FEMALE INDIAN GRADUATE STUDENTS IN STEM: THEIR PERCEPTIONS OF ADJUSTMENT TO THE UNITED STATES

A doctoral thesis presented
by
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Abstract

This study examined how female Indian graduate students make sense of their own experiences of adjusting to life and culture in the United States. Semi-structured interviews were conducted with seven graduate students at a STEM-focused, mid-size, urban, research university in the Northeast of the United States. Interpretative Phenomenological Approach (IPA) was used as the research approach as it allowed the researcher to understand how participants made sense of their own experiences of moving to another country and adjusting to their new lives in the United States. Transcripts were analyzed using IPA and themes were identified among participants’ responses. Five major themes emerged: First experiences; Culture; Family; Academic departments; and Social life. The findings of this study revealed that internal and external factors, Indian social norms, and social lives influence female Indian graduate students’ perceptions of adjustment to life in the United States. Recommendations for practice are shared and suggest that higher education administrators, staff, and faculty should work together to assist students’ adjustment by providing more opportunities for social engagement, development of academic and professional connections with faculty, and opportunities to live and work on campus.

Keywords: adjustment, female graduate students, Indian culture, identity.
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Chapter 1: Introduction to the Study

Among U.S. institutions of higher education, there is an increased reliance on international student recruitment to meet enrollment quotas and revenue goals. In the academic year 2000–2001, the United States hosted 547,867 international students; this figure jumped to 1,094,792 in the academic year 2017–2018, which nearly doubles the number of enrollments over the past 17 years (Institute of International Education [IIE], 2018). Besides boosting revenue, international students contribute to reshaping universities’ academic programs (Hegarty, 2014), enrich the exchange of ideas in the classrooms (Pandit, 2007), and “engender long-term goodwill [and] improve national security through enhanced cultural understanding” (Kashyap, 2011, p. 19). There are multiple benefits to hosting international students on campus, and U.S. universities have seized on that opportunity.

In addition to the reasons listed above, international graduate students bring additional benefits to U.S. universities through academic and business connections with other international organizations, especially concerning scientific research (Trice, 2003). Additionally, in the United States, there is a direct positive correlation between the number of international graduate students enrolled and the number of patent applications filed (Chellaraj, Maskus, & Mattoo, 2008), thus reflecting the ability of those students on campus to foster research and development. Doctoral programs have been growing to accommodate these students (Hegarty, 2014) as evidence indicates the overall benefits of hosting this population. The literature highlights the importance of international graduate students on campuses, but provides little information about their gender or how female graduate students adjust to U.S. campuses. In particular, limited research exists on female Indian graduate students and their adjustment process.
The purpose of this interpretative phenomenological study is to understand female Indian graduate students’ perceived views of their own adjustment to American culture and education at a research university focused on STEM (science, technology, engineering, and mathematics). With this research, universities may better support these students in their adjustment process and improve their ability to attract and retain this demographic. At this stage in the research, the possible acculturative stressors that affect adjustment are defined as “stressful life experiences resulting from differences between the host nation and the country of origin” (Tochkov, Levine, & Sanaka, 2010, p. 679). Examples of such acculturative stressors are homesickness, language barrier, role expectations, new social norms, and social adjustment. Knowledge generated is expected to inform how administrators who work with international female graduate students can better support these students while they pursue their academic careers.

**Statement of the Problem**

The impact of international students is felt beyond the campus. Local and national economies have much to gain; according to the Association of International Educators (2018), in the academic year 2017–2018, international students helped create over 455,000 direct and indirect jobs in the United States, bringing 39 billion dollars to the U.S. economy. Additionally, for the purpose of protecting U.S. national interests abroad, the U.S. government wants to attract international students to the country in hopes of forging stronger ties between foreign nationals' understanding of American values, way of life, politics, and scientific thinking (Altbach, 1991; Le & Gardner, 2010; Pandit, 2007). Unfortunately, universities tend to focus their financial resources on attracting students to their campus and much less is spent on services that provide support to students during their adjustment process. Given their age and previous life experiences, graduate students are usually offered even fewer resources, as they are expected to
know how to navigate their new environment with little support (Brus, 2006; Myers-Walls, Frias, Kwon, Ko, & Lu, 2011).

The number of Indian students in the United States has more than doubled in the last 10 years (IIE, 2018). Indian graduate students on American campuses make up a large portion of graduate enrollments. As of fall 2017, Indian enrollment represented 26% of all graduate applications received, 26% of all first-time enrollments, and 25% of total graduate enrollment (Okahana & Zhou, 2018). The only foreign country to surpass these figures is China (Okahana & Zhou, 2018).

The economic, academic, and cultural benefits that Indian graduate students bring to campuses cannot be overstated: International graduate students help accelerate scientific innovation, enrich American students’ academic experience, and bring their global perspectives to U.S. campuses (Chellaraj et al., 2008; Gareis, 2012). Universities that do not assist international graduate students with their adjustment process risk not retaining an important segment of their graduate population and losing the numerous contributions they make in and out of the classroom. Therefore, this study seeks to understand the perceived views of female Indian graduate students’ adjustment process after arrival at a STEM university in the United States.

**Significance of the Research Question**

The study of female Indian graduate students at U.S. campuses, in particular STEM institutions, is important for a number of reasons. First, since 2000, India and China have sent the largest number of international students to the United States (IIE, 2018). In fact, from the fall of 2001 to the spring of 2010, India sent more international students to the United States than China (IIE, 2018). China has since surpassed India in the number of outbound students to the United States, but in the academic year 2017–2018 (the most recent year of data collected by
Indian student enrollment grew by 5.7% as compared to the previous year (IIE, 2018). Chinese enrollment grew by only 3.6% in the same period (IIE, 2018). According to a 2017 survey conducted by the Council of Graduate Schools, Indian students comprised the largest share of enrollments in master’s and certificate programs (35%), outpacing Chinese enrollment, which amounted to 33% of total enrollment (Okahana & Zhou, 2018).

In the academic year 2017–2018, China enrolled more students (32.2%) than any other country. India came in second, with 17.9% of total international student enrollment in the United States. Indian students were enrolled as undergraduate and graduate students, as shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Number</th>
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<tbody>
<tr>
<td>Undergraduate</td>
<td>23,346</td>
</tr>
<tr>
<td>Graduate</td>
<td>95,651</td>
</tr>
<tr>
<td>Other*</td>
<td>77,274</td>
</tr>
<tr>
<td>Total</td>
<td>196,271</td>
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Note: “Other” refers to students who are enrolled in some type of nondegree program or employed under the provisions of the student visa. From *Open Doors Report on International Education Exchange*, Institute of International Education, 2018. Adapted with permission.

In the United States, the number of Indian students pursuing a graduate degree is almost 4 times higher than the number of students enrolled in a bachelor’s degree. Universities should be cognizant of this fact, as the type of resources and support systems needed for graduate students differs from the type of support undergraduate students may need from the institution.
Understanding how graduate students adjust culturally and academically will help universities provide a better overall experience and consequently attract and retain graduate students.

Additionally, STEM institutions offer academic programs more often associated with male students. For example, in 110 countries surveyed by the United Nations Education, Scientific and Cultural Organization (UNESCO), women represented only 44% of STEM doctoral enrollments and 29% of researchers (UNESCO, 2017). These numbers reflect the reality on U.S. campuses across the country. According to data released in 2018 by the Student and Exchange Visitor Program, which monitors student visas, there were 79,293 doctoral students in STEM programs in the United States, but only 39% of those students were female (Student and Exchange Visitor Program, 2018).

The tension between gender and science affects all aspects of female students’ academic lives. Despite some women choosing to pursue undergraduate degrees in a STEM field, comparatively few stay in academia to pursue an advanced degree (Hughes, 2010). A 2002 study conducted in Canada involving female engineering undergraduate students revealed that women find engineering schools to be discouraging and cold places that do not afford women the opportunity to make professional or academic connections (Baker, Tancred, & Whitesides, 2002). This study sought to determine if the same assertions hold true for female Indian graduate students, and if so, what impact does their transition process have on their perception of their environment. This topic remains unexplored in the literature.

As the number of female Indian graduate students on U.S. campuses continues to increase, it is important for universities to understand what these students need in order to successfully adjust to life at a U.S. university and have an overall positive experience. Ramsey, Betz, and Sekaquaptewa (2013) argued that stereotypes of women being less equipped to deal
with math and sciences in general, as well as seeing fewer female role models with advanced degrees, may impact women’s self-esteem and perceived ability to progress academically in the field. In addition to the male-dominated environment and the possible issues of self-perception experienced by undergraduate students, female graduate students face other factors. Mallinckrodt and Leong’s (1992a) study found that “[graduate students who are] women [experience] significantly more stress, more symptoms of stress, and significantly less social support from their academic departments and family environments” (p. 72). By understanding these stressors and finding ways to mitigate them, universities could develop more support services for international female graduate students in STEM fields. Administrators should understand that a better student experience will translate into happier students, more secure enrollment numbers (i.e., less attrition), and even open the possibility of attracting and enrolling more female graduate students through word-of-mouth recruitment.

Lastly, female Indian graduate students have to deal with cultural and societal pressures that may make it more difficult for them to pursue a degree in the sciences. According to UNESCO (2015), only 15% of female Indian college-aged students were enrolled in the sciences, mathematics, or statistics. Sharma (1979) explained that in traditional Indian culture, the role women play in society centers on child rearing and family. Due to marital and societal pressures, it is harder for women to secure employment in a scientific field even if they hold an advanced degree (Sondhi & King, 2017). Hastings (2000) explained that in Indian society, the notion of dharma “helps explain the role of the individual in relation to a larger cosmic perspective . . . Being born female or a member of the lower caste is viewed as punishment for sins in a previous life” (p. 97). Women who aspire to an academic, scientific, or professional career may be perceived as challenging their dharma, and thus not conforming to societal rules.
Therefore, female Indian graduate students have chosen to defy traditional social norms and pursue degrees that are usually associated with men. Studying the female Indian graduate population will assist administrators in understanding the needs of female graduate students so that universities can better serve them during this transitional period in their lives. Additionally, this study will inform best practices for future use in the field.

**Research Problem and Research Question**

Research shows that, regardless of educational level, certain aspects influence international students’ overall adjustment on campus, affecting their experience (Dutta, 2015). For example, socialization is an important part of the adjustment process; international students who make friends with local students tend to adapt better to changes in their new environment and have an overall more positive experience (Andrade, 2006; Chen & Razek, 2016; Erichsen & Bolliger, 2011; Kashyap, 2011; Poyrazli, Arbona, Nora, McPherson, & Pisecco, 2002; Zhao, Kuh, & Carini, 2005). Language proficiency is another factor that appears to correlate to adjustment. Studies have shown that students who can communicate more effectively in the local language tend to adjust better (Hannigan, 1990). Students’ level of self-confidence and resilience also affect international students’ adjustment, whether they are freshmen or in the fourth year of a doctoral program (Wang, 2009).

Other factors can be more distinctively accentuated for female graduate students. Gender can influence the adjustment process; female graduate students experience stress differently than men, as some may have additional roles to fulfill (e.g., mother, wife) (Anderson & Miezitis, 1999; Mallinckrodt & Leong, 1992b). Female graduate students can also be affected by stereotypical roles usually associated with men (especially in STEM fields), which can impact their opportunities for research and careers (Buffington, Cerf, Jones, & Weinberg, 2016; Mehta,
Keener, & Shrier, 2013). Interactions with faculty also play a prominent role in helping female graduate students adjust, as faculty members have a greater impact on graduate students’ overall levels of integration compared to undergraduate students (Andrade, 2006; Zhou et al., 2011), and mentors can serve as an important conduit to networking opportunities and role models (Mackey & Shannon, 2014).

In addition, female graduate students in STEM institutions are at a unique disadvantage: research shows that at the graduate level, negative interactions with male peers appear to be commonplace (Robnett, 2016). Female Indian graduate students in STEM programs need to contend with the additional stress of social and cultural rules that limit the scope of academic and professional opportunities for them. American institutions of higher education should be mindful of these factors and provide appropriate support systems for them in their process of adjusting to U.S. culture and education. Understanding how these students perceive their own adjustment here is relevant because university officials and educators must be aware of any barriers to students’ academic development. They should find solutions to remove obstacles and support these students’ academic and professional aspirations.

The purpose of this study is to understand female Indian graduate students’ perceived views of their own adjustment to American culture and education at a STEM university. More specifically, this study explored how these students make sense of the academic and cultural aspects of university life and their own lives in a new country. The research questions guiding this study were:

1) How do female Indian graduate students perceive their own adjustment to American culture and education at a STEM university?
2) What strategies, if any, have these students developed to cope with any acculturative stressors they may have experienced?

3) From these students’ perspective, what administrative support systems could the university offer to improve their experience?

**Definitions of Key Terminology**

The following definitions are relevant for this study and are presented to assist in understanding some key concepts discussed in this paper:

**Acculturation**

Acculturation is 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 example, when international students start to behave or share values of the new culture they are immersed in, they are experiencing acculturation.

**Acculturative Stressors**

According to Tochkov et al. (2010), acculturative stressors are “stressful life experiences resulting from the difference between the host nation and the country of origin” (p. 679). Wang and Mallinckrodt (2006) suggested these stressful experiences can have social and psychological consequences. For example, female Indian graduate students experience stress because they are in a new environment with new social norms and a foreign language, and at the same time may feel familial and societal pressures to behave in a specific way, even though they are thousands of miles away from their families’ watchful eyes. They may struggle to adjust to the values of the new culture without losing the values of the old one, even though these sets of values may be contradictory.

**Adjustment**
Adjustment can be understood as “the fit between students and the academic environment, and may examine issues such as learning styles, study habits, educational background, culture and language proficiency” (Andrade, 2006, p. 134). Students are considered to have adjusted when they seamlessly adhere to the habits and norms of the new culture.

**International Students**

International students are defined as “nonimmigrants [who have] a permanent residence abroad as defined by the Department of Homeland Security . . . and are expected to return to their country upon the completion of the purpose of their stay” (Hegarty, 2014, p. 224). For the purposes of this study, this definition will be applied to international graduate students as well, with the understanding these students are pursuing either a master’s or doctorate in a STEM field at an American university.

**Support Systems**

Support systems can be construed as policies, entire offices, or services offered by the institution to meet the needs of students. For example, as international students are accepted into the United States and allowed to remain based on the provisions of their student visas, these students have specific needs regarding their immigration status. Universities should designate specific staff on campus to work specifically with them. Another example would be the creation of a nightly shuttle bus to assist students who take evening classes and otherwise would have to rely on walking at night to get to the nearest train or city bus station.

**Theoretical Framework: Schlossberg’s Transition Theory**

Female Indian graduate students undergo major transitions, such as moving to a new country, adopting new roles, and no longer having their support systems. As they arrive on campus and start their academic programs, they experience a new environment that requires
almost immediate adjustment. As one of the goals of this study is to improve institutional processes and policies to better serve female Indian graduate students, Schlossberg’s transition theory sheds light on the various components of the transition these students experience from the moment they arrive in this country.

Anderson, Goodman, and Schlossberg (2011) defined transition as “any event or nonevent that results in changed relationships, routines, assumptions, and roles” (p. 39). According to Schlossberg (1981), regardless of whether transitions are positive or negative, they change our lives and how we perceive our existence. Simply put, the way we perceive transitions can influence how we deal with them. She posited that “transition is defined by the individual” (p. 7) and argued that not everyone experiences transitions in the same way; transitions are continuously happening in our lives. Individuals going through the same type of experience (i.e., starting graduate school) will have different reactions (e.g., excitement, fear) because the way they cope with change will depend on whether they perceive it positively or negatively (Koert, Borgen, & Amundson, 2011). Transitions force individuals to reconsider their present roles and their futures.

**The Transition Model**

Schlossberg (2011) developed a model of transition that allows counselors to identify transitions in their clients’ lives and assist them in coping with change. The model has three parts: “(a) understanding transitions, (b) coping with transitions, and (c) applying the model to work life transitions” (p. 159). This model is illustrated in Figure 1.
The purpose of this figure is to help counselors conceptualize the different parts of the transitions model: what events or nonevents happened to initiate the transition and the resources or liabilities the client has with which to address the change. As the arrows symbolize, this is a continuous process, as changes are constantly happening in our lives. This model applies to this study because female Indian graduate students are experiencing major events and the resources or liabilities they bring with them (e.g., cultural strategies, familial support, sense of self) will affect their response to the transition.

Understanding transitions. The first part of the transition model, understanding transitions, has to do with identifying the type of transition. Schlossberg (2011) identified three...
types of transitions: anticipated, unanticipated, and nonevents. Anticipated events are those usually expected in one’s life, such as getting married or graduating from college. Unanticipated events are those that disrupt one’s life, such as losing a job or getting sick. Nonevents are characterized as events that are expected to occur but did not, such as not becoming a parent.

In addition to understanding the type of transition, it is also important to contextualize where the individual is in her life at the time the transition takes place. In order to do that, Anderson et al. (2011) identified perspective, context, and impact as key factors that can help an individual make sense of a transition. Anderson et al. (2011) argued that each individual will perceive an event differently; what someone considers a nonevent may be an anticipated event for another. Kraus (2012) explained that context refers to the individual’s relationship to the change. Those experiencing a change directly respond differently than if the change affects them indirectly. Impact refers to how much the transition affects one’s life (e.g., relationships, roles, routines; Anderson et al., 2011).

**Coping with transitions.** The second part of the transition model, coping with transitions, is what Schlossberg called the 4 S system. According to Schlossberg, the goal of the 4 S system is to assist individuals in understanding how to cope with the transition. The system consists of four parts: situation, support, self, and strategies. Schlossberg, Lynch, and Chickering (1989) stated that by “looking at the balance of resources and deficits in each of these categories, it is possible to predict how a person will cope” (p. 17).

Schlossberg (1981) posited that individuals could cope with transitions better if they did what she called taking stock: “Taking stock is a process by which transitioners examine their situation and coping resources for the situation” (Barclay, 2017, p. 25). Taking stock resembles the steps of the 4 S system. This includes reflecting on: the situation, the types of support
systems that are available, how self relates to the change, and the approach to the change. For example, two students moving to another country may seem to be going through the same transition, but one may already have a strong support network in the new country (resource), while the other may not know anyone in the new country yet (liability). These individuals will perceive the transition very differently because each has a different set of resources and liabilities.

**Situation.** Situation refers to the individual’s situation at the time of the transition (Schlossberg, 2011). Anderson et al. (2011) explained that many factors should be considered when evaluating an individual’s situation:

a) Trigger: a specific event that forces learning (unlike a transition, which creates a change in position, a trigger may set off a transition);

b) Timing: the time in someone’s life when this transition is taking place;

c) Control: consideration of which aspects of the transition an individual may or may not be able to control;

d) Role change: any role changes involved in the transition;

e) Duration: the transition’s status as permanent or temporary;

f) Previous experience: how the individual coped with similar circumstances in the past;

g) Current stress: how much stress the individual currently experiences;

h) Assessment: how the individual views the situation (positively, negatively, or neutral).

With these eight factors, Anderson et al. (2011) explained that each situation is different because these factors are not static; their combination, at any time, will change the situation.

**Support.** A strong support system will assist individuals with their transition. Schlossberg (1981) suggested that family and friends play a crucial role in the transition by being
a “cushion to shock” (p. 11) and a source of comfort and solidarity. Support in the form of religious institutions or political and social organizations also help individuals during transitions. All of these sources of support provide affirmation, aid, respect, or love (Anderson et al., 2011). A stronger support system is a resource for individuals in times of transition.

**Self.** A strong sense of self-worth, self-image, and self-esteem can alleviate some of the stress brought about by the transition (Schlossberg, 1981). How people view themselves affects how they perceive and cope with their transition. Individuals who make their own decisions (e.g., the choice to study a certain major because of personal interest as opposed to parental demands) are better able to navigate their way through the transition (Barclay, 2017). Many factors influence how one’s sense of self impacts the transition. These include: “socioeconomic status, gender and sexual orientation, age and stage of life, state of health, ethnicity/culture, psychological resources, ego development, outlook (optimism and self-efficacy), commitment to values, and spirituality and resilience” (Anderson et al., 2011, p. 73). These internal and external factors influence how someone deals with transitions.

**Strategies.** Strategies relate to how one negotiates the transition. Individuals cope in different ways—by trying to change the situation (e.g., getting help from a tutor to improve a grade), reframing the situation (e.g., not feeling sad when a trip is canceled), or controlling stress (e.g., doing yoga to relax; Schlossberg et al., 1989). The strategy employed to deal with the transition will vary based on the individual’s perception of the transition as challenging, harmful, or benign (Anderson et al., 2011). By applying the 4 S system, individuals can assess their resources and liabilities. That, in turn, could assist them in understanding how well or poorly they are equipped to deal with change.
Applying the model to work–life transitions. The third part of the transition model, applying the model to work life transitions, or taking charge, describes how individuals adopt interventions that will help them cope with the transition. Strategies to deal with change include:

a) Reframing the situation to discover a new way of thinking about it;

b) Selective denial (i.e., individuals ignore parts of the change that they are not comfortable with);

c) Hope and optimism, which are important for individuals going through a transition to keep them moving forward in hopes that a better future awaits them (Anderson et al., 2011).

Integrated Model of the Transition Process

As transitions are an inevitable part of life, it is important for individuals to understand that regardless of how they perceive change, either as an opportunity or a hindrance, their views of the transition will have an impact on their reaction to the change. By taking stock of their resources and liabilities (i.e., applying the 4 S system), individuals will be better positioned to undergo the transition with less stress and frustration. Transitions cannot be avoided, but how one prepares for or deals with them can be adjusted based on their particular situation, network of support, sense of self, and coping strategies.

Transitions happen over time and involve multiple stages. Schlossberg et al. (1989) described transitions happening in three stages: moving in, moving through, and moving out. The first stage, moving in refers to a period when the individual is “learning the environment” (p. 15), such as starting college. The second stage, moving through, refers to the period when the individual is adjusting to the new situation with times of support and challenge, such as the second or third semester of an academic program. The last stage, moving out, is marked by the
transition ending and the individual asking what is next in life. The integrated model of the transition process is illustrated in Figure 2.

According to Patton and Davis (2014), multiple factors influence how individuals navigate through these phases. During moving in, for example, family and social support networks play a crucial role in assisting the individual entering this new stage of life. A female Indian graduate student who moves to a new country will be in this phase and would benefit if universities provided as much assistance as possible, through orientation programs and opportunities to meet other students or connect with staff members (e.g., counseling services). During the moving through phase, personal factors such as self-confidence, a proactive approach
to developing one’s own social network, and the ability to learn new academic requirements and roles are crucial to the student’s adjustment to the transition. Finally, during the moving out phase, students start to consider what is coming next in their lives: graduating, moving back to their home countries, or getting a job in the United States. During each phase, students may experience anxiety, stress, frustration, depression, and a host of other feelings. Therefore, it is important that university administrators are mindful of the transition these students experience and find a means to help them cope with it.

Critiques

Schlossberg is a seminal author in transition theory. Given her professional background, this theory was developed with the focus on counseling (Anderson et al., 2011), not education. It applies to education and other areas, including retirement or the workplace, because its concepts are general enough to describe any transition in life. However, critics of the theory have highlighted its shortcomings when applied to education.

As transition theory was not specifically designed for the field of education, critics argue it does not take into account nontraditional students or those with diverse backgrounds (Kraus, 2012). As culture plays an important role in our perception of the world (Tierney, 2000), individual agency to deal with transitions may be minimized because cultural beliefs may carry more weight than the individual’s sense of self. Considering one of the tenets of the 4 S system is the sense of self, it is important to recognize that students who are not part of the mainstream culture may experience transition differently.

Another critique of this theory is that it approaches transitions as if they happened one at a time. Patton and Davis’s (2014) study of Hurricane Katrina and the impact it had on African American college students in New Orleans showed that when multiple transitions occurred
because of a single unanticipated event, this theory did not provide any specifics on how to deal with them simultaneously. This theory served as a guide for their study to understand the main event, but not the many other changes the students experienced (Patton & Davis, 2014).

