

EVALUATION OF AN INTERNATIONAL ROOMMATE-PAIRING PROGRAM

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# EVALUATION OF AN INTERNATIONAL ROOMMATE-PAIRING PROGRAM

## ABSTRACT

There are over 700,000 international students currently studying in the U.S. (McMurtrie, 2011) contributing close to \$12 billion yearly to the U.S. economy (Altbach, 2004). Universities cannot take for granted that international students will choose U.S. institutions. While great attention and research efforts have been given to support programs like international student orientation, there is a gap in the literature examining support programs within residence halls targeting international students. The purpose of this quantitative study was to evaluate an international roommate program (IRP) to determine its impact on international students at a large state school in the Northeast. This research addressed the question: Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships? This research question was addressed by surveying first-year international students living in residence halls and comparing outcomes of those participating in one of the IRP programs (IRP1 and IRP2) with those not participating (NON). Using the statistical method of Factor Analysis for data reduction of survey responses, eight variables were created based on themes addressing the primary research question. These eight newly created variables were analyzed through ANCOVA (statistically controlling for 16 demographic variables).

The results showed differences between IRP1, IRP2, and NON groups through three key findings that were statistically significant: 1) IRP2 participants were more likely than NON participants to recommend the university others based on their residential experience; 2) IRP2 participants had greater overall satisfaction, acclimation, food satisfaction, and perceived benefit from having an American roommate than IRP1 participants; 3) IRP1 participants had lower food satisfaction than the IRP2 and NON participants. Residential environment (living

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accommodations and dining) and structured support appeared to have the greatest impact on international students. The findings of this study support the hypothesis that the program indeed had positive impacts and will contribute important information to the existing literature base and can be used by Residence Life professionals to establish effective support programs for international students within the residence halls.

*Keywords: international students, residence halls, support programs, roommate pairing programs, international and domestic roommates, Residence Life, U.S. higher education*

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publicly take this moment to tell Maiya and Ethan I expect nice Father's Day presents in the future as result of their higher incomes.

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## CHAPTER 1: INTRODUCTION

International students are one of the fastest growing student populations in higher education, and in times of financial crisis have been looked to as the financial saviors to the institutions (Altbach, 2004; Aw, 2012; McMurtrie, 2011). There are over 700,000 international students currently studying in the U.S. (McMurtrie, 2011). The benefits of the increased enrollment of international students at U.S. institutions are twofold. Firstly, it diversifies the academic community of higher education, thus enabling students to learn from each other's differences (Wilhelm, 2011). Many colleges are striving for a highly diverse environment promoting a vision of global education and the foundation of cultural tolerance. The addition and integration of international students can play a significant role in helping universities achieve this goal. Should U.S. institutions not be able to recruit and retain international students, it has the potential to diminish and/or eliminate the ability to create a global environment on-campus.

Secondly, increased international enrollment is simply a matter of dollars and cents. Not only have institutions come to rely on the financial incentives of international students, but the U.S. economy has benefited from the increased revenue, the influx of STEM students, and their value to the workforce. It is estimated that international students generate close to \$12 billion annually to the U.S. economy (Altbach, 2004; Olivas & Li, 2006). According to the Bureau of Economic Analysis (2011), the GDP of the U.S. is approximately \$18 trillion, of which education contributes \$174 billion. Based on these figures, international students generate .07% of the U.S. GDP and 7% of the educational contribution to the GDP. Subsequently, there is financial incentive to U.S. universities (and their cities) to enroll international students. International students are most often charged full tuition to attend the university and not afforded financial aid (Aw, 2012). This is a win-win for the institution, as international students are a

consistent and substantial stream of financial revenue. According to Aw (2012), “The U.S. faces serious global competition and may be in real danger of losing its dominance as the destination of choice for international students” (p. 10). Removing this flow of income would be a detriment to higher education within the U.S. and would have a rippling effect on struggling institutions’ financial stability.

The benefits of maintaining and increasing international students are so lucrative that many institutions have created special positions and offices in an effort to aid in this process (Aw, 2012; McMurtrie, 2011). These officers are tasked with recruiting, admitting and orientating international students. Additionally, some institutions have completely turned the reigns over to third party recruitment agents. The ethical, legal, and financial concerns of these practices have become a point of contention and controversy within the higher education admissions profession (Aw, 2012). This contention stems from these third party agents bypassing the standard admission process at the University and creating their own practice. Admission offices are charged with recruiting and admitting a target number of international students. In speaking with admissions professionals, these admission goals by population are common practice within their profession. These goals are often in part driven by financial necessity.

Recognizing the impact that the international student community plays in supporting the mission of global education and their financial importance to the economy, the satisfaction of this student population warrants attention. Universities cannot take for granted that international students will choose U.S. institutions. Recognizing the benefits of international students, institutions across the world are developing programs to attract international students to their campuses (Aw, 2012). If U.S. institutions are not creating an exceptional academic and personal

environment for these students, there is a strong possibility they may choose other countries for their higher education needs.

This increase in international students at U.S. institutions demands that faculty and staff examine the needs of this student population. Cultural differences can amount to communication and isolation challenges that may be exacerbated in the residence hall (Tompson & Tompson, 1996; Zhai, 2010; Zhou, Jindal-Snape, Topping, & Todman, 2008). The communication challenges can be extremely limiting, as international students experience trouble understanding and being understood. These communication challenges also compound the students' ability to build social networks which results in isolation. These cultural challenges can be especially difficult to address systematically because they are unique to the student's country of origin. This again reinforces the need to examine this population of students individually, treating this international population as containing numerous subset populations, each requiring their own attention and having their own needs.

With the increased enrollment in international students and their unique challenges like cultural differences, colleges have been further developing and implementing support programs for these students. Such programs attempt to create a successful environment for international students, and can further strengthen an institution's international program, making it even more attractive and lucrative. These support programs vary from institution to institution, but typically focus on three concentrations: peer-pairing programs, orientation, and English Language Learners (ELL) programs (Chang, 2011; Clements, 1997; Fischer, 2011). These programs focus on the holistic development and growth of international students. The most beneficial support comes from blending the various types of programs (Clements, 1997).

While support programs like International Student Orientations have been the subject of extensive research, few studies examine targeted support programs for international students within the residence halls. The studies have been limited to exploring international students' relationships with their domestic roommates (Saidla & Parodi, 1991; Terkla, Roscoe, & Etish-Andrews, 2005). These studies examine coincidental pairings as opposed to intentional roommate-pairing programs. It is important to address this gap and examine an International Roommate Program (IRP), as it can help to establish best practices for institutions guiding their efforts in recruiting, supporting, and retaining international students on their campus.

To address the literature gap, this quantitative study explores the residential experiences of international students and the programs designed to enhance students' outcomes. This study examines the effects on students participating in a roommate-pairing program at varying levels of involvement compared to their non-participating counterparts at one institution. Through this study, the following research question is answered:

1. Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships?

Examining the International Roommate-Pairing Program and addressing this research question benefits Residence Life administrators and the field of Student Affairs. It provides Residence Life with empirical evidence to evaluate their current IRP initiative. Additionally, it provides a quantitative baseline to compare changes to the IRP and future initiatives involving the residential experience of international students.

## **CHAPTER 2: LITERATURE REVIEW**

The rapid growth of international students in higher education generates significant revenue for institutions (Altbach, 2004; Aw, 2012; McMurtrie, 2011). This growth has rippling effects on all areas of higher education, including student affairs. Student affairs professionals must understand students' needs so they can best tailor our support efforts. In doing so, we must be sensitive and responsive to the cultural differences among international students.

The increasing enrollment of international students at U.S. institutions demands attention. While there is a strong literature base on international students, there is a gap in the literature examining their residential experience. This literature review is guided by the question "What factors impact the adjustment and success of international students studying and living on campus at U.S. institutions of Higher Education?" The examination focuses on the challenges faced by international students, their need for support, existing support programs, and the theoretical framework to guide the instrument design and analysis of this study.

### **Challenges Faced by International Students**

It is critical to examine the challenges faced by international students. Identifying these challenges facilitates the capacity of Residence Life professionals to better meet the needs of international students. Three critical challenges examined here are cultural differences, communication challenges, and isolation.

#### **Cultural Differences**

Living in a residence hall can be stressful for any student, but for international students that stress is further compounded by their culture shock (Shaikh & Deschamps, 2006). According to Pedersen (1994), "culture shock is the process of initial adjustment to an unfamiliar environment" (p.1). The majority of international students go through some form of culture

shock, given that they are entering new academic and social environments. Moreover, culture shock can be exacerbated by students' personal and social struggles adjusting to this new environment and academic challenges (Pedersen, 1994; Shaikh & Deschamps, 2006; Thompson & Thompson, 1996). Acknowledging these struggles for international students, it is crucial to examine the impact of cultural differences and how they manifest in the international student experience. Cultural differences permeate all aspects of the international student experience, including relationships they establish with classmates and professors (Mori, 2000; Thompson & Thompson, 1996). For example, when developing friendships, international and domestic students can have different expectations of what constitutes friendship (Mori, 2000). Many international students tend to view friendship as a static and very involved process, while American students view friendship as being more casual and fluid. These conflicting views on friendship can be confusing, frustrating, and/or disappointing for international students, which may lead them to be less likely to seek relationships with domestic students.

Similarly, international students often struggle with the informal nature of U.S. institutions compared to the experience in their home country (Thompson & Thompson, 1996). For example, U.S. institutions, especially those with adjunct professors without a doctorate, often have faculty asking students to call them by their first name. This casual relationship can be uncomfortable for many international students, as in their culture it is a sign of respect to refer formally to someone in an authority position. Another example is the common practice for students in the U.S. to speak and interject in the classroom without being given permission to do so (Thompson & Thompson, 1996). This cultural difference may cause international students to feel they are being disrespectful despite it being culturally acceptable in the U.S. As a result,

international students may refrain from participating in class conversation, which could diminish their academic success.

Compounding their challenges in the academic setting, international students experience the effects of cultural differences outside the classroom as well. For example, U.S. institutions do not typically accommodate the dining preferences of international students despite their greater dietary and religious needs compared to domestic students (Kher, Juneau, & Molstad, 2003). International students studying at U.S. institutions report challenges with American food and typical college food (Terkla et al., 2005). In a quantitative study of 1,161 domestic and 335 international students, international students had a lower food satisfaction level (3.08 out of 5) compared to domestic students (3.44 out of 5) (Grebinnikov & Skaines, 2007). Similarly, a quantitative study of international student experience, which found 90% of international students experienced problems or dissatisfaction with food on campus (Al-Mubarak, 2000). Clearly, dietary and religious cultural differences have an impact on international students' experience and satisfaction with food on campus. Given that many campuses require all residential students to have at least a partial meal plan, better consideration and efforts should be given to the dietary needs and preferences of international students.

Even though cultural differences can be a barrier to student success, international students can overcome them and become successful. A quantitative study of 120 international students (10% response rate of the 1,100 sent surveys) found that international students experienced challenges with cultural norms yet the majority successfully adapted to the U.S. culture (Sherry, Thomas, & Chui, 2010). A qualitative study of online MBA international students similarly found that students successfully overcame cultural differences (Liu, Liu, Lee & Magjuka, 2010).



### **Communication Challenges**

Communication challenges and language barriers are some of the most salient challenges facing international students. Not surprisingly, students' ability to communicate effectively and master the English language directly impacts their academic and social adjustment (Andrade, 2006). If international students struggle to understand or be understood, they may face difficulties engaging in the academic or social sphere. International students who speak and write well in English have less stress and academic difficulty (Wan, Chapman, & Biggs, 1992). Subsequently, there is an obvious benefit and need for international students to be proficient in English to study at an American university. However, it is difficult to gauge the level of fluency necessary for academic success.

To determine fluency, most universities require the Test of English as a Foreign Language (TOEFL). There are concerns about how well this exam actually predicts students' abilities to successfully navigate the English language while pursuing studies at the university (Chang, 2011). While the test measures students' abilities to communicate and understand in English, it cannot take into consideration the intricacies of mastering a second language and what it takes to be fully fluent. Even native English speaking students can have difficulty understanding classmates or teachers who have an accent, speak fast, or mumble. These factors make communication an even greater challenge for international students. Further, the TOEFL cannot take into account the challenges of using idioms and/or cultural references unfamiliar to the international student. While the student may be able to accurately decipher the language being spoken or written, the meaning could be lost because of unfamiliar cultural references (Evans & Tregenza, 2002; Hellsten & Prescott, 2004;). Thus, to help students better understand course content, professors ought to relate content with examples all students, domestic and

international, are familiar. These communication challenges highlight the need to take a proactive approach to mitigate communication challenges before they surface.

### **Isolation**

Understandably, international students typically do not have a social network in place when coming to the American university. If they are unable to establish friendships, students may not leave their room except to attend class, which can lead to a feeling of isolation.

