite of individualism that you support. (P3)

Cultural Identity. International students' behavioral changes in either level of cultural adaptation did not necessarily lead to losing their cultural identity. Participants' original cultural identity was practiced and reinforced through socializing with co-nationals, eating food, watching TV shows, and celebrating holidays from their culture. In the meantime, they could also adjust their behaviors to fit better the host culture. For example, a Korean student provided an example of practicing both cultures:

> I visit someone else's house in America, and Americans use a fork and spoon. I'm willing to use a fork and spoon for my meal. But that does not mean when I come back

> home, I will only use a fork and spoon at home. I use a spoon and chopsticks. So I'm willing to adapt to their culture, but when I am alone, I can stick to my own culture. (P7)

This student further explained that his cultural identity was independent of his changes in behaviors for cultural adaptation:

> I think it is matter of respect. Respect their culture, so I do what they need me to do to live in a culture without causing any problems and make them happy. But that does not mean that I have to be the person like them. I don't have to change myself. (P7)

However, some participants felt their cultural identity had evolved as they interacted with the host culture. A student described how he integrated his home and host cultures:

> It's very important not to forget my own root because if I don't have a root, it just feels purposeless honestly. But at the same time, I'm open to branch out, and not just stick to that. So, expand from the root, have a stable point and keep branching from that. (P20)

Consistent with previous studies that discussed international students' in-betweenness (e.g., Dai, 2020), a few participants also reported a similar in-between status by feeling that they did not fully belong to the home or host culture. A participant indicated that her original cultural identity has gradually changed.

> But as your behavior changes, I think maybe you also start enjoying this new pattern, and so little by little you incorporate different habits while you're in the United States… I'm like, oh, I'm not Italian anymore. Why do I like American coffee? And so, yeah, I think adaptation changes your identity, but in a good way. (P4)

Overall, rather than seeking cultural assimilation, all participants engaged in a certain form of cultural integration (Berry, 2005). As the examples shown above, some maintained or

expanded their original cultural identity, while some saw a new identity growing between the home and host cultures.

Host Nationals' Attitudes. Although international students' cultural adaptation is an issue of their knowledge, skills, and strategies, it could also be affected by host nationals' attitudes towards cultures. As Berry (2005) argued, cultural integration relies an inclusive host culture; international students were more likely to adapt to the host culture if host nationals were open to, respected, and accepted their culture. Using a student's words, "Cultural adaptation is difficult because it's not just about whether you want to, but also whether you are accepted. Based on my experiences with Americans, they do not really accept us (P25)." Essentially, international students' cultural adaptation was a part of the mutual cultural exchange with host nationals. A student used an example to describe the conditions for cultural exchanges to take place:

> I said I'm from Turkey and the next question is if I like ISIS. Why is it necessary to ask me this question? I got used to this kind of questions, and my answer was I love them… But at the same time, I got questions, for example, about Ramadan… Some of my friends who are not Muslim and who are not from Turkey asked me about the rationale for fasting and how we are celebrating this month. This is a good question, because I know that they want to know about the region, and they want to know about the traditions. (P50)

Network Support for Cultural Adaptation

In Chapter 4, results showed that Americans played a more critical role in providing cultural support for international students than co-nationals and other internationals. The qualitative data confirmed this finding by demonstrating many examples that Americans

supported international students' cultural adaptation. At the functional level, they helped international students with their English writing, and taught them about the American educational system and professional culture. Beyond the functional level, Americans invited international students to celebrate holidays together, introduced them to slang, jokes, popular culture, religions, history, diversity, presidential elections, Greek organizations, etc. Some Americans' specific racial and ethnic backgrounds, such as Mexican Americans, were valuable resources for international students to develop an understanding of different aspects of American culture. Their cultural support did not have to be an intentional exchange of specific cultural knowledge and skills. Often, international students learned about American culture by observing what they do.