Lastly, Burns (2010) argued that, as social theories have expanded—and continue to expand to include our understandings of “cultural, national, gendered and social class expectations” (p. 45), it becomes clear that the way this theory characterizes events (anticipated, unanticipated, and nonevents) reveals a Western-centric (specifically U.S.-centric) view of transitions that may not reflect other cultures. Different cultures do not have the same expectations for an individual’s life. These cultural values are embedded in the way we describe a transition (Burns, 2010).

Rationale

Schlossberg’s transition theory fits well with this study’s focus on a population that is going through a major transition in their lives. The researcher worked with female Indian graduate students who had recently moved to this country and started graduate school. These students were experiencing major changes, such as a new physical environment (and very different weather), new roles (immigrant and student), new cultural and social expectations, and potentially very limited social support to help them navigate through this period in their lives. The nuances of students’ experiences were captured and analyzed through this theory.

Transition theory helped analyze how student affairs administrators can better assist students during the moving in, moving through, and moving out phases of their transition. By understanding transitions and the factors that impact them, we can develop strategies that will alleviate some of the stress and anxiety students may have. This theory also serves as a platform
from which we can educate students about how their perceptions of the transition can influence its outcome.

**Application of Theory**

Schlossberg’s transition theory was a lens through which I understood the transitions female Indian graduate students were experiencing at the research site. For example, moving to a new country away from one’s family may be exciting for some students, but a dreaded change for others. As Schlossberg (1981) explained, “a transition is a transition if it is so defined by the person experiencing it” (p. 7). Therefore, students’ own views of their transition process were explored.

There is always stress associated with transitions (Schlossberg, 2011), whether the change is desired or not. By understanding female graduate students’ own assessment of the stressors that impact their transition, academic institutions can do a better job assisting them to adjust to their new environment. This theory provided the framework by which to make sense of students’ own views of the transition they were experiencing and identify strategies to help them cope with it.

As the number of Indian graduate students coming to the United States has doubled in the past 10 years (IIE, 2018), there is a pressing need to understand how universities can better support these students during their transition because they make important cultural, academic, and financial contributions to U.S. campuses and local communities. Therefore, it is imperative that universities and student affairs professionals understand how transitions can impact them and what strategies are available to support them during this period in their lives.

**Conclusion**
The importance of Indian graduate students to the overall U.S. economy generally and the higher education sector specifically cannot be denied. The experience of female Indian graduate students is an area of interest that is little researched and thus deserves attention. This chapter explained the relevance of studying the transition process female Indian graduate students undergo as they embark on a new period in their lives. By using Schlossberg’s transition theory, administrators will be better equipped to understand the changes taking place in these students’ lives and develop strategies to assist them in making a less stressful and happier adjustment to a new culture and environment.
Chapter 2: Literature Review

The benefits of hosting international students are experienced across campus. The purpose of this literature review is to provide a better understanding of what has been documented about international students: the contributions they make and the adjustment process they undergo after they arrive in a new country. As this study explored the adjustment process of female Indian graduate students during their transition from living in their home country to living in the United States, more detailed information about the unique stressors this population experienced will also be provided. This study is significant because Indian students are the second largest group of international students in the United States, and the majority are at the graduate level. Female Indian graduate students may experience unique stressors that could impact their academic pursuits. By understanding how to support them, universities will be better able to provide them with a positive academic experience that will result in increased rates of recruitment and retention of this segment of graduate students from India.

The existing literature focusing on international graduate population is limited (Le & Gardner, 2010; Mehta et al., 2013; Zhou, Frey, & Bang, 2011) and most has focused on factors that impact international students in general, or international undergraduate students (Poyrazli et al., 2002). This has serious implications for research, especially considering graduate students may experience different types of stressors. Within the Indian graduate student population, the study of female graduate students is scarce (Mehta et al., 2013; Sondhi & King, 2017).

This literature review discusses the contributions of international students, their adjustment process after they arrive in the United States, the stressors that affect international graduate students, and female Indian graduate students in particular. This literature review is divided into three sections: the first discusses contributions made by international students; the
second examines the international student adjustment process, and the third reviews the unique challenges of female Indian graduate students.

**Contributions of International Students**

One of the direct by-products of globalization, the opportunity to pursue a degree abroad, has become more accessible to large segments of the world as more people in developing countries achieve middle-class status (Altbach, 1991). The flow of students has been multidirectional. Historically, a larger number of students has moved from the South to the North (i.e., from developing to developed countries), there has also been a number of students going south-south or north-north (Altbach, 1991). The impact of international students on the local, national, and global levels cannot be underestimated because they contribute financially to economies and help host countries remain in the forefront of research and development initiatives (Altbach, 2004). Acknowledging the importance of hosting international students provides a rationale to support them in their adjustment process.

**The Local Impact**

Local communities benefit from the presence of international students because they represent a highly skilled pool of workers eager to gain professional experience. Further, international students are easily accessible, culturally flexible, and very qualified for local businesses to hire (Bozionelos, Bozionelos, Kostopoulos, Shyong, Baruch, & Zhou, 2014). Given the provisions of the student visa, international students are allowed to remain in the United States for 1 year after they graduate. Students who graduate with a STEM major can work in the United States for an additional 2 years, totaling 3 years of employment. Economic benefits are generated through taxes paid, as well as through day-to-day activities in the local community.
Universities also benefit from having international students on their campuses. The cost of tuition charged to international students is usually higher than that charged to American students—and sometimes even triple the cost charged to in-state students (Altbach, 1991). International students have become a new source of much needed revenue to keep universities’ operating budgets afloat (Trice, 2005). In addition to the financial incentive, U.S. universities recruit international students for pedagogical reasons. American students benefit from having international students in the classrooms by sharing ideas, differing viewpoints, and having discussions with one another (Pandit, 2007).

The National Impact

The impact of international students at the national level is also very meaningful. By comparing the number of patents awarded from 1965 to 2001, Chellaraj et al. (2008) found that both academic and nonacademic sectors of the U.S. economy benefitted from the innovation brought by international graduate students as they produced more patent applications and were awarded more patents than other skilled immigrants or domestic students. In fact, they suggested that U.S. universities need international graduate students because the number of American students interested in science and engineering graduate degrees is not enough to fill university seats. Universities need international graduate students to continue to support their research.

In addition to their academic contributions, international students affect the national economy and diplomacy. In the academic year 2017–2018 alone, they added 39 billion dollars to the U.S. economy and helped create over 455,000 jobs across the country (Association of International Educators, 2018). To protect national interests, the U.S. government wants to attract these students to the country in hopes of forging stronger ties with foreign nationals via American cultural values, way of life, politics, and scientific thinking (Altbach, 1991; Le &
Gardner, 2010; Pandit, 2007). The more familiar international students become with American life, the more they will feel part of a larger community and potentially protect U.S. values abroad.

**The Global Impact**

A perceived downside of easy global mobility—and another direct result of globalization—is brain drain. Developing countries have historically exported some of their brightest students to developed countries (Altbach, 1991). Some of these students received advanced training and degrees in their host countries and, for numerous reasons, decided to remain in that country. Szelenyi (2006) argued that the reality is now more complex than that; the idea of “brain circulation” is more accurate and multiple factors influence the decisions made by international graduate students to go abroad. For example, access to high-tech facilities and world-renowned faculty, social ties, professional development, patriotism, future opportunities for professional growth, and a sense of safety are all factors influencing international graduate students’ decisions to stay in the host country, move to another country, or go back home.

This change from brain drain to brain circulation has a direct impact on both developing and developed countries. Developing countries benefit from an educated population that their citizens did not pay to educate and who, upon return, will bring the knowledge and training they received overseas and help develop their country. Developed countries, on the other hand, benefit from and depend on the talent these students bring to the country in order to remain on the vanguard of scientific development and technology. The impact that international students have at the global level has been magnified by advances in technology and communication; they can develop professional networks regardless of where they are. Studies have shown that international students do not stay in one place; they may be educated in the United States but
eventually move elsewhere in pursuit of better opportunities (Szelenyi, 2006; Ugwu & Adamuti-Trache, 2017). The reach of international students therefore, is global.

**Conclusion**

The impact of international students locally, nationally, and globally cannot be underestimated. These students, particularly graduate students, are a resource for universities and economies as they bring with them not only financial benefits but also intellectual talent, diverse perspectives, and cultural richness. Understanding how valuable these students are to communities provides a rationale to support them during their adjustment process.

**International Student Adjustment Process**

In order to understand international students’ adjustment process, acculturation and adjustment must be first understood. Berry (2005, 2008) used the term acculturation to explain cultural and psychological changes happening to individuals exposed to different cultures. However, Kagan and Cohen (1990) and Hannigan (1990) pointed out that the words cultural adjustment, acculturation, and assimilation are used in the literature interchangeably to reflect changes in behavior, attitudes, and values that are connected to associating with a new culture. Berry (2005) explained that:

> Acculturation is 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. At the individual level, it involves changes in a person’s behavioral repertoire. (p. 698–699)

International students are exposed to a different culture when they arrive in a new country and are thus likely undergoing a process of cultural adjustment as soon as they arrive.

**The Adjustment Framework**
Berry created a framework to explain how an individual’s cultural identity relates to adjustment (Li & Gasser, 2005). According to Berry (2008), individuals transitioning to a new culture could either maintain their cultural identity or develop ties with the new culture. He developed a taxonomy of four strategies to explain the difference between the two alternatives: integration and assimilation, or marginalization and separation (Berry, 2008). For example, individuals can forgo their cultural identities completely and embrace the new cultural identity (assimilation), or they may want to keep their cultural identity and avoid the local culture altogether (separation; Berry, 2008). Berry (2008) then expanded these concepts to explain how the dominant culture can influence the acculturation process of individuals, as shown in Figure 3.

**Issue 1:**
Maintenance of Heritage Culture and Identity

**Issue 2:**
Relationships sought among groups

**Figure 3.** Four acculturation strategies based upon two issues, in ethnocultural groups, and the larger society. From “Acculturation: Living successfully in two cultures,” by J. W. Berry, 2005, *International Journal of Intercultural Relations, 29*, p. 705. Adapted with permission.
Issue 1 represents how much of the native cultural identity the individual wants to keep during the adjustment process—integration shows a higher level of native cultural retention than assimilation, for example. Issue 2 represents the level of participation in the local culture the individual is seeking—integration shows higher participation in the local culture than separation. The circle on the left in Figure 3 represents the assimilation strategies individuals (e.g., an international graduate student in the United States) use. The circle on the right represents society’s impact on these adjustment strategies (e.g., how the university environment would reflect societal strategies).

Berry (2008) applied those strategies to explain acculturation in the circle on the left:

a) Integration is a strategy that refers to individuals maintaining their own identity, as well as integrating with the dominant group.

b) Assimilation is a strategy used by individuals who actively seek interactions with members of the dominant group, at the risk of losing their own cultural identity.

c) Marginalization refers to cultural groups that have little interest in having an association with the dominant group and often are not allowed to express their own identity.

d) Separation refers to a strategy that individuals employ when they decide not to get involved with the dominant culture, thus preserving their cultural identities.

These strategies put individuals in charge of their adjustment process, giving them control over if and how they decide to adjust to the mainstream culture.

In contrast, according to Berry (2008), the circle on the right explains how society shapes the acculturation process by imposing the dominant group’s culture over the nondominant group. Multiculturalism is attained when different cultural groups engage with one another and all live
relatively peacefully. In other words, individuals from the nondominant group have integrated into the mainstream culture. The term “melting pot” is used when society perceives assimilation among different cultures has happened. Exclusion is characterized by the dominant group excluding the nondominant one from all forms of official social participation. Segregation results when the dominant group forces the nondominant one to be separate from the main culture. Berry’s (2005, 2008) explanation of acculturative strategies from the perspectives of individuals and society showed that the adjustment process individuals undergo is affected not just by an individual’s choices, but also by the pressures the environment imposes on them.

**Adjustment and the University Setting**

Tierney (2000) proposed that in academia there is an expectation that students must “fit into what is often an alien culture [to them] and that they leave their own cultures [behind]” (p. 219) in order to be accepted and successful. There is an imposition of cultural norms on students that may ultimately hinder their adjustment. If cultural identity and adjustment were correlated, as Berry suggested, Tierney (2000) argued that universities need to rethink how to engage with students without rejecting their native cultures.

An issue faced by faculty and administrators working with international students is the idea—whether or not it is explicit—that American culture is superior and thus international students need to adapt to it as soon as they arrive. Jupp and Slattery (2009) suggested that nonwhite students in the United States are expected to embrace mainstream culture (i.e., white, middle-class culture) and that the American educational system was built to reproduce the existing social order. That is, whites in power subjugate minorities and the poor. Faculty members who lack proper cultural understanding may brand students as cheaters or lazy, without knowing that cultural factors may be at play. For example, in some cultures, copying someone’s
work is a form of praise, not plagiarism. These issues of “deficit understandings,” as described by Jupp and Slattery (2009), can make the adjustment process more difficult for international students on U.S. campuses.

Shafaei, Nejati, Quazi, and von der Heidt (2016) argued that students’ cultural backgrounds play an important role in their academic behaviors in the host country. The authors posited that, when international students arrive on a foreign campus, they are caught in a dilemma: they can continue to follow the norms of their culture, or adjust to norms of the host country which may be in conflict with their country’s customs. Students may incorrectly assume that academic norms that are culturally acceptable at home will also be acceptable in the host country. The authors suggested that perceived unethical behavior may be linked to how well the student adjusted to the new culture. Cheating, plagiarism, and other forms of nonaccepted behaviors in the United States can affect a student’s academic career due to a lack of understanding of the new culture. Wang and Mallinckrodt (2006) explained that students from countries with a collectivist culture may have more difficulty adjusting to U.S. classrooms because in their academic culture they are taught to be quiet and refrain from expressing their opinions—traits that are not valued in American classrooms.

Parsons (2008) suggested that culture is an internal system that we inherit from generations before us and, thus, is not easy to change. Therefore, universities should be aware of the adjustment process students may be undergoing. International students come to the United States with their own cultural assumptions and should not be expected to understand and adopt American values as soon as they arrive on campus. Their perceptions and attitudes toward the host culture will be shaped over time as they decide to integrate, assimilate, or separate from the mainstream culture.
Factors That Impact Adjustment

Wang and Mallinckrodt (2006) explained that there are two varieties of adjustment, psychological and sociocultural. They are impacted by internal and external factors. The authors found that “psychological adjustment refers to psychological and emotional well-being . . . sociocultural adaptation refers to the ability to acquire and perform culturally appropriate social skills and behavioral competence to fit in the host culture” (p. 423). Ahadi and Puente-Díaz’s (2011) and Wang and Mallinckrodt’s (2006) studies suggested that internal factors may have a greater influence on adjustment because they represent students’ own sense of self and how students interact with others. Kagan and Cohen (1990) and Bang and Montgomery (2013) found that external factors also affect the adjustment process of international students, but to a lesser degree. According to Tseng and Newton (2002), international students experience the impact of internal and external factors through four different adjustment categories: living adjustment (e.g., food, housing, weather), sociocultural adjustment (e.g., cultural shock, new sociocultural expectations), academic adjustment (e.g., language proficiency, developing new learning skills), and personal adjustment (e.g., feelings of anxiety, isolation). Internal and external factors identified in the literature are discussed below.

Internal factors. Internal factors are innate qualities or skills that may influence an international student’s adjustment process. They are unique to each individual and affect international students’ personal adjustment. Language, emotional distress, resilience, and self-efficacy were identified in the literature as internal factors.

Language. Language can influence international students’ coping abilities while they experience this transitional period (Xu, 1991). Language proficiency is a stressor that affects the academic and social adjustment of international students (Andrade, 2006; Contreras-Aguirre, &
Gonzalez, 2017). Research has shown that students who are fluent in the host country’s language will adjust better to its culture (Andrade, 2006; Bang & Montgomery, 2013; Poyrazli et al., 2002). Studies have also shown that English language proficiency tests, such as the Test of English as a Foreign Language, commonly used by admissions offices to gauge students’ proficiency in English, should not be used as a predictor of academic or social integration (Trice, 2003; Xu, 1991). These tests do not reflect the colloquial language used in everyday conversation with peers. Rather, English language study before arriving in the United States is a better predictor of adjustment (Andrade, 2006). Language has a direct academic and social impact on international students’ lives.

**Academic impact.** Students with weak language skills have more difficulty understanding cultural insights shared in the classroom (Trice, 2004). Moglen (2017) argued that lack of language skills (i.e., speaking, listening and, reading comprehension) affects students academically by preventing active participation in class and working with peers (i.e., speaking), preventing understanding instructions from instructors (i.e., listening), and preventing understanding a text (i.e., reading comprehension). Without proper language skills, it is more difficult for international students to adjust to the academic environment or even complete their program. Those who have stronger language skills fare better academically.

**Social impact.** Language is also an important factor that can influence international students’ social adjustment to the United States. Hannigan (1990) posited that verbal and nonverbal linguistic skills are very important for those who are in contact with another culture. Without such skills, students are more likely to feel isolated. Studies have shown that students with high English proficiency (even if only perceived proficiency) are able to socialize better, integrate more quickly, have higher self-esteem and lower levels of stress, and have stronger
academic performance (Contreras-Aguirre & Gonzalez, 2017; Poyrazli et al., 2002; Xu, 1991). Students who do not speak English well and socialize primarily with those from their own countries (thereby removing the language barrier) tend to have difficulties adjusting (Poyrazli et al., 2002; Trice, 2004). For students who speak English as a first language, their accent has proven to be a factor as well (Zhao, Kuh, & Carini, 2005).

*Emotional distress.* Research has shown that feelings of isolation, frustration, anxiety, and depression are experienced by international students when they move to another country (Olivas & Li, 2006; Tochkov et al., 2010; Trice, 2004, 2007). Homesickness, in particular, is more acute when the student’s home culture is very different from the host culture (Baba & Hosoda, 2014). Homesickness, stress, and cognitive failure are connected (Tochkov et al., 2010). Higher levels of anxiety, homesickness, and loneliness will affect students academically, making them less equipped to handle academic demands (Poyrazli et al., 2002). Poor grades generate more anxiety, which generates more stress, which in turn culminates in poor academic performance. It is a vicious cycle for the international student. Researchers have correlated difficulties in adaptation with feelings of social and academic isolation (Erichsen & Bolliger, 2011; Perrucci & Hu, 1995). Also, international students who do not develop peer relationships with Americans are more depressed (Kashyap, 2011).

Another concern for international students is culture shock. Culture shock, defined as “anxiety that results losing all our familiar signs and symbols of social intercourse, which we do not carry at the level of conscious awareness” (Brown, 2008, p. 5), is more pronounced when there is greater dissonance between the students’ home culture and the host culture (Baba & Hosoda, 2014; Yeh & Inose, 2003). Common symptoms of cultural shock are anxiety, low self-esteem, depression, homesickness, hostility, and self-doubt (Brown, 2008). Even as students
may struggle with feelings of dissatisfaction and helplessness while transitioning to a new environment, they are less likely to seek professional help than their American counterparts. This is often due to relying on other, non-Western approaches to mental health, lack of awareness of mental health counseling services on campus, and stigma associated with mental diseases (Huyn, Quinn, Madon, & Lustig, 2007; Yeh & Inose, 2003).

**Resilience.** Resilience is an important factor that is rarely discussed in the literature (Wang, 2009). Wang (2009) defined resilience as “personal abilities to cope with change” (p. 26) and found that there is a strong positive correlation between resilience and adjustment. In other words, the higher the level of resilience, the better equipped the student is to adjust to changes. For example, moving to another country with a different culture, language, and norms is quite an undertaking. These students will be exposed to many circumstances which they will have to learn to manage. Those who are better able to navigate these changes because they are more resilient will likely adjust to life in the host country faster and more easily.

Resilience is much more personal when religion is involved. Tummala-Narra and Claudius (2013) conducted a qualitative study of Muslim international graduate students to understand their experience at a U.S. campus and to identify the factors that affected their adjustment process. The majority of the students interviewed revealed difficulty in assimilating to American culture due to lack of opportunities to make American friends and concern about losing their own cultural identity. The authors concluded that Muslim students go through additional specific stressors, such as overt discrimination, especially after September 11, 2001. These students needed to develop specific social networks of support to facilitate adjustment to the local culture that can assist them through adversity and change, thus making them more resilient.
**Self-efficacy.** Self-efficacy also plays a crucial role in adjustment because it influences international students’ ability to integrate into a new culture (Li & Gasser, 2005). International students who feel they lack the necessary social skills to navigate through a new culture will be less likely to engage with peers on and off campus (Chen & Razek, 2016). They will usually shy away from meeting new people, asking questions in class, or going to a tutoring center for help. On the other hand, students who have a strong sense of self-efficacy tend to adjust better academically, as they are better at “goal setting, persistence, and emotional adaptiveness” (Poyrazli et al., 2002, p. 633). Individuals who exhibit high self-efficacy are more engaged with locals, thus increasing their opportunities to learn the local culture and adjust faster (Li & Gasser, 2005).

Students’ own cultural backgrounds affect their level of self-efficacy. A study conducted by Trice (2004), indicated that the level of socialization with American peers varies based on the international graduate students’ country of origin. For instance, students from Eastern countries are more resistant to approaching American students, are unsure of how to respond to social interactions, and have lower self-esteem (Rawlings & Sue, 2013; Wang & Mallinckrodt, 2006).

**External factors.** External factors can be construed as influences that are part of the environment and not unique to each person. External factors determine how the setting (e.g., university, community, society) will impact the adjustment process. These factors influence how well or poorly international students adjust to their host country.

**Culture.** Cross-cultural transition is a stressor for international students who have to adapt to an environment that is very different from their own (Zhou, Frey, & Bang, 2011). The literature has alluded to geographic and cultural distance as an issue affecting international students. Studies show that the farther the student’s home country is from the host country, the
more distant their cultural patterns and value systems, thus making it harder for students to adjust (Myers-Walls, Frias, Kwon, Ko, & Lu, 2011; Rienties, Beusaert, Grohnert, Niemantsverdriet, & Kommers, 2012; Rosenthal, Russell, & Thomson, 2007; Zhou, Zhang, & Stodolska, 2017). Those from Asia or Africa, where the culture is collectivistic, have more difficulty adjusting to the United States than those from Europe—where the culture is more individualistic and similar to the United States (Kim, 2015; Trice, 2004; Wang & Mallinckrodt, 2006). Also, nonwhite international students have reported more perceived racial discrimination than their white counterparts (Baba & Hosoda, 2014; Misra, Crist, & Burant, 2003; Zhou et al., 2011).

Culture also plays a role in international students’ academic adjustment. Students who come from collectivist cultures display a stronger correlation between academic success and familial pride (Kim, 2015). Doing well academically becomes a stressor if the student believes that failing a course or not graduating will cause embarrassment and shame to the family. In addition, the teaching style in the United States, which focuses less on rote memorization and gives more emphasis on discussions and student engagement, makes it difficult for many international students to adjust; they are more familiar with teaching styles in which reading is favored over verbal skills (Sherry, Thomas, & Chui, 2010) and self-expression is not common (Brown, 2008). Faculty expectations, academic demands, and the fast pace of classes make adjusting to the academic culture harder (Baba & Hosoda, 2014; Myers-Walls et al., 2011; Zhai, 2004). Brown (2008) found classes are a linguistic and cultural challenge for many international students.

Institutional support. Institutional support is another external factor crucial to international students’ adjustment. Support can be given through academic services or administrative policies.
Trice’s (2005) study, for example, showed that academic departments in different areas of study (i.e., social sciences versus hard sciences) reacted differently to international graduate students’ needs, producing different results. In her study, faculty in the social sciences were more likely to acknowledge the uniqueness of the international graduate students’ situation and modify their way of teaching to accommodate them; they adjusted their use of language in the classroom or became more involved in mentoring these students. Faculty in the hard sciences were less prone to offer any accommodations to international students, despite their reliance on them to fill in seats. In other words, when international students were perceived by faculty as an asset to their departments, additional academic support was provided and students benefitted. In addition to academic support, strong mentorship programs, engaging extracurricular activities, and an effective mental health counseling program are examples of institutional support that can positively affect international students’ adjustment process (Trice, 2005).