Research indicates that international students are more likely than their domestic counterparts to feel lonely and homesick (Rajapaksa & Dundes, 2002). Social isolation has been found to be one of the most difficult adjustment areas for international students (Adelman, 1988; McClure, 2007; Sawir, Marginson, Deumert, Nyland, & Ramia, 2008; Thompson & Thompson, 1996; Zhou, Jindal-Snape, Topping, & Todman, 2008).

The number of friends international students have is a major factor in their success (Furnham & Alibhai, 1985; Sam, 2001). A study of international students' social networks found that Only about 35% reported friendships with domestic students, 50% reported friendships with fellow international students, 15% had friends from their home country, and 8% had no friends at all (Sherry et al., 2010). It is notable to see that less than half have domestic friendships and perhaps even more notable that almost one tenth reported having no friends (either none at all or only in their home country).

The importance of friendship warrants attention on the relationship between international and domestic students. In a quantitative study, Saidla and Grant (1993) studied the relationship between international and domestic students. They found that limited social contact of international students to be a predictor of alienation and isolation. This reinforces the need to integrate international students with their peers (domestic and international) to ebb the feeling of

isolation. For international students living in the residence halls, are at an advantage for building social networks (Terkla et al., 2005). International students who live on campus have more friends and are more socially active.

Housing accommodations over holiday breaks can contribute to isolation. As a cost saving measure, many colleges and universities close their residence halls over these breaks. Not having to provide staffing (desk attendants, custodians) and reducing the utility costs (heating, electricity) provide significant cost savings to the institution. Furthermore, the institution is concerned about student safety and the potential feeling of isolation that international students could feel living in a practically empty 500-person building for the holiday break. To combat this challenge, but still provide housing for international students unable to go home for the holiday break, universities typically designate one residence hall as an international hall where all international students live year round (including the breaks). Consequently, international residence halls are a double-edged sword in that while they accommodate students to live on-campus over breaks, they segregate the international student population and limit their opportunities to interact with American students during the rest of the year. Thus, international halls diminish desirable social interaction and rob students of a true international experience (Fischer, 2011). Integrating international students within the residential community while providing them housing over holiday breaks remains a challenge.

### **International Students' Need for Support**

There are clear and distinct challenges faced by international students. Subsequently, there is a need to provide support accordingly. Identifying the unique needs of international students can enable Residence Life professionals to scaffold support programs to provide this

necessary support. Three areas international students need for support are adjustment, academic success and persistence, and housing assignments.

### **Adjustment**

International students are a distinct student population with unique needs and they face adjustment issues when coming to U.S. institutions. This adjustment includes their academic, social, and cultural acclimation. Universities can no longer focus solely on academic adjustment for international students, but must give consideration to their experiences outside the walls of the classroom (Tidwell & Hanassab, 2007). Reinforcing this assertion, the mixed methods study by Hechanova-Alampay, Beehr, Christiansen, & Van Horn (2002) explored the experiences of first-year international students and their struggle with adjustment. The study examined the experiences of 294 international students (compared to their domestic student counterpart) at a large public institution. It affirmed that international students face much greater difficulty adjusting compared to their domestic student counterparts.

The establishment of social networks for international students is critical in their successful adjustment and acclimation (Andrade, 2005; Robertson, Line, Jones, & Thomas, 2000). The strength of the social network international students established is directly correlated with decreased stress levels (Wan et al., 1992). There is a clear benefit to establishing strong social networks for international students. Unfortunately, research shows that international students have less social support than their domestic counterparts (Hechanova-Almpay et al., 2002). While it is clear that international students have increased adjustment challenges, it does not mean these students will not adjust. In fact, it was found that the majority of first-year international students adjusted successfully despite their initial adjustment challenges (Andrade, 2005). However, minimizing these initial challenges, they would be able to focus on their

academics and other areas of social adjustment leading to their academic success and satisfaction. International students are faced with a plethora of adjustment issues that are extremely difficult to handle, yet U.S. institutions often place the onus on the student to ‘adjust’ or ‘adapt’ to the culture of the institution (Bevis, 2002). This adjustment can be supported through establishing strong social networks for international students. Attention should be given creating social opportunities for these students to help facilitate relationship development.

### **Academic Success and Persistence**

The academic success of international students is dependent upon the support in and out of the classroom (Andrade, 2006; Kovtun, 2008). Factors impacting the academic success of international students include their communication skills (Mamiseishvili, 2012; Woodrow, 2006), academic support from faculty (Andrade, 2006), social networks and integration (Boyer & Sedlacek, 1988), participation in support programs (Kovtun, 2008), and their campus and residential experiences (Terkla, Roscoe, & Etish-Andrews, 2005). Recognizing the impact that support plays in the success of international students, administrators and educators can develop best practices to help these students achieve academic success and persist at the university.

Existing studies on academic persistence of international students within the literature are limited to three empirical studies (Andrade, 2005; Kwai, 2009; Mamiseishvili, 2012). Of these, the most robust was a longitudinal study of 200 mixed class-year international students that found GPA, degree plan, and academic integration were positively correlated with persistence while English remediation and social integration were negatively correlated (Mamiseishvili, 2012). These findings are consistent with a similar quantitative study of 1081 first-year international students at twelve public, four-year institutions (Kwai, 2009), which found that Spring GPA and credit hours attempted were associated with persistence. In addition, on-campus

employment was also a positive factor (Kwai, 2009). However, on-campus positions are typically reserved for federal work-study students (thus not available to international students), resulting in fewer employment opportunities for international students. A qualitative study of factors influencing student persistence in 17 international seniors at a private school found positive affects associated with students' ability to balance academic responsibilities, work, social life, adjustment, and their development of self-confidence (Andrade, 2005). While these limited studies provide insights, the lack of a greater body of empirical research on international students' persistence suggests that more attention should be given to retaining a student population that has quickly grown into an integral population within the U.S. higher education landscape.

International students feel pressure to be successful academically and, yet, not all succeed (Stoynoff, 1997; Ying, 2003). Many international students feel the need to focus solely on their academics and forgo a social life (Andrade, 2006). This focus on academics may be exacerbated due to international students' language difficulties they face in understanding course content and the additional time it may take to express their thoughts in a non-native language. This finding is especially concerning, as much evidence outlined in this literature review supports social integration as a major factor in the satisfaction and academic success of international students.

### **Housing Assignments**

Living on campus has a significant impact on international students' success and their persistence at the University (Terkla, Roscoe, & Etish-Andrews, 2005). So much so, that out of nine reasons identified for International Student attrition, four are directly connected to Residence Life: housing, food on campus, friendships and interaction with domestic students, and cultural and social activities (Tas, 2004). Recognizing the impact that Residence Life has in

shaping the experience of international students, a greater focus should be placed upon examining the residential experience of international students and finding ways to strengthen it. One of the primary expectations and desires of international students is to interact with domestic students (Chang, 2011; Zimmerman, 1995). Paradoxically, international students typically do not have meaningful interactions with domestic students unless facilitated by the university. Subsequently, this suggests the need for Residence Life to intervene to ensure this experience for international students (Dodge, 1990). To this end, the residence halls can serve as a vehicle for intentional interaction between domestic and international students.

For many students, living in a residence hall is a joyous time marking a level of new freedom and adulthood. However, it can also be stressful for both domestic and international students. A recent study of residential students found that the majority of students had some level of stress, depression, insomnia, and/or problems with diet (Terkla et al., 2005). While this seems alarming, it is not surprising given that residential students typically come from the comforts of home, where they may not have shared a bedroom with another individual, much less a stranger. Typically, students live in a double room smaller than 20 x 20ft, without room for personal furniture, are required to use the bed (and mattress) assigned to them, and share a bathroom with 25-50 other students. Recognizing that many residential students are coming from the comforts of home, which often have far greater privacy and space, it is easy to understand why living in a residence hall can be a source of stress for many students.

While there are clear benefits to pairing international students with domestic roommates, this also creates a new set of challenges for international students. Living with a domestic student can contribute to international student stress and acclimation (Terkla et al., 2005). Further, these authors found that living with a roommate, eating bland mass produced cafeteria

style food, and adjusting to American food in general all made their experience more difficult. While this is true for international students, the first two of these challenges are common amongst many incoming freshmen.

It is important to consider the impact of roommate pairings, especially between international and domestic students considering cultural differences. Saidla and Parodi (1991) explored the relationships between international and domestic roommates in a mixed methods study that explored 30 pairs of roommates. They found no difference in rapport between international and domestic roommates compared to domestic and domestic roommates. Moreover, they found that living with an international roommate had a greater impact on the cognitive development of domestic students. This reinforces the notion that globalizing the university community through increasing international student enrollment is achieving the desired goal.

Given that international students' greatest hope is to interact and communicate with American students (Chang, 2011; Zimmerman, 1995) and experience a different culture first hand, living with an American roommate(s) may provide the most likely opportunity for this interaction to occur. The most important factor in international student transition to the American culture is their frequency of interaction with American students (Zimmerman, 1995). Furthermore, interactions in their residence halls provide a kind of connection and conversation that will likely not be a part of a classroom discussion including an immersion into the social and cultural experiences of American life. Through such conversations international students can further learn about American culture, ranging from who is Snooki and why she commanded a larger speaker fee than a commencement speaker, to family traditions like eating turkey and watching football on Thanksgiving.



Surprisingly, there is limited research on the challenges international students face living with American roommates. Based on my professional experiences in Residence Life working with international students, I contend that living with roommates is the facet of international students' lives where cultural differences may be most influential. This is easily overlooked as our focus in higher education is primarily on academics. But when we ignore this challenge, educators and administrators are missing a significant factor impacting international students. The living environment of these students (and resulting roommate relationships) ought to be a priority.

### **Support Programs**

Recognizing the increase in international student enrollment, colleges have developed and implemented a variety of support programs for international students. The motivation behind such programs stems from trying to both create a successful environment meeting the needs of international students and further strengthening the institution's international program, thus making it even more attractive and lucrative. These support programs vary from institution to institution, but typically focus around one of three concentrations: student life/support, English language fluency, and orientation (Chang, 2011; Clements, 1997; Fischer, 2011). The areas these programs seek to support include but are not limited to communication, cultural differences, adjustment, mental health and alcohol use.

Numerous support programs have been developed within Student Affairs to share in the responsibility of holistically developing all students at the University, including international students, (Fischer, 2011; Keller, 2009; Natali, 2005; Weiss, Rossetti, & Pecoraro, 2012). Programs targeting international students provide necessary support to foster success not only during their collegiate experience, but also afterwards should they wish to work in the United

States (Weiss, Rossetti, & Pecoraro, 2012). While these programs focus on supporting international students to be successful academically, they also play a crucial role in the social and mental well-being of these students. These programs provide a level of support to international students during which time they are exposed to American culture and making social connections within the program. Arguably, the most beneficial support program is not any single program, rather, a layering of various types of support offering multiple facets of guidance to the international student population (Clements, 1997).

### **Orientation & English Language Learner (ELL) Programs**

Most universities have orientation programs in place for incoming freshman. Just like the collective need for freshman orientation, the international student population needs orienting as well. A logical support program for any institution is the creation of such orientation programs for international students. Universities are continuing to create and tailor orientation experiences for international students. These orientations range from a few days to a week prior to school starting, with some lasting a full semester or year (Fischer, 2011; Keller, 2009, Zhai, 2002). These orientations seek to help adjust and transition international students to living and studying in the U.S. Students learn about American culture, the culture and practices of the institution, and supports/resources readily available to them to aid in their success.

In order to be successful in the classroom, it is obvious international students must have a solid grip on the English language (Chang, 2011; Natali, 2005). Without the ability to effectively communicate or understand what is being communicated, how can we expect international students to be successful in the classroom? To address this, there is a need to ensure English language proficiency of international students. To accomplish this, some institutions are implementing intensive English Language Learner (ELL) programs that take

place prior to students beginning classes (Chang, 2011). These courses have the ability to further solidify international students English language skills and leave them feeling confident before they step foot into the classroom. In addition to minimizing the language barrier, these programs have the added benefit of providing additional support, an introduction to American culture, and a shared sense of camaraderie amongst international students. Most importantly, this takes place prior to the academic year beginning, thus, enabling these students to be successful on the first day.

### **Peer-Pairing Programs (International with Domestic Students)**

Peer-pairing programs establish a mentor type role between international and domestic students (Quintrell & Westwood, 1994). The host students are typically trained on the needs of international students and are provided resources to support them. Unlike the roommate-pairing programs in the residence halls, the participants within these peer-pairing programs are not roommates. Furnham and Bochner (1982) assert that “If sojourners are carefully introduced into a new society by close, sympathetic host culture and friends, the evidence indicates that they may encounter fewer problems than if they are left to fend for themselves” (p.71). These programs are designed to benefit both the international and domestic student involved (Quintrell & Westwood, 1994; Russell, Rosenthal, & Thomson, 2010). The international student receives a layer of support (from a peer), has an established social network immediately, and receives the desired interaction with a domestic student. The domestic student has the opportunity to interact with someone from another country, develop a global perspective, and many will subsequently consider international travel. A staple theory that many Residence Life professionals study in their Master’s work is Astin’s (1975) theory of persistence. According to Astin, peers are central

to persistence. Acknowledging this, peer-pairing programs should be effective for both domestic and international students.