In contrast, co-nationals and other internationals' support for cultural adaptation mainly was limited within the functional level. Similarly to Americans, co-nationals and other internationals who had lived in the US longer could also help international students with academic and professional culture, as well as practical tasks such as renting an apartment and tipping at a restaurant. While such support overlapped with the support provided by Americans, co-nationals had their advantages by having more knowledge on some specific aspects, such as searching for ethnic foods. In addition, they could provide a comparative perspective, which made their advice more relevant for international students. For example, a Chinese student shared:

> [A co-national friend's name] came to the US for college after 6 years in a foreign language school in China. She understands much more about Western culture. She tells me how Americans think differently from Chinese people, and reminds me of these things. (P14)

Also aligning with the results demonstrated in Chapter 4, participants believed that support for cultural integration relied on their close relationships with Americans rather than the number of American friends:

> Say you have a lot of American friends and then you have an American partner. The weight of having a lot of friends and a partner would be different… You would be able to do a wider range of things with your partner, I believe, and that would allow you to experience a wider range of cultural events and activities. (P9)

This finding also echoes Shu et al. (2020)'s study, which found that even one close host national could significantly improve international students' social adaptation.

The university provided two types of assistance to support international students' cultural adaptation. One is to offer direct information about or opportunity to experience American culture. For example, tax workshops, events to watch sports and celebrate holidays, such as Thanksgiving. These programs and events offered cultural support in both functional and beyond functional levels. In another type, the university provided cultural support by facilitating social relationships between international students and host nationals. These opportunities, such as a buddy program, helped international students to expand their social connections with Americans and potentially receive cultural support from these social ties. In other words, the university provided a venue for cross-cultural connections to form and grow, thus indirectly offered cultural support.

Discussion

This study makes essential scholarly contributions by introducing the two-level cultural adaptation framework. This framework indicates that cultural adaptation is context-dependent. A student who can navigate the academic system effectively may not know about purchasing a

property in the host country. Therefore, measuring one's cultural adaptation level without considering the specific contexts can be problematic (e.g., Razgulin et al., 2023). In contrast, Schartner & Young (2016)'s academic adaptation was an excellent example of indicating context-specific cultural adaptation. As cultural adaptation could include numerous dimensions including academic adaptation, the two-level framework offers a simplified approach to unpack the meaning of cultural adaptation for international students and further conceptualizes how social networks influence their cultural adaptation. Upon the existing research that indicated a positive association between social connections with host nationals and cultural adaptation, this new framework helped to reveal that host nationals provided a wider range of cultural support than co-nationals and other internationals and their role in supporting cultural adaptation beyond the functional level was irreplaceable.

In addition to emphasizing the contexts of cultural adaptation, this framework joined Yao (2015) and Heng (2020) to argue against an ideal level of cultural adaptation that all international students should pursue. Although all students need the functional level of cultural adaptation to survive in the host culture and accomplish academic and career goals, whether they can or desire to reach beyond the functional level can vary. While not denying the importance of cultural adaptation, this finding reminds researchers to take caution when exploring the relationships between international students' cultural adaptation and their educational outcomes or well-being. A positive effect of cultural adaptation does not mean that a higher level of cultural adaptation is always the goal. However, except for being affected by host nationals' attitudes, data in this study did not fully explain why international students' intentions for cultural adaptation beyond the functional level differ from one another. This is a limitation of this study and can be further explored by future research.

This study also suggests the conceptual distinctiveness of cultural adaptation and cultural identity. Cultural adaptation involved obtaining knowledge and skills to interact with the host culture, while cultural identity was not directly tied to such knowledge and skills, even when students adopted new behaviors. Although some participants felt their cultural identity evolved, no evidence showed that cultural adaptation enhances at the sacrifice of one's original cultural identity.

Beyond its scholarly significance, the new conceptualization of international students' cultural adaptation offers valuable practical insights for higher education institutions to support international students. First, higher education institutions should prioritize supporting international students' cultural adaptation at the functional level. Faculty and staff should integrate cultural support into their teaching and services to ensure all international students have the adequate cultural knowledge and skills to fulfill their academic, career and life aspirations in the US. Although inviting international students to celebrate Thanksgiving or watching football games are good strategies to provide cultural support, helping first-time international students write a professional email to a faculty member would be needed more urgently. Overall, despite the value of cultural support beyond the functional level, it should not replace or overshadow the efforts to support functional cultural adaptation.

While developing a system to support international students' cultural adaptation, higher education institutions should focus on fostering an inclusive campus climate. Cultural adaptation is not a task that falls only on international students. Acculturation at the group level requires the adjustment of both the dominant and non-dominant cultures (Berry, 2005). If the host community remains closed and resists foreign cultures, international students will become less willing to interact with the host culture, resulting in cultural segregation. Campus-wide

multicultural education can facilitate international students' cultural adaptation. Furthermore, this study suggests that assisting international students' cultural adaptation does not threaten their cultural identity. Institutions should respect and celebrate international students' original culture and not problematize maintaining their original cultural roots.