**Mentorship.** Studies showed that there is a direct correlation between strong mentor support and lower levels of stress (Kaczmarek, Matlock, Merta, Ames, & Ross, 1994; Ülkü-Steiner, Kurtz-Costes, & Kinlaw, 2000). The importance of mentors in helping international graduate students remain in their program and field of study is well documented (Haynes, Bulosan, Citty, Grant-Harris, Hudson, & Koro-Ljungberg, 2012; Kurtz-Costes, Andrews Helmke, & Ülkü-Steiner, 2006; Mamiseishvili, 2012; Ülkü-Steiner et al., 2000). According to Mackey and Shannon (2014), mentors have four roles: “sponsor, coach, role model, and counselor” (p. 340). Using the mentor–mentee relationship, graduate students can be exposed to more opportunities for learning, research, publishing, and future job opportunities. Mentors who understand their students’ ethnic backgrounds, academic and professional aspirations, class, and identity are better equipped to support them (Mackey & Shannon, 2014).
Kurtz-Costes et al. (2006) showed that women and men perceive their mentors differently. Female graduate students valued female mentors whose lifestyles they wanted for themselves (e.g., a well-balanced family, a professional life), whereas men looked for mentors who could assist them professionally. In their study, female graduate students acknowledged that not all female mentors met their expectations (especially if the mentor did not have a well-balanced lifestyle). However, the researchers concluded that it is not the gender of the mentor that predicted the type of relationship with the student but the mentor’s own personality that made the relationship meaningful to the student.

**Extracurricular activities.** Another area of institutional support that can affect adjustment is extracurricular activities. Rose-Redwood’s (2010) study showed how important it is for the university to help students through extracurricular activities and support groups. While reviewing the results of her interviews, she concluded that international graduate students perceived university-sponsored events (including those offered by student clubs and the international student office) as superficial. Students reported several problems with these programs: they did not foster in-depth engagement between American and international students; American students did not seem to be interested in learning about international students’ cultures; the structure of the student-run organizations promoted cultural segregation as students from the same background joined and ran these clubs. Universities, she concluded, need to implement more meaningful practices to truly assist these students with socialization. Through socialization, especially with local peers, students are able to adjust to their new environment more easily (Kurtz-Costes et al., 2006).

**Mental health counseling.** Mental health is another area in which institutional support is needed for better student adjustment. Cooper and Yarbrough (2016) noted that in some
cultures, there is an intersection between health traditions—including mental health—and religious practices. Universities lack that understanding and, by offering only Western-style treatments, they alienate international students. Huyn et al. (2007) conducted a study comparing the level of awareness and use of on-campus mental health services by American and international graduate students. The results showed that American students seek assistance for mental health issues more often than international graduate students. As international graduate students deal with specific stressors (e.g., acculturation, homesickness, academic adjustment, and lack of a close social network) that American students do not, international students are more likely to need assistance from a mental health professional (Huyn et al., 2007). According to these researchers, international students who were better adjusted to American culture were more likely to seek assistance from a mental health professional.

Social connections. Social connections are an important part of integrating into a new country. International students who make friends with local students tend to adapt better to changes in their environment and have an overall better experience on campus (Andrade, 2006; Erichsen & Bolliger, 2011; Poyrazli et al., 2002; Zhao et al., 2005). Social support is a tool to cope with changes; in fact, lack of social support is a stressor in itself (Mallinckrodt & Leong, 1992a). Research shows that even the perception of social support positively impacts international students (Misra et al., 2003), especially during the first year, when they are most vulnerable (Lawson & Fuehrer, 1989). Yeh and Inose’s (2003) study confirmed that a network of social support works as an indicator of the level of stress: the more friends students have the less stressed they feel.

There are many benefits to making local friends: they enable students to “develop local networks, understand the local culture, and acquire social skills necessary for the effective
adjustment to the new culture” (Li & Gasser, 2005, p. 571). However, despite these benefits, a 2012 study by Gareis indicated that most international students find it difficult to develop local networks. Some international students resort to connecting with conationals as a means to avoid stressing about different cultural norms, linguistic barriers, and ultimately to preserve their cultural identity (Gareis, 2012; Kim, 2015; Li & Gasser, 2005). Connection with conationals provides them a sense of comfort and security (Cooper & Yarbrough, 2016).

**Conclusion**

International students face multiple adjustment issues, including living, sociocultural, academic, and personal challenges, when they move to a new country. The adjustment process that takes place after their arrival is influenced by internal factors and how much of the local culture they are willing to absorb. Society and academia play central roles in shaping international students’ acculturation process through external factors that can foster or hinder a smooth transition to their new environment.

**The Challenges of Female International Graduate Students**

The internal and external factors affecting international students are not unique to a particular academic level; both undergraduate and international graduate students have reported difficulties in adjusting to a new culture for some of the same reasons (Baba & Hosoda, 2014). However, there is a paucity of research in the unique stressors experienced by international graduate students (Chen & Razek, 2016; Kashyap, 2011). For the most part, the literature does not distinguish between undergraduate and graduate students; they are often combined into a single group—as though the stressors impacting undergraduates were the same as faced by graduate students. Despite the limitation of the existing literature, this section will discuss the
challenges faced by international graduate students and the unique stressors female graduate students face—specifically female Indian graduate students.

**Challenges of International Graduate Students**

According to Rocha-Singh (1994), stress “occurs when both (a) the situation is appraised as challenging or demanding and (b) insufficient resources are available to cope with the situation” (p. 715). A 2011 study by Myers-Walls et al. (2011) found that international graduate students feel stressed, lost, and confused at the beginning of their stay. Further, these students feel overwhelmed without the traditional social support they received back home, and the lack of university resources to help them adjust creates significant stress for them, especially for those with families (Myers-Walls et al., 2011).

The distinctiveness of the international graduate student situation is observed as soon as they arrive on campus. Compared to their American counterparts, there are fewer resources available to help them through their initial transition (Misra et al., 2003). Graduate students are “assumed to be independent, critical thinkers, and strong writers, and if they are not already so, it is assumed that they will acquire these characteristics by observing and imitating other students and their advisors” (Erichsen & Bollinger, 2011, p. 311). There is an expectation that they have to adjust quickly in order to succeed academically.

Another issue that concerns international graduate students is finances. Research has shown that finances are a significant stressor to international graduate students and how vulnerable they are if these resources are limited or removed (Myers-Walls et al., 2011; Sam, 2001; Sherry et al., 2010). Tuition is only one of their worries; affordable housing, health insurance premiums for dependents, child care, and cost-of-living are important issues that concern international graduate students. The fluctuation of international exchange rates is
another stressor that concerns international students (Baba & Hosoda, 2014). Many international graduate students also experience the stress of finding opportunities for doing research or publishing and are concerned about employment after graduation, though they may have only recently arrived (Kurtz-Costes et al., 2006), all of which may impact their current or future finances.

To better understand their unique experience, a more detailed examination of the challenges faced by female graduate students, in specific female Indian graduate students, is warranted.

**The Female Role**

Several studies showed that female graduate students report being more stressed than their male counterparts (Kurtz-Costes et al., 2006; Hicks & Miller, 2006; Misra et al., 2003). In general, women give more support than they receive (this included their partners) and are more affected by stressful events that happen in the lives of others (Mallinckrodt & Leong, 1992b). Financial factors have also been found to impact female students more than men (Arric, Young, Harris, & Farrow, 2011; Xu, 2016). In fact, Mallinckrodt and Leong’s (1992a) study found that there is a strong correlation between inadequate financial resources and depression among female graduate students. Stereotypes about women, such as being too emotional, interfere with women’s perceived opportunities for employment or research (Mehta, Keener, & Shrier, 2013). These factors also cause female graduate students to have a more stressful adjustment to their graduate program when they arrive in the United States than their male counterparts.

Another factor unique to female students that contributes to their stress level is the additional family roles they may be expected to fulfill (Mallinckrodt & Leong, 1992a). Social expectations on women are still centered around the roles of mother or wife; there is an
assumption that the performance of these expected roles is stress-free (Barnett, 2004). The term role expansion is used to explain situations in which, unlike men, women are expected to add the role of student to their other roles (i.e., wife and mother) without lessening any of their other responsibilities (Mallinckrodt & Leong, 1992b). Anderson and Miezitis (1999) found that pursuing a graduate degree is more stressful for females who are mothers than those who are not.

Issues related to childcare (e.g., availability, costs, flexibility) are a major stressor for female student–parents (Loveridge, Doyle, & Faamanatu–Eteuati, 2018). In their study, Ülkü-Steiner et al. (2000) concluded that “women in male-dominated programs experience less sensitivity in their departments to family issues than all other students” (p. 299) and family can be perceived as a liability. This has direct implications for female students, as they are regarded as caregivers.

Despite advances in society’s understanding of child-rearing roles, Mallinckrodt and Leong (1992b) argued that, in reality, men’s and women’s roles raising children have still not changed.

For Indian female graduate students, this is particularly relevant, as in Indian society females are expected to take care of their families and pass on their traditions (Dasgupta, 1998).

Finally, unlike men, women downplay their educational aspirations (e.g., they decide not to pursue an advanced degree) if family and children are being considered (Xu, 2016). The existing literature does not explain how having multiple roles affects female Indian graduate students as they pursue their graduate degrees. This study contributes to the body of knowledge by shedding light on this issue.

**The Female Role in the STEM Academic Environment**

Another stressor for female graduate students is the environment they encounter when they start a STEM program. A previous study suggested that women perceive “an inverse relation between femininity and competence” (Mehta et al., 2013, p. 40) in graduate programs, in
that femininity weakens their credibility as graduate students. Kurtz-Costes et al. (2006) posited that, in academia, traits usually associated with females (“nurture, cooperation, service, and humility,” p. 152) are not considered as valuable as traits usually associated with males (“productivity, competition, and self–promotion,” p. 152). Mehta et al. (2013) explained that female graduate students who behave according to stereotypical gender roles are more liked by peers and faculty members, but are taken less seriously in their academic pursuits. On the other hand, female students who behave in ways that are traditionally identified as male (e.g., by being more assertive or taking control over a project) are less liked by peers but considered to be more competent. Therefore, female graduate students struggle with the idea that femininity and intellectual competence are mutually exclusive (Mehta et al., 2013).

At the graduate level, the way women are perceived and treated can affect their academic work. Research has shown that women report social isolation, exclusion from academic participation, hostility, and lack of interest by faculty (Ramsey, Betz, & Sekaquaptewa, 2013; Robnett, 2016; Seagram, Gould, & Pyke, 1998). The environment at STEM programs constantly gives women the message that if they do not conform to the normative culture, they will not succeed (Brus, 2006). Examples of discrimination include female students being denied access to research subjects, fewer women being offered leadership and faculty roles at universities—especially in engineering and science programs—women faculty being paid less and offered fewer opportunities for promotion (National Academies of Science, 2007), and women receiving fewer federal research awards (Buffington, Harris, Jones, & Weinberg, 2016).

**Ethnicity and Indian Culture**

Ethnicity and culture play an important role in shaping the female international graduate experience. Tierney (2000) defined culture as “the difficult negotiation between understanding
the implicit interpretations that have been built overtime and our reconstruction of such meanings” (p. 215). Kim (2015) argued that our culture informs our view of gender roles. In other words, culture influences how we view the world, including what roles are appropriate for women and men. As female international graduate students move to the United States and start their STEM programs, they need to learn how to navigate this new environment while holding values that may conflict with American values. Especially if they are coming from a non-Western culture, where there is a larger cultural gap with the United States, as it will be harder for them to adjust (Myers-Walls et al., 2011). Studies also show that non-White female graduate students report higher levels of stress (Arric et al., 2011; Hughes, 2010).

Indian female students in particular, are vulnerable to cultural stress because they are strongly guided by their families; their choice to study abroad and pursue academic interests are greatly influenced by the benefits those actions will have on the entire family, not just themselves (Walton-Roberts, 2015). Speaking specifically about Indian culture, Walton-Roberts (2015) stated that “femininity is policed in terms of control over mobility since if a woman moves freely in public space away from her home it undermines community surveillance over and control of her sexuality” (p. 71). Because India is a patriarchal society, tight control is exerted on women’s lives, limiting their movement, views about family matters, choice of marital relations, and economic independence (Jejeebhoy & Sathar, 2001).

Throughout history, female and male gender roles in Indian society have been very clearly distinguished; females are more constrained and males have more autonomy (Ramanathan & Crocker, 2009). Further, women are obligated to preserve cultural traditions (Dasgupta, 1998), and their sense of self-identification is tied to the family (Farver, Bhadha, & Narang, 2002), which exerts influence on females even when they are in a different country. For
example, family control is so ingrained in Indian culture that even when students are in the United States and need medical help, Indian female students refer to their families back in India as the primary resource for healthcare advice, resorting to the university’s health clinic or health services only when necessary (Cooper & Yarbrough, 2016).

These gendered differences are also observed when students return home (Sondhi & King, 2017; Walton-Roberts, 2015). Sondhi and King’s (2017) study reported on Western-educated Indian women’s frustration on going home after graduation. Due to their gender, they feared not being able to find jobs related to their studies and losing their freedom. Upon return, they are under the vigilance of their families or spouses again and have much less mobility (Sondhi & King, 2017; Walton-Roberts, 2015). Therefore, in addition to all the stressors that graduate female students experience in the United States, Indian female graduate students have to deal with the effects of both traditional gender expectations (expressed through family and social control) and globalization (through international mobility and exposure to Western values of freedom).

Conclusion

As more graduate students come to the United States to pursue advanced degrees, it is clear that they need assistance adjusting to the local culture. Despite experiencing some of the same stressors as undergraduate students, graduate students undergo different, unique stressors due to the specific situations in their lives (e.g., being a parent or spouse, employment concerns, financial constraints, research or publishing anxiety). In addition, female graduate students in STEM graduate programs encounter a hostile environment due to their gender. Indian female graduate students are especially pressured by their families due to cultural and societal rules that follow a gendered view of the world.
Summary

This literature review revealed that many external and internal factors can influence international students’ adjustment process at U.S. universities. Current literature focused either on international students in general by grouping undergraduate and graduate students together or on undergraduate students only. Few studies focused solely on international graduate students. More specifically, the study of female international graduate students was even more limited. Further research on this group is warranted because of the unique challenges these students face.

Recurring themes emerged during the literature review: the stressors that influence international students’ adjustment in general, the benefits of social networks and friendship with local students, the importance of faculty and mentorship in the adjustment process, the connection between cultural background and academic behavior, and the specific stressors that female graduate students endure. Unintended consequences that hinder the adjustment process can be avoided if international graduate students are at the center of the discussion.

Most studies noted that institutions should provide support systems that address the needs of international graduate students. This study sought to understand how female Indian graduate students perceive their adjustment to U.S. culture and American higher education at a STEM university. More specifically, it explored how these students make sense of the academic and cultural aspects of university life and their own lives in a new country. The existing literature had identified specific internal factors (e.g., language, emotional distress, resilience, and self-efficacy) and external factors (e.g., culture, institutional support, social interactions) that may affect students’ adjustment. Additionally, the subgroup of female Indian graduate students in STEM programs is exposed to unique stressors, about which there is little research. This
exploratory study sheds more light on these students’ own views of their adjustment experiences and develops suggestions for university administrators to better support them.

Across the country, international graduate students make a valuable contribution to U.S. campuses and their local communities. These students add different perspectives to the classroom, conduct research, and make the campus more globally engaged. Female international graduate students in STEM programs deserve special attention because there is very little known about their needs and how universities can better assist their academic pursuits. More research on this topic is warranted so more inclusive, gender-neutral policies may be developed and implemented.
Chapter 3: Research Design

As the number of Indian graduate students in the United States has more than doubled in the last 10 years and continues to grow (IIE, 2018), universities should understand the needs of this population so they can be better served. The purpose of this study was to understand female Indian graduate students’ perceptions of their own adjustment to American culture and education at a STEM university. By understanding their views, universities will be able to provide better support systems for this population. The study of female Indian graduate students is warranted because there is very little research done on this group (Sondhi & King, 2017). As American universities continue to attract and host these students, they should understand what stressors these students face and what can be done to better support them during their adjustment process. This study will use interpretative phenomenological analysis (IPA) as its research approach. This chapter will focus on explaining the theoretical underpinnings of IPA and how it relates to the proposed study, its research questions, data collection, and analysis. A discussion about the participants for the study, their selection process, and the criteria for quality qualitative research are included.

Qualitative Research Approach

A paradigm is a set of interconnected conventions about the social world that provides the conceptual and philosophical basis for the study of that world (Ponderotto, 2005). A researcher can use the paradigm as a guide when choosing methods, instruments, and participants to be used in a study (Ponderotto, 2005). This study was conducted through the paradigm of constructivism.

Constructivists seeks to understand the meaning (i.e., reality) that individuals attribute to a particular situation. Under this paradigm, individuals’ reality is said to be constructed as they
experience it (Riegler, 2012). According to Guba and Lincoln (2005), “the meaning-making activities themselves are of central interest to social constructivists/constructivist, simply because it is the meaning–making/sense–making/attributional activities that shape action (or inaction)” (p. 167). In other words, the focus of constructivists is to understand the “lived experiences . . . from the point of view of those who live it day to day” (Ponterotto, 2005, p. 129).

This study used a qualitative approach to describe and interpret the experiences of individuals in a particular setting (Ponterotto, 2005). Through data collection, analysis, and interpretation of the data, the researcher sought to understand participants’ views of the phenomenon being studied. The qualitative approach was appropriate for this study because it allowed the researcher to investigate a phenomenon—and how individuals make sense of it.

**Interpretative Phenomenological Analysis (IPA)**

Given the nature of this study, IPA is an appropriate research approach because it helps the researcher understand how a group of individuals interpret a phenomenon. Additionally, it supports the researcher in situating the individual’s interpretation within the cultural environment, thus creating a connection between the individual and the world (Larkin, Watts, & Clifton, 2006). The objective of using this approach is to inform the researcher about the phenomenon being studied through the interpretations of the participants who lived that experience. By interviewing female Indian graduate students in the context of this study, the researcher was able to garner a better understanding of how these students made sense of their own experience while giving them the opportunity to have their voices heard.

Researchers who use IPA focus on examining how participants make sense of certain events, also called phenomena, that they experienced instead of the objective nature of the phenomena itself (Dowling, 2007). IPA is rooted in the field of psychology, but it has been
applied to healthcare. The philosophical underpinnings of IPA are phenomenology, double hermeneutics, and idiography.

**Phenomenology**

Phenomenologists consider the experience (phenomenon) itself; they deal with the essence of the phenomenon and not necessarily how the participant interprets or experiences the phenomenon (Dowling, 2007). Dowling (2007) explained that “the aim of phenomenology is the rigorous and unbiased study of things as they appear in order to arrive at the essential understanding of human consciousness and experience” (p. 132). For example, in this study, the phenomenon studied was the move to another country to start a graduate degree and the adjustment process that resulted from that move.

**Double Hermeneutics**

According to Packer and Addison (1989), hermeneutics is “a study or theory of interpretation” (p. 4). The interpretation is influenced by the interpreter’s “historical epoch, society and culture, educational background, linguistic ability, familiarity with the subject matter, and the purpose or practical interests” (Packer & Addison, 1989, p. 5). Each person will interpret a phenomenon as she experiences it, based on the particular situation of that individual. Double hermeneutics occurs when a person, such as the researcher, interprets an individual’s interpretation of the phenomenon. For example, in this study, double hermeneutics occurred when the researcher interpreted the participants’ interpretation of the move to a new country, putting this experience in the sociocultural context of the time of the study.

**Idiography**

The priority in idiography philosophy is the individual. Ponterotto (2005) explained that “idiographic research or assessment focuses on understanding the individual as unique, complex
Wagstaff, Jeong, Nolan, Wilson, Tweedlie, Phillips, Senu, and Holland (2014) explained that IPA uses an idiographic focus to understand how a particular person, in a particular setting, makes sense of their experience. For this study, the idiographic focus was on Indian female graduate students and how they made sense of their move overseas.

IPA and phenomenology are similar in that both are concerned with an experience (phenomenon) lived by the individual. However, phenomenology requires the researcher to remove all preconceived views of the phenomenon in order to conduct the research. Phenomenology proposes that the phenomenon is described before explanations (e.g., culture or time) are injected (Dowling, 2007). In contrast, IPA is an “interpretive process in which the researcher makes an interpretation of the meaning of the lived experiences” (Creswell, 2007, p.59). Therefore, although the researcher should try to remove personal bias from the research, there is an understanding that it is very difficult to completely remove external factors (e.g., culture or time) that play a role in the research.

Another difference between IPA and phenomenology in that IPA “is committed to understanding the first-person perspective from the third-person position, so far as possible, through intersubjective inquiry and analysis” (Larkin, Eatough, & Osborn, 2011, p. 321). Phenomenology, on the other hand, “aims to reveal any subject-matter on its own terms (for example, not according to the imposition of any preconceived set of assumptions and expectations)” (Larkin et al., 2006, p. 108). In short, researchers using IPA focus on the individual making sense of the phenomenon, whereas those using phenomenology focus on the phenomenon itself.

According to Smith (2011), when using IPA, the researcher should limit the sample size to usually between four and eight. Wagstaff et al. (2014) explained that smaller samples will
provide richer data that will better serve the study. Despite smaller sample sizes, Smith (2011) contended that IPA studies should still be considered a rigorous approach and that, unlike quantitative approaches, replicability should not be considered a criterion for validity. When interviews are conducted for an IPA study, Smith (2010) explained that it is not clear what researchers would try to replicate. Individuals perceive their experiences differently so that interviews cannot be replicated.

Lastly, as this is a qualitative study, no hypothesis was developed beforehand. A qualitative study focuses on uncovering the meaning individuals ascribe to a phenomenon (Creswell, 2007). Therefore, the questions asked in this study focused on eliciting answers that revealed the participants’ views of their lived experiences and how they made sense of the phenomenon being studied. As IPA requires inductive analysis (Smith, 2004), the questions were open-ended in an effort to secure comprehensive and detailed answers from participants.

Participants

According to Chapman and Smith (2002), “IPA . . . uses purposive sampling to attempt to find a more closely defined group for whom the research question will be significant” (p. 127). As this study focused on female Indian graduate students’ perceived views of their own adjustment to American culture and education system at a STEM university, the criteria for the selection of participants were gender, nationality, immigration status, educational level, and academic major.

Population

The researcher selected seven students who were female, citizens of India, student visa holders, and who were pursuing a graduate degree in a STEM major. For this study, the researcher did not consider the length of time in the United States or marital status. This small
sample was justified by the nature of the study. IPA focuses on the depth of the phenomenon being studied, not its breadth (Pietkiewicz & Smith, 2014). For example, researchers studying doctoral programs in Britain recommended six to eight participants for IPA studies for “an opportunity to examine similarities and differences between individuals. At the same time, the amount of qualitative data gathered is not overwhelming” (Pietkiewicz & Smith, 2014, p. 9).

Participants will be asked to have individual, hour-long interviews with the researcher.

**Sampling Procedures**

Purposeful selection will be used to recruit participants because through this method “[participants] can grant [the researcher] access to a particular perspective on the phenomena under study. That is, they ‘represent’ a perspective, rather than a population” (Smith, Flowers, & Larkin, 2012, p. 49). Therefore, only students who met the criteria listed above were invited for the interviews. In order to entice students to participate in the study, the researcher offered a $10 Amazon or Starbucks gift card to students who completed their interviews, as a way to show appreciation for their participation. Participant selection began after approval from the university’s Institutional Review Board was received.

**Recruitment Procedures**

The researcher contacted the Office of Student Information Systems at the research site and requested a list of students who fit the criteria described above. The following steps were used to recruit participants:

1. Send an email invitation (see Appendix A) directly to all master’s and doctoral level students in the targeted population. The email explained the purpose of the study and instructions about how to volunteer for the study. Students were able to express interest in participating by responding to the email.
2. The researcher responded to any emails received within 24 hours. The email response included a copy of the informed consent agreement. The researcher asked the participant to review the informed consent agreement and schedule a phone conversation to explain the nature of the study and answer any questions the participants may have.

3. The phone call lasted approximately 15–20 minutes. The researcher scheduled the in-person interview at this time.

4. If the invitation email generated enough participants so the researcher did not have to repeat the process again until at least six students are identified.

**Procedures**

This section will give a detailed outline of the procedures the researcher followed to complete this study, including a discussion of informed consent, data collection, and data analysis. This study complies with all guidelines from Northeastern University’s Institutional Review Board for research involving human subjects.