Empirical studies reinforce the positive impact of pairing programs. The study by Quintrell and Westwood (1994) compared the experiences of 41 peer-paired international students with their counterparts who had not participated in the program. The findings support the assertion that structured interaction between international and domestic students have beneficial effects on the international student experience. The study found international students in peer-pairing programs were more likely to have positive views of their experience at the university, utilized campus services, and reported gains in language fluency. However, there was not a difference found in academic performance between participants and non-participants. This is surprising as one would think better acclimated students would translate to better academic success. Contradicting these findings, Westwood and Barker (1990) found that academic achievement was higher and drop-out rates lower for international students participating in a peer-pairing program. This study was conducted over a four-year period in two countries in an effort to best validate the study and make the findings generalizable. This conclusion is logical and aligns with the literature.

There is a clear need to promote peer-pairing programs to help international student integrate into the U.S. culture and institution (Schram & Lauver, 1988). Despite the apparent benefits of peer-pairing programs, they are underutilized by international students and not employed by enough institutions (Cheng & Chen, 2009).

### **Residence Hall Programs**

Despite this growing body of knowledge on peer-pairing programs and their obvious connection to roommate-pairing programs, the literature base is scarce on residence hall specific

programs. A Google search for “international roommate program” yields dozens of results for universities but none that examines the residential experience of international students participating in a roommate-pairing program. That said, the International Roommate-pairing Program (IRP) is modeled after peer-pairing programs and research on those programs may be applicable. The primary study of a residential peer-pairing program was conducted by Abe, Talbot, and Geelhoed (1998) in which they examined the impact of an international peer-pairing program based out of Residence Life (majority of participants living in residence halls though not required). The quantitative study compared the experiences of 28 international students participating in the program with 32 non-participant counterparts. The study found that participants within the program were more successful in their social adjustment than their peers and that the adjustment was higher for those who previously lived in the United States.

While it is outside the scope of this study, the next logical examination of international/domestic roommate pairing programs within the residence halls is to look at the impact upon domestic students. As a bookend to their first study of a peer-pairing program, Geelhoed, Abe, and Talbot (2003) examined the program’s impact on the domestic student counterpart. Their qualitative study of 26 domestic students found that participating in the program had positive impact on students’ cross-cultural awareness and sensitivity. Further examining the impact on domestic students is crucial to the success of these peer-pairing programs, as domestic students are the backbone of the program.

Student Affairs professionals can better design these programs if they have a better understanding of why domestic students volunteer to be involved, their level of satisfaction with being involved, and the impact of participation on their development. For example, Siem and Sturmer (2012) found that when international students come from culturally similar countries to

the domestic student, empathy was a significant motivator in domestic students' desire to help, interact, and engage. Recognizing this, pairing-programs ought to consider intentional pairings based on this similarity.

While there are clear benefits from participating in support programs like peer-pairing and roommate-pairing programs, one of the greatest challenges of offering support to any student population is getting the students to take advantage of the offering. Unfortunately, the students who are dissatisfied with their experiences or feel they are not being supported often fail to take advantage of available resources (Johnson, 1993). As universities create support programs, attention should be given to marketing these programs in an effort to encourage international students to take advantage of these opportunities.

### **Theoretical Framework**

The theoretical framework provides structure for both the research design and interpretation of the findings (Mertler, 2015). First, I will present Schlossberg's Transition Theory (1995) and illustrate its underpinning in the logic model. Second, I will discuss Maslow's Hierarchy of Needs (1943) and how it shaped the study overall.

**Schlossberg's Transition Theory.** The primary theoretical framework for this study is Schlossberg's Transition Theory (1995). This theory examines the different forms of transitions, the transition process, and the factors influencing the likely successfulness of transition. This theory is the underpinning of this study, as first-year international students are an exemplar of individuals in transition. They are navigating higher education for the first time, leaving friends and family behind, coming to a new country, navigating a non-native language, exposure to cultural differences, etc. At the crux of transition theory (in addition to defining what a transition

is) is the establishment of the four mechanisms of coping: situation, self, support, and strategies (Goodman, 2006).

These four mechanisms are commonly referred as the ‘4 S’s of Transition’ (Figure 1). Situation refers to the ability of the individual to assess what has happened, how they got there, and where they are (ultimately) going. Self relates to the personal, demographic, and psychological characteristics of the individual. These factors impact the lens through which the individual will knowingly or unknowingly experience the transition. The third factor, Support, focuses on the support structure provided to the individual. This support includes friends, family, and community/institutional levels. Finally, the last mechanism is Strategies, which is simply how the individual handles the transition (in conjunction with the other S’s). This mechanism can be explored in how individuals modify the situation, how they control the meaning of the problem, and how they manage the stress.

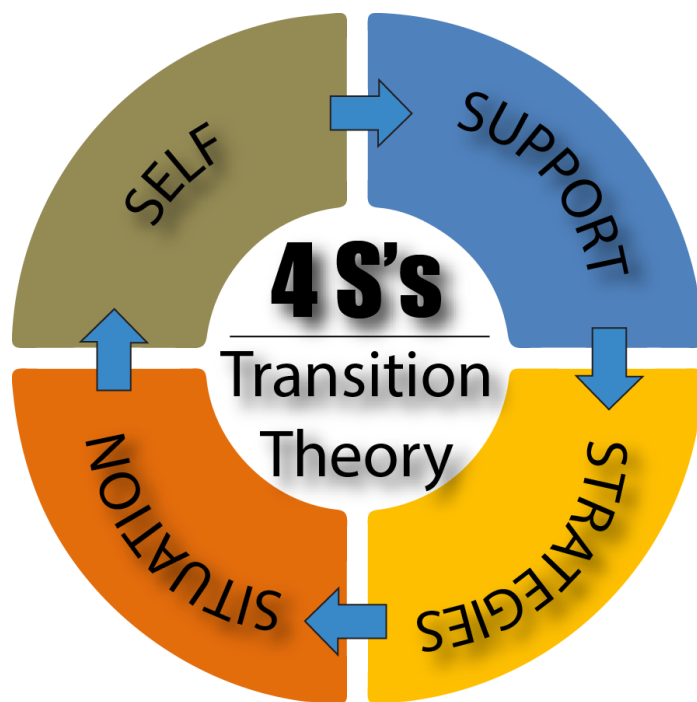


Figure 1. The four coping mechanisms of transition (4S's)

Schlossberg's theory of transitions is particularly relevant to this study, especially the support mechanism, as it provides an understanding of how support structures (or lack thereof) can impact the success of international students. Transition Theory and the Support mechanism will provide the theoretical framework for this study and will scaffold the logic model for the program.

**Maslow's Hierarchy of Needs.** In addition to considering the support structure put into place (and its impact on transition and coping), consideration must also be given to the impact of the physical environment. A great way to look at this impact of environment is through Maslow's Hierarchy of Needs (1943), a staple of Student Development Theory and one of the most commonly understood and employed theories used by Residence Life professionals. The origin of Maslow's Hierarchy of Needs was his desire to understand what motivates people. He believed people have an internal set of motivations that pushes and enables them to achieve certain needs. Once they fulfill or achieve a need, they are able to pursue the next one, resulting in a hierarchy. Maslow developed a logic model for this theory that included five motivational needs, and illustrated it as hierarchical levels within a pyramid (Figure 2). Individuals progress from the bottom of the pyramid to the higher levels, eventually seeking to reach the highest level (though Maslow indicated that few actually achieve self-actualization). The longer a person stays within a level of the pyramid, the stronger their need to fulfill that need becomes, limited their ability to focus on anything else. For example, if an individual fears for their safety because of the environment they live, they will be unable to focus on other areas such as maintaining gainful employment or academic success.



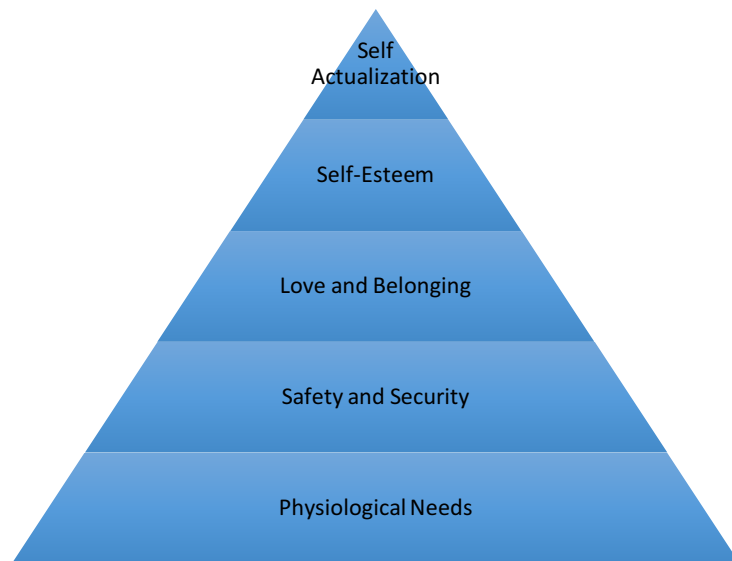


Figure 2. Maslow's Hierarchy of Needs illustrated in the hierarchical pyramid.

Maslow's Hierarchy of Needs constitutes a continuum throughout one's life. Individuals will have set backs in their life (loss of job, divorce, illness, etc.) that will cause them to regress. Furthermore, individuals can experience different sets of Hierarchy of Needs concurrently within their life. An individual may have reached a high level of hierarchy within their personal life, but within their career or academic pursuits may be at a different point on the continuum.

Maslow's Hierarchy of Needs provides a framework to examine the residential experience of international students. For international students to reach their full potential and succeed at the institution, they must progress through each of the lower levels of the pyramid. These lower levels will include breaking the barriers of communication and cultural differences, having their housing and dietary needs met, social adjustment, and acclimation to the new environment. Applying this framework will help Residence Life professionals look at the International Roommate-pairing Program through the lens of international students and their needs.

### **Conclusion**

This literature review clarifies the challenges international students face, their need for support, existing support programs, and the theoretical framework for providing support. Moreover, this review helps convey a holistic understanding of the experience and needs of international students. It is clear that international students face a plethora of adjective adjustment issues, yet U.S. institutions often place the onus on the student to ‘adjust’ or ‘adapt’ (Bevis, 2002). Further compounding their challenges, it has been shown that international students have less social support than their domestic counterparts (Hechanova-Almpay et al., 2002). The academic success of international students is dependent upon support in and out of the classroom (Andrade, 2006; Kovtun, 2008). As educators, we need to understand the challenges international students face and help accommodate their unique needs. Furthermore, Residence Life professionals must be aware of the impact that the residential and co-curricular experience has on international students’ academic success. These professionals may have as much impact on the academic success of international students as the faculty.

These administrators must make a strong effort to retain international (and all) students and support their persistence at the university. Assessment of programs for international students is at the heart of this effort. As Ganseme-Topf (2013) reinforces, “Institutions looking to enhance their undergraduate student persistence can be informed by research and theory” (p. 69). If we are unable to help these students succeed at our institutions and persist to receiving their degree, we must ask ourselves why are we admitting them in the first place? It is the responsibility of educators (faculty and staff) to focus on persistence and support our students to (successfully) remain. Residence Life staff play a key role in this, as they help shape the experience of the student which has been shown to have an impact on their academic success.

Although previous research has looked at aspects of the international student experience, limited research has been done on the residential experience of this student population and how Residence Life professionals can better support international students. It is a common practice for university administrators to focus their attention and efforts on larger populations making the greatest impact. However, we must challenge ourselves to focus our efforts on students who need our help most, regardless of numbers. While the number of international students is low compared to domestic students, they make a significant financial contribution to the institution (Aw, 2012). To this end, more attention should be given to the experiences of international students, despite their small number in comparison to other subsets of the university population (Lee & Rice, 2007). Addressing this need are quantitative studies like this one examining the residential experiences of international students and the impact of support programs like roommate-pairing programs.

### **CHAPTER 3: METHODOLOGY**

This evaluation of the IRP is a quantitative study examining the experiences of the participating international students versus their counterparts not in the program. Outlined in this section are: a description of the IRP, an overview of the evaluation design, methodology of the study, sample and response rate, statistical analysis, and limitations.