Lastly, higher education institutions should better leverage their role in facilitating high-quality social networks, especially between international students and host nationals. Some programs and events introducing international students to American cultures, such as watching a football game, are limited by the capacity of staff and other resources and are unlikely to have a continuous impact afterward. However, programs focusing on building social connections, such as pairing international students with host families, could lead to ongoing cultural exchanges. Close social relationships can not only become stable sources of cultural support but also potentially generate more social connections.

Chapter 6: Conclusion

Summary of Findings

Using ego-centric SNA, this dissertation examines international students' social integration and support. Chapter 3 presented a new scale for assessing international students' social integration, considering their social interactions with cross-national and cross-racial individuals. Based on this measure, the analysis revealed no significant differences in social integration between Asian and non-Asian international students. Constraining and overlapping foci of activity functioned to foster international students' social integration. Chapter 4 focused on social support. The findings showed that different social groups provided different types of support, with Americans supporting international students' cultural adaptation and emotional well-being, co-nationals offering life services, and other internationals providing academic support. Network-related characteristics, such as tie strength, degree centrality, and network density, influenced some or all types of social support. To further explore the nuanced meanings of cultural support, Chapter 5 introduced a two-level model for international students' cultural adaptation. The distinction between these two levels was whether students' knowledge and skills are fundamentally required for the function of their daily lives, as well as for academic and professional success. Americans supported international students' cultural adaptation at both levels, while co-nationals and other internationals' support primarily contributed support at the functional level.

Conceptual Contributions

This dissertation enriched the body of literature on international students by advancing the concepts of international students' social integration, social capital, and cultural adaptation,

discussed in Chapters 3, 4, and 5, respectively. In this section, I conclude the conceptual contributions represented across these chapters from two aspects.

International Students' Experiences

This dissertation underscored the interconnections among various sub-concepts within international students' experiences, such as academic integration, social integration, and cultural adaptation. Following Tinto (1975)'s Student Departure Theory, some scholars treated international students' academic and social integration as separate components (e.g., Rienties et al., 2012; Spencer-Oatey & Dauber, 2019). Spencer-Oatey & Dauber (2019) perceived social integration as a tool to understand students' non-academic lives. However, Chapters 3 and 4 revealed that many of the students' social connections were forged through academic activities, and the exchange of support, including academic assistance, occurred through these connections. This echoes the concept of socio-academic moments, which argues that academic and social integration are not conceptually distinct (Deil-Amen, 2011). Extending previous research that indicated a positive association between international students' social integration into the host community and their cultural adaptation (e.g., A. Li & Gasser, 2005), this study refined this relationship by finding that host nationals played a particularly crucial role in fostering international students' cultural adaptation beyond the functional level, compared to co-nationals and other internationals (Chapter 5). In addition, cultural adaptation is essentially tied to academic integration for international students, as it involves understanding and, at times, adopting behavioral changes in various aspects of the host culture, including academic norms (Chapter 5). Overall, this dissertation posited that international students' academic, social, or cultural experiences were highly integrated components and should not be viewed in isolation from one another.

A Humanistic Perspective

Another fundamental conceptual contribution of this dissertation is advocating for a humanistic perspective in international student research. Humanistic internationalization shifts the focus towards a mutually beneficial process rather than prioritizing institutions' exclusive benefits (Geibel, 2020). Applying to international student mobility, the humanistic perspective requires higher education institutions to respect international students as individuals seeking to thrive and regard their motivations, aspirations and needs as the central focus. As an opposite example, a deficit view treats international students as individuals lacking essential language skills and knowledge of the host country (Jones, 2017). Within this perspective, universities tend to problematize international students from specific regions, such as East Asia, perceiving them as requiring additional support, such as adapting to a new learning style (Yan & Berliner, 2011). While this perspective prompts universities to provide certain aspects of support for international students, it largely omits the holistic needs of international students as individuals. Adopting the humanistic perspective, as opposed to the deficit view, I assessed various dimensions of support in Chapter 4, applicable not only to international students but to all students in general. The concept of international social capital should be multifaceted, including a wide range of resources that enhance the well-being and success of international students.