**Informed Consent**

Before starting the interviews, participants were informed of the purpose of the study and that the interview would be recorded with their permission. All participants agreed to be recorded so the researcher thanked them for their time and provided the informed consent again. The agreement clearly stated the purpose of the study and assured the participant that confidentially would be kept throughout the study. Each participant was also informed that she had the right to withdraw from the project at any time. She was asked to create her own pseudonym, which was used for direct quotes in the dissertation. The researcher kept a list of all names and pseudonyms in a locked cabinet in her office at home.
Data Collection

For this study, data was collected through one-on-one, semi-structured interviews with six female Indian graduate students. Before interviewing participants, the researcher conducted practice interviews with the principal researcher associated with this study. Pietkiewicz and Smith (2014) wrote that interviews are the most popular method for the researcher to obtain rich, detailed, and personal data from participants. For this study, individual interviews took place at the site of the study where the researcher works (a STEM, urban university in the northeast United States), at a location chosen by the participant. In order to protect the integrity of the interview process, the researcher explained the purpose of the study at the start of each interview and emphasized that the researcher’s role at the university would not in any way interfere with the participant’s responses.

The researcher brought two electronic devices to record the interviews and began each interview with some icebreaker questions about the participant’s background as a way to build rapport. The researcher continued with open-ended questions to gather more expansive, rich data. Responses to preformulated questions (see Appendix B) were followed by prompts or follow-up questions, when appropriate. According to Smith (2004), “the advantage of semi-structured interviewing for IPA is that the researcher is, in real-time, in a position to follow up interesting and important issues that come up during the interview” (p. 50). The literature and theoretical framework chosen for this study informed the design of the interview questions. Follow-up originated in the responses provided by the participant. The goal of the interview questions was to start a conversation. Each interview lasted about 1 hour.

After interviews were conducted, they were transcribed from the recording. The researcher used a transcription service. Within 96 hours of completing the interviews, the final
transcription was sent to the participant for member-checking to enhance the credibility of the study (Thomas & Magilvy, 2011). By reviewing the transcripts, participants were able to confirm accuracy or clarify and expand any statement.

Within 72 hours of sending the transcripts, the researcher emailed the participant to schedule a follow-up interview at a time, date, and location convenient for both the researcher and the participant. The goal of the second interview was to allow the researcher to ask more in-depth questions based on the information from the first round of interviews. The data collected reflected students’ perceived views of their experience in their own words. The researcher used excerpts from the interviews to support the themes that emerged. Smith (2011) explained that for sample sizes between four and eight participants, quotes from half the participants should be used to illustrate a theme. Throughout the interview process, the researcher kept notes of details and observations made by the participants. This process allowed the researcher to reflect on nuances that may otherwise have been lost after the interview.

**Data Analysis**

In order to analyze participants’ experiences from an outsider’s perspective, while validating their own sense-making of the phenomenon, the researcher must understand the concepts of etic and emic. Etic concerns “universal laws and behaviors that transcend nations and cultures and apply to all humans” and emic “refers to constructs or behaviors that are unique to an individual, sociocultural context that are not generalizable” (Ponterotto, 2005, p. 128).

By applying these concepts to the views of the participants, the researcher can better understand the phenomenon from the point of view of the individual who is living it, while recognizing that the experience is individual. It is important, however, that the researcher is aware of cultural interpretations (e.g., Western theories) of phenomena that take place in a
different cultural setting, in order that the interpretations not be biased (Pietkiewicz & Smith, 2014).

Using Hycner’s (1985) guidelines for phenomenological analysis of interview data, the researcher followed 11 steps to guide the analysis.

**Step 1.** After conducting the interviews, the researcher transcribed them. The services of a professional transcription company were used, but the interviews were anonymized before being submitted for transcription. The transcripts were shared with participants so they could add comments or clarify any of their statements.

**Step 2.** The researcher applied bracketing, which Hycner (1985) described as “suspending as much as possible the researcher’s meanings and interpretations and entering into the world of the unique individual who was interviewed” (p. 281). That is, the researcher suspended her own worldviews in order to try to understand the perspective of the participant. Hycner admitted that it is very difficult to obtain full bracketing because researchers are influenced by the environment (e.g., the culture and time) in which they live. Additionally, the researcher was aware that the literature and theoretical framework influenced the design of the interview questions. In order to minimize any biases, the researcher sought to bracket her assumptions during the data analysis process.

**Step 3.** The researcher listened to the interviews and read the transcripts multiple times in order to familiarize herself with the data (Chapman & Smith, 2002; Pietkiewicz & Smith, 2014). This step was important because it gave the researcher a context for the themes that emerged (Hycner, 1985). The researcher also kept a journal to record general impressions or relevant issues.
Step 4. The researcher scheduled a second interview with the participants to discuss in more depth and clarify the information that emerged from the first interviews. The services of a professional transcription company were utilized and the interviews were rendered anonymous before being submitted for transcription. Within 96 hours of the interview, participants received transcripts and were invited to comment on or clarify any of their statements.

Step 5. The researcher studied each transcript to understand the participants’ meanings. The researcher stayed as close as possible to the participants’ own words to get the essence of the responses (Smith et al., 2012). Hycner (1985) called this process crystallization and explained its goal is to create units of general meaning; that is, “words, phrases, nonverbal or paralinguistic communications which express unique and coherent meaning (irrespective of the research question) clearly differentiated from that which precedes and follows” (p. 282). Saldaña (2016) noted that this initial coding is the starting point for the researcher and is her opportunity to begin identifying emergent themes. The researcher used an analysis software to identify units of general meaning.

Step 6. The researcher reexamined the research questions to see if the units of general meaning would help address the research questions. The researcher was aware of redundancy; if units of relevant meaning were listed more than once, the researcher recognized it may indicate a higher level of importance (Hycner, 1985).

Step 7. The researcher clustered various units of relevant meaning into more cohesive, relevant themes that captured participants’ perspectives on the issues raised during the interviews. Pattern coding is the coding process used in this step as a way of “grouping those summaries into a smaller number of categories, themes, or concepts” (Saldaña, 2016, p. 236).
Step 8. The researcher identified the themes that emerged from the clusters and determined how they related to the research questions.

Step 9. The researcher wrote a summary of each interview so a context for the themes that emerged was complete (Hycner, 1985). She shared this summary with participants as a process for checking validity. When participants had any comments or additions to make, Steps 3 through 8 were repeated.

Step 10. After Step 8 was completed, the researcher identified themes that were shared by all interviews. Some themes did not appear in all interviews but only in a few. These were noted as unique themes. The themes were put back into the context in which they originated to make sense of the participants’ experiences (Hycner, 1985).

Step 11. In this last step, the researcher wrote a summary of all interviews to accurately capture the lived experience of the participants. Quotes from the participants were used to illustrate the themes.

According to Smith et al. (2012), IPA studies do not follow a prescribed method of data analysis. Therefore, the steps described above are one way to analyze the data. The IPA analysis is inductive and focuses on the participants’ meaning-making process in context. After the analysis for this study was conducted, the researcher presented the findings in a clear manner, so readers who are not familiar with the topic can understand any contextual nuances to which participants may refer. In the following sections, the researcher explains the themes that emerged from the analysis and gives an example from the interviews to illustrate the theme. Smith (2011) argued that after each observation from participants, the researcher should follow up an interpretation with commentary in order to show a connection between the larger theme and the participant’s observation. The concept of double hermeneutics applies here: the
researcher interprets the participant’s interpretation of the lived experience (Smith, 2011). In the analysis, the researcher should also include perspectives that reflect different views of the same theme. That is the central point of IPA: to show how individuals experience similar situations, but interpret them uniquely.

Criteria for Quality Qualitative Research

Tracy (2010) argued that high qualitative research is manifested by a “worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution, ethics, and meaningful coherence” (p. 839). Integrity is a key factor to produce qualitative research (Tracy, 2010). The following section highlights the steps that were taken to ensure that ethical considerations and a high level of trustworthiness was maintained for this study.

Ethical Considerations

There are many ethical factors to consider when conducting a qualitative study. Creswell (2012) suggested that a key issue is to inform the participant of the nature of the study, so an informed decision about participating can be made. The researcher did not, in any way, mislead participants about the objective of the study. Creswell also mentioned that trust is an important component of the interview process, as participants may discuss very personal experiences. Therefore, it is crucial to maintain participants’ anonymity during and after the study. Only pseudonyms were used to identify individuals in the study and no other identifier was included. The researcher kept a list of all participants’ names and pseudonyms in a locked cabinet in her office at home, where no one would have access to it.

Kvale (2007) explained that the integrity of the researcher is a fundamental factor that has ethical implications for the research. It is important to define the roles of investigator and participant, so participants understand the relationship between themselves and the researcher.
For example, the researcher did not provide counseling (as would a therapist), or medical advice (as would a physician). The researcher also refrained from providing personal accounts of how she experienced a similar phenomenon to avoid influencing participants’ accounts. Moreover, after an analysis of the data collected is concluded, the researcher did not selectively decide what to report.

Lastly, the researcher ensured that the privacy of the participants was protected in different ways. The list of participants’ names and pseudonyms are being kept in a locked cabinet in the researcher’s home until the study is completed, and the information will be destroyed after that. All additional documentation generated by the interviews (e.g., electronic recordings, transcripts) will be destroyed afterwards as well.

**Credibility**

The credibility of this study was established through processes used to select participants and collect and analyze data, in accordance with IPA methodology. The selection process was transparent and understandable for the participants. The researcher interviewed only participants who agreed to be interviewed. Member checking was another strategy used to “ensure that the interpretations (reported as categories or themes) of the researcher are recognized by the participants as accurate representations of their experiences” (Thomas & Magilvy, 2011, p. 153). After data were collected, participants were asked to review the transcript of their interviews to check for the accuracy of their statements. Individual or virtual meetings were scheduled between the researcher and participants so any inaccuracies could be discussed and clarified. The researcher also kept memos of the dates and times of the interviews, notes taken during the interviews, and any correspondence with the participants as ways to enhance the credibility of the study.
Transferability

One of the criticisms of IPA studies is that, given the small sample size, the results may not be replicable in other settings (Smith, 2010). Even though IPA has an idiographic focus (Smith, 2011), Pietkiewicz and Smith (2014) pointed out that through a “steady accumulation of similar studies on other groups, generalizations may become possible over time” (p. 10). Therefore, in order to provide the reader with as much context as possible to understand how the findings could be transferable, the researcher provided thick descriptions of the participants and settings (Creswell, 2007). According to Denzin, a thick description includes “detail, context, emotion, and the webs of social relationships . . . [and] evokes emotionality and self-feelings. The voices, feelings, actions, and meanings of interacting individuals are heard” (as cited in Creswell, 2007, p. 83). Through these thick descriptions and contexts, the reader will be able to better understand the study and assess its transferability.

Internal Audit

According to Creswell and Miller (2000), “an audit trail is established by researchers documenting the inquiry process through journaling and memos, keeping a research log of all activities, developing data collection chronology, and recording data analysis procedures clearly” (p. 128). The internal audit adds credibility and trustworthiness to the study, as any reviewer can verify how the data were obtained and analyzed. The researcher kept an internal audit by:

1. establishing the purpose of the study,
2. explaining how the participants were chosen,
3. explaining how the data were collected and analyzed,
4. presenting the findings,
5. explaining the steps used to give credibility to the study.
All decisions and activities related to this research were documented (Creswell & Miller, 2000) for peer review.

**Self-reflexivity and Transparency**

My problem of practice focused on how female Indian graduate students adapt to American culture and academic life at the research site. The researcher takes particular interest in this subgroup of graduate students because, although not Indian, she was once an international student as well.

I came to the United States to pursue my undergraduate education and I was a nontraditional student; I was much older than my classmates and I did not have the same traditional college experience. Being a commuter, I found it difficult to participate in any events on campus or engage with other students. As English is not my first language, I was also shy about speaking up in class or approaching a classmate, afraid that my accent would make it harder for us to communicate. I was the first person in my family to travel or study abroad and did not have any relatives in the United States waiting for me when I arrived. I believe my personal experience allows me to identify with some of the issues these international students face (e.g., homesickness, anxiety, and cultural shock) and the struggles they go through when they arrive in a new country.

Over the years, I held multiple jobs working with international students and am now working at a large institution and supporting a much more diverse set of students. My commitment to the international student population remains the same and it goes beyond my job description. As I now work much more closely with graduate students, I recognize some of the difficulties they go through and understand how their struggles and experiences are similar to ones I myself experienced in the past. For example, as a nontraditional student, I experienced
first-hand the lack of support services many graduate students face because I was ‘older’ and therefore it was assumed I knew what I was doing even though I had just arrived in the country. Especially as a woman, I believe the university I attended could have provided more support in the areas of health, or even mental health, to help me with the stress of living in another country. I received no support.

The researcher’s background and experiences as an international student shaped her thoughts and approach to research. The aim of this study was not to portray the experience of the researcher but to give these female graduate students a voice through the research. However, the researcher cannot deny that her experiences have been my own. Students of different faiths, cultures, socio-economic backgrounds, and races have experienced life in the United States differently than she has. The researcher lacks the understanding of their experiences and, through this research, she plans to gain the knowledge necessary to create a better environment for them at the university where she works. The researcher believes her own experience will serve as a platform from which she can acknowledge the similarities and differences between her and the students’ experiences and, based on that, understand how these students make sense of their own process of adjustment to this country.

The research site enrolls more than 1,500 international students, the vast majority (over 80%) of whom are at the graduate level. The researcher acknowledged any biases related to the subject and controlled them so they would not influence the study. For example, the researcher holds a leadership position at the research site and is seen by students as an authority figure who can exert power over them. Before beginning the interviews, the researcher explained that the objective of the interviews was to acknowledge their perspectives and how they saw their adjustment and acculturation process in the United States. Care was taken to reassure participants
that they did not need to perform in a certain way to please the researcher or to provide the correct answer. The goal was to capture the essence of their experience without letting the researcher’s personal experiences interfere with the process.

The researcher also acknowledged that, after completing an extensive literature review about international students in the United States and studying different theoretical frameworks, her thoughts were affected by what was learned. The researcher was vigilant not to be biased by the existing literature and to truly think about where the knowledge gained from this study was coming from (i.e., the students, not the literature). The researcher did not expect students to think or act in a specific way because other studies had found those results.

Another bias the researcher identified was her preconceived ideas of Indian students, garnered through professional encounters with them during her career. It is easy to stereotype a group of students from interactions with a few. The researcher remained alert that the students participating in this study had not necessarily had the experiences that other students may have had. The researcher was also aware that India is a large country with thousands of different ethnicities and languages or dialects spoken. It was expected that different students would respond differently to similar situations. These cultural differences also translate into differing political views, in which students from different parts of the country may be more or less inclined to deem certain social norms, such as same-sex dating, as acceptable. Awareness of these nuances informed the work so the researcher did not prejudge what the participants had to say or misconstrue their answers because of the region in India from which they came.

The researcher was also aware that she is inclined to befriend students and treat them as distant relatives. As most of these female students did not have family in this country, it was important to avoid taking steps to assist them in any way possible. Care was taken to remain
objective when recording their answers, especially because the researcher had personally experienced some of the same issues the participants were relaying during the interviews.

**Limitations**

This study had a number of limitations, given its scope. First, the study was conducted at only one institution and this institution has its own uniqueness as a STEM institution. For that reason, the results obtained here are not replicable at other types of universities. Second, as this was an IPA study, it had an inherent idiographic focus that was intended to reflect some of the experiences of six participants who moved to the United States to start a graduate degree. This was a small sample and additional studies are needed to create a more robust body of data. Third, this study focused on graduate students only, thus excluding all undergraduate students (and their experiences) from consideration. Finally, this study focused on only female students, so the experiences of male students was not recorded or analyzed.

**Summary**

This study focused on understanding the perceived views of female Indian graduate students about their own adjustment process after they moved to the United States to start a STEM degree. The research approach selected for this study was IPA, which lets the researcher interpret the lived experiences of participants as they make sense of these events. Participant selection, data collection, and data analysis followed protocols that are in accord with IPA standards as a means to limit the researcher’s biases. Despite its limitations, this study is relevant for universities and administrators who work with international students as it will assist them in understanding students’ views of their own experiences by providing valuable data for informing practices that will ultimately improve support systems for this population.
Chapter 4: Findings and Analysis

The purpose of this study was to understand female Indian graduate students’ perceived views of their own adjustment to American culture and education at a STEM-focused research university. The goal of this research was to utilize Nancy Schlossberg’s transition theory to understand the lived experiences of female Indian graduate students who moved from India to the United States to attain a graduate degree so that universities can develop better support services for female international graduate students in STEM fields. In order to understand the participants’ lived experiences, the researcher used IPA as the research approach, while also employing double hermeneutics.

The questions guiding this study were:

1. How do female Indian graduate students perceive their own adjustment to American culture and education at a STEM university?
2. What strategies, if any, have these students developed to cope with any acculturative stressors they may have experienced?
3. From these students’ perspective, what administrative support systems could the university offer to improve their experience?

Through the analysis of data collected, superordinate and subthemes emerged indicating which topics were more relevant to the participants. This chapter is organized so that the participants are described and data are presented through five superordinate themes. Each superordinate theme contains subthemes that are also discussed. These subthemes include excerpts from the interviews conducted with the participants.

The analysis of the transcripts yielded five superordinate themes and 10 subthemes. The superordinate themes and their subthemes were:
1. First experiences
   a. Feelings of homesickness
   b. Finances
2. Culture
   a. Cultural subgroups
   b. Women and education
   c. Marriage and gender
3. Family
   a. Parental expectation
   b. Parental support
4. Academic departments
   a. Gender and academic environment
   b. Role of faculty
5. Social life
   a. Friendships

Superordinate themes were identified as those recurring in all participants’ interviews while subthemes were identified as those recurring in at least 4 of the 7 participants’ interviews.

**Demographic Profile**

In-person interviews were conducted with seven female Indian graduate students so the researcher could gather enough data for this study. Despite the researcher’s efforts to recruit more participants, only seven met the selection criteria and were available for participation in this study. The researcher sent an email to female graduate students at METS, the research site, to elicit participation for the study. From those who responded, seven were selected based on
their level of education, nationality, immigration status, and availability for the interviews. All participants were enrolled in STEM graduate programs at the research site, a mid-size, urban, research university in the Northeast of the United States. For the purposes of this study, the university will be given the pseudonym of METS University. Each participant chose her own pseudonym. Each participant met with the researcher in person twice for the interviews; they were asked questions that prompted them to reflect on their experiences pertaining to their adjustment to the United States and the academic setting at METS University. Table 2 shows demographic information about the participants.

Table 2

*Description of Participants*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Major</th>
<th>Level of education</th>
<th>Program start date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mia</td>
<td>26</td>
<td>Mechanical engineering</td>
<td>Doctorate</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Emilia</td>
<td>24</td>
<td>Electrical engineering</td>
<td>Master’s</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Dipika</td>
<td>27</td>
<td>Computer science</td>
<td>Master’s</td>
<td>Fall 2018</td>
</tr>
<tr>
<td>Ritoja</td>
<td>23</td>
<td>Electrical engineering</td>
<td>Master’s</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Sarah</td>
<td>22</td>
<td>Biomedical engineering</td>
<td>Master’s</td>
<td>Fall 2018</td>
</tr>
<tr>
<td>Tee</td>
<td>24</td>
<td>Biomedical engineering</td>
<td>Master’s</td>
<td>Fall 2018</td>
</tr>
<tr>
<td>Barbie</td>
<td>22</td>
<td>Information systems</td>
<td>Master’s</td>
<td>Fall 2018</td>
</tr>
</tbody>
</table>

Only one doctoral student volunteered to participate in this study; the researcher decided to include this participant because the focus of the study was to understand graduate students’ experiences, not just master’s students’ experiences. The voice of a doctoral student could provide additional perspective to this study. Moreover, the researcher did not intentionally select
only participants who started their programs in the fall 2017 or fall 2018; this was a coincidence, as the invitation email to participate in this study was sent to other female graduate students who started their program during different years.

**First Experiences**

The first superordinate theme that emerged from the interviews was the first experiences of participants when they arrived in the United States. This subtheme emerged because all participants discussed how their adjustment during the first semester in the United States was more difficult than they anticipated. Participants shared their experiences as they perceived them, and they were able to elicit factors that they believe impacted their transition to the United States. Even though factors such as food or previous travel abroad may have influenced how some participants adjusted to their new lives here, the most common stressors reported by these participants were feelings of homesickness and their finances.

**Feelings of Homesickness**

Participants were asked to rate their adjustment process on an imaginary adjustment scale ranging from zero to ten. As previously explained, adjustment is a term used to reflect changes in behavior, attitudes, and values that are connected to associating with a new culture (Hannigan, 1990; Kagan & Cohen, 1990). On this scale, zero corresponded to not being adjusted at all, with strong feelings of missing home and lack of a support system in the United States, and 10 corresponded to being well adjusted and integrated into the new environment. Participants were asked to ascribe a numerical response and explain why they had selected that number. The average score was 7, with the highest being 8 and the lowest being 5. The reasons for the scores varied and, despite appearing to be reasonably adjusted, in general, participants spoke about the feeling of homesickness. Based on the interviews, it was clear that the excitement of being in the
United States was a factor contributing to the score they chose, but participants explained that the excitement wore off quickly when they realized they were on their own. All participants explained that this was the first time they were living abroad without their parents, and 6 out of 7 participants had never left India before. Sarah remembered the difficult moment she experienced when she left her family:

Oh yeah, it was the first time [leaving India]. I was quite happy, but at first, but then I was leaving at the airport, I would be living without my parents. I would be living there. There would be no one there like friends or . . . Sure I make more friends, but I'm leaving back there my parents, my family, siblings, my friends and all such thing. It was mentally like . . . It took a week or a month to adjust without them because I'm not used to that. I never went any far without them.

All participants expressed feelings of missing parents and siblings and how it affected their lives, especially in the first months. A common feeling expressed during the interviews was best summarized by Tee: “I am missing them more than I thought I would miss them.” She used the analogy of a rollercoaster to explain how she felt when she first arrived in the United States:

The bottom part [of the rollercoaster] would be missing my friends and don't have any friends. First few months, like two months because I'm a kind of person who needs a little bit more time to make . . . I can make friends easily, but friends, friends whom you can actually talk to, it takes a little bit of time to open up. Also, that's why I was missing my family a lot and I was crying all the time.

During the first months of arrival, besides missing their families, participants also expressed missing cultural aspects of India. As Mia put it, “I miss food and places.” This
contributed to their overall feelings of homesickness. In these participants’ views, feeling homesick resulted from being in an environment that was new to them and very different from their own. Even after spending a whole semester in the United States, Barbie explained that she is still feeling homesick, she said she “start[s] crying again” when she thinks of her country.

**Finances**

Five out of the 7 participants were very vocal about the impact of finances on their overall adjustment, especially during their first months after arriving in the United States. The high cost of living in the United States, the high exchange rate of the Indian currency, and participants’ limited budgets and inexperience living in a new country caused great stress when they first arrived here. The first month seems to have been particularly stressful, as participants were setting up their new lives. Barbie remembered that “[first] month was stressful. I needed to pay the deposit, rent. I needed to buy mattress, bed, everything. It was little [stressful], first month.” Emilia echoed the sentiment, saying those times were “depressingly bad.” She explained that in her situation, the first 6 months were stressful because she did not have an on-campus job to offset the costs of living in the United States. She resorted to cutting most expenses to save as she did not want to ask her parents for more money. She was aware of the financial burden she would be putting on her parents if she asked for more financial assistance:

> Because . . . you don’t even want to go home and call back home and say to send me money, because the exchange rate they charge you too much. So, you’d be like . . . you’d think 10 to 15 times before even asking for money. They probably send you out of love, but you don’t want to trouble them, you’re only spending so much on your education.

Emilia was not the only participant who had to cut her expenses in order to accommodate
her tight budget. Ritoja explained that she too went through some financial hardship before she learned how to live in a new country. The strategy she developed to deal with the lack of funding was to cut her expenses:

For the first three or four months I think I focused too much on the saving money part. The amount of money I [had] and the type of living conditions I was in, it was very poor. . . . In the beginning I was like, oh my God. . . . Why do you need to buy this? And I was doing it a lot with food and medicines as well.

All participants were very aware of the high cost of living in the United States, especially compared to the Indian standard of living. Six out of 7 participants chose to live off-campus with multiple roommates to reduce their monthly living expenses; 6 out of 7 said they preferred to cook at home so they could save on food-related expenses.