#### **Description of International Roommate Program**

The International Roommate Program (IRP) is a newly implemented program at the university. The IRP pairs international students with domestic students as roommates living within the residence halls. International and domestic students self-select into this program and by doing so, agree to adhere to the expectations of the program. These expectations include being supportive and tolerant of differences with their roommates, participating in events hosted by the IRP, and having open communication with the staff overseeing the program. While the impetus for the program was to create a supportive environment for international students and increase retention, it also aims to foster a diverse environment within the residence hall exposing the domestic roommates to a global perspective. To determine the effectiveness and impact of the IRP, this study was designed to evaluate the IRP from the perspective of international students. Additional data were also collected on the experience of domestic students for future examination and are not included in the findings reported here.

The IRP is comprised of two separate programs pairing international and domestic students as roommates in residence halls: The International Roommate Program #1 (IRP1) and the International Roommate Program #2 (IRP2). While both these programs pair roommates, they have different requirements, living conditions, and resources afforded to the students.

These differences are described in the subsequent sections. The executive summary included in Chapter 5 provides a comparative table of the IRP2 and IRP1.

Incoming international students are invited to participate in the IRP by a recruitment email, which describes the benefits of living with a domestic roommate and the requirements associated with participation. To be eligible, international students must be incoming first-year students intending to live in an on-campus university residence hall. For the 2014-2015 school year, 127 international students elected to participate in the program. These students came from 10 countries, with the majority from China.

As a result of participating in the IRP, presumed benefits for the international students include acclimating more easily to studying in the U.S., strengthening their English speaking skills, and ultimately enabling academic success and persistence in their studies abroad (Figure 3). In contrast, the purported benefits for domestic students include having a greater appreciation of diversity, developing a global view, and having a rewarding experience as a result of helping their roommate transition. Together, the international and domestic students should share a positive and rewarding experience, develop tolerance and understanding of differences, have a positive and healthy residential experience, and develop a sense of belonging to the residential community and/or the IRP. Furthermore, it is believed that it will also positively impact their academic experience, which will reflect in academic success, retention, and increasing the likelihood that they will positively recommend others to attend the University.

## Intended outcomes for domestic and international student roommate pairing

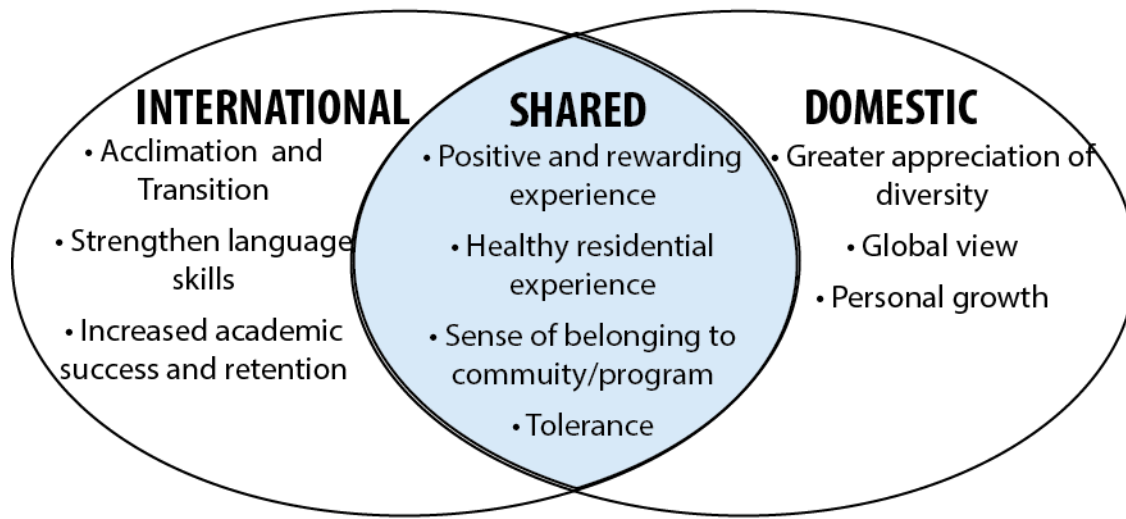


Figure 3. Diagram of the intended outcomes of pairing international and domestic students through the International Roommate Program (IRP).

### International Roommate Program #1 (IRP1)

The International Roommate Program #1 is the “hands-off” program focusing almost exclusively on the pairing of international and domestic students with a desire to live with one another. It pairs incoming first-year international students with first-year domestic students as roommates. The requirements for the participants within this program are minimal and attendance at all events is optional. The Director of the IRP directly oversees this component of the program, as she is the administrator responsible for the building the participants live in and the staff overseeing the students. This gives the Director the most autonomy, as she is able to directly influence the day-to-day operation of this program, establish requirements of the staff, hold them accountable, and commit resources to the program. All of the participants within the IRP1 live within a traditional corridor style building. Every room is a double shared by two students. It is one room with two beds, dressers, desks, and closets. There is a small, shared community space and communal bathroom on each floor, as well a large community space on

the first floor. To begin the year, the IRP1 had 73 international students and 72 domestic students for a total of 145 participants. While the IRP2 participants only make up a small fraction of the total population of any one building, IRP1 participants account for half the population of the residence hall.

Domestic students were recruited for the IRP1 via an email sent to the incoming FY, domestic residential students. To be eligible, students had to commit to living in the residence hall for the year with an international student. As a participant in the program, domestic students committed to being supportive of their international roommate and staying in communication with the Director of the IRP. In contrast to the IRP2, participants in the IRP1 had no obligation to participate in programming like the orientation required of IRP2 participants. The IRP1 simply paired a domestic and international student together as roommates and afforded them occasional elective social opportunities.

### **International Roommate Program #2 (IRP2)**

The International Roommate Program #2 (IRP2) is the flagship program of the International Roommate Program pairing upper-class domestic students with incoming first-year international students. The IRP2 is considered to be the “hands-on” program, in which students (domestic and international) are required to participate in events, receive more communication and guidance from Residence Life staff, and are invited to attend additional optional events/programs. Examples of these optional events include but are not limited to attending an MLB baseball game, participating holiday festivities in near-by metropolitan area, attending a ski trip, and involvement in the Day of Service. At the start of school year 2014-2015, the IRP2 had 54 international students and 54 domestic students for a total of 108 participants. Of these, 89

attended the required (but no consequences for not attending) orientation that took place in August.

The program is intentionally located in suite/apartment style residence halls including communal space and kitchens within each apartment. The communal space provides a location for international students to easily socialize with their roommate(s) and other friends. The kitchens allow international students to supplement their meals should the dining halls not meet their needs and/or their taste. These apartment spaces are considered by many students to be the best location to live on campus. By placing the IRP2 international students within these specific halls, an effort is made to give the best opportunity for success and satisfaction with the residential experience. This location also increases the likelihood of domestic students to volunteer to be a part of the program, as participation in the IRP2 will guarantee a spot in the coveted apartments.

IRP2 participants live in several residence halls overseen by Residence Life Administrators. These administrators are responsible for implementing aspects of the program (i.e. building programs/events, newsletters, etc.). At the same time, these administrators do not report to the IRP Director; rather, they are colleagues. As such, the IRP Director does not have supervisory capacity over the Residence Life administrators.

Upper-class domestic students are recruited for the IRP2 via an email sent to all residential students. To be eligible, students have to have lived on campus for one year and commit to the requirements of the program. It should be noted that the term domestic student is used to define any student living on campus the previous year (including international students). However, few such “domestic international” students participate. The email invites students to live with an incoming international student in an apartment/suite-style residence hall, affording



them priority in the lottery system and the benefit of participating in the program. The benefits explained in the email imply a greater appreciation of diversity, the development of a global view, and personal growth. While it is presumed that most, if not all, domestic students are genuinely interested in having an international roommate, the benefit of getting priority in the lottery system is undeniably attractive for many students. Had these students chosen to enter the lottery instead of participating in the IRP, it is unlikely that they would have been selected to live in apartment-style housing (especially for the sophomores, as the lottery is based on seniority of class year). As participants in the program, domestic students commit to supporting their international roommate, attending a pre-Summer and Fall orientation, attending program sponsored events over the year, and staying in communication with the IRP Director.

### **Evaluation Design**

It is critical that Student Affairs professionals intentionally and systematically evaluate and assess their programs. This can lead to the development of a culture of assessment, which “will facilitate the work of student affairs; provide information required by stakeholders; and help student affairs improve in its delivery of services, programs, and experiences for students” (Schuh, 2013, p. 97). This assertion makes the limited number of empirical studies on residential support programs problematic. The need for assessment is critical and goes beyond the strengthening of programs (Slager & Oakes, 2013). Equally importantly, positive assessment can demonstrate the value and impact of that department and program, and strengthen their reputation within the University community. This can lead to additional funding and support from campus partners. Furthermore, Upcraft and Schuh (1996) contend, “Without assessment, student affairs are left only to logic, intuition, moral imperatives, goodwill, or serendipity in justifying its existence” (p. 11). Seeking such a justification, this quantitative study will evaluate

the residential experience of international student IRP participants and non-participants determining the effectiveness and impact of the IRP on international students.

Assessing the International Roommate Program (IRP) constitutes an evaluation study, as it focuses on addressing a social problem through social intervention (Rossi, Lipsey & Freeman, 2004). The established goals of the IRP shaped the evaluation design as they constitute outcome measures of the program. Acknowledging the critical nature of evaluation questions (Rossi et al., 2004), I developed the following multi-faceted research question:

1. Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships?

Answering this question may help establish best practices for supporting the needs of international students, generate data for the University and contribute to the research base on international students. This study can also inform other programs to formally assess the impact of their programs. The need to evaluate impact is best articulated by Terenzini and Upcraft (1996), who claim "Perhaps the most intimidating question posed to a student affairs practitioner goes something like this: 'Sure, the students like your programs and services, but what evidence do you have that what you are doing is making a difference?'" (p. 217). The critical answer to this question often goes unanswered due to the lack of formal assessment within Student Affairs. Finally, this evaluation will facilitate program accountability and goal attainment (Rossi et al., 2004; Weiss, 1997). Rather than measuring program success based on superficial exploration of whether students liked the program, accountability efforts can seek to evaluate the impact of the program in terms of student development, academic success, and persistence.

**Stakeholders and Users**

Adhering to best practices of evaluation design (Rossi et al., 2004), the primary users of this evaluation are the Residence Life administrators at the university responsible for housing international students. This includes but is not limited to the Director of Residence Life, Assistant Directors of Residence Life, and Residence Hall Directors. A secondary set of users will include administrators from various offices who also support international students, such as the Office of International Student Services and the Study Abroad Office. This evaluation has the potential to be used to elevate participation amongst these stakeholders, strengthen collaboration, and instill a sense of empowerment among the users (Patton, 2008).

The intended users will likely utilize the evaluation for both summative and formative purposes (Rossi et al. 2004). Formative assessment will enable stakeholders to gauge levels of international and domestic student program satisfaction and plan improvements. At the same time, it will also serve as a summative evaluation, showing the efficacy of the IRP. According to Patton (1990), these stakeholders will have the expectation that evaluator will be able 1) “to confirm what they know that is supported by data; 2) to disabuse them of misconceptions, and 3) to illuminate important things that they didn’t know but should know. Accomplish these three things and decision makers can take it from there” (p. 423). Acknowledging the needs of the stakeholders, I provided an executive summary to Residence Life and presented the findings to their staff in a presentation/workshop (see Chapter 5).

**Logic Model**

Logic models can illustrate the study framework and help shape the research questions (Rossi et al., 2004; Weiss, 1997). These models illustrate the intended mechanisms and outcomes of the program to allow evaluators and users to visualize the methodology (Taylor-

Powell & Henert, 2008). Using the IRP as the basis for design, I developed a logic model to outline the intended outcomes of the IRP and suggest a mechanism for how these occur. The logic model (Figure 4) illustrates the expected outcome of participation within the IRP for international students. This model illustrates that the more involved international students are with domestic students and participation in a structured support program, the greater gains in support they'll have, making them more likely to successfully transition. This logic model is based on Schlossberg's (1995) Transition Theory in which suggests support is one of the four key factors in an individual transitioning successfully.