The humanistic perspective is also evident in a critical interpretation of international students' social integration. The social integration scale introduced in Chapter 3 serves as an innovative tool for gauging the extent to which international students make cross-national and cross-racial social connections. Universities should cultivate such cross-group social interactions, fulfilling the non-economic purposes of higher education internationalization, such as fostering intercultural understanding (Knight, 2004). However, it is crucial for universities not to interpret

a low social integration score as indicative of an international student's inability to develop cross-group social connections. Instead, it suggests the necessity to explore the reasons behind the score. Having fewer cross-group connections may not be a matter of concern if international students' social networks align with their preferences and aspirations, and they receive substantial social support through these relationships. On the other hand, a lack of social integration may be the result of negative experiences in cross-group interactions. Institutions need to develop targeted interventions for such situations. Furthermore, it is essential to recognize that a high social integration score may not be the ultimate goal for all international students. There should be no expectation for international students to form social networks predominantly consisting of cross-group contacts, especially considering that different social groups offer different forms of social capital (Chapter 4).

The cultural adaptation model presented in Chapter 5 was also rooted in the humanistic perspective. Based on international students' diverse motivations, goals, and dispositions, I argue that establishing a universal standard of cultural adaptation is neither feasible nor necessary. Students vary in their priorities, with some primarily focusing on completing their degrees, while others aiming to integrate into the host country beyond academic aspects. Deconstructing the concept of cultural adaptation into functional and beyond functional levels allows universities to acknowledge international students' agency in directing their lives. Beyond the functional level, international students have the autonomy to decide the extent to which they culturally accept and adapt to the host country. Support for cultural adaptation should align with international students' needs, avoiding imposing the host culture or neglecting their home culture.

Overall, this dissertation argues against applying a fixed definition for international student success. In particular, there should not be an ultimate standard for social integration or

cultural adaptation. Rather, any research endeavor exploring the concept of international student success should center around the voices and perspectives of international students themselves. International students are the authors of their own success, and their needs and aspirations should be the cornerstone for understanding their experiences.

Methodology Contributions

Adding to a scarce body of literature (McFaul, 2016; Rienties et al., 2012; Taha & Cox, 2016), this dissertation adopted the SNA method in international student research. While Taha & Cox (2016) and Rienties et al. (2012) concentrated on friendship formation within an academic context, McFaul (2016) was the sole known example investigating international students' ego networks. With a larger sample size and a more comprehensive mapping of students' social relationships extending beyond friendships, this dissertation demonstrates the benefits and potential of employing SNA.

The utilization of SNA aligns with the humanistic view of internationalization described earlier. Researchers must exercise caution when drawing conclusions to specific groups of international students. For example, this study did not find significant differences in social integration between Asian and non-Asian students (Chapter 3). International student's ego networks portray their individual uniqueness, transcending the national or racial groups to which they belong. Their networks reflect their migration and educational backgrounds, motivations, aspirations, and more. The qualitative data of SNA is particularly useful in uncovering the diversity and complexity inherent in international students' experiences.

Given that international students' academic, social, and cultural experiences are highly intertwined, SNA provides an implementable and measurable approach to shed light on the multiple dimensions of their experiences. As international students embark on their journey in a

new country and engage in various academic and non-academic activities, their social networks are a tangible outcome. Although this dissertation relied on participants' self-reported data, SNA seeks to capture individuals' behaviors rather than merely their perceptions. The data on their social interaction behaviors form a concrete foundation for examining their experiences.

While this dissertation primarily examined the experiences of international students, SNA opens an opportunity for researchers to investigate the cross-cultural social connections, equally focusing on international students and host nationals. By incorporating host nationals into the studies of higher education internationalization, future research should explore on the interactions between international students and individuals in the host country. These "interactions" can not only be acquaintance or friendship but also include the exchange of support and more.

Practical Implications

As stated by Spencer-Oatey & Dauber (2019), "Diversity is not an end in itself, but rather is merely the foundation for offering a global education" (p.1036), higher education institutions must focus on not only international student enrollment, but also the benefits, especially the non-economic values, that student mobility brings to all stakeholders, including students, faculty, staff, and the entire host community. Examining international students' social networks provides valuable insights into the practices that institutions can adopt to realize the benefits of global education.