During the first months after arrival, participants reported that their parents played an active role in their financial lives by serving as a constant reminder for them to not overspend. Ritoja explained that finances were a topic commonly discussed with her parents when she first arrived, and said they were constantly giving advice to “spend very carefully” and “to be conscious about the amount of money you are spending.” Five out of 7 participants had their studies paid for by their parents, which may have increased their parents’ concerns about spending. Sarah explained that, given the costs of living here, both she and her family had to sacrifice for her to come to the United States:

The finances, it was [a stressor], it was somewhat because the tuitions here are somewhat higher, so we had to cut it out some costs to maintain this fees and tuition fees and all such things. . . . I had to live off campus and also my parents would have to do something, you know?
None of the participants have parents who have lived in the United States but, despite their inexperience living in a foreign country, they provided advice to their children on how to spend their money. Participants indicated that their parents put additional pressure on them to be overly cautious about managing their finances.

**Conclusion**

Data collected through interviews indicate that during the first months after arrival in the United States, the level of impact of financial stress and homesickness varied from participant to participant, but overall all participants reported feeling them as the first roadblocks they encountered. After spending at least one semester here, participants felt more financially stable (through on-campus employment or other strategies to save money) and less homesick. These two factors were the most significant markers of their transition to the United States. Even though it is expected that international students may experience some level of homesickness and financial hardship when they move to a new country, the experience described by these participants showed that homesickness and finances can affect graduate students’ adjustment in very meaningful ways.

This superordinate theme addressed the issue of how participants perceive their adjustment to the United States; although participants considered themselves to be reasonably adjusted, they explained that, especially in the first months after arrival in the United States, they experienced difficulties beyond what they imagined they would experience. For example, participants expressed missing their family and friends more than they anticipated, causing them to feel homesick. Homesickness was a result of the hardship participants were experiencing; as they were immersed in an environment that they were not familiar with, they expressed feelings
of longing for people, places, and food they knew, which impacted their first experiences in the United States.

Participants’ testimonials also showed that they were aware of the high cost of living in the United States but they were completely unprepared for the move here. They did not have enough information or experience (personal or through third parties) to prepare them for the financial burden of moving to this country. Participants felt stressed over their finances and resorted to cutting basic necessities to survive. Culture also played an important role in their overall adjustment, thus being the second superordinate theme identified through the data analysis.

Culture

Culture was a superordinate theme that all participants discussed. The subtheme of culture emerged because all participants discussed how culture served as a stressor when it came to their choices and adjustment. Despite living in the United States, 6 out of 7 participants said they are surrounded by Indian culture and have little interaction with American culture. This is due to different factors: participants chose to have roommates who are also from India; participants explained that most of the classmates they interact with are from India (METS has a large Indian graduate population); participants eat primarily Indian food that they cook, and they attend events promoting Indian culture (such as the Diwali festival sponsored by a student club). The three subthemes that emerged are cultural subgroups (i.e., how Indian identity affected participants’ perceived adjustment), women and education (i.e., the restrictions placed on Indian women vis-à-vis their education), and marriage and gender (i.e., the social role to which Indian females are expected to conform). All three subthemes provide a context to the stressors that
female Indian graduate students experience as they pursue their advanced degrees in the United States.

**Cultural Subgroups**

When asked about the impact of culture on their adjustment to the United States, because most participants do not have American friends, they referred to other Indian students as proxies to explain the cultural differences they experienced since moving to this country. This revealed that participants in this study have limited exposure to American culture, which hinders their understanding of it. When international students are not engaged with the local culture, their view of the local culture can be distorted because they use their own cultural lens to make sense of their surroundings and experiences.

Participants explained that within India, there are different subgroups of people with different cultural backgrounds; they expressed a strong sense of regional cultural identity, identifying themselves and others not simply as “Indian” but as part of a subgroup. For example, when Ritoja spoke about her sister and her sister’s husband, she ended her comments by saying: “They're both Bengalis,” which showed this was an important piece of information for the story. Sarah also spoke about her identity when explaining marriage considerations. She explained why marrying inside her subgroup would be better: “I am a Gujarati so it will be fine like he would be also Gujarati. Better to adjust with. . . . Better to adjust with a life partner.”

It seems that participants’ Indian identities (i.e., cultural subgroups) are essential to their view of themselves and their views of others. Mia explained that regional differences are so strong in India that in her experience speaking with Indian students from other subregions is akin to speaking with a student from another country:
If you considered all the Indians here, you will see that, even though they all come from India, there are different native languages from India itself. So even though I have an Indian roommate, I used to have an Indian roommate. She was from Hyderabad, and her native was different. And they were entirely from different place. So it was just same for me like interacting with some other nationality person. Because people from different regions of India also have different native languages, different lifestyles, different cultures and everything. . . . Language is the most important thing, so I get to know, okay this person is speaking Tamil language, so this person is from that state. . . . Their food habits. So food habits are also different. Food habits are different, even their look, how they look. It's different.

Ritoja, Sarah, and Mia expressed how important cultural distinctions are within the larger group of Indian students at METS University. Participants’ cultural experiences were very limited regarding American culture, but they were exposed to other cultural subgroups of Indian students that they did not have experience with before. When asked about their experiences with culture in the United States, instead of speaking about American culture or other international students’ cultures, participants referred to the issue of the cultural subgroups within India to explain their experiences in the United States so far.

**Indian-Americans.** Interestingly, participants also pointed to the cultural differences between Indian-born students and Indian-American students, as they experienced them in and outside the classroom. Participants viewed Indian-Americans as another subgroup. Their observations of Indian-Americans revealed that their interactions with this subgroup were the closest experience they had with American culture, therefore they believed it was worth mentioning. Despite having similar physical traits, it was evident to the participants that Indian-
born and Indian-American people are culturally very different. Emilia explained that the differences between these two subgroups could be observed by how people interact with each other:

[Indian-born students] will do things that are probably questionable to be doing. . . .

[American-Indian] have a completely American attitude. They are not at all Indian, they just look Indian, they're not at all Indian in my experience. Whatever the encounter I've had, they're lovely people first of all. Then again, they have grown up here so they have the advantage.

Participants explained that growing up in the United States is perceived as an advantage, as students will know the language well and have received better social skills. Emilia suggested that Indian-American students are more polite and have better manners, as opposed to Indian-born students who are more rude and willing to “do questionable things.” These comments reflected her views about cultural differences between the two groups that, despite some shared common ancestry, are divergent. Mia explained that the impact of being raised here gives students fewer restrictions from their families:

The family system here is very different. The students that grew up here, they study here, they have a very different kind of mindset. They have a very different kind of family values and it's just entirely different. . . . It's just that I have known some Indians who grew up here . . . back home, parents have more interference and say in your life than students here. . . . Back home, there is a whole lot of interference with parents and they have a huge control over your life.

Participants were aware that, even though they may be of a similar age, the cultural references among Indian-born and American-Indian students are different. Ritoja alluded to the
cultural aspects that Indian-born and American-Indian do not share because they grew up in different countries:

I think it's mostly inside jokes that [Indian-born] don't understand because of the culture difference. . . . If you're just Indians, you have a lot more in common to interact with each other. We watch the same movies, we have the same, I don't know, references from our childhood that everyone would understand. We have the whole language thing going on for us, so we interact a lot more, I think, closely.

It appeared that participants are keenly aware of cultural differences among themselves and external groups, such as American-Indians or other Indian subgroups. They expressed positive and negative responses to interacting with Indian-born students, but positive responses to interacting with American-Indian or local students. In fact, there was a perceived notion that American culture and customs are better than those in India. Ritoja reflected on some advice her brother-in-law gave her when she first arrived in the United States:

People [in the United States] are very different. Like something that I remember was, when we are speaking, if it was in India, and even if we didn't know each other that well, I would probably interrupt you in the middle of the sentence and start speaking. Like, I understood what their question was, I would not wait for you to finish it and just continue speaking. Here, we don't do that. I think my brother-in-law had a hard time with it, so he made it a point to, here it's very rude to interrupt the person before they have stopped, so even if you know what they're talking about, you let them finish and then you continue.

Two participants even expressed that Americans are less judgmental than Indians and, for that reason, they feel freer in the United States. Ritoja explained that “differences matter a little less over here, and people let you be different, even if they don't necessarily agree with it. . . .
But back home, they would kind of slowly coerce you back into the mainstream.” Sarah echoed that sentiment: “It's just that people don't judge here or anything like that. Whatever I do doesn't matter it's to myself. I do it for myself, that's good. You know?”

As 6 out of 7 participants did not have American friends, they used their interactions with other Indian students or Indian-American students as a proxy to explain how culture affected their adjustment to the United States. Indian identity became a stressor, as participants felt compelled to remain close to their own cultural subgroup in order to maintain their identities and reduce any cultural barriers. Participants expressed that they did not experience American culture as they expected, which was another stressor for them.

**Women and Education**

Another prevalent topic in the conversations was the role of gender in education and how it connects to Indian culture. Participants expressed that there is a very gendered view of education in Indian culture. Dipika was very upfront about her views of Indian culture vis-à-vis girls and education: “Generally, people think that in India girls should not [study], if they study more or something, people don’t have tendency to encourage girls.”

In Indian culture, the education of men is favored over the education of women and that is reflected in the family dynamics. Participants in this study were aware of gender differences among siblings within their own families. Emilia recounted an experience in her own house, where her father quickly agreed to pay for her brother to study engineering in a different state in India, supporting him financially with the move, tuition, and all related living expenses. But her father had a different reaction when her sister wanted to study, showing not only his lack of faith in her sister’s academic abilities but also the cultural views of the role of women in society:
When it was my sister it's time to do her CPA . . . my father just said, "It's too difficult for you, you can't do it." He simply told her: "No, you won't be able to do it so don't offer it, you'll fail the exams." It's actually difficult, there's no doubt about it. But you shouldn't tell your kids that you can't do it. My dad said that no, she wouldn't be able to do it.

"She's a girl and I'll get her married someday." This was also a thing. "I need to get her married someday. I'm going to have to spend on her wedding, why should I get her ready, highly educated now?"

Emilia’s comments reflected that, even in Indian families where more progressive views on education exist, there is still a vestige of centuries-old traditions that limit the role of women to marriage and childrearing. Emilia and her sister were allowed to go to college but they still faced, even if low, a certain level of resistance from their families. Unlike boys, the financial analysis of paying for a girl’s education was clearly voiced and factored in when deciding if a daughter should pursue a college degree.

Participants expressed the view that education for girls is as an insurance policy for the family, as a means to ensure that their daughter can take care of herself financially and not become a burden on her aging parents if she does not get married. Mia explained how, in her view, this was the reason for parents to support women’s education in India:

When it comes to male and female education, in most part of India, parents, the major objective for their female kids to study is so that they could be just well-off. If there is some kind of emergency, they can take care of themselves. They are more ready to spend on or they are more open to education for their boys.

Participants also expressed the belief that families are more willing to pay for their sons’ education because there is an expectation of a return on their investment, whereas the cost of
educating a girl would be more uncertain as they may or may not get married. Tee explained that there is a very strong correlation between the lack of education and the role women have in Indian society:

Girl education is a very neglected issue. So, people think that she doesn't need to be educated because all her job is get married, give birth to a child and raise that child, so they don't need to study and all.

All participants expressed a sense of unfairness in the way women are perceived by Indian society as not deserving to pursue an education. In traditional Indian society, according to these participants, the perceived goal of educating a woman is to ensure that, in case she cannot find a husband to support her or if she becomes a widower, she then has some skills to find employment. The woman’s own sense of academic or professional accomplishment is not a relevant factor. According to these participants, the fact that they are pursuing an advanced degree in a STEM field and abroad is a stressor for them; they said they understand the social and financial implications of their decision to be in the United States. Participants spoke about getting good grades and succeeding academically as a strategy to prove that they deserved this opportunity to study, despite conventional Indian expectations.

STEM education. The choice of academic program was also a stressor that participants had to deal with, as STEM majors are not traditionally viewed as options that female students should pursue. The participants explained that in India, women are discouraged from pursuing engineering and other science programs because they cost more and parents are not willing to pay for it. Sarah explained that families do not want to pay for their daughter to pursue a science program “because these courses they need expenses and more money so people are, you know, not getting the girls. Like they're gonna get married and all such things.” According to the
participants, in Indian tradition, science education is usually reserved for men because it is believed that, unlike women, they are better at math and they will support their families after they get the degree. Viewed as a purely financial transaction, participants explained that in Indian culture, it is not a priority for most families to get their daughters educated, especially in a STEM degree that costs more to attain, as they may marry and move away to be closer to their husband’s family, thus leaving her own family behind.

Even when female students are given permission by their parents to pursue a degree in the sciences, within the sciences there is a perception that certain areas are more appropriate for females. Tee commented that she knew of only one female student in mechanical engineering, a subject traditionally associated with males. In contrast, there are more female students in the biological fields, as these areas are perceived as easier due to the lack of math:

I don't know, people think biology's easier, it just like mugging up and there's no concept or like very little concept to be understood. But rather than in physics, you have to do the maths and derivation and all. So, I think according to ancient Indian culture, or if you see the history that mostly men are in those fields . . . if you see the scientist and all there are like very few female scientists there in the field of physics, or astrophysics or something. So, from there it comes, like the notation that, maths, girls are not smart enough or intelligent enough to do that, to do the math and physics of stuff like that.

Tee referenced cultural aspects to explain why, in Indian culture, there are more female students in biological fields than other science areas. This is another barrier that, according to the participant, they had to overcome to study in a STEM program. Sarah, a biomedical engineering major, reflected on her experience that people consider mechanical engineering harder than biomedical engineering, therefore biomedical is more appropriate for women:
That is this thing for everyone if you say I have noticed that thing that it's better for girls to go to biomedical rather than mechanical. So that's not fine. We also have mechanics and biomedical is a mixed branch. We have electrical, we have computers, we also have mechanical things, designing mechanical, it's not lifting or anything [but] we do have some parts.

Sarah expressed feeling the need to justify why the predominant view that men are more suited for mechanical engineering and women more for biomedical engineering is wrong, and that biomedical engineering is as complicated as mechanical. She explained that “people think that biology is for girls, physics for boys.” Participants felt the burden of having to explain their choices in order to make them acceptable.

Lastly, the participants explained that female students who decide to pursue a career in science are met with the stereotype of teaching the subject instead of becoming a scientist. Ritoja said that her uncle kept insisting that she become a teacher, which is considered a more female-oriented profession:

I think whenever I told someone about the electrical engineering aspect of it, they just assume that I'm going to get a Ph.D. and get into teaching, because, what else will I do in the engineering field? . . . And I'm really not patient enough to pursue a teaching profession. So, when I tell them, they're a little taken back by it, but I think it's because of everything coming up where girls are pretty coming to the top, so they cannot come out and say, "But you're a girl." But it's, in India I think, a little bit . . . It's still there where they expect girls to be into the whole 9-to-5 and not the running around kind of professions.

Participants expressed that they had to overcome cultural barriers to pursue a degree in
STEM. The gendered view of education in India, as well as stereotypes that women are not intellectually equipped to study in a science program and that they should be teachers instead, made it harder for these participants to pursue an advanced degree in the sciences.

**Marriage and Gender**

According to the participants, in Indian culture, all of them are at or fast approaching the age in which they should start looking for a partner. Participants were very vocal about the impact marriage will have on their professional and life plans. Arranged marriages, in which the parents find a suitable husband for their daughter, are still an acceptable practice in India and participants were aware that their parents will likely be involved in choosing a husband for them. According to Emilia:

> When your 24 to 25, your parents will make a noise that you get married to this kind of a boy for this religion, from this community. By the time you start growing older, they don't care, they just want you to find a nice boy. That's what happens.

Participants explained that it may take up to 10 years for parents to find someone suitable for their daughters, so by the time they start aging (around 30 years old) parents become less strict toward their choices for husbands. Ritoja explained that the concern about girls getting married is even expressed by others outside their family: “Even now, I'm 23, there has been talk about [marriage] . . . from like my mom's colleagues, or my distant aunts and uncles about how I am grown up alone, and alone in a whole different country.”

Females who are educated are at a special disadvantage at finding a suitable husband, because, according to prevailing customs, the wife’s professional or financial accomplishments may not supersede her husband’s. Being a patriarchal society, Indian husbands are expected to provide for their families; therefore, the wife should not make more money than the husband.
Emilia clarified:

There is one more thing, which is very interesting in this taboo is that in India there is a problem right now where girls get very highly educated. . . . But the problem is, we get so highly educated that we don't find a partner easily because the boys don't want to study. Then there's this ego clash where oh, my wife is more educated than me or this girl is more educated than me and she's making more money than me, how am I going to live with it? They feel emasculated. Boys are not found.

The participants said the concern about women getting educated could become a hindrance to finding suitable husbands who will marry them. The message Indian society is sending to women is that marriage comes first, their education second. The role of the son is to provide for the parents as they age, while the role of the daughter is to be as the caregiver of the family. Mia explained that the different social roles ascribed to men and women create an environment in which women’s education is not valued because she is not expected to contribute financially to the household. Therefore, unlike men, women should marry even before they graduate from college or get a job:

I personally feel it differs from male to female. So, for males in India, they prefer to get married after they have completed their education entirely and they have a stable job. Because they are considered caretakers of the house.

Participants expressed a clear concern over the implications of this view: the financial independence of women. Emilia explained that the roles assigned to men and women have a negative impact on the women’s financial lives even if she is not married, as she is still bound by the oversight of her parents. Whereas a son will get his education, get a job, and start earning and saving his money, an unmarried daughter is not afforded the same treatment:
If the daughter earns and she's unmarried, then she has to return a lot of money to her parents. Her parents will manage her money for her. They will invest it if they want to, they will spend it if they want to, they will keep it aside for her wedding if they want to. But she's been given some small portion of that money for her expenses or for daily travel and eating. But the money is managed by the parents. . . . It's a sexist thing. It's assumed that girls are not wise enough to know how to keep the money; it's not safe for them; they'll be attacked for it.

Emilia argued that even today in India the prevalent idea is that “the wife depends on the husband to bring the money home. He will support the family; she will look after the kids and all.” Despite having progressive views about the role of women in society, 6 out of 7 participants said it is very likely their parents will find a partner for them. Barbie indicated that she would trust her parents’ decision for husband and accept their choice.

These female graduate students expressed feeling additional pressure to pursue their independence abroad while trying to fit in with traditional customs back home. That was a strong stressor for them. They explained that their parents still felt compelled to follow traditional customs when it relates to marriage and finding a suitable husband for their daughters. Given the age of the participants, they felt more pressured to finish their programs quickly and become available so their parents would have enough time to find a partner for them. Unlike other cultures, participants explained that in Indian culture, parents start looking for a husband when their daughter is 25, and they are mindful that after a certain age, their prospects of finding a husband will decrease. They feel a sense of being caught in two worlds: in the United States there is a perceived greater sense of independence and self-realization, versus India, where one is expected to conform to centuries-old traditions that limit the role of women in society.
Conclusion

Culture is a factor that had some impact on participants’ adjustment processes. This superordinate theme addressed the issues of how participants deal with stressors they have experienced. For example, given their lack of contact with American peers, participants interacted mostly with other Indian students from their own cultural subgroups, thus minimizing the stress of cultural barriers.

Culturally speaking, gender played a major role in their decision to study abroad and study a STEM major, as there is still a prevailing gendered view of education in India that denies women the same educational opportunities as men. The participants in this study had to overcome cultural taboos in order to pursue their academic endeavors abroad. They believed that their best strategy to counter the notion that Indian women should not study is to be academically successful. Considering that all the participants were very close to or had reached 25 years of age, they felt pressure from Indian society to start thinking about creating their own families, a role usually assigned to females. The stress of pursuing a graduate degree in academic fields that are usually not associated with females and reaching the age of marriage are factors that made it more difficult for these participants to adjust, as they had to learn how to deal with these cultural aspects while navigating their new reality in a new country. Based on the interviews, it was clear that their families had been and continue to be very influential in these participants’ lives in many different ways, as the next superordinate theme shows.

Family

The third superordinate theme that emerged from the data analysis was the role that the family (i.e., parents) had in the participants’ lives. This subtheme emerged because of the importance of family and community in Indian society, so family played a key role in their
adjustment process. As participants explained, it is very difficult to separate the role of parents and family from other aspects of their lives, such as their cultural background, their first experiences abroad, or their finances. Some of the participants’ experiences were intertwined with their view of their parents and families. All participants appeared to be close to their parents, siblings, and extended family members and maintained frequent contact with them. All participants expressed how valuable their parents’ support was to their decision to study abroad and to pursue a graduate degree in a STEM field. The main subthemes that emerged in this area were parental support and parental expectation.

**Parental Support**

All participants seemed to rely on their parents for emotional support and they described their families in an affectionate way. They expressed how supportive their parents were of their decision to pursue a graduate degree overseas. They were aware that without parental support, they would likely not have been able to pursue a degree abroad. Mia explained that her parents were not at first expecting that she would get that far in her education, but now they support it:

They never expected that I'm going to do Ph.D. when I started my education, but right now, they are just very supportive. Okay, do whatever you want to do. They don't really care. They are very surprised how I go from field to field, biotechnology to mechanical now, but they are totally supportive.

Participants explained how important it was to have their parents’ assistance and, in some cases, other family members were also encouraging them to continue their studies. Tee explained that, despite having traveled to the United States a few years ago to do a 6-week summer program, when the time came to return for a master’s degree, her mother was concerned
about the move because it would mean a longer stay in the United States. However, her uncles were supportive and eventually helped to convince her mother:

My uncle, my dad's brother, he was very supportive of me. He was always asking me, "Have you applied? Have you gotten any reply back?" He always wanted me to go for my masters. My mom's brother too, he's also very supportive. As a whole, I can say I have a supportive family in that way. So, their strength helped my mom to get over the fear that I'll be living in a country on my own; different country, different language, different culture.

Participants explained that parental support was important to give them emotional strength to move to another country and enroll in graduate school. Two participants specifically mentioned that their mothers were “strong women” who inspired them to continue to study. All participants explained that, for their families, it was important that they became financially independent women and that they saw education as a means to secure that future independence.

Communication was an important way for participants to feel connected with their families. Five out of 7 participants spoke with at least one of their parents every day. Ritoja explained, before coming to this country, she thought she would be making friends quickly and become less reliant on her family for emotional support. However, that expectation did not materialize, and she sounded disappointed about it:

I never thought I would be the person who would call my mom every day in the morning and talk to her for like 10 to 15 minutes, but I am, and I miss her. I never thought that would happen to me.

Participants explained that keeping in touch with parents was a means to still be involved in each other’s lives. Barbie stated that, after arriving here, her “love for [my parents] has
increased more” and she talks to them twice daily (morning and evenings) because they are concerned about her well-being and safety here. Additionally, she explained that she does not “want to get separated from them.” Barbie mentioned that her parents also use the calls as a way to ensure she is safe when she is walking by herself on the streets:

[My parents] were very concerned about how will I stay all alone. Well, I don’t know anyone in this country and roaming all around alone was . . . Now also if I go via Uber cab or if I go walking they call and talk for a while till I reach the destination. Whenever I come back home then again I make a call that I’m coming. They’ll be like, “Keep talking.”

Both parents and daughters maintained their relationships by frequently calling each other. The calls also served to reassure parents that their daughters were safe and well in the United States. Emilia said her father calls her every day before he goes to work and, even though many times they do not have meaningful conversations, the main purpose of the calls is to provide her father with some piece of mind:

I think he feels very . . . secure when I feel like that . . . ‘cause he has told me this himself after my mother doing that. “When I talk to you before going to work I feel very good after that. Because I feel happy that you're” . . . He didn't say that you're okay, but I'm thinking that he feels happy that I'm okay; I'm fine; I'm doing good. I sound confident; I don’t sound scared or sad. So, he feels reassured knowing that and he spends the rest of his day peacefully.

The constant contact with their families back home seemed to reassure the participants that their families still loved and cared for them, which brought a sense of comfort in the midst of the adversities they were experiencing because they moved to a new country. Participants still
relied on their families for emotional support to deal with day-to-day issues that they may be facing. Parental support still represented an important factor that affected their lives.