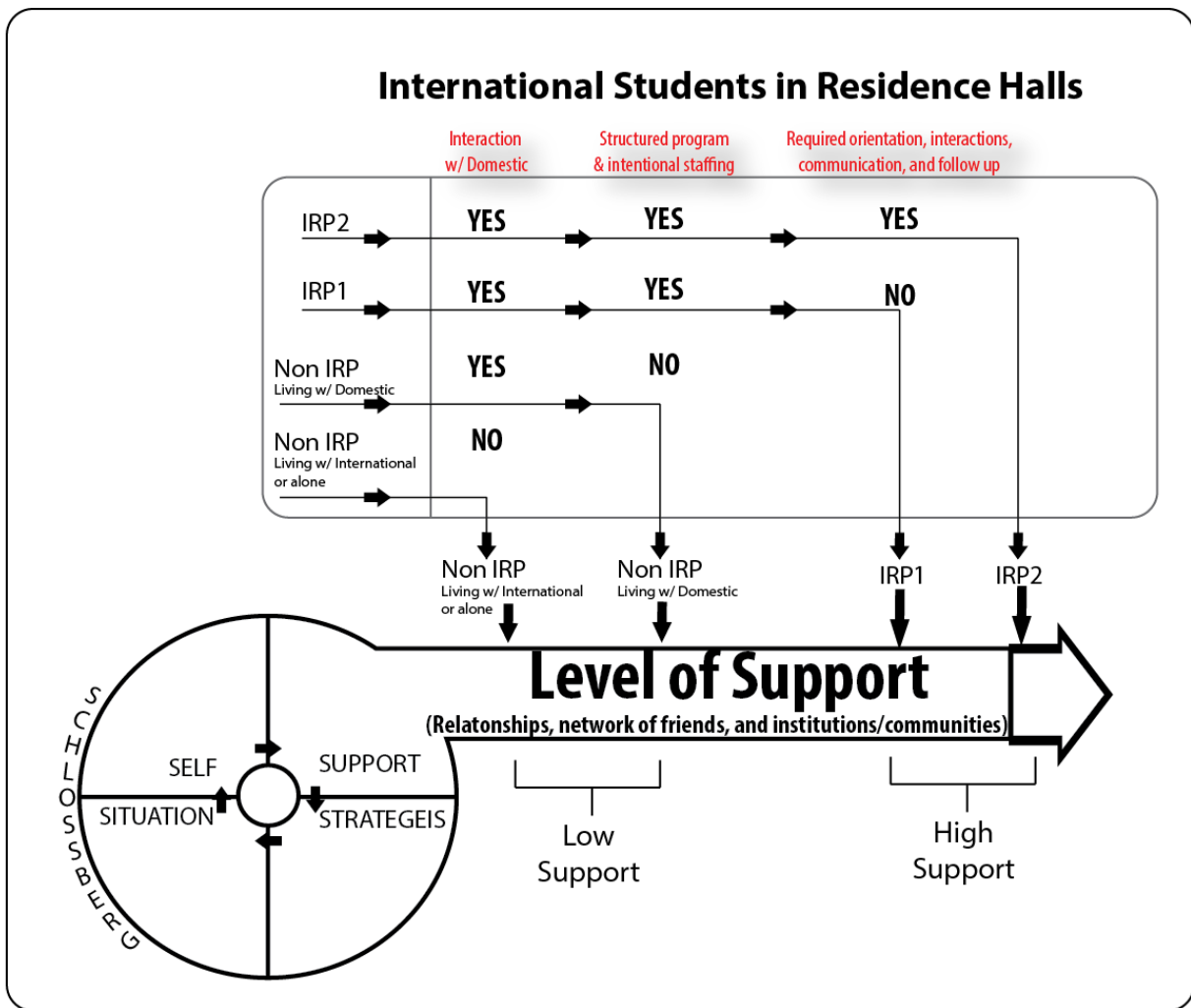


Figure 4. Logic model of the outcomes of international students living within the residence halls as its impact on Schlossberg's Transition Theory.

## **Study Design**

This evaluation seeks to determine the effectiveness and impact of the International Roommate Program (IRP) on the academic success, satisfaction, and integration of international students. As such, the evaluation design is summative in nature, which allows the study to determine the effectiveness of the IRP as it was intended to be implemented, without the influence of formative feedback. In adhering with best practices of evaluation design, methods developed are clear and reproducible (Creswell, 2009).

In designing this study, I considered a mixed methods design due to the inherent benefits (Creswell, 2009). As I developed my study, I found my research questions became framed around questions of “if and how much” and not “how or making meaning of the users’ experience”. Subsequently, I made the decision to design a quantitative study. This study design consisted of developing an instrument to collect data via online surveys. The development of the instrument is supported by the existing study on a similar program by Abe et al. (1998), in which the study found it necessary to design their own instrument rather than using an existing one. I considered using an established survey (SACQ Survey), but it was found to be ineffective by Abe et al. (1998) for the purposes of a study like this one.

## **Site Description**

The sampling and data collection were conducted at large, four-year public institution located in the Northeastern United States henceforth referred to as “the University”. The student population is approximately 65,000, of which approximately 45,000 are undergraduates. The university has a strong international student population of approximately 2,600 students, from 115 countries. Of this population, there are approximately 500 international students residing in on-campus housing, of whom 127 are participating in the International Roommate Program.

At this university, the department of Residence Life oversees and manages the on-campus housing of the approximate 16,000 residential students. There are 51 residence halls within which these students are housed. Each of these residence halls has a series of staff members that are responsible for the facility, students, and the creation of a healthy and engaging community within the building. The professional staff member responsible for the building is the Residence Life Educator (RLE), who is a Master's leveled professional. The RLE supervises a number of student staff called Resident Assistants (RA). The RAs are current undergraduate students at the university serving in this leadership role. There is typically one RA per floor in a residence hall responsible for administrative, programmatic, and policy enforcement for the students living on that floor.

### **Positionality**

This research is of particular interest to me as the researcher, as I have a strong professional interest in the experience of international students and a personal connection to the study site. I previously worked for two years in this department of Residence Life. This experience affords me unique insights into the research site, the student population, and the staff within the department of Residence Life.

### **Instrument Design**

The instrument design was intentionally shaped to answer the primary research question. When designing an instrument, "The key issue in selecting and making decisions about the appropriate unit of analysis is to decide what you want to be able to say something about at the end of the study" (Patton, 1990, p. 167). To this end, I began by imagining the kind of information that would be useful to stakeholders and worked backward to design the instrument.

Following the best practices of instrument design, I developed the surveys to be valid, reliable, and avoid the four types of instrument errors; coverage, sampling, non-response, and measurement (de Leeuw & Dillman, 2008). Coverage error occurs when members of the population have little or no likelihood of receiving the survey. Sampling error occurs when only a subset of the overall population ( $n$ ) are sampled. In most surveys, this is simply unavoidable because the larger population is too large to study. Non-response error occurs when a clustering of like-populations is less or more likely to complete the survey. For example, those who had experiences on the extreme (positive or negative) are more likely to complete the survey than those who had an average experience. Lastly, measurement error occurs when the participants' response actually differs from their actual experience. While unlikely to design a flawless instrument, being aware and sensitive to these instrument errors allowed me to limit the likeliness of error.

I carefully considered the method of survey distribution, aiming for time efficiency, high response rate, and anonymity. These needs lead to deciding between mail and email surveys. A review of the literature yielded contradictory results. Many studies found mail surveys to be most effective (Handwerk, Carson, & Blackwell, 2000; Tomsic, Hendel, & Matross, 2000; Underwood, Kim, & Matier, 2000) while a number of studies found email surveys to generate a higher response (Antons, Dilla, & Fultz, 1997; Shih, Tse-Hua, & Xitao, 2009). A meta-analysis examined 35 studies of college students within the last ten years to compare response rates of email versus mail surveys (Shih, 2009). After considering the benefits/challenges of survey types, I chose to collect surveys via email as it balances efficiency and the ability to obtain the desired response rate.

Due to limited research on this topic, it was not possible to adhere to the best practice of utilizing and modifying an existing survey (Creswell, 2009). As such, surveys were crafted based on the best practices of survey design (Creswell, 2009; Patton, 2008; Patton, 1990; Rossi et al., 2004; Weiss, 1997). This quantitative survey was designed to ascertain the participants' perceptions of how living with their current roommate impacted their residential experience, overall satisfaction, and academic success. I developed three largely similar versions of the survey, one for each subsample of participants: international students participating in the IRP1, the IRP2, and NON program participants (see Appendices A, B, and C). These surveys contain approximately 20-30 quantitative questions (measured by a 7-point Likert scale) and 5-6 open ended questions. To encourage completion, the survey was designed to take less than ten minutes and participants were given the option to win a raffle prize (iPad mini). I believed this length of time would not seem excessive and would be worth their time for the potential of winning the raffle prize. The questions were designed to answer the research questions posed in this study.

To ensure effective survey design, I pilot tested the surveys (Creswell, 2008). This is the process of testing the data collection instruments to ensure participants understand the questions and that there are not problems with the questionnaire is free from bias and/or guided responses. This pilot test was done with a similar but smaller population of international students from another university to ensure it did not impact the evaluation. Despite the pilot test students' lack of familiarity with the IRP, they provided useful feedback such as the length of time to take the survey, identifying unclear/ambiguous questions, and providing a sample of what my raw data would look like. Pilot testing was especially important in this study, as the survey had to be



crafted without using an existing one that has already been validated and deemed as a reliable guide. The pilot test allowed me to better validate my newly crafted instrument.

### **Data Collection**

The quantitative survey was administered to the approximate 500 first-year international students living in a residence hall at the university. Of this, 127 students were participants in the IRP. The remaining international students were randomly placed with a roommate (who may or may not have been domestic) and were NON participants in the IRP. The Office of Residence life identified the population to survey (the international and domestic students in the IRP and not in the IRP). The survey was designed to measure outcomes of the IRP and its impact on the international students. In this study, I compared IRP participants against non-participants to determine if the program generated the differences in outcomes, or if the differences would have occurred without the structured program. To this end, if both sets of participants indicated their roommate had a positive impact on them (aligning with the goals of the program) and if the degree was significant, the data would show the program was ineffective.

The survey was administered via the individual's primary email address listed with the university. The time frame for the survey was early April 2015, which gave students nearly two full semesters to reflect on their experience living on campus with a domestic/international roommate and the felt impact. It was important to not push the survey any later as the end of semester time constraints (i.e. Spring Break, Finals prep, moving out, etc.) would have diminished the response rate. As it was, the university experienced a significant technical disruption to computer services the first week that surveys were distributed. This could have affected the response rate.

The survey was conducted using the online software, Qualtrics. The email communication indicated participant anonymity with no way to connect the responses back to an individual user. As an incentive for completing the survey, participants were able to submit their email address into a raffle to win their choice of an iPad Mini or \$250 added to their university meal plan. The participants were given two weeks to complete the survey. At the end of each week, an email reminder was sent to participants who had not completed the survey. Furthermore, the department of Residence Life had their staff members follow up with all participants to inform them of the study and the importance of completing the survey.

### **Sample and Response Rate**

The participants were purposely selected to examine the research problem and respond to the question posed for this evaluation (Creswell, 2009). The participants were limited to the total population of first-year international students and their domestic roommates who lived in residence halls at the time of the evaluation (early April 2015). Collectively, 185 participants were surveyed (Table 1). This consisted of 38 participants from the International Roommate Program #1 (IRP1), 33 from the International Roommate Program #2 (IRP2), and 113 from the control group of non-program students (NON). This sampling yielded response rates of 52%, 61%, and 26%, respectively. Table 2 presents results for demographic variables (i.e. gender, country, etc.), which limits the analysis to the number of participants (by program type) who belonged to the respective demographic category. The number of participants identifying with a respective demographic category (i.e. male vs female) was divided by the total number of participants of their group (i.e. IRP1 = 38, IRP2 = 33, etc.) to generate the percentage of individuals within the program belonging to that demographic. This allows for a quick

understanding of the demographics of the participants of the study and a comparison of the demographics between the IRP1, IRP2, and NON groups.

Table 1. Response Rate by Program Type (IRP1/IRP2/NON)

Program Type	Participants	Total Population	Response Rate
IRP1	38	73	52%
IRP2	33	54	61%
Non Program (NON)	113	431	26%

Table 2. The percentage of participants by Descriptive Category by Program Type (IRP1/IRP2/NON)

Descriptive Category	IRP1	IRP2	NON
1 <sup>st</sup> generation college student	63%	58%	65%
Shared bedroom as child	26%	33%	14%
Previous experience w/ American	37%	45%	39%
Previously lived in U.S.	15%	39%	40%
Family lived in U.S.	32%	30%	56%
Family studied in U.S.	45%	45%	72%
Country – Canada	0%	3%	0%
Country – China	58%	73%	57%
Country – India	16%	6%	12%
Country – Russia	0%	3%	0%
Country - Singapore	8%	3%	1%
Country – Taiwan	5%	12%	7%
Country – Other	13%	0%	24%
Hometown – Urban	87%	94%	86%
Hometown – Suburban	11%	6%	12%
Hometown - Rural	3%	0%	2%
Male	61%	33%	40%
Female	39%	61%	60%
Transgendered	0%	0%	0%
Other	0%	6%	0%

Table 3 compares the age and gender of the study sample to the larger population of international students. Data related to nationality for the larger population of international students was not available.