Universities should shift their role from a mere resource provider to a network facilitator. Many university resources are embedded in social relationships developed within higher education. To facilitate networks, particularly strong ties, institutions should intentionally form constraining and overlapping foci of activity that are not culturally exclusive. Although such foci

may not guarantee cross-group social interactions, repeated interactions systematically facilitate the formation of social ties overall. The power of foci of activity can be leveraged at different levels. Faculty members can embed collaborative work within their curriculum, making their classes constraining foci of activity where students repeatedly interact with each other around course-related content. At the academic program or departmental level, administrators can analyze how these class-based social networks evolve through a sequence of courses. They can then strategically develop opportunities beyond the classroom, such as social, internship, and volunteering opportunities, to foster strong ties through overlapping foci of activity. Institution-wide strategies may involve supporting and expanding existing constraining foci, such as student organizations and campus employment opportunities.

Being a network facilitator also requires faculty and staff members to perceive themselves not only as creators of programs, courses, activities, and services but also as active participants in building connections with international students. For example, if faculty members observe limited interactions between international and domestic students in class, they can serve as a bridge by connecting domestic and international students themselves respectively. Similarly, staff members, upon hearing about international students' experiences of discrimination, can demonstrate how advocacy works in the host culture and create opportunities for their voices to be heard on campus. These examples illustrate how support takes place through networks instead of relying solely on specific workshops or training sessions. As faculty and staff actively build stronger social relationships with international students, whether or not these relationships evolve into friendships, cross-national and cross-racial interactions are naturally fostered.

Faculty and staff members' time constraints often hinder their ability to cultivate deep relationships with international students. Undoubtedly, expecting a small group of staff members

in the international student office to personally connect with thousands of international students is unrealistic. However, for faculty and staff, becoming part of international students' social networks requires more of a shift in their perspective than merely time commitment. As the findings showed in this dissertation, effective and sustainable student support primarily derives from a relational rather than a transactional process. Transactional services, such as immigration advising, provide essential functions in themselves. However, building strong relationships with individual students may potentially lead to ongoing benefits for both students and faculty and staff members, and its value can not be replaced by transactional services. It is important to recognize that the relational and transactional processes are mutually exclusive. In fact, providing transactional services can often be an opportunity to foster meaningful social relationships.

Moreover, higher education internationalization practices should be more data-informed. For example, institutions should craft intercultural programs tailored to international students' social integration levels and their desires for cultural adaptation. While SNA provides valuable insights, soliciting individual students' social networks can be time-consuming and difficult to scale up. An alternative approach involves examining the foci of activity on campus. Institutions can establish a data strategy to capture students' participation in many academic and non-academic activities, such as class, housing, campus employment, and more. With various data points about the foci of activity with which international students are associated, institutions can predict their social networks on campus. This enables the design of different strategies customized for international students with different levels of social integration.

Appendices

Pre-Interview Survey

Hello, my name is Xiaojie Li. I am a PhD candidate in Higher Education at the University of Arizona. I would like to invite you to participate in my dissertation study entitled "How Are International Students Supported? The Roles of Social Networks and Institutional Services".

To participate in this study, you must: (a) be 18 or older, (b) currently hold an F-1 visa, AND (c) stay enrolled as a degree-seeking student at a US university from Spring 2020 to now.

This study includes two parts: (a) this survey AND (b) an online interview. I will contact you to schedule a time for an interview upon your submission of the survey.

Please read the Informed Consent Form and sign below:

1. When did you first come to study at (institutional name)? Select year and term
2. Did you study in the US for at least one semester prior to attending (institutional name)?

- Yes
- No

3. What is your current academic level?

- Undergraduate
- Master's
- Doctoral

4. What is your current major?
5. What do you identify yourself as?

- Male
- Female

- Non-binary/non-conforming

6. What do you identify yourself as? Check all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Middle Eastern or North African
- Native Hawaiian or Other Pacific Islander
- White
- Other, please describe:

7. What is your citizenship? Check all that apply (hold ctrl/command to select multiple if using windows or mac).
8. Is English your first language?

- Yes
- No

9. (If English is not the first language) How would you describe your English proficiency? Select from 1 (not proficient at all) to 10 (very proficient)
10. Over the past year, where did you primarily live?

- In the (city name where the university is)
- In the US but not in the (city name where the university is)
- In my home country
- In other country outside of the US

11. (If primarily lived in the (city name where the university is)) Over the past year, did you primarily live on campus?

- Yes
- No

12. Over the past year, were you ever employed on campus?

- Yes
- No

13. Over the past year, were you ever employed off campus?

- Yes
- No

14. Over the past year, were you ever involved in any university student organizations?

- Yes
- No

15. Over the past year, were you ever involved in any church groups?

- Yes
- No

16. Your name: Feel free to use a pseudonym.
17. Your email address: Your email address will be used to schedule an interview and receive the e-gift card.
18. Which e-gift card would you like to receive? You will only receive the e-gift card upon completion of both the survey and interview.