Parental Expectation

Equally as strong as parental support, participants felt the pressure exerted—intentionally or not—by their parents. Five out of 7 participants expressed feeling some type of pressure from their parents to do well academically and financially. Tee explained that, in her situation, the pressure to perform well in school was enhanced by the factor that she is the only child and she feels guilty about leaving her aging parents back home:

For me, because I didn't want to let my parents down or my family down because they have a lot of expectations for me now because I'm the only child who made it till here in my entire family. So, they're really proud of me. So that is the reason I'm like no, I cannot let my grades go down because I came here after a lot of work. . . . I feel like my parents are lonely without me because of their whole, at the end of the day, we're in the same house, living in the same house. Now, I'm not there and I'm the kid.

Because of the importance of family in Indian culture, parental-filial relationships are deeply connected. Emilia explained that, when she first arrived here, her mother asked her repeatedly about getting a job and making money. The unintentional pressure exerted by her mother added to her financial stress; it was only after her siblings intervened that her mother stopped with her questions:

It was very stressful initially and then my siblings got her to understand that this is not the time to ask [questions about money and getting a job]. This will all work out eventually, just give it time. And now she's completely chilled out, so yeah. But I don't know that they have expectations, I know my mom has. But not the overage of
expectations, she has expectations that I should do well for myself, I should prove myself.

Participants reported that parental expectations regarding finances were a constant topic in their conversations. As these participants were living abroad for the first time in their lives, parents were very involved in their daughters’ financial lives. Ritoja explained that she had to take a loan to afford to study in the United States and, for that reason, her parents were especially concerned about her spending money here. She felt her parents’ expectations regarding finances were taking a toll on her as she was constantly reminded of the high cost of living in the United States and her dire financial situation:

My parents, there would always be a part of every conversation where they’re like, oh you need to spend very carefully. You need to be conscious about the amount of money you are spending. . . . And it was happening because there was a constant voice in my head sounding like my parents like, oh don't spend this. You don't need that. I think my mom did not understand how much she had an impact on how much I would start cutting back.

Participants reported that parents’ expectations about their daughters’ spending habits was also implicitly manifested in their conversations. Dipika recalled her parents telling her that “being this grown up you should think about being responsible” when it came to her spending. Participants reported that parents were very much involved in their financial lives. Participants seemed aware that their parents’ expectations of them had affected their experience in the United States by creating an additional stressor they needed to manage. Only one participant mentioned parental expectation in a positive light. Mia noted that the pressure her parents put on her worked as a motivator to ensure her progress toward completing her doctoral degree is not stalled:
My parents expect me to be more active in research. They have this thing that they don't want me to slug in Ph.D. or something, they are like, "Okay. Finish your work timely. Why have you not started with your dissertation work yet?" And they're very concerned about it. They regularly ask me. So yes. It motivates me on a positive level. Impacted, yeah, it motivates me to do my work better,

Participants reflected that they and their parents learned how to manage expectations as time passed. As expected in Indian culture, their parents still played an important role in their lives, and they expressed a high level of regard for their parents’ opinions and advice, even though at times the advice may have been at odds with the participant’s own views.

**Social control.** Social control was a form of parental expectation reported by the participants. Participants expressed that, because they are females, there was an expectation that they would behave in ways considered socially appropriate for women. Ritoja explained that when she was getting ready to come to the United States, her family provided her with some advice that she believes she would not have received had she been a man:

You know, things like, "You always have to be careful," "You're moving to a . . ." This is a big city, and then, even when I'm going to New York, I'm very close to New York, and they're like, "Oh, be very careful. Don't go out late at night. Be careful of people you don't know." And with guys, I have lived with my friends who have moved here, they're like, "Oh, it's fine. You'll be fine." So, there are certain advice that comes at you specifically because you're a girl.

Despite not referring to the daily calls from parents as a form of social control, it appears clear one of the purposes of the calls was to check on the participants’ daily activities and behavior. Participants’ personal and second-hand experiences seemed to confirm the notion that
women need additional forms of social control to ensure that they remain within the role that society assigned to them. While speaking of a female friend, Tee explained that her friend talks to her parents every day, and the issue of males in the residence halls is often discussed because premarital sex is a taboo in India:

I have seen her struggle here. She had to tell her parent everything in detail, and they're calling her all the time. They'll go on for like hours and all. They'll ask is there boys or not . . . In India, boys and girls, they don't live together.

Participants explained that, despite their parents’ expectations, pressure, or control, they still felt very connected to their families and Indian roots. In spite of not following the traditional role assigned to women in Indian society, these participants seemed to understand their parents’ motivations and expectations. All participants seemed to experience a clash between Indian and Western values every day.

**Conclusion**

Family played a crucial role in the participants’ lives, serving as a lens through which participants understood most of what was around them: their culture, their role in society, or their future prospects. This superordinate theme addressed the issue of how participants coped with the stress they experienced; parental support was instrumental to participants’ adjustment (by providing financial or emotional support) and served to propel them to study abroad and pursue the academic fields of their interest, despite their choices being divergent to normal Indian societal practices.

At the same time, parental expectation served as a stressor that affected participants’ experiences in the United States by adding more pressure to their lives. Participants did not want to disappoint their parents and bring any type of criticism or shame to their families because they
were allowed to travel abroad to study. Despite the distance, parents, siblings, and relatives still had an influence on the participants’ decisions. All participants reported that as time passed by, they learned how to manage parental pressure better. In addition to parental support, another factor that positively affected their adjustment was the assistance of faculty and academic advisors, as the following superordinate theme will discuss in more detail.

**Academic Departments**

The fourth superordinate theme that emerged from the analysis of all seven participants’ experiences was their interactions with faculty and academic departments. This subtheme emerged as participants discussed how their academic departments and faculty assisted them with their adjustment process. Participants expressed an overall greater sense of satisfaction with faculty than their department. Participants also reflected on the importance of the faculty members as important figures who helped them understand the academic system and how to operate within their new academic frame. All participants cited the influence of faculty on their academic decisions. The two subthemes that emerged in this area were gender and the academic environment and the role of faculty.

**Gender and the Academic Environment**

When asked about their academic environment as it related to their departments, participants spoke about gender; they all reported that being one of the very few female students in the class had an impact on how they felt about their environment. Participants for this study took classes in five different academic departments at METS University. Five out of 7 participants shared that, from the classes they had taken so far, most of the students in their classes were male. Biomedical engineering is the only department that seems to have more female students than the other graduate programs at the school, which, according to these female
Indian students, is expected because biomedical engineering is perceived to be less difficult, and therefore, more appropriate for females. Dipika shared that her academic experience was affected by the lack of females in the classroom, as she felt her contributions to group work were ignored because of her gender:

If I had a group of [classmates], in that group I'm the only girl, remaining are boys. So if there are more girls in my group that would be more fun. . . . I feel like [boys] are not listening. . . . When we had assignments to do in a group, I initially just said we can do this with that time; I feel like they are thinking kinda superior than girls. I feel initially then I just ignore that. Boys are more dominant.

Being a gender minority in the classroom affected participants as they did not feel their contributions were being recognized by their male peers. Emilia shared that in some of her classes at METS, 32 out of 35 students were male. Despite having similar experiences of being ignored by her male peers, in her view, male students avoided female students’ participation in class not out of a lack of interest for their suggestions, but out of intimidation:

I have a strong feeling that they are intimidated by us. I really feel that way because I'll have these couple of people, actually I just realized that they're all boys, they keep asking me what I am doing like when I register for a subject or when we have a project in class. [Male students] are intimidated by us, they don't even want to talk to us. They don't want to talk to us because they'd feel like a fool. I've experienced that, it's really funny.

Despite divergent views about why their suggestions in the classroom were being ignored by their male peers, participants expressed that this experience negatively affected their participation in class. They stated that they felt marginalized as a result of the demographics in the classroom. They explained that either their comments were ignored, or they needed to speak
twice to be heard. Ritoja, for example, mentioned that in some of her classes, she was the only female student. She felt it was unfair for her to be the only one in that situation: “There has been times when it has happened that I would forward something which was then rejected, and then a little bit of a very slightly changed version of it from a guy, and it was more well-received.” The participants’ morale was negatively affected by this kind of treatment.

All participants suggested that an environment with more females would be more beneficial to them, but they seemed to be aware that this was not a problem singular to METS University. In general, in India and the United States, STEM programs are male-dominated, with more male faculty and a large portion of the enrollment consisting of male students. Mia attributed the issue of small numbers of female students in STEM programs to women’s lack of interest in the sciences: “I don't think it's up to university to control how many female students are there in a class because, I mean, it depends upon the students, right? . . . So I don't think it's up to university to control that.” Regardless of the reason, the lack of female counterparts manifested itself in the absence of peer support among the few female students in STEM programs. Ritoja suggested that having other female students in her program would have provided her with higher levels of emotional support:

I think the whole thing would be a little bit better if we saw more females around us. . . .

It's the whole females in this engineering circle or the technology sphere so to say. But then I think for international students mostly it kind of helps if you see another female student and you go and you can talk to them from a point of view that you won't have to explain and you know that they would know a few of the problems that you're going through.

Participants agreed that a male-dominated environment may be prejudicial to female
students as they may feel singled out by other students and less compelled to participate in class, especially if the female student is not self-confident or outspoken. Considering that most students will spend a significant portion of their time in classrooms, laboratories, or other academic areas, participants felt that it was important that female students feel their environment supports their experiences. As they transitioned to a new phase of their lives and started a graduate program, they felt that an academic environment that would have helped them engage with other female students, even if from different departments, may have been more favorable to their adjustment than letting them try to forge these connections on their own.

Participants had mixed responses when asked to describe their academic department in one word. Responses ranged from “pretty friendly,” to “friendly,” to “good,” to “cozy,” to “neither friendly nor hostile,” to “unapproachable,” to “treacherous.” Apart from speaking about gender, participants used the faculty as a proxy to express how they perceived their departments. When participants had positive interactions with faculty, they spoke positively about their departments and vice versa. A more detailed discussion of the role of faculty is provided below.

**Science Center.** Interestingly, METS University has an office on campus that promotes engagement among women in the sciences. This type of center, if appropriately staffed and supported, can serve as a support system that universities can offer to female international graduate students in order to improve their on-campus experiences. Centers like this can be a valuable resource for female international graduate students who seek a place to meet peers or just relax. For the purpose of this study, the pseudonym Science Center will be used to describe the center at METS University. Even though this center is not an academic department, its mission is to help female graduate students in STEM fields to connect with one another and other female professionals in their fields. Science Center hosts on-campus events throughout the year,
and it also helps METS University create an environment that is supportive of female students in male-dominated fields.

Four out of 7 participants did not know about the existence of the Science Center until they were asked about it for this study. One of the participants who knew of it, Emilia, shared that she only knew about it because a professor in a different academic department had mentioned it to her:

I found out only recently about [the Science Center]. In my third semester here. I met this person at the humanities center and I had gone for an interview with him as a representative for a project. . . . And that guy told me, "Do you know about this place that is there on the first floor of the campus, on the second floor of the campus?" And I'm like, "No, I don't know." He was like, "There is a place for women in technology, you should go and check it out." And I'm like, "Okay I will." I found out very recently.

The other two participants who knew about the Science Center, Tee and Ritoja, only knew about it because of the scholarships the Science Center offers to female students. Emilia was the only participant who had engaged with the Science Center by attending one of their events. None of the other participants thought the Science Center could provide them assistance in any relevant way. Despite the Science Center being an office of campus that could be of help to participants, they still relied on academic departments and faculty to help them with their adjustment. The Science Center was not viewed as a source of support that participants could benefit from in any meaningful way.

**Role of Faculty**

There is a direct correlation between how participants perceive their academic departments and their faculty members. Participants who had positive interactions with faculty
members made positive comments about their departments. Most participants seemed to be aware of professors who are engaged with students and doing research (as opposed to those who are seemingly waiting to retire and inactive), as well as a perceived hierarchy through which some faculty could be reached. Ritoja explained that students in her department seek assistance through different sources before they can approach a faculty member: “The professors you only approach after you go through a layer of classmates, seniors, teaching assistants, and then you go to the professors.” The perception that faculty members could only be contacted unless other options had been exhausted left participants with the feeling that faculty members were not always interested in helping students develop their skills. Emilia suggested that students may be reluctant to reach out to professors because of how disengaged some of them are:

The attitude is wrong with the professors. . . . Most of these professors have got so comfortable with the fact that they have their tenure and they don’t need to do anything because they have full job safety. So, they are not even trying anymore. I can only name you one professor in the whole department who actually cares for the students, who will tell you the right thing to do at the right time.

It was clear to all participants that some faculty were more engaged than others and could offer students more opportunities to learn and network. While speaking about her department, Mia also asserted that students could identify which professors were active and willing to assist students:

I think mechanical engineering department is, what I realized, it's just there are just few people who are active. And then there are a few people who are not active. So those few people who are active, everybody knows them. Everybody interacts with them and everything. This is in terms of professors. Because, yeah, I have been in this department
four-and-a-half years, now, and yeah, there are few set of professors that I come across regarding everything. And then there are few set of other professors I don't even know.

These participants’ comments strongly suggested that students’ perceptions of their departments were informed by the level of faculty engagement with research and students. If faculty members were engaged with students in research projects and provided support outside classroom hours, they were viewed more favorably by the students. In that case, the participants’ view of the department was also favorable. On the other hand, faculty who were unresponsive or lacked interest in working with students were viewed less favorably by students and, as a result, the department was also viewed negatively.

**Cultural differences.** All seven participants expressed that, given their upbringing in India, they viewed faculty with the utmost respect and as deserving of a high level of formality. Faculty members who were more understanding of this cultural difference and helped participants adjust to the classroom setting were viewed more favorably. By understanding students’ perspectives, faculty can create an environment that is more culturally sensitive to students. For example, Barbie explained that a clear cultural difference between the United States and India is the way students address a professor:

> Though [professors] tell me to call by their name I call them professor only, because I want to respect the professor. . . . In India we used to call sir, here it is professor. Yeah, this is a culture.

While recounting one of her first meetings with a faculty at METS, Ritoja explained it was this faculty member (who coincidently is of Indian ancestry) who explained to her that in the United States, there is no need to treat faculty with formality:
Like in India, we have a very formal relationship with our faculty or our teachers. We are afraid to approach them, even. So, [the faculty] was like, "Don't be in that mindset." . . . I think the difficulty I had with faculty to begin with was, I was too formal for them, and I think it also, especially American faculty, people from here, I think it weirded them out a little bit about how . . . I had a professor who told me, "Oh, you can call me Alex." And I was like, "No, I cannot. No, I cannot call you Alex." But then, he's my thesis advisor now, and I do indeed call him Alex. So, it took me some time.

Given the level of formality in the classroom that Indian students are taught, it was difficult for the participants to acclimate to the more informal U.S. classroom setting and they relied on faculty to help them navigate it. Mia experienced difficulties adjusting to her new academic environment when she first arrived here because in India, there is more uniformity; in the United States “[grading] was so un-uniform based upon the courses, and also the faculty. Everybody has their own way they do the grading.” However, her faculty advisor and other faculty members helped her to overcome the difficulties by showing support; she explained that it took her “a while to understand really how the education system works here. It's very different from back home. But yeah, professors are very supportive.” Participants believed it was up to faculty members to create a classroom environment that accounted for cultural differences and helped them adjust to existing classroom norms.

**Support and mentorship.** Even though participants viewed their relationship with faculty members as one that should be kept at the professional level, they expected faculty to take a more active role in guiding students through the first stages of their academic programs. Emilia recounted how she expected to develop a mentor–mentee relationship with her professors but that did not materialize:
I knew there would be these professional people [faculty] who have worked in the industry, who are doing part-time in the industry and part-time at college. I was expecting that was the kind of people who teach me. . . . [But] there was not a reliable person to ask what to do in a situation or to guide you. I was looking for mentorship when I came here, but I didn't find it.

The level of support expected varied from participant to participant. Unlike Emilia, other participants had more favorable experiences as their level of expectation was matched with the level of support they received from faculty. Tee also relied on faculty to assist with her academic adjustment; she explained that she was so concerned with the academic system in the United States that she got physically ill. When she explained her situation to her professor, he responded positively to her needs:

I informed my professor about [my medical problem] and they were very helpful. I had to take some extra time for exam and all because I was registered with [METS’ Student Disability Office] for the exam. The professors they were very helpful, even I talked to my advisor. One day I was just talking to him and I was telling him how I like painting and all. I showed him my portfolio. So, it was nice. Yeah. So, they were very supportive.

Participants seemed to assign a powerful role to faculty members vis-à-vis their academic experience. Tee’s experience of feeling heard and supported created a positive image that the department was sympathetic to her needs and she could rely on them for help. Despite being a student in a different department, Barbie recounted a similar situation. When she was experiencing personal problems, she contacted one of her faculty to ask for assistance. She said: "Obviously [faculty] will be helpful in academics, but personally also when I was sharing my
problems and asking my doubts they were very helpful.” Supportive, positive experiences with faculty members translated into participants’ perceived feelings of care, compassion, and understanding. Faculty members that were considered to be more approachable and friendlier had a positive impact on these participants’ academic experiences.

**Gender.** All participants were aware that their departments had more male than female faculty. For example, Mia, a Ph.D. candidate, recounted a story in which she was speaking with another female doctoral candidate from a different academic department when they both realized that this student’s department did not have a single female faculty member. They were both surprised by that. Mia then asked the student: “Why are they letting you do a Ph.D. when they don't hire female [faculty]?” According to Mia, the student responded: “Yeah, right? Even I wonder that.” It was difficult for both students to grasp why this department would train female doctoral students but not hire them. Interestingly, despite her questioning the department’s existing practice of not to hiring female faculty members, when asked about the impact of having a male or female doctoral advisor, Mia expressed her preference for a male advisor:

I cannot say if it were female [advisor] it would have been different, like really. I think on the contrary, it might have affected on some level because, yes, I have heard entirely from people who have worked under female advisors that sometimes due to some family problems, or something, they're not always available. Yeah, it could be children or anything. It also depends on how devoted they are to their work. Right. There might be some females who are really devoted to their work, and they are ambition driven, and they're very dedicated. But then there are some who are just not that serious. So maybe. Well, I don't think that this could be otherwise for males, also. But, yeah, still male, if there was some problem in family, females would be more responsible towards it. Males
are responsible, but most of the time, not that much, or maybe I'm saying it from an Indian perspective, how I see Indian females or males working. I do not know about people here.

Even for a female Ph.D. candidate pursuing a STEM degree, it may be difficult to escape the stereotypes associated with the role of women in society. Ritoja also made reference to women faculty members and their perceived naturally nurturing instincts. She explained that she never had a female professor while studying at METS University and her only academic experience was with a female teaching assistant (TA). She contrasted her experience with both the female and male TAs:

And it might be a mental barrier thing, but I really think she was more approachable. She would actually take the time to reply. I even emailed her on a Sunday with a question and she texted back, "I'm so sorry; I'm in New York. I'll get back to you tomorrow." And then I have had male TAs would be like . . . Who would come to the class right before the professors and like, oh I saw your email, you know the problem you said, it can be solved; you can go online, look for a similar problem. And he would just scribble something. And expect you to get it. I don't know.

Participants were careful to point out that they did not intend to generalize as there are faculty members of both genders who are caring or detached. However, their experiences served a powerful reminder of the views that they hold about gender and academia. Tee explained that even though in theory there should be no difference if the professor is male or female, in practicality, she did experience a different classroom environment when the faculty in charge was female:
When it comes to education, I think I believe that both of them are . . . both of the genders are capable to be a good professor or a good teacher or a mentor. But the professor I had in last semester, the female professor . . . she is like a very nurturing and very caring, so she made our class like a family like she said in the first class, and I didn't really realize it was completely fine like it were. . . . So, I think there is difference but that maybe she being a mother . . . maybe that made her caring for her students like that. Like my mom . . . she's also like that to her students like children and some things.

Despite having explained that both genders could be good at teaching, Tee said that she never had similar classroom experiences with a male faculty. She concluded by saying that seeing more female TAs or faculty members would be a morale boost for all female students: “So if I see more of female TA or female teacher I'd be like, oh damn, she can do it so why we can't also do it. It's not like only the guys can do it so maybe that is a thing.”

**Conclusion**

Academic departments and faculty members had a crucial role in shaping these participants’ academic experiences. Through analysis of their interviews, it became clear that a welcoming and supportive academic environment increased participants’ sense of comfort and safety and reduced their anxiety levels. This superordinate theme addressed the issue of support systems that can be developed by the universities to improve female international graduate students’ experiences. By offering more opportunities for faculty engagement with these students and a more supportive environment, students’ level of stress will likely decrease and they will feel better adjusted. Particularly for Indian students, given the participants’ cultural heritage, faculty members hold a lot of perceived power over their well-being.
Faculty members who appeared to be friendlier and more approachable were viewed more favorably by the participants; these faculty assisted participants with their academic experiences by providing advice and support that the participants viewed as valuable. It was very noticeable to participants that there were not many female faculty members at METS University, and the few interactions that they had with female faculty members were positive. Despite having an office on campus to support female students in the sciences (i.e., Science Center), participants still relied on academic departments and faculty to assist with their needs. According to the participants, supportive faculty members and departments could affect students’ lives not only academically but also socially. A student’s social life is an important factor vis-à-vis the overall experience in the United States, as the next superordinate theme shows.

**Social Life**

The fifth and last superordinate theme discussed by the participants was their social life. This subtheme emerged as participants discussed how the lack of interaction with American students negatively affected their adjustment; they believed that, had they met American students, they would have been able to experience life in the United States differently. Participants expressed their disappointment in not having developed social connections with American friends; they all expressed a sense of missing out on an opportunity to learn about American culture. The lack of interaction with American students in and out of the classroom was identified as a factor that affected their adjustment. The subtheme that emerged in this area was friendships.

**Friendships**

Based on the analysis of the interviews, it became apparent that all seven participants had expectations that making friends with classmates should have been easier than what they
experienced in real life. There was a sense of disappointment that they were not able to meet American students. Participants alluded to the demographics at METS University as one of the reasons why they found it difficult to make local friends. METS has a large international population at the graduate level and most students are from India or China. Many American students who are enrolled in the graduate programs are registered part-time and study in the evenings because they work full-time during the day. Participants reported feeling isolated because they did not develop strong social ties.

Isolation. Participants expressed feelings that they did not fit in to the environment at METS University. They explained that because they had an accent or felt like they did not have opportunities to meet American students, they did not have the same engaging social life that they had back in India, which left them feeling isolated. Feelings of being stereotyped also contributed to the sense of isolation. Emilia reported feeling judged for having a different cultural background, which she believed created a barrier to making friends:

I feel bad because I'll be stereotyped because I am from a particular place, so that's when I [feel] very stereotyped. Why judge me because of from where I am or my nationality? I'm not going to be the same person, and that most people I've interacted with who are international.

Emilia used her Indian heritage to rationalize why she did not fit in. Although other participants did not provide the same explanation as to why they believed they did not fit in, they still expressed feeling isolated. Tee explained that she felt alone and Mia discussed her lack of social connections, saying, “I don't have a social life much here and I really never felt like I blended in.”
One of the reasons participants attributed to feeling isolated was gender. Participants felt their social lives were affected by a large number of male students in the classrooms; social groups were formed in the classroom and female students felt excluded. Mia shared her experience of seeing her male peers having a social life outside the classroom and she felt left out:

So, I see male people, the person, my lab mate, he goes up every day in the evening with other Ph.D. students in the department to gym and they hang out. They go to [dining hall] and all. But I don't really have anybody.

Prior to arrival at METS, participants assumed the environment would be more favorable to making male and female friends. They believed their classrooms were going to be more diverse, thus giving them more opportunities to connect with others. Ritoja summarized the lived experience of most participants:

I thought I would come here, and I would totally adjust to life here and not miss my family at all, or have a huge friend circle. But then, when you come here, it's pretty lonely once you get here, and you're on your own, and you realize that, once you grow up, it gets more difficult making friends, I think. So, the big group that I thought I would have did not necessarily work out.

Participants expressed disappointment that their social expectations were not met, in some cases even after they had spent over a year in the United States. Their view of U.S. college life, informed by movies, was dramatically changed after they arrived. None of them expected to feel isolated and lonely.