Table 3. Sex and Age of the sample versus population by Program Type (IRP1/IRP2/NON)

Descriptive Category	IRP1		IRP2		NON	
	Population	Sample	Population	Sample	Population	Sample
Male	66.7%	61%	34.5%	33%	53%	40%
Female	43.9%	39%	63.6%	61%	47%	60%
Average Age	18.7	18.6	18.8	18.7	18.8	18.9

### Statistical Analysis

To analyze the survey results, I conducted statistical analysis on the data set. The raw data were entered into SPSS. The primary dependent variables were the individual's participation within the IRP and their personal characteristics and family background. The inclusion of these independent variables allows me to describe the participants and to control for individual differences that are likely to affect the dependent variables.

Descriptive statistics were performed to describe the sample (Abbott, 2011; Ravid, 2010; Moore & McCabe, 2010). Descriptive statistics summarize the data and help identify patterns, but cannot be generalized beyond the dataset. This includes measure of central tendency (mode, median, and mean) and the measures of spread (standard deviation, min, and max).

Focusing on the survey questions directly relating to the primary research questions, inferential statistics were produced to draw conclusions about the association between the dependent and independent variables (Abbott, 2011; Moore & McCabe, 2010; Ravid, 2010). The established minimum level of significance for this study is a p value of .05. for the statistical tests employed. Based on the dataset obtained from the study, the selected statistical tests were Factor Analysis and Analysis of Covariance (ANCOVA).

I employed factor analysis for data reduction as multiple survey questions were asked relative to the same general constructs. Factor analysis is commonly used to reduce the number of items on a survey (Tao, 2015). This was necessary for this study, as the survey collected

approximately fifty questions, which exceed the statistical limitations (the degrees of freedom thus limiting the statistical power) of the desired ANCOVA. Simply put, an excessive amount of data were collected that made it difficult to make meaningful and acceptable inferences through statistical analysis. To rectify this problem, the large dataset needed to be reduced to a more manageable size. Through using factor analysis, the fifty questions were consolidated and reduced into eight new variables. This statistical test was performed using SPSS through the following steps: 1) Selecting 'Dimension Reduction' from the 'Analyze' submenu. 2) Selecting 'Factor' from the 'Dimension Reduction' submenu. 3) Adding variables and running the test. This process yielded the desired Component Matrix which is the product of factor analysis.

Analysis of Covariance (ANCOVA) allowed for the comparison of the means of the three groups (IRP1/IRP2/NON) while statistically controlling for the effects of variables/covariates. The comparison of the three groups can be compared to running three separate T-Tests to determine differences but has the benefit of eliminating Type I error (McCabe & Moore, 2012; Tao, 2015). The use of ANCOVA is powerful because it "levels the playing field" by statistically controlling for the demographics (independent variables) of the IRP1/IRP2/NON international students. Doing so, better allowed me to accept that observed differences were a result of the respective program rather than predisposition of students in the program. This statistical test was performed using SPSS through the following steps: 1) Selecting 'General Linear Model' from the 'Analyze' submenu. 2) Selecting 'Univariate' from the 'General Linear Model'. 3) Entering dependent variable (newly created variable from Factor Analysis), fixed factor (IRP1/IRP2/NON), and covariates (16 independent variables). 4) Within 'Model' option, selecting 'custom/main effects'. 5) Within 'Options', selecting 'display means for

IRP1/IRP2/NON', 'compare main effects', 'confidence interval adjustment: LSD(non)', and 'display: desc statistics'. This process yielded the desired ANCOVA output.

The results of these statistical analyses (Descriptive Statistics, Factor Analysis, and ANCOVA) will be covered in the following chapter, which also provides a context for interpreting the findings.

### **Validity and Reliability**

Validity is concerned with whether we are actually measuring what we *intended* to measure. "To determine the validity of a measure, you must first decide on the nature and strength of the evidence needed to make the judgment. You will find that what you need depends on the situation and cannot be easily codified into a set of rigid rules" (Tao, 2015, p. 73). Acknowledging the difficulty in ensuring validity, I utilized two of the methods recommended by Mertler (2015): Evidence of validity based on test content and evidence of validity based on consequences of testing.

Evidence of validity based on test content is a logical analysis of the instrument by experts in the content area. To achieve this validity, I convened a focus group with professional, seasoned Residence Life staff members during the creation of the instrument. Six administrators reviewed the instrument and gave feedback based on their professional experience, familiarity with the university, and working knowledge of international students. Through this process, I made changes to the instruments which further strengthened them and in turn the validity of the study.

Evidence of validity based on consequences of testing is concerned with whether the benefits identified from the study will be realized. In other words, it examines whether the results of the study will actually take place. This validity was confirmed at the conclusion of the

study during the stakeholder session, when Residence Life shared that they had acted in accordance with several findings and recommendations prior to the results being shared. Thus, Residence Life has already made changes and found positive results, which reinforces the validity of the findings of this study.

While validity is important, it is only half of the equation. For the study findings to have the greatest impact and applicability, they must be both valid and reliable. Reliability is concerned with the consistency of the data and the ability to consistently replicate the findings. “Researchers need to describe the levels of reliability in their work so that readers can judge for themselves whether the results are likely to be sufficiently repeatable” (Tao, 2015, p. 69). This reinforces the need for researches to clearly and accurately describe their study methodology. Doing so, allows others to make their own determination of the study’s reliability. Subsequently, in my methodology I have included the instruments (unedited export from Qualtrics) and provided a clear explanation of the statistical analysis and step-by-step instructions of how it was performed within SPSS.

### **Limitations**

A central limitation within this study was the low response rate of the participants, particularly for the NON group. The response rates for the IRP1/IRP2/NON participants was 52%, 61%, and 26%, respectively. This challenge was magnified by the small population size coupled with the low response rates associated with collecting data via email surveys (Mertler, 2015). Due to this limitation, it is unknown if further/greater differences were not found between the program types, IRP1/IRP2/NON, as a result of there truly not being a difference or resulting from the lack of statistical power from the small sample size. This low response rate and the fact that surveys were anonymous creates potential for selection bias, or insufficient

randomization, which can lead to a non-representative sample (McCabe & Moore, 2010). This raises the question as to whether the NON sample is representative of the larger population or if a subset of the population was more inclined to answer the surveys (i.e. those without the financial means to purchase the raffle prize, students who have an extremely positive/negative experience wanting to express it, etc.).

A second limitation was the surveys being conducted in English. While it is known to be the second language for many of the international students taking the survey, English could have compromised some participants understanding and their subsequent responses. The benefits suggested by Harkness and Schoua-Glusberg (1988) for translating the study were strongly considered for this study. However, due to my limited resources (particularly financial), it was not feasible to translate the survey into 8 or more languages. To minimize this limitation, I addressed language concerns with international students who participated in the pilot study.



## **CHAPTER 4: RESULTS**

As stated in Chapter 1, the goal in evaluating the International Roommate-Pairing Program was to address a gap in the literature on support programs for international students within residence halls. The research question for this study was: Does participation in an international/domestic roommate-pairing program had a positive impact on international students' satisfaction, acclimation, academic success, English acquisition, and the ability to develop social relationships? In an effort to address this research question, quantitative methods were employed to examine the impact and efficacy of this support initiative. The collected data were analyzed using descriptive and inferential statistics (factor analysis and ANCOVA). The findings of this study support the hypothesis that the program indeed had positive impacts.

### **Descriptive Statistics**

I performed descriptive statistics to describe the responses of all survey questions. Appendix D provides descriptive statistics of the independent variables (i.e. student background). Appendix E provides descriptive statistics for the dependent variables. Appendices F and G provide the Correlation Tables for the dependent and independent variables. The descriptive statistics included mean, median, mode, standard deviation, minimum, and maximum. The majority of the dependent variables were asked on a 7-point Likert scale. While descriptive statistics do not allow me to draw conclusions or assertions, they help to describe the dataset and provide context for interpretation of the inferential statistics.

### **Inferential Statistics**

Inferential statistical analyses were conducted to determine whether outcomes on the dependent variables differed significantly by program type (IRP1/IRP2/NON). This analysis focused on answering the primary research question: does participation in an

international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships? The statistical procedures included Factor Analysis and ANCOVA.

### Factor Analysis

Due to the large number of questions asked of participants and the small sample size (and total population), the degrees of freedom for the ANCOVA test treating the response to each question as a dependent variable would have been quite low. Moreover, multiple questions really sought to obtain information about the same attributes or elements of student experience. Therefore, factor analysis was performed to reduce the number of dependent variables analyzed. Factor analysis is the process of data reduction. Consistent with the research question, eight corresponding themes were developed; Acclimation, Benefitted from having an American Roommate (American Roommate), Development of English Skills (English Skills), Food, Satisfaction, Enabling Social Relationships (Social Relationships), Recommendation based on Residential Experience (Recommendation), and Academic Outcomes (Table 4). The corresponding survey questions were identified for each theme and clustered together for factor analysis. A factor analysis was run for each of the seven themes (and identified questions) to determine if they were statistically related to one another.

Table 4. Factor Analysis Themes and Matrix Component.

Themes by Research Question	Survey Questions	Matrix Component
Acclimation	Met RLE	.020
	Helpful RA	.492
	Food met needs	.700
	Satisfied with daily meals	.769
	Satisfied living on campus	.845
	Satisfied with residence hall	.797
Benefits of having an American Roommate	Continue living in residence hall	.442
	Benefited from living with American	.738
	American enhanced experience	.893

	American helped social life	.890
	American helped transition	.878
	American helped academics	.852
	International students benefit from Amer.	.589
English Skills	Post-reading in English	.903
	Post-writing in English	.875
	Post-understanding in English	.881
	Practicing English	.532
	Speaking English with others from home	.516
Food	Food met needs	.929
	Enjoyed taste of food	.900
	Satisfied with daily meals	.831
Overall Satisfaction	Satisfied living on-campus	.889
	Satisfied with residence hall room	.866
	Satisfied with daily meals	.668
	Continue at the University	.618
Social Relationships	Eat with others	.323
	Eat with Americans	.612
	Post – understanding English	.859
	Post – speaking English	.908
Recommendation	Recommend the University	.829
	Satisfaction living on-campus	.829
Academic Outcomes	Fall Semester GPA	1

Within each theme, only questions with a correlation of  $>.4$  were deemed to be related. This process eliminated only two questions within the developed themes. Within Acclimation, the question as to whether students had met their RLE was eliminated (component score of .20). Within Social Relationships, the question of as to whether students eat with others was eliminated (component score of .323). The elimination of only two questions via factor analysis confirms the close alignment of research questions around the developed themes and the possibility of redundancy in questions asked in the instrument.

For each theme, the respective values of the survey questions were added together for each participant to yield a new variable. These eight newly generated variables became the basis for the ANCOVA statistical test. To describe this newly created variable and dataset, descriptive

statistics were performed (Table 5). Included in the descriptive statistics were mean, median, mode, standard deviation, min, and max.

Table 5. Descriptive Statistics of Dependent Variables by Program Type (IRP1/IRP2/NON)

Variable	Mean	SD	Median	Mode	Min	Max
IRP1 – Acclimation	23.76	4.21	23.50	23.00	12.00	31.00
IRP2 - Acclimation	26.39	4.31	26.00	25.00	18.00	35.00
NON - Acclimation	25.33	5.04	26.00	30.00	6.00	35.00
IRP1 – Academic Outcomes	2.90	.083	3.19	3.30	.60	4.00
IRP2 – Academic Outcomes	3.20	.44	3.20	2.50	2.50	3.90
NON – Academic Outcomes	3.05	.72	3.20	3.00	.50	4.00
IRP1 – Social	13.97	3.28	14.00	14.00	5.00	21.00
IRP2 – Social	13.15	2.67	13.00	13.00	7.00	20.00
NON – Social	15.22	3.14	15.00	16.00	9.00	21.00
IRP1 – Benefit of American	36.61	8.51	35.50	35.00	16.00	49.00
IRP2 - Benefit of American	33.61	7.28	34.00	34.00	14.00	47.00
NON - Benefit of American	35.75	8.72	36.00	35.00	7.00	49.00
IRP1 – English	24.05	4.93	24.50	23.00	12.00	35.00
IRP2 - English	23.06	4.42	24.00	24.00	12.00	35.00
NON - English	25.95	5.03	26.00	27.00	15.00	35.00
IRP1 – Food	11.66	3.87	12.00	12.00	3.00	19.00
IRP2 – Food	14.52	3.75	15.00	18.00	8.00	21.00
NON – Food	14.20	3.71	15.00	18.00	3.00	21.00
IRP1 – Recommendation	11.03	2.14	12.00	12.00	5.00	14.00
IRP2 - Recommendation	11.30	1.61	11.00	10.00	9.00	14.00
NON - Recommendation	10.65	2.05	11.00	12.00	2.00	14.00
IRP1 – Satisfaction	20.55	3.73	21.00	22.00	10.00	27.00
IRP2 – Satisfaction	23.06	3.22	23.00	22.00	16.00	28.00
NON – Satisfaction	21.41	3.80	22.00	27.00	4.00	27.00

## ANCOVA

One-way analysis of covariance (ANCOVA) was conducted to investigate the association between the International Roommate-Pairing Program and eight themes for this study. The independent variable of primary interest, program type, identified three participation categories: International Roommate Program #1 (IRP1), International Roommate Program #2 (IRP2), and the control group of non-program participants (NON). The dependent variables were the eight

variables identified through factor analysis (data reduction): Acclimation, Benefitted from having an American Roommate (American Roommate), Development of English Skills (English Skills), Food, Satisfaction, Enabling Social Relationships (Social Relationships), Recommendation based on Residential Experience (Recommendation), and Academic Outcomes. The covariates were country, hometown, gender, age, residence hall, roommate status, family attended college, shared bedroom, spent time with American, importance of American roommate, happy living in residence hall, happy going to the University, previously lived in U.S., family lived in U.S., family went to college in U.S., and TOEFL score. The following section presents the results of ANCOVA for each of the eight outcomes.