- Amazon.com
- Starbucks

Interview Protocol

Introduction

Hello XX, my name is Xiaojie. I'm a PhD candidate at the University of Arizona and I study higher education. Thank you for taking the time to participate in this study. In this interview, our main focus is about your social networks, and how you received help from your social networks. I will start to record the interview from the middle and I'll let you know when I start recording. Do you have any questions before we start?

Name Generating (Google Sheet)

Are you using your computer for the Zoom meeting? (If yes) I have sent you a link through the chat, which is a Google Sheet. You should be able to open it. (If no) Do you have your computer next to you? I'm going to send you an email now which has a link to a Google Sheet document. Please check if you can open it.

Let's start with the first sheet, called list. I'll give you a few minutes to write down the names of 25 people. You need to know them and they need to know you as well. Over the past year, you had some interactions with them, which could be face-to-face, by phone, zoom, email, or social media. Please think about your family, friends, classmates, professors, colleagues and anyone you know. You don't have to write their real names. You can write nicknames or anything as long as you know who each person is. Please try to include the people with whom you interacted most over the past year because I don't want to miss out on anyone who is important to you.

Alter Attributes (Google Sheet)

Now, let's move on to the second sheet. Please click the tab on the bottom which says "about your network". Basically, I'm asking for some information about these 25 people. Let's

do column by column, starting with gender. This should be straightforward; you just need to change the ones that don't match.

Nationality: it doesn't matter what citizenship they have. It's more about whether you see them as XX, American, or from another country.

Alter-Alter Ties (Google Sheet)

In this sheet, I'm asking you to identify the relationships among these 25 people. Please only check the box if you're sure that two people had interactions. If you're not sure or you know that they haven't had any interactions, please leave it blank.

Network Support (Google Sheet)

I'd like to ask you to rate the level of help you received from each person in each aspect over the past year. 0 means no help, 1 means a little bit help, and 2 means significant help. Let's do column by column again starting from academic.

- Academic: gave you academic advice, helped you with academic problems, inspired or motivated you in your studies
- Career: wrote reference letter for you, introduced you to jobs, helped you to improve your professional skills or make career plans
- Financial: gave or lent you money

Life: physical assistance on life-related issues, such as moving, cooking, going to the grocery store, and giving you a ride

- Emotional: helped you feel better when you feel down, listened to you when you want to talk
- Companionship: did things together in social settings (can be in person or remotely)

- Cultural integration: introduced you to American people, helped you better understand American culture

About the Participant

Now let me start the recording. Before we talk about these people, I'd like to ask a few questions about yourself because that's related to your social networks.

- I'd like to confirm that you primarily lived in XX over the past year.
- Could you tell me about your educational and migration background?
- What is your plan after graduating with your current degree? Do you hope to work in the US after completing your studies?
- As an international student, how would you define your success in American higher education and/or society?

Network Support

Let's go through the list one by one. For each person, tell me who they are, what your relationship is, or how you met. If they have helped you, also briefly talk about how they helped you. Given the time we have, just try to keep it within 1 minute for each person.

Network Summary

(Share my screen) Here is the graph of your social networks (briefly describe the graph).

- Can this graph represent your social networks overall since I only asked you to write 25 people?
- (If there are few American people) Why are there few American people in the graph? How have your interactions with Americans been?
- (If there are many American people) What made you socialize mostly with American people?

- (If there are a balanced number of American and non-American people) What are the factors that shape your network structure in terms of having a balanced number of people from your home country and Americans?
- Do you feel your race and country of origin have played a role in shaping your social networks?

University Services

So far, we have talked about the support you have received from your social networks over the past year. Could you talk about what support you have received from the university over the past year?

Cultural Integration

Lastly, I'd like to ask about your opinion about cultural integration.

- In your opinion, what is cultural integration?
- How would you rate your level of cultural integration from 1 to 10? What is 10 like?
- You wrote in the sheet that (people's names) have provided cultural support for you. Could you give me some examples?

End

That's all for the interview. I really appreciate that you spent time with me and shared your social networks and experiences with university support. I'll send you the gift card after this. Do you have any questions before we end this meeting? Thank you very much!

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