**Social connections.** Despite many efforts to diversify its student body, METS University still has a large number of Indian and Chinese students enrolled in its graduate programs.
Participants reported that the lack of diversity in the classroom limited their opportunities to interact with students from other cultures. Emilia explained why she believed demographics affected the development of social connections:

My experience has not at all been the same because in my class I either have, I don’t know if this is sad to say but I only have people of two nationalities, one was Indian, the other was Chinese. There would be no other nationality in class. Very rarely we have one or two Spanish students or we have some African-American students, that's it, one or two are the number. They would not mingle with you because there are so many more of you that they probably felt like singled out in the class, so they don't feel like mixing around.

Most participants expressed surprise to realize the high number of Indian students who were already enrolled at the university. Mia suggested that, given her lack of social connections with students from other cultures, her experience in the United States was not what she was hoping for before she arrived:

It doesn't really feel like [I moved to another country] in terms of friends and the home. It doesn't really feel like I left India. It's more of the same. It's just the same mindset. I didn't get to learn much about the American people or their culture and everything because I deal with the same people I dealt with in India now.

It is apparent that one of the aspects of moving abroad that most participants were looking forward to was meeting other students and, in particular, Americans. They expressed disappointment that they had not been able to make American friends; they resorted to establishing social connections with primarily conational and sometimes other international students.
Interestingly, participants were also aware that the disproportionate number of Indian students in their classes may have made students from other nationalities wary of approaching them. They acknowledged that, by forming their own social groups based on their cultural background, they were alienating others. Ritoja explained this sentiment:

I think it's a little difficult for [Americans]. Like, I understand it's difficult for me to make a Chinese friend, because Chinese, they have their packs, too, like Indians. And once you have that same language, same similar group going on, it's difficult for an outsider to get in the group, especially if you need every joke to be explained to you, if you need a translator. So, I think it's more our fault than theirs. Not fault, per se, but it just is. But it's more on us than on them.

Because of this perceived difficulty in approaching (or being approached by) students from other countries, these participants connected primarily with other conationalists. For example, Mia expressed her reservations about communicating with Americans due to lack of common interests when she said, “I really don't find any common topic to talk to American students. What to talk with them?” Participants explained that the interactions they have with Americans is superficial, limited to the classroom only, and primarily centered around academic topics. Emilia reflected on her experiences and the difficulty of breaking the cultural barrier:

I have reached out to [Americans] for random things like some doubts or whatever. It's never gone beyond that. It's never gone to hey, where are you from? Can you tell me more about yourself? It's never gone to that because they come to class, they sit by themselves, next to each other or whatever. They listen to the lecture, probably leave five or 10 minutes before the lecture gets over. That's it.
Echoing this experience, Sarah mentioned that “American students we just get in conversation during classes and all such things, if we have an inquiry and we are just talking like maybe if you are sitting besides them.” Similar to other participants, she said that she does not have many friends and the few that she has are also Indian students. Participants shared they would have enjoyed having a stronger connection with local students outside the classroom and in a more meaningful way.

Participants voiced another factor that hinders the development of social connections: They believe Americans and other international students showed a lack of interest in learning about Indian culture, thus making participants uneasy about approaching them. They acknowledged that living with other Indian students does not motivate them to go out and make other friends. The only participant who self-identified as having American friends was Tee; she attributed that to the fact that she lives and works on campus:

I can say I have a balance [of American and Indian friends], not just like sometimes you see people who live off campus, they tend to stay together [all Indians]. . . . My on-campus friends are mostly American. . . . Because on campus you get to meet a lot of different students. You make connections because I know my friends from graduate class, most of them they're living off campus and they're like, "How do you know these people?" I know. Now, I can tell. I live on campus and that's how I know people.

The impact of having American friends was reflected in how participants perceived their experiences in the United States; Tee spoke enthusiastically about her American friends and the activities they did together. She proudly announced that she was invited to two Christmas parties at two of her American friends’ houses, while the other six participants spoke about a missed opportunity to interact with Americans, learn about the local culture, and have a different cultural
experience. For these participants, the opportunity to interact with their American peers would have equated to having a full experience of getting a degree here and learning about the American way of life. Ritoja admitted that she, like most students she knows, was surrounded by Indian culture (e.g., movies, food, music) as a means to bring comfort to her, but the lack of exposure to American friends limited how she experienced life here. She said: “When [she and her Indian friends] decide to explore America, we do it as part of an Indian group, so we see it from that perspective all the time.”

Participants elicited many social and practical reasons why they would have benefitted from making American friends. Sarah shared that she would have loved to “know [American] culture and interact with . . . That's fun, interacting with [Americans] and knowing their culture. Knowing how they live their life, do their things.” Mia suggested that she “might have seen things from a different perspective.” Barbie explained she regretted not having any American friends because if she “had American friends, then it would be helpful to improve my accent.” Ritoja admitted that when it comes to Americans, “I don't know anything about their culture.” When asked if making American friends would have changed her overall experience in the United States, Emilia shared that she hadn’t had the cultural experience that she had anticipated before she moved to the United States:

I wanted a higher degree, and I wanted the experience of hanging out with people from around the world. Irrespective, it didn't matter if they were locals from here or from anywhere. I have now, I have some friends; they're Turkish or from other parts of the world, but they're not close friends. [Meeting local people] would have been very different.

Six out of 7 participants expressed that, despite the quality of their academic program and
the support provided by the university upon their arrival, they felt their overall experience was impacted by the lack of opportunities to develop social connections with American and other international students. They indicated that their transition to the United States and METS University would have been better had they been offered more opportunities to mingle with other students in and outside the classroom, giving them an opportunity to connect with students from their own and other academic departments.

**Conclusion**

Participants expressed that their expectations of meeting and interacting with American and other international students did not correspond with their experience in the United States. This superordinate theme addressed the issue of support systems that can be developed by the universities. Based on the information provided by participants, it became clear that universities should provide opportunities for female international graduate students in STEM programs to meet other students, in particular Americans, so they can learn about the local culture. Indian female students in particular would benefit from such opportunities as the number of Indian students at many universities is surpassed only by the number of Chinese students. Indian students are much more likely to meet co-nationals than Thai or Nepalese students, for example. Participants in this study stated that part of the appeal of coming to study in the United States was the exposure to American culture and a different way of living, and they were disappointed in that regard. Prior to arriving in the United States, they believed they would easily make friends. That did not materialize for many reasons, including that participants are commuters who share their housing with Indian roommates; the university has a large graduate Indian population, so most of their classmates are from India; and participants did not feel compelled to try to connect with American students because of their perceived lack of interest in Indian
Participants explained that not having friends in the United States, especially American friends, affected them as they did not learn about American culture, an experience they were looking forward to having. They also indicated that METS University should provide them with more opportunities to engage with American and other international students outside the classroom.

Conclusion

The purpose of this study was to understand female Indian graduate students’ perceived views of their own adjustment to American culture and education at a STEM-focused research university. The goal of this research was to utilize Nancy Schlossberg’s transition theory to understand the lived experiences of female Indian graduate students who moved from India to the United States to attain a graduate degree so that universities can develop better support services for female international graduate students in STEM fields. The research questions guiding this study were:

1) How do female Indian graduate students perceive their own adjustment to American culture and education at a STEM university?

2) What strategies, if any, have these students developed to cope with any acculturative stressors they may have experienced?

3) From these students’ perspective, what administrative support systems could the university offer to improve their experience?

After using the IPA approach to data analysis, the researcher concluded that five superordinate themes and 10 subthemes emerged:

1. First experiences
   a. Feelings of homesickness
b. Finances

2. Culture
   a. Cultural subgroups
   b. Women and education
   c. Marriage and gender

3. Family
   a. Parental expectation
   b. Parental support

4. Academic departments
   a. Gender and academic environment
   b. Role of faculty

5. Social Life
   Friendships

   The participants’ lived experiences provide a strong suggestion that culture, family, the involvement of their academic departments, and their social lives (or lack thereof) are all important factors that affect their adjustment.

   All participants discussed in detail their experiences about moving to another country, their own and their families’ expectations for their lives in the United States, and the reality of being here. They all mentioned how much harder it was than expected to move to a new environment and how quickly they needed to adjust to the transition they were undergoing. Financial stress and the feeling of longing were stressors that participants did not account for when they were preparing to move abroad.
Participants also spoke about the impact that culture and their families had on their adjustment. Despite being in a different country, participants were still very connected to their families and were aware of the social expectations their families set for them. The fact that these participants were females who were pursuing graduate degrees in STEM fields created additional stress for them because they were following a path outside the traditional norms in Indian culture. Their families continued to be influential in their lives, both positively (as supporters) and negatively (as stressors).

Through the analysis of the interviews, it became clear that the adjustment process of these participants could have been directly affected by METS University if the appropriate systems were in place. Participants spoke about how academic departments and faculty could have a strong positive effect in helping them acclimate to their new environment more quickly by being more supportive and caring. Participants also expressed that a more engaging social life would have helped them adjust. These findings are in alignment with previous research, which reinforces the trustworthiness and validity of this study.

This chapter presented the findings and analysis of the research conducted at METS University. The next and final chapter highlights how the current literature and theoretical framework informed the researcher. In addition, the chapter also provides a conclusion and recommendations for future practice and research.
Chapter 5: Discussion and Implications for Practice

The purpose of this study was to understand female Indian graduate students’ perceived views of their own adjustment to American culture and education at a STEM-focused research university. The goal of this research was to utilize Nancy Schlossberg’s transition theory to understand the lived experiences of female Indian graduate students who moved from India to the United States to attain a graduate degree so that universities can develop better support services for female international graduate students in STEM fields. In order to understand the participants’ lived experiences, the researcher used IPA as the research approach, while also employing double hermeneutics. This approach was selected because it allows participants to reflect on their own experiences and explain how they were perceived.

Through the analysis of the data collected, five superordinate themes and 10 subthemes emerged:

1. First experiences
   a. Feelings of homesickness
   b. Finances

2. Culture
   a. Cultural subgroups
   b. Women and education
   c. Marriage and gender

3. Family
   a. Parental expectation
   b. Parental support

4. Academic departments
a. Gender and academic environment

b. Role of faculty

5. Social Life

a. Friendships

Superordinate themes were identified as those recurring in all participants' interviews while subthemes were identified as those recurring in at least 4 of the 7 participants’ interviews. Participants described their first months in the United States (first experiences) as the most difficult and indicated that culture was a form of a stressor. Participants also relayed that their families played a dual role of supporter and stressor. They explained that academic departments were influential vis-à-vis their perception of their adjustment and that their perceived lack of social life negatively affected their transition.

The analysis of the superordinate themes and subthemes led to the identification of three main findings. The first finding suggests that internal and external factors affected the adjustment process of the female Indian graduate students involved in this study. The second finding indicates that the role of Indian social norms, specifically related to family and gender, influenced participants’ decisions and adjustment. Lastly, the third finding shows that participants’ social lives are a factor that influenced their perception of their adjustment.

This chapter is organized based on the findings and how they are situated within the current literature. This chapter also discusses the implications of these findings to STEM universities across the country and how they can be applied by faculty and administrators to improve existing practices. Lastly, this chapter provides recommendations for future research.

**The Impact of Internal and External Factors**
After a thorough analysis of the data, it became evident that participants' adjustment was affected by internal and external factors. While reflecting on their experiences, participants explained how their feelings of loneliness and fitting in (internal factor) and finances (external factor) deeply affected the first stages of their transition to the United States. Consistent with the existing literature, this research shows that internal and external factors affected participants’ living conditions, social lives, academic adjustment, and personal adjustment (Tseng & Newton, 2002). The first finding of this study suggests that internal and external factors affected participants’ adjustment process.

**Internal Factors**

Internal factors are innate qualities or skills that may influence an international student's adjustment process. These may include emotional distress and identity. In this study, all participants reported feeling homesick, isolated, and anxious at some point during their first months in the United States. This finding is supported by previous research showing that feelings of depression, frustration, and anxiety are common to international students when they move to another country (Olivas & Li, 2006; Tochkov et al., 2010; Trice, 2004, 2007). As some of the participants stated, their grades were affected by their emotional state, as they were feeling homesick and lonely by being here without a support network of family and friends. They reported feeling less equipped to deal with unexpected situations and relied more often on existing support systems, such as parents and siblings back home, for emotional assistance.

Identity was another important factor that affected participants’ adjustment. Participants framed their identity in terms of gender and cultural subgroups. They reported feeling marginalized in the classroom because of the demographics in their classes, where most of their classmates were male. Moreover, they expressed difficulty making connections with other
Indian students from different cultural subgroups, as they perceived the cultural differences too great to overcome. Berry (2008) explained that identity has a profound impact on adjustment; individuals and their environment can help or hinder adjustment based on their dynamics. Some of the participants in this study expressed that their identity was an important internal factor that negatively affected their adjustment because it limited their participation in the classroom and their opportunities to connect with other students.

**External Factors**

External factors are influences that are part of the environment and not unique to each person. Examples of external factors include culture, finances, or institutional support. Previous research suggested that cross-cultural transition is a stressor for international students who have to adjust to an environment different from their own (Zhou et al., 2011). Participants in this study reported having very limited interactions with American peers and American culture, leaving them surrounded by Indian culture most of the time, so this study did not find that cross-cultural transition played a meaningful role in participants’ adjustment process.

Exposure to a foreign culture was also not a meaningful stressor for the participants in this study. Some participants reported that, for different reasons, they had not experienced American culture because they were surrounded by Indian culture in a variety of ways: most of their classmates were Indian; participants lived with other conationals; most of the friends they made since arriving in the United States were also Indian; participants ate primarily Indian food, and most of the cultural activities they attended were centered around Indian culture. The perceived lack of opportunities to meet American or other international students was a negative factor that participants attributed to culture. According to them, American students were not interested in learning about Indian culture and there was a perceived disconnect between
American and Indian students’ general interests outside the classroom. Participants used cultural subgroups within Indian culture to explain how they interacted with different cultures while in the United States.

Academic departmental support was a factor that participants strongly attributed to their level of adjustment. As previous research has shown, departmental support is perceived as relevant to international students’ adjustment process, and hard sciences departments (e.g., engineering) are less prone to assist students in their adjustment process (Trice, 2005). Participants used their interactions with faculty members as a proxy to describe their academic departments; some participants described faculty members (and their departments) as unwilling or uninterested in assisting them. That realization gave them a negative view of the department. Participants expressed that their interactions with faculty members were still informed by their Indian upbringing (e.g., stricter formality while addressing faculty).

Participants in this study listed their finances as one of the main stressors that affected their adjustment process. This is in alignment with past research showing that female students are more susceptible to financial stress than their male counterparts (Arric et al., 2011; Xu, 2016) and that finances are a significant stressor to international graduate students (Sherry et al., 2010; Sam, 2001). Most participants explained that the stress of not having enough financial resources affected their daily lives and some of them had to resort to cutting food and medication purchases to make ends meet.

Based on the analysis of the data collected, the first finding of this study reveals that internal and external factors affected participants during their adjustment process to the United States. This finding is supported by the current literature. This finding is also in alignment with Schlossberg’s transition theory, as it serves as a lens to explain how participants perceived their
adjustment process to the United States. According to the theory, in order for individuals to cope with transitions more effectively, they should first examine their situation and then identify coping resources to help them through the transition (Barclay, 2017). Schlossberg’s 4 S system (i.e., situation, support, self, strategies) helps identify the various components of the transition these participants experienced from the moment they arrived in the United States.

The 4 S system can be used as a framework to understand these participants’ transition. Based on the interviews, it became evident that participants were aware that their move to a new country (change of situation) would affect their lives and provide new experiences. As Schlossberg’s theory posited, participants reported relying heavily on their support system (i.e., family, old friends) to assist them through the transition. In addition, as suggested by Schlossberg, participants’ sense of self is another important factor vis-à-vis their transition. Those participants who gave themselves a higher score on the adjustment scale expressed feeling less homesick. Finally, different participants reported developing different strategies, such as asking parents for money or cutting on expenses, to deal with the challenges they were facing. The application of the 4 S system to understand the transition these participants were undergoing shows that internal and external factors affected their perceptions of their adjustment, and participants’ views of the transition played an important role in determining if the transition was challenging, harmful, or benign (Anderson, Goodman, & Schlossberg, 2011). Although internal factors, such as self and emotions, are essential to understanding the transition, external factors, such as social and cultural norms, remain impactful as well.

The Role of Indian Social and Cultural Norms in Influencing Participants’ Adjustment

The role of Indian social and cultural norms related to family and gender in participants’ adjustment is the second main finding of this study. The role that family and gender have in the
participants’ adjustment arose throughout the interviews. In Indian society, family exerts social control over their daughters (Jejeebhoy & Sathar, 2001) and women are held responsible for preserving cultural traditions (Dasgupta, 1998). Therefore, social norms are passed on by the parents to their daughters and these norms affected how the participants perceived their adjustment.

According to Schlossberg’s transition theory, family is a source of comfort and solidarity for individuals undergoing a transition, and identity, including gender, can affect how one understands the transition (Schlossberg, 1981). Participants expressed the importance of their families, especially parents, in their adjustment process and most of the time they framed their personal identities in terms of gender. The second finding of this study suggests that Indian social norms, represented by parents and gender, influenced participants’ perceptions of their adjustment.

**Parents**

This study showed that participants relied heavily on their parents for emotional support. Parents had an influence on how participants perceived different aspects of their lives such as marriage, finances, and culture. Participants also indicated that their families played an important role in their decision to study abroad and to study in a STEM program, serving as a form of support to cope with the stress they experienced as they pursued their graduate degree.

Participants explained that their parents were actively involved in the decisions they made in their lives. This finding aligns with previous research which showed that Indian females are strongly guided by their families (Walton-Roberts, 2015). Analysis of the interviews showed that participants relied on their families for emotional and financial support, as expected in Indian culture. They communicated with their parents on a daily basis, thus maintaining strong
ties with their families. However, they also felt pressured by their parents to curb their spending and get a job. Previous research has shown that familial expectations of female students increase their level of stress (Mallinckrodt & Leong, 1992a). Participants expressed that their families served a dual role in their lives: part of their support system but also as a stressor by controlling many aspects of their lives.

Parents exerted social control over participants, which was another form of stressor they experienced. This finding is reflected in previous research that has shown that in Indian culture, families maintain tight control over females’ lives, which results in economic dependency, limited freedom, and even a lack of choice of partners for the women (Jejeebhoy & Sathar, 2001; Walton-Roberts, 2015). Social control manifested in the form of frequent calls to check on the participants’ situation. Participants felt that they needed to conform to certain roles as expected by their parents and Indian society; they developed strategies to learn how to cope with their parents’ constant questioning (e.g., asking siblings for assistance managing parents’ expectations or simply not answering the phone).

Gender

Gender was a factor that affected participants as they transitioned to their new lives in the United States. They felt their families treated them in specific ways because they were females. This finding aligns with previous studies showing that in India, males are more independent and women are more constrained (Ramanathan & Crocker, 2009). For example, the advice participants received from their families regarding their future education or marriage reflected cultural views of the role of women in Indian society, where the families decide what path the women will follow. Participants in this study were aware of Indian societal expectations of
them, and their parents reinforced these expectations. They acknowledged that their parents would likely play a role in selecting their husbands for them.

Participants’ views of gender informed their perceptions of their academic adjustment in the United States. This finding is supported by the current literature. Previous studies have shown that female students in STEM programs feel more isolated and excluded from participation in the classroom (Ramsey et al., 2013; Robnett, 2016; Seagram et al., 1998). For example, participants explained they felt left out of conversations in the classroom because they are females; participants noticed that there were few female faculty members at their institution, and they perceived female faculty members as maternal figures who were more caring and supportive than male faculty members. All of these experiences helped shape participants’ views of their academic adjustment, where gender is a determining factor for inclusion or professional opportunities.

Family and gender influenced participants’ perceptions of their adjustment as both of these factors informed participants’ views of the world. As expected in Indian society, participants were highly influenced by the advice provided by their parents, so their sense of agency was diminished. Their parents’ advice, even when at odds with the participant’s own wishes, was heeded. As previous research has shown, in Indian culture, a woman’s sense of self-identification is connected to the family (Farver et al., 2002), therefore there is a strong need to keep the family unit intact and to accept assigned gender roles. Being female had additional implications for these participants. As females they were subject to specific gender expectations that are prevalent in Indian society. While in the United States, participants also experienced an environment that, in their view, favored males. This affected their adjustment as they expressed feeling marginalized in the classroom because there were so few female students among them.
This study suggests that participants’ identity, informed by their Indian social norms (i.e., familial and gender roles), has served as a lens through which they view their adjustment. According to Schlossberg’s transition theory, identity (e.g., gender, ethnicity, age) and sense of self are important factors that impact one’s perceptions of the transition (Anderson et al., 2011). Participants indicated that their identity is very connected to their family and subregion in India. They perceived the influence of their parents as a crucial factor that allowed them to start the transition (move to the United States to pursue a graduate degree) and helped them through the transition (by providing emotional and financial support). They also acknowledged that their own sense of self, constrained as it may have been due to societal rules about gender, helped them undergo this transition by giving them the confidence to develop strategies to assist them in coping with their new environment. Although family and gender were important factors cited by the participants as influencing their perceptions of their adjustment, they also mentioned their social lives as vital in helping them adjust.

**The Importance of Social Life**

The third main finding of this study is the importance of social life. Social life was a topic discussed in the context of feeling isolated and the perceived difficulty of making friends, especially with Americans and other international students. Schlossberg’s transition theory highlights the importance of social support during the transition; support provides aid and affirmation (Anderson et al., 2011), which brings a sense of comfort and love to individuals undergoing the transition. The third finding of this study suggests that the participants’ adjustment process was negatively affected by their perceived lack of meaningful social connections with American and other international students.
Participants in this study expressed that, by not having American friends, they did not adjust to life in America as they had expected. This finding is supported by previous research. Many studies have shown that international students who develop friendships with local students tend to adjust better to their new environment (Andrade, 2006; Chen & Razek, 2016; Erichsen & Bolliger, 2011). Participants expressed the feeling of missing an opportunity to experience American culture through American friends. Their expectation prior to moving to the United States was that it would be easy to make American friends because of the perceived friendliness of Americans (an image informed mostly by movies), and they also assumed that most of their classmates would be American. However, upon arrival, they realized that most of their classmates were also Indian and that the few Americans who were in class were not interested in connecting with them. There was a clear sense of disappointment among participants that they did not have American friends.

In order to develop their social networks, most participants resorted to befriending their conational as a means to create some sense of comfort and reduce stress. This is consistent with previous studies showing that international students find it easier to connect with conational to bypass cultural differences that they do not understand, language issues, and to preserve their native culture (Gareis, 2012; Kim, 2015; Li & Gasser, 2005). In the participants’ views, connecting with conational represented a way to develop some type of support system so they would not be completely alone. Especially in India, where there are strong regional cultural differences, participants expressed feeling more at ease connecting with other students who shared their regional cultures, languages, and norms.

The perceived lack of a support network was a stressor for participants in this study. This finding is supported by previous research that showed that international students who have more
friends feel less stressed (Yeh & Inose, 2003) and that the lack of social support is a stressor in itself (Mallinckrodt & Leong, 1992a). Other studies suggested that even the perception of social support positively affects international students (Misra et al., 2003). Participants in this study explained that given the demographics at the research site and the perceived lack of interest from others in learning about Indian culture, it was difficult to forge friendships with American and other international students. Besides feeling less isolated, they listed other benefits of having local friends (e.g., accent reduction) and other international students (e.g., learning about different points of view).

In Schlossberg’s transition theory, social support is essential to individuals entering and going through a transition. Social support networks serve as a tool to assist the individual to reduce stress, connect with others going through similar transitions, and learn new strategies to cope with the transition. Limited social support can be stressful to individuals as they need to adjust to the transition on their own. Participants in this study expressed that they felt isolated by their inability to connect with local students or engage in a social life and support system that would have helped them through their transition. Their limited exposure to American peers affected how they perceived their adjustment. As a strategy to cope with the stressors they were experiencing, they connected with conationalists. Participants expressed feeling disappointment that their circle of friends did not include Americans. They looked forward to having more interactions with their American peers, thus expanding their network of social support.

**Conclusion**

This research study, using interpretative phenomenological analysis as a research method, sought to answer three main questions:
1. How do female Indian graduate students perceive their own adjustment to American culture and education at a STEM university?

2. What strategies, if any, have these students developed to cope with any acculturative stressors they may have experienced?

3. From these students’ perspective, what administrative support systems could the university offer to improve their experience?