*Acclimation.* Program type was significantly associated with differences in self-reported Acclimation ( $F=3.244$ ) as shown in Table 6. In addition, happiness to live in a residence hall and happiness to attend the University were significantly associated with Acclimation (see Table 7).

Table 6. ANCOVA Results and Descriptive Statistics for Acclimation by Program Type (IRP1/IRP2/NON)

Program Type	Acclimation			
	Observed Mean	Adjusted Mean	SD	n
IRP1	23.76	23.72	5.21	38
IRP2	26.39	27.10	5.83	33
NON	25.33	25.14	4.93	113

Variable	SS	Df	MS	F	Sig.
Acclimation	96.037	2	48.018	3.244	.041*
Error	2442.18	165	14.80		

*Note.*  $R = .42$ ,  $Adj. R = .36$ . Controlling for happy to live in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .013$ ).

Table 7. Tests of between-subjects effects of Acclimation

Variable	MS	F	Sig.
Country	1.506	.102	.750
Hometown	.002	.000	.990
Gender	40.092	2.709	.102
Age	20.682	1.397	.239

Residence Hall	.074	.005	.944
Roommate Status	1.945	.131	.717
Family attended college	1.243	.084	.772
Shared bedroom	3.698	.250	.618
Time w/ American	23.774	1.606	.207
Imp. Living w/ American	.092	.006	.937
Happy in residence hall	654.713	44.234	.000*
Happy for the University	93.807	6.338	.013*
Lived in U.S.	.907	.061	.805
Family lived in U.S.	10.761	.727	.395
Family studied in U.S.	24.680	1.667	.198
TOEFL Score	.583	.039	.843

*Note.*  $R = .42$ ,  $Adj. R = .36$ . Controlling for happy to live in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .013$ ).

Follow-up tests were conducted to evaluate pairwise differences among the adjusted means for program type (Table 8). The Bonferroni procedure was used and the results showed a statistically significant difference between the IRP2 and IRP1. As expected, the IRP2 had the greatest adjusted mean for acclimation ( $M = 27.096$ ), followed by the NON group ( $M = 25.136$ ) and then the IRP1 group ( $M = 23.723$ ).

Table 8. Multiple Comparisons and Mean Differences in Acclimation by Program Type (IRP1/IRP2/NON)

Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's $d$
IRP1 vs. IRP2	-3.373	1.327	.012*	-5.992, -.754	-.610
IRP1 vs. NON	-1.413	1.069	.188	-3.524, .699	-.279
IRP2 vs. NON	1.961	1.257	.121	-.522, 4.443	.370

*Note.* Comparisons based upon ANCOVA adjusted means.

These findings for Acclimation indicate that students within the IRP2 statistically had greater success acclimating to living on-campus and attending the University than their counterparts in the IRP1 ( $p = .012$ ). It may be that the benefits of apartment style housing (kitchen facility, privacy, additional space, etc.) afforded by the IRP2 are a primary factor in this increased level of acclimation. Also, students within the IRP2 had an upperclass domestic

roommate (IRP1 had first-year roommate) who was familiar with the campus. This familiarity and knowledge may contribute to the greater acclimation of IRP2 international students.

While the IRP2 had greater levels of acclimation compared to the NON (27.1 vs. 25.14), this difference was not statistically significant. This may be a result of the limited statistical power yielded from the low response rate from the NON group and/or the fact that the NON group has components of the IRP1/IRP2. Within the NON group, participants are randomly distributed throughout campus housing including placements with upperclass roommates, living in corridor and apartment style housing, and living with international and domestic roommates. These possible similarities between the NON group and IRP2 could account for the lack of statistical significance as there may indeed be no difference in acclimation between these groups.

It is notable that the independent variables of ‘happy to live in a residence hall’ ( $p = .000$ ) and ‘happy to go to the University’ ( $p = .013$ ) were significantly associated with Acclimation. These factors were statistically controlled for in the ANCOVA, thus “leveling the playing field” as though all students in the IRP1, IRP2, and NON had the same levels of these variables. Because these factors are correlated with acclimation for international students, future studies ought to further examine these factors and potentially increase and/or promote these variables in international students prior to their arrival to campus.

*Food.* Program type was significantly associated with differences in self-reported Food Satisfaction ( $F=4.086$ ) as shown in Table 9. In addition, happy living in a residence hall was significantly associated with Food Satisfaction (see Table 10).

Table 9. ANCOVA Results and Descriptive Statistics for Food by Program Type (IRP1/IRP2/NON)

Program Type	Food			
	Observed Mean	Adjusted Mean	SD	n
IRP1	11.658	11.725	4.666	38
IRP2	14.515	14.432	5.222	33

NON	14.204	14.205	4.422	113	
Variable	SS	Df	MS	F	Sig.
Acclimation	97.073	2	48.536	4.086	.019*
Error	1959.915	165	11.878		

*Note. R = .289, Adj. R = .212. Controlling for happy living in a residence hall (p = .000).*

Table 10. Tests of between-subjects effects of Food

Variable	MS	F	Sig.
Country	2.550	.215	.644
Hometown	.021	.002	.967
Gender	38.598	3.249	.073
Age	24.391	2.053	.154
Residence Hall	.015	.001	.972
Roommate Status	1.083	.091	.763
Family attended college	5.732	.483	.488
Shared bedroom	.306	.026	.873
Time w/ American	.000	.000	.997
Imp. Living w/ American	22.585	1.901	.170
Happy in residence hall	159.409	13.420	.000*
Happy for the University	29.919	2.519	.114
Lived in U.S.	20.267	1.706	.193
Family lived in U.S.	.137	.012	.915
Family studied in U.S.	7.590	.639	.425
TOEFL Score	1.285	.108	.743

*Note. R = .289, Adj. R = .212. Controlling for happy living in a residence hall (p = .000).*

Follow-up tests were conducted to evaluate pairwise differences among the adjusted means for program type (Table 11). The Bonferroni procedure was used and the results showed a statistically significant difference between IRP1 and IRP2/NON. As expected, the IRP1 had the smallest adjusted mean for Food ( $M = 11.725$ ), followed by the NON ( $M = 14.205$ ) and then the IRP2 group ( $M = 14.432$ ).

Table 11. Multiple Comparisons and Mean Differences in Food by Program Type (IRP1/IRP2/NON)

Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's <i>d</i>
IRP1 vs. IRP2	-2.707	1.188	.024	-5.054, -.361	-.546
IRP1 vs. NON	-2.481	.958	.010	-4.372, -.590	-.545
IRP2 vs. NON	.226	1.126	.841	-1.997, 2.450	.047



*Note.* Comparisons based upon ANCOVA adjusted means.

These findings for Food indicate that students within the IRP1 statistically had less satisfaction with their dietary options compared their counterparts in both the IRP2 ( $p = .024$ ) and NON ( $p = .010$ ). This may be the direct result of the IRP1 students being placed into corridor style housing, which subsequently requires them to eat the majority of their meals within the dining hall. Students living in apartments (IRP2/NON) may have greater satisfaction as they have kitchens to prepare their own meals. The ability to cook their own food affords them the ability to ensure their dietary needs and taste preferences are met. Consideration can be given to exploring improving international students' satisfaction with the dining halls. While it is outside of the scope of this study, an interesting exploration would be to compare domestic students' satisfaction with dining hall food to international students. It is possible that all students (domestic and international) have lower levels of satisfaction with dining hall food. If international students' satisfaction were lower than domestic students, that could suggest the need for accommodations to improve the satisfaction of international students in the dining halls. Further, after determining why international students are dissatisfied with the dining hall, Residence Life ought to determine if there is a dining facility elsewhere on campus that better meets the needs of international students. If a better option is available, the IRP1 could be relocated to that campus to provide the international students with preferable dining facilities.

It is notable that the independent variable of 'happy to live in a residence hall' ( $p = .000$ ) was the only factor significantly associated with Food. It is reasonable to believe that if a student is excited about the experience of living in a residence hall and having the "residential experience", they may be more open to aspects of the experience like eating in the dining hall. However, even after statistically controlling for this variable within the analysis, the findings the

study showed decrease satisfaction by the IRP1 compared to their counterparts (both the IRP2 and NON). This further warrants the need to examine the dining options of the IRP1.

*Recommendation based on Residential Experience.* Program type was significantly associated with differences in impact of living on campus with the recommendation of the University ( $F=3.872$ ) as shown in Table 12. Additionally, happiness to be living in a residence hall and happiness to be attending the University were significantly associated with the recommendation of the University based on residential experience (see Table 13).

Table 12. ANCOVA Results and Descriptive Statistics for Satisfaction by Program Type (IRP1/IRP2/NON)

Program Type	Recommendation			
	Observed Mean	Adjusted Mean	SD	n
IRP1	11.026	10.925	2.11	38
IRP2	11.303	11.920	2.37	33
NON	10.646	10.500	2.01	113

Variable	SS	Df	MS	F	Sig.
Acclimation	18.901	2	9.451	3.872	.023
Error	402.720	165	2.441		

*Note.*  $R = .452$ ,  $Adj. R = .392$ . Controlling for happy living in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .000$ ).

Table 13. Tests of between-subjects effects of Recommendation

Variable	MS	F	Sig.
Country	.418	.171	.680
Hometown	1.507	.618	.433
Gender	.932	.382	.537
Age	.123	.050	.823
Residence Hall	.436	.179	.673
Roommate Status	4.463	.1828	.178
Family attended college	2.118	.868	.353
Shared bedroom	1.099	.450	.503
Time w/ American	1.092	.447	.505
Imp. Living w/ American	1.680	.688	.408
Happy in residence hall	76.462	31.327	.000
Happy for the University	59.663	24.445	.000
Lived in U.S.	1.094	.448	.504
Family lived in U.S.	.013	.005	.942
Family studied in U.S.	2.343	.960	.329

TOEFL Score	.293	.120	.729
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*Note.*  $R = .452$ ,  $Adj. R = .392$ . Controlling for happy living in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .000$ ).

Follow-up tests were conducted to evaluate pairwise differences among the adjusted means for program type (Table 14). The Bonferroni procedure was used and the results showed a statistically significant difference between the IRP2 and NON group. As expected, the NON group had the smallest adjusted mean ( $M = 10.500$ ), followed by the IRP1 ( $M = 10.925$ ) and then the IRP2 ( $M = 11.920$ ).

Table 14. Multiple Comparisons and Mean Differences in Food by Program Type (IRP1/IRP2/NON)

Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's $d$
IRP1 vs. IRP2	-.995	.539	.067	-2.058, .069	-.443
IRP1 vs. NON	.426	.434	.328	-.431, 1.283	.206
IRP2 vs. NON	1.421	.510	.006*	.413, 2.429	.647

*Note.* Comparisons based upon ANCOVA adjusted means.

These findings for the Recommendation of the University based on Residential Experience indicate that students within the IRP2 statistically are more likely to recommend the University to friends/family than their counterparts in the IRP1 ( $p = .006$ ). Furthermore, while it was not statistically significant ( $p = .067$ ), though close, the IRP2 showed a greater likelihood to recommend the University than the NON group. This is another variable that may have been statistically significant had a greater response rate been achieved, especially from the NON group. These findings are important because the University enrolls a significant number of international students and it appears that the IRP2 can increase international students' level of satisfaction, making them more likely to recommend the University to prospective international students.

*Satisfaction.* Program type was significantly associated with differences in self-reported Satisfaction ( $F=1.292$ ) as shown in Table 15. Additionally, it was found that happiness to live in

a residence hall and happiness to attend the University were significantly associated with Satisfaction (see Table 16).

Table 15. ANCOVA Results and Descriptive Statistics for Satisfaction by Program Type (IRP1/IRP2/NON)

Program Type	Satisfaction			
	Observed Mean	Adjusted Mean	SD	n
IRP1	20.553	20.430	4.00	38
IRP2	23.061	23.175	4.48	33
NON	21.407	21.415	3.79	113

Variable	SS	Df	MS	F	Sig.
Acclimation	63.416	2	31.708	3.629	.029
Error	1441.558	165	8.737		

*Note.*  $R = .441$ ,  $Adj. R = .380$ . Controlling for happy living in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .004$ ).

Table 16. Tests of between-subjects effects of Satisfaction

Variable	MS	F	Sig.
Country	4.894	.560	.455
Hometown	1.065	122	.727
Gender	1.477	.169	.682
Age	6.281	.719	.398
Residence Hall	6.188	.708	.401
Roommate Status	.122	.014	.906
Family attended college	3.362	.385	.536
Shared bedroom	2.666	.305	.581
Time w/ American	13.316	1.524	.219
Imp. Living w/ American	.034	.004	.950
Happy in residence hall	377.280	43.183	.000*
Happy for the University	73.514	8.414	.004*
Lived in U.S.	1.895	.217	.642
Family lived in U.S.	7.529	.862	.355
Family studied in U.S.	15.875	1.817	.180
TOEFL Score	2.804	.321	.572

*Note.*  $R = .441$ ,  $Adj. R = .380$ . Controlling for happy living in a residence hall ( $p = .000$ ) and happy to go to the University ( $p = .004$ ).

Follow-up tests were conducted to evaluate pairwise differences among the adjusted means for program type (see Table 17). The Bonferroni procedure was used and the results showed a statistically significant difference between the IRP1 and IRP2. As expected, the IRP1

had the smallest adjusted mean for Food ( $M = 20.430$ ), followed by the NON ( $M = 21.415$ ) and then the IRP2 group ( $M = 23.175$ ).

Table 17. Multiple Comparisons and Mean Differences in Satisfaction by Program Type (IRP1/IRP2/NON)

Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's <i>d</i>
IRP1 vs. IRP2	-2.745	1.019	.008*	-4.758, -2.607	-.646
IRP1 vs. NON	-.985	.821	.232	-2.607, .637	-.253
IRP2 vs. NON	1.760	.966	.070	-3.668, .147	.424

*Note.* Comparisons based upon ANCOVA adjusted means.

The findings for Overall Satisfaction indicate that students within the IRP2 statistically had greater satisfaction with their overall experience compared their counterparts in both the IRP1 ( $p = .008$ ). Furthermore, while it was not statistically significant ( $p = .070$ ), though close, the IRP2 had a greater level of satisfaction compared to the NON. It is possible that a greater response rate from the NON group could have resulted in statistically significant findings. This increased satisfaction level of the IRP2 compared to the IRP1 may also impact and/or reflect other aspects of the IRP2 participants' experience. In fact, the IRP2 had higher scores in seven of the eight variables studied (four of which were statistically significant). This greater level of overall satisfaction suggests the need to investigate the factors that contribute to their satisfaction? Perhaps, based on the comparison to the IRP1, the benefits afforded from living in an apartment (kitchen, nicer facility, more space, privacy, etc.) could be a key factor.

*Academic Outcomes.* Program type was not significantly associated with differences in self-reported Academic Outcomes ( $F=.459$ ) as shown in Table 18. Interestingly, there was not an observed association of the independent variables with Academic Outcomes (see Table 19).

Table 18. ANCOVA Results and Descriptive Statistics for Academic Outcomes by Program Type (IRP1/IRP2/NON)

Program Type	Academic Outcomes			
	Observed Mean	Adjusted Mean	SD	n
IRP1	2.90	2.92	.95	38
IRP2	3.20	3.00	1.06	33
NON	3.05	3.11	.90	113

Variable	SS	Df	MS	F	Sig.
Acclimation	.451	2	.226	.459	.633
Error	81.066	165	.491		

*Note.*  $R = .118$ ,  $Adj. R = .022$ .

Table 19. Tests of between-subjects effects of Academic Outcomes

Variable	MS	F	Sig.
Country	.193	.392	.532
Hometown	.182	.370	.544
Gender	1.760	3.582	.060
Age	.777	1.581	.210
Residence Hall	.005	.011	.916
Roommate Status	.654	1.331	.250
Family attended college	1.652	3.362	.069
Shared bedroom	.663	1.349	.247
Time w/ American	.000	.001	.975
Imp. Living w/ American	.300	.611	.436
Happy in residence hall	.018	.037	.847
Happy for the University	.377	.768	.382
Lived in U.S.	.576	1.173	.280
Family lived in U.S.	1.097	2.232	.137
Family studied in U.S.	.276	.562	.454
TOEFL Score	.004	.007	.931

*Note.*  $R = .118$ ,  $Adj. R = .022$ .

These findings for Academic Outcomes indicate that the difference between the IRP1/IRP2/NON was minimal and not statistically significant ( $p = .633$ ). Admittedly, the self reported GPA for the Fall Semester by the IRP1/IRP2/NON participants was respectable (2.92, 3.0, 3.11, respectively), especially for first-year students learning to navigate the college campus and learning to be a student. While this study only explored Fall GPA, it would be interesting to see the impact of the IRP on Spring GPA and subsequent years. Furthermore, examining to

other academic outcomes such as retention and persistence could show long term benefits of the IRP. These findings may have been statistically significant with a greater response rate. However, even if statistically significant, it appears the overall impact is minimal and not a critical benefit of the IRP. Furthermore, these results (and lack of statistical significance) indicate that the physical environment and privacy (or lack thereof) within a residence hall does not have a detrimental impact on international students' academic success. Lastly, it is particularly interesting that no association was observed between independent variables and Academic Outcomes. It is especially surprising that first-generation status and TOEFL scores did not impact academic outcomes. This warrants additional consideration and exploration in future studies.

*Benefitted from having an American Roommate.* Program type was not significantly associated with differences in perceived benefit of having an American roommate ( $F=1.640$ ) as shown in Table 20. However, happiness to live in a residence hall and happiness to attend the University were significantly associated with the perceived benefit of having an American Roommate (see Table 21).

Table 20. ANCOVA Results and Descriptive Statistics for American Roommate by Program Type (IRP1/IRP2/NON)

Program Type	American Roommate			
	Observed Mean	Adjusted Mean	SD	n
IRP1	36.605	37.804	9.67	38
IRP2	33.606	35.521	13.28	33
NON	35.745	33.768	10.82	55

Variable	SS	Df	MS	F	Sig.
Acclimation	172.412	2	86.206	1.640	.199
Error	5626.011	107	52.580		

*Note.*  $R = .394$ ,  $Adj. R = .240$ . Controlling for happy to living in a residence hall ( $p = .014$ ), happy to go to the University ( $p = .005$ ), and previously lived in U.S. ( $p = .013$ ).

Table 21. Tests of between-subjects effects of American Roommate

Variable	MS	F	Sig.
Country	22.975	.437	.510
Hometown	7.388	.141	.709
Gender	11.040	.210	.648
Age	10.605	.202	.654
Residence Hall	79.044	1.503	.223
Roommate Status	.000	.000	.998
Family attended college	.8779	.167	.684
Shared bedroom	37.542	.714	.400
Time w/ American	43.679	.831	.364
Imp. Living w/ American	11.171	.212	.646
Happy in residence hall	325.613	6.193	.014*
Happy for the University	436.185	8.296	.005*
Lived in U.S.	335.608	6.383	.013*
Family lived in U.S.	58.970	1.122	.292
Family studied in U.S.	3.534	.067	.796
TOEFL Score	23.104	.439	.509

*Note.*  $R = .394$ ,  $Adj. R = .240$ . Controlling for happy to living in a residence hall ( $p = .014$ ), happy to go to the University ( $p = .005$ ), and previously lived in U.S. ( $p = .013$ ).

The findings for Benefitted having an American Roommate indicate the differences between the IRP1/IRP2/NON participants (37.8, 35.5, 33.8, respectively) were not statistically significant ( $p=.199$ ); however, the means were higher for the IRP compared to the NON. These higher means for the IRP may be attributed to the desire of participants to live with an American roommate, thus they self-selected into the International Roommate-Pairing Program (compared to the NON participants who were placed with an American roommate by chance). A greater response rate and greater statistical power may have found statistically significant benefits to having an American roommate for IRP1 and/or IRP2 international students.

It is notable that the independent variables of ‘happy to live in a residence hall’ ( $p = .014$ ) and ‘happy to go to the University’ ( $p = .005$ ), and ‘previously lived in U.S.’ ( $p = .013$ ) were significantly associated with Benefit of having an American Roommate. These factors were statistically controlled for in the ANCOVA, thus “leveling the playing field” as though all



students in the IRP1, IRP2, and NON had the same levels of these variables. The factor of ‘previously lived in the U.S.’ is particularly interesting, as it is reasonable to conclude these students may not benefit from having an American roommate as much as students without that experience. Future studies ought to further examine students with previous experience in the U.S, as Residence Life staff could explore ways to modify the program to enhance their experience. This may include these international students being partnered in some way with other international students (not previously exposed to the U.S.), creating a component of the program specifically for them, and/or modifying future program requirements for them (i.e. required orientation).

*Development of English Skills.* Program type was not significantly associated with differences in self-reported English skills ( $F=2.038$ ) as shown in Table 22. However, home country, roommate status, time spent with an American, happiness to live in a residence hall, and TOEFL score were significantly associated with English skills (see Table 23).

Table 22. ANCOVA Results and Descriptive Statistics for English by Program Type (IRP1/IRP2/NON)

Program Type	English			
	Observed Mean	Adjusted Mean	SD	n
IRP1	24.053	23.342	5.58	38
IRP2	23.061	24.910	6.25	33
NON	25.947	25.646	5.29	113

Variable	SS	Df	MS	F	Sig.
Acclimation	69.296	2	34.648	2.038	.134
Error	2805.570	165	17.003		

*Note.*  $R = .392$ ,  $Adj. R = .326$ . Controlling for country ( $p = .002$ ), roommate status ( $p = .020$ ), time spent with American ( $p = .025$ ), happy living in a residence hall ( $p = .031$ ), and TOEFL score ( $p = .002$ ).

Table 23. Tests of between-subjects effects of English

Variable	MS	F	Sig.
Country	174.683	10.273	.002*
Hometown	18.237	1.073	.302
Gender	10.319	.607	.437
Age	15.630	.919	.339
Residence Hall	30.455	1.791	.183
Roommate Status	94.035	5.530	.020*
Family attended college	28.523	1.677	.197
Shared bedroom	20.507	1.206	.274
Time w/ American	86.743	5.102	.025*
Imp. Living w/ American	1.842	.108	.742
Happy in residence hall	80.627	4.742	.031*
Happy for the University	6.853	.403	.526
Lived in U.S.	30.474	1.792	.182
Family lived in U.S.	41.483	2.440	.120
Family studied in U.S.	5.839	.343	.559
TOEFL Score	170.721	10.040	.002*

*Note.*  $R = .392$ ,  $Adj. R = .326$ . Controlling for country ( $p = .002$ ), roommate status ( $p = .020$ ), time spent with American ( $p = .025$ ), happy living in a residence hall ( $p = .031$ ), and TOEFL score ( $p = .002$ ).

These findings for the Development of English Skills indicate that difference between the IRP1/IRP2/NON was not statistically significant ( $p = .134$ ). It may be that all international students are sufficiently exposed to the English language in and out of the classroom thereby mitigating differences between the IRP1/IRP2/NON. Similar to the findings of Enabling Social Relationships (and the lack of differences/significance), the residence halls provide a social environment that fosters interaction between students. Perhaps this environment (and the overall experience at the university) provides ample opportunities for international students to develop their English skills. At the same time, the findings suggest that living with an American roommate is insufficient by itself to develop English language skills in international students. Presumably, the program would need to add a language development component (like is done in some summer bridge programs for international students) to develop international students' English language skills.

TOEFL score and previous time spent with an American were significantly associated with the development of English Skills ( $p = .002$ ). Roommate status ( $p = .020$ ) and happiness to be living in a residence hall ( $p = .031$ ) were also associated and may be attributed to the student's likeliness to engage socially (in English) with others in their residential community.

Interestingly, the variable of home country was also associated with the development of English skills. This warrants additional exploration as to cultural differences and how they impact students acquisition and development of English skills. Should Residence Life establish an English skills development component of the IRP, attention should be given here.

*Enabling Social Relationships.* Program type was not significantly associated with differences in self-reported Social Relationships ( $F=2.789$ ) as shown in Table 24. However, home country, roommate status, previously sharing a bedroom, time spent with an American, happiness to living in a residence hall, family having lived in the U.S., and TOEFL score were significantly associated with Social Relationships (see Table 25).

Table 24. ANCOVA Results and Descriptive Statistics for Social Relationships by Program Type (IRP1/IRP2/NON)

Program Type	Social Relationships			
	Observed Mean	Adjusted Mean	SD	n
IRP