By listening to participants’ recounting of their lived experiences and applying double hermeneutics to make sense of their interpretations, this researcher was able to find answers for the questions proposed. The answer to the first question suggests that participants have mixed feelings about their adjustment to the United States. Despite the excitement of being here and starting a new phase in their lives, their experience after arrival was more difficult than they expected. The findings of this study suggest that the participants’ perceived adjustment is affected by internal and external factors. Indian social norms, represented by parents and gender, also influenced participants’ perceptions of their adjustment as they served as a lens through which participants made sense of their adjustment. Additionally, participants’ adjustment process was negatively impacted by their perceived lack of meaningful social connections with American and other international students.

The answer to the second research question revealed that, in order to cope with stress, they relied on existing support networks (e.g., parents, siblings) and to a lesser extent, on new friends (e.g., conationalists from the same cultural subgroup) they made after they arrived here. Different stressors were dealt with in different ways. For example, they addressed financial stressors by living off-campus and having multiple roommates, cooking their own food, or
cutting medication purchases. Participants addressed the stressor of homesickness by speaking with family members on a daily basis.

Participants answered the third question by explaining that academic departmental support could have helped them adjust better. For example, they explained that faculty members that were more welcoming made them feel less anxious. Furthermore, according to the participants, the university could have provided them with more opportunities for socialization through the academic departments, administrative offices, or affordable opportunities to live on-campus.

Most of the findings were situated within the literature, as the topic of international students has been well researched. However, the uniqueness of this study lies in the fact that a limited number of studies have so far focused on international graduate students and even fewer on female international graduate students. The researcher did not find any studies that focused specifically on female Indian graduate students in STEM programs. The findings of this study show that international graduate students undergo a similar set of adjustment issues when they arrive in a new country, as internal and external factors affect their adjustment and they want to develop a social network. However, gender and culture (in specific Indian culture) have a very meaningful impact on participants’ adjustment process.

This study also adds new insights to the existing body of knowledge by showing the accounts of female participants who attend a STEM-focused university and their views about being in a male-dominated environment. The results show that especially for female Indian graduate students, who have to contend with issues of culture and gender, the adjustment process can become especially difficult as their perspectives are informed by their upbringing in a society that views a woman’s right to education as secondary to a man’s and science as a subject that is
more suitable for men. The findings of this study show that gender is a factor that affects participants’ academic adjustment in the United States. Being in an environment that is male-dominated limited these women’s ability to form social connections. They expressed feelings of isolation and less engagement than their male peers, which they attributed to the low number of female students in the classrooms. Participants also reflected on the low number of female faculty members, which they took as another reminder of gender differences in academia.

In addition, Indian culture was reflected in the participants’ comments about their relationship with their parents, how they viewed themselves in terms of regional differences within India, and in their assessment of their educational opportunities. Participants reported feeling deeply connected to their Indian heritage, which at times conflicted with their progressive views of marriage, career opportunities, and financial independence. Participants seemed conflicted about forging a new path for themselves while adhering to old traditions and social expectations. For example, they accepted the choices their parents made for them (such as the expectation that their parents would select their husbands), but at the same time expressed their desire for having a successful professional career as soon as they finished their graduate degree, which would delay their marriage. Based on the interviews, it became evident that participants’ cultural backgrounds and Indian societal expectations played important roles in their decisions and affected how their transitions to the United States, especially given the way their parents’ expectations for their futures conflict with their own.

Lastly, as shown in the extant literature, social connections are very important for international students’ adjustment process. Participants in this study reported feeling that they did not fit in and that they were disappointed by not having developed social networks with local students. They still relied mostly on existing support systems (e.g., families and friends in India).
Participants shared that their overall adjustment was negatively affected because they were still surrounded by Indian culture.

In conclusion, the participants of this study shared valuable information about their adjustment process and what factors affected it. Each experience is unique, but participants reported similar lived experiences with common threads connecting them. The findings of this study suggest that universities can and should do more to support this particular group of international graduate students because India continues to send a large number of international students to the United States, and it is important that universities are prepared to host them.

Recommendations for practice and future research were developed based on the findings of this study.

**Recommendations for Practice**

Schlossberg (1981) argued that every individual defines and experiences transitions in their own way. The way an individual perceives the transition (positive or negative) will influence how the transition is experienced (Koert, Borgen, & Amundson, 2011). As moving to another country poses a major transition in someone’s life, research suggests that by analyzing the different components of the transition individuals will be better equipped to cope with the changes brought by the transition (Schlossberg, 2011). In addition, university administrators, staff, and faculty will be better positioned to assist international students if they are also aware of the needs of this population. Even though this study took place at an urban, midsized, STEM-focused university, the findings of this research are useful for institutions across the country that host female Indian graduate student in STEM programs. Based on the findings of this study and the existing literature, recommendations for practice can be made to higher education professionals and faculty to support female Indian graduate students in STEM programs. The
The objective of this section is to provide university administrators, staff, and faculty recommendations for practice so they can assist female Indian graduate students in their adjustment process. The recommendations include: increasing opportunities for female graduate students to expand their social networks, strengthening the presence of a women’s center on campus, and offering more opportunities for women to live and work on campus.

**Increase Opportunities for Female Graduate Students to Expand Their Social Networks**

Several studies have discussed the correlation between social networks and adjustment for international students, noting the positive effects of forging new friendships (Andrade, 2006; Kashyap, 2011; Poyrazli, et al., 2002; Zhao et al., 2005). Especially during the first months after arrival in a new country, social support is important to assist international students while they are entering a new phase in their lives (Patton & Davis, 2014). Therefore, it is important that universities have specific strategies in place to help international students make social connections and develop stronger ties to their environment. Such strategies could include creating more student-focused social events, fostering more inclusion in the classroom, and developing opportunities to engage with faculty outside the classroom.

Female graduate students in STEM programs are at a specific disadvantage because there are not many females enrolled in those programs. These students feel lonely, marginalized, and have a perceived notion that their contributions in the classroom are not welcome or meaningful. Female graduate students from India also feel disconnected from their faculty members, given that in India faculty members are treated with very formal regard and should be contacted only if there are no other resources available. Faculty members should be aware of female graduate students’ perceived views of their academic environment so they can address it as soon as the academic term starts. For example, faculty should encourage female graduate students’
participation in class by ensuring that their comments are included in the conversation. In addition, academic departments should sponsor social events that help female graduate students connect with one another, so they can start to build new peer relationships. These events would provide international graduate students a more relaxed and fun environment in which to mingle with faculty and other female students. Especially for female Indian graduate students, this would be an opportunity to see their faculty members as more approachable and relatable. In turn, faculty members would also benefit by connecting with female international graduate students outside the classroom, so they can understand their backgrounds, interests, and expectations. This is a valuable way to keep female international graduate students engaged in their programs, and it gives faculty a chance to secure their retention.

Another way to expand female international graduate students’ social networks is by creating a female graduate student club that would include female students from any nationality. This club would serve as an opportunity for female Indian graduate students to meet other female graduate students from the United States and elsewhere. As mentioned during the interviews, participants wanted to develop social connections with local and other international students. Through this club, female Indian graduate students could be exposed to a wide range of experiences that they may not otherwise have because they do not have friends outside their cultural group. A neutral party, such as a university administrator, should be the advisor for this club to give members the reassurance that all majors would be welcome to join. In addition, in order to ensure the stability and longevity of the club, the administrator should also be made an ex-officio member of the club, without voting rights. This would guarantee that in case of club leadership turnover (e.g., students graduating), the survival of the club would not be compromised.
The club should promote events on and off campus to give all female international graduate students the opportunity to experience American culture. Unlike a women’s center, which seeks no input from students on what activities to offer, this club would be run by students for students. Another difference between a student-run club and the women’s center is that the club would focus primarily on social activities, whereas one of the women’s center initiatives is to assist female graduate students in making professional connections. This club would also provide female international graduate students an opportunity to serve in leadership positions (e.g., president, treasurer), which cannot be offered through a women’s center. While the women’s center provides unique services to female students, the club would serve a different purpose and therefore would supplement some of the benefits provided by the center. With the club, student-members would drive the agenda and choose what to do. The university should allocate financial resources to this club so they could sponsor the activities chosen by the members.

**Strengthen the Presence of a Women’s Center on Campus**

Participants in this study reflected on a lack of opportunities to connect with other female students on STEM programs. However, when asked about the Science Center, an office on campus tasked with creating a professional network for female graduate students, most participants said they did not know about it. They explained that even though they go to the building where the Science Center is, they did not go to the floor where the Science Center is located nor did they ever receive any communication from them. The only participant who knew of the women’s center expressed regret for not knowing about it earlier in her career, and she acknowledged that it could have been very helpful in her academic and future professional pursuits. Through this study, it became clear that even if institutions have a women’s center on
campus, there has to be a more coordinated effort to attract female international graduate students to it. For example, signage on the first floor of the building where the center is located should clearly indicate where the center is so students can find it easily; staff from the center should work more closely with academic departments to promote their center to female students, potentially doing short presentations in the classrooms or distributing handouts in class; the center should create events targeted to a graduate audience, specifically programs that can help prepare female graduate students for the job market; and, finally, they could work with other offices on campus (e.g., the international student office, the office of the dean of students) to co-sponsor programs for particular populations, such as international female students or minority female students. Institutions that do not have a center dedicated to women in the sciences should create one as a way to support their female graduate students in STEM programs.

Schlossberg (1981) posited that a support system is very important to help individuals cope with the transition. A women’s center would provide female Indian graduate students with a friendly and safe environment in which they can forge friendships with other female students in STEM programs and feel that their voices are being heard. As the participants in this study explained, as a minority, they felt ignored by their male counterparts. The center should try to connect with female international graduate students by sending a targeted email campaign to them to introduce the center and explain the benefits that the center has to offer. The communication campaign should emphasize that the center provides opportunities for female international graduate students to expand their social networks, gain professional insights, and find a safe space from the hostility they perceive elsewhere. The center should also connect with cultural student clubs to make short presentations during their club meetings. This will be a particularly useful way to reach female Indian graduate students as they are surrounded by Indian
culture; they would likely hear about the center from their conationals even if they did not attend a club meeting. In addition to providing these opportunities for networking, administrators running the center should offer workshops to address gender issues in academia and the workplace, as well as topics such as stress management, coping with anxiety, homesickness, and emotional distress, all of which are relevant to female international graduate students. Other offices, such as the mental health center, should engage with the women’s center on some of these initiatives. Female Indian graduate students, given the uniqueness of their stressful situation (strong parental control and cultural pressure) would benefit if the center, along with the mental health center, could offer joint events to discuss mental health issues and how to deal with them. The center could serve as a means to introduce or connect these students to services already offered by the university and try to reduce the stigma associated with using them.

In addition, the center should also serve as a venue to connect female international graduate students with professional networking opportunities. For female Indian graduate students, in particular, that would be a valuable service because they are subject to parental pressure to get a job and start earning. Administrators at the center could start a mentorship program with female international graduate students and female professionals, so students could learn more about their mentor’s career path. Female international graduate students could be recruited in different ways: posters around the campus would announce this opportunity, as well as ads in the student newspaper; email campaigns directed to female international graduate students; and outreach to the academic departments, so academic advisors can also speak with female international graduate students about this program. The value of mentorship cannot be underestimated; research has shown that there is a strong link between mentorship and international students’ engagement in their academic field (Haynes et al., 2012; Mamiseishvili,
2012; Ülkü-Steiner et al., 2000). By offering a female-to-female mentorship program, universities would be assisting their female international graduate students in two ways: by ensuring they remain engaged in their scientific field and by preparing them for the job market. The mentoring program could also be expanded to fulfill a cultural need: the center, along with the international student office, could create a “buddy program” to connect female international graduate students to American students. Through some structured, office-sponsored activities, this type of program would allow students to get to know each other’s culture in a more informal setting, thus helping them forge new friendships with local students.

The women’s center’s role can also be expanded to give female Indian students the opportunities to experience American cultural events by offering field trips to American landmarks or celebrating American holidays on campus. Past research, and this study show that the more exposed one is to the new culture, the more adjusted the individual will be (Tummala-Narra & Claudius, 2013). Moreover, research has shown that extracurricular activities are a tool to assist students to adjust (Rose-Redwood, 2010). Participants in this study expressed not feeling adjusted because they lacked opportunities to experience American culture. Women’s centers can fill in that gap. By working closely with other offices on campus and a female graduate student club, more opportunities can be created for female international graduate students to connect with and learn about the local culture.

**Offer More Opportunities for Women to Live and Work on Campus**

Participants in this study suggested that they would have preferred to live on campus. They described the cost of living on campus as being prohibitive and expressed concern that if they lived on campus, they would still have to account for other costs (e.g., food, books, off-campus transportation on the weekends) on top of the housing fee. When asked about the
perceived benefits of living on campus, participants mentioned safety, the convenience of walking to class without having to rely on public transportation, greater accessibility to the library and evening advising hours, and an opportunity to connect with other non-Indian students. Clearly, participants’ choice of living off campus was purely financial. The office of international student services should provide more accurate information to international graduate students, prior to their arrival, to better illustrate to them of the actual cost of living in this country so they can make informed decisions about their housing choices.

Affordable on-campus housing is one of the resources universities should make available for female international graduate students. As previous studies have shown, international graduate students feel more stressed when there are fewer university resources available to support their adjustment (Myers-Walls et al., 2011). Female Indian graduate students, in particular, would benefit from affordable on-campus housing as they come from a patriarchal society where parents take an active role in controlling their lives. By living on campus, female Indian graduate students could reassure their parents that they live in a safe location, with round-the-clock emergency assistance, and thus could potentially minimize the level of stress caused to their parents (due to the uncertainty of where their daughters live) and to themselves (by getting less parental supervision). University administrators should consider a lower graduate student rate for on-campus housing in order to attract more international graduate students to their residence halls. Lower housing costs would also address another major stressor for Indian graduate students: their finances. In addition to lowering the housing fees, accommodations should be made for graduate female-only housing, to address concerns regarding having different genders in the same room, which is prohibited by Indian culture.
Furthermore, living on campus would provide female Indian graduate students the chance to meet other students with different cultural heritages and in different departments. As international students who develop a social network with local students adjust better (Erichsen & Bolliger, 2011), it will be important for university administrators to offer opportunities for social networks to grow organically, and the residence halls are an environment in which students connect with one another in a more personal way. Participants in this study commented on the lack of opportunities to learn about American culture because they were surrounded by Indian culture (e.g., food, movies, friends, music). By living in the residence halls, they would be exposed to a myriad of cultures, in particular American, that they would interact with on a daily basis. Moreover, residence halls usually offer cultural programming in the evenings and on the weekends to get students engaged. University administrators should promote on-campus living to female international graduate students so there is more diversity on the residence halls, and international graduate students who do not have a strong support network can get to know other students more quickly.

Lastly, female Indian graduate students would also benefit from on-campus employment as finances are a major stressor for them. Given that in Indian culture, families have tight control over the daughters’ finances (Jejeebhoy & Sathar, 2001), by providing opportunities for female Indian graduate students to work on campus, administrators and academic departments would assist these students in three different ways. First, female Indian graduate students would gain more financial independence so they would not be so reliant on their parents for day-to-day expenses. Second, they would remain engaged in their STEM program and the university would retain these graduate students. This could potentially create a path for advanced work in academia or industry. And third, female Indian graduate students would expand their social
circle by working as peers with other students and by learning from different faculty. Academic departments and administrators should investigate the feasibility of creating specific on-campus employment opportunities for these students. Based on this recommendation and the others presented here, as well as evidence from past research, the next and final section will make recommendations for future research.

**Recommendations for Future Research**

Much has been written about international students’ adjustment process when they move to a new country (Olivas & Li, 2006; Tochkov et al., 2010) but there is a paucity of studies focusing only on international graduate students (Le & Gardner, 2010; Zhou et al., 2011). The findings of this research support much of the past research and bring to light the perspectives of gender and culture as they relate to adjustment. Additional research is warranted to gain a deeper understanding of the findings discussed in this study.

This research included only seven participants, as suggested for IPA-based studies. Despite the vast amount of detailed information provided by the participants, given the small sample of participants, transferability of the research may be limited. Further research should be conducted with a larger sample size to be more representative of female Indian graduate students’ lived experiences while pursuing STEM degrees in the United States. In addition, the female students selected for this study were enrolled at a midsize, urban, STEM-focused university in the Northeast of the United States; further research should be conducted at different types of institutions across the country to further develop the findings.

As this study focused on female Indian graduate students pursuing STEM programs, and very little is known about this population, a recommendation of further research on female Indian graduate students in non-STEM fields is vital to uncovering whether culture and gender
play similar roles in these students’ academic adjustment. As past research has shown, female students consider STEM programs to be hostile and isolating (Seagram et al., 1998). Further research should be conducted to examine if gender and culture impact female Indian graduate students differently in another setting.

This study revealed that participants did not believe they had a fulfilling experience moving to the United States because they did not experience American culture. As socialization with locals is an important part of the adjustment process (Chen & Razek, 2016), further research should explore how female Indian graduate students who experienced American culture adjusted to their transition to the United States. A deeper understanding of the importance of socialization for female Indian graduate students could be obtained from further research.

Lastly, the age of participants in this study ranged from 22–27 years old and none of them were married or had children. Even though these factors were not used to exclude participants from this study, all participants were single and did not have children. Research has shown that in Indian society, the role of women is restricted by the role they play in their family (Jejeebhoy & Sathar, 2001). Therefore, further research is warranted to understand if female Indian graduate students who are married or who are parents experience different stressors because of these additional familial roles. Those findings could provide university administrators with additional information to create an environment that is more inclusive of all.
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Appendix A

Recruitment Email

Dear Student,

My name is Cristiana Kunyczka and I work at the Office of Global Initiatives at our university. I am also working toward a doctoral degree at Northeastern University and I am writing to you today to ask for your participating in my doctoral thesis. I am looking for volunteers to help me in my study.

My study focuses on female Indian graduate students and their perceived views of their adjustment after they arrive in this country. I am interested in learning about your experiences in this country and at our university; my goal is to bring change to our campus so we can improve your experiences.

I am looking for six volunteers to be interviewed individually on our campus, at a time and location that is convenient for both of us. There will be two interviews: the first interview will last approximately one hour. Then, we will do a follow-up interview that will last approximately 45 minutes. Your participation will be kept completely confidential.

If you are interested in volunteering, please respond to this email (Kunyczka.c@husky.neu.edu) to let me know. If you are selected, I will contact you by email and schedule a phone conversation to explain in more detail the nature of the study and answer any questions you may have. Participants will receive a $10 gift card after the interview is completed.

Thank you,

Cristiana Kunyczka
Appendix B

Interview Questions

1. Tell me about your decision to study in the US. What prompted you to make this decision?

2. Please describe your views about coming to the U.S. when you first arrived here. Was it a positive, negative, or neutral experience?
   FOLLOW UP: What factors do you think contributed to this move being a [positive, negative, or neutral] experience?

3. What types of unexpected situations did you come across immediately after you arrived here?
   PROMPT: Can you give me an example of how you dealt with the issue?

4. How much input did your family members have in your decision to attend this particular university?
   FOLLOW UP: What type of input did they provide?

5. In what ways was your family supportive/unsupportive of your decision to move to this country?

6. Do you think faculty had a role to play in your adjustment process?
   FOLLOW UP IF YES: What was that role?
   FOLLOW UP IF NO: How could they have helped you adjust better?

7. Do you hang out with primarily other international students or American students?
   FOLLOW UP IF AMERICAN or BOTH: Was it easy to make American friends? How does making American friends make it harder or easier for you to adjust?
   FOLLOW UP IF INTERNATIONAL: How do you think having American friends would have impacted your adjustment?

8. Please describe what your feelings were you first arrived on campus. Were you excited? Overwhelmed? Anxious? Why?

9. Do you think your gender impacted your adjustment to this university?
   FOLLOW UP IF YES: How so?
   FOLLOW UP IF NO: Do you think male students in your field have any advantages that female student don’t? Can you give me an example?

10. What did you do if you faced some kind of a challenge/issue in the classroom? Did you have any recourse to address it?

11. What services could this university offer (or have offered) to you to help you with your adjustment here?
12. What resources are you aware of that this university offers to international students?
   FOLLOW UP IF RESOURCES ARE LISTED: Which one of those have you used? What was your experience like?
   FOLLOW UP IF NOTHING IS LISTED: What resources do you think would be helpful to you?
Appendix C

Informed Consent Form

Northeastern University, College of Professional Studies
Name of Investigator(s): Dr. Joan Giblin and Cristiana Kunyczka
Title of Project: Female Indian Graduate Students in STEM: Their Perceptions of Adjustment to the U.S.

Informed Consent to Participate in a Research Study
We are inviting you to take part in a research study. This form will tell you about the study, but the researcher will explain it to you first. You may ask this person any questions that you have. When you are ready to make a decision, you may tell the researcher if you want to participate or not. You do not have to participate if you do not want to. If you decide to participate, the researcher will ask you to sign this statement and will give you a copy to keep.

Why am I being asked to take part in this research study?
We are asking you to be in this study because you have been identified as someone who has a great deal to share about female graduate students’ experiences: you are a female Indian graduate student pursuing a degree in a STEM field.

Why is this research study being done?
The purpose of this study is to understand female Indian graduate students’ views of the cultural and academic adjustment processes they go through as they pursue a STEM program at a U.S. university.

What will I be asked to do?
If you decide to take part in this study, we will ask you to answer questions about your adjustment process in the U.S. The questions will be open-ended to give you an opportunity to explain your experiences as a female Indian graduate student in the U.S. The interviews will be recorded in an iPhone and iPad so we can transcribe them for analysis.

Where will this take place and how much of my time will it take?
You will be interviewed at a time and place that is convenient for both of us. The first interview will take about one hour. Two or three weeks later we will do a follow-up interview that will take 30-45 minutes to complete. You will be asked to review the transcripts for both interviews.

Will there be any risk or discomfort to me?
There are no potential risks for you to participate in this study.

Will I benefit by being in this research?
There will be no direct benefit to you for taking part in the study. However, the information learned from this study may help me and other university officials create and implement new policies at the institution.
Who will see the information about me?

Your part in this study will be confidential. Only the researchers on this study will see the information about you. No reports or publications will use information that can identify you in any way or any individual as being of this project.

All interviews and transcripts will be stored on a password-protected drive of a password-protected computer. You will be asked to create a pseudonym for yourself (we will not be using your real name during the interviews); all names and pseudonyms will be kept in a locked cabinet in the researcher’s home until the final manuscript associated with the study is completed and destroyed after that. The interview audio files, without personal identifiers, will be sent to a professional company for transcription. All emails and responses will be extracted from the email server and stored on the password-protected drive. This signed consent form will be saved and stored for three years after the completion of this study, then destroyed.

Please note that in rare instances, authorized people may request to see research information about you and other people in this study. This is done only to be sure that the research is done properly. We would only permit people who are authorized by organizations such as the Northeastern University Institutional Review Board to see this information.

What will happen if I suffer any harm from this research?

No special arrangements will be made for compensation or for payment for treatment solely because of participation in this research.

Can I stop my participation in this study?

Your participation in this research is completely voluntary. You do not have to participate if you do not want to and you can refuse to answer any question. Even if you begin the study, you may quit at any time. If you do not participate or if you decide to quit, you will not lose any rights, benefits, or services that you would otherwise have as a student.

Who can I contact if I have questions or problems?

If you have any questions about this study, please feel free to contact me, Cristiana Kunyczka, at kunyczka.c@husky.neu.edu or 609-417-7347, the person mainly responsible for the research. You can also contact Dr. Joan Giblin, the Principal Investigator, at j.giblin@northeastern.edu or 617-519-4813.

Who can I contact about my rights as a participant?

If you have any questions about your rights in this research, you may contact Nan C. Regina, Director, Human Subject Research Protection, 490 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

Will I be paid for my participation?

You will be given a $10 gift certificate to Amazon or Starbucks as soon as you complete the interviews.
Will it cost me anything to participate?
No, there are no costs associated with participating in this study.

Is there anything else I need to know?
You must be at least 18 years old to participate.

I agree to take part in this research.

________________________
Signature of person [parent] agreeing to take part

________________________
Printed name of person above

________________________
Signature of person who explained the study to the participant above and obtained consent

________________________
Printed name of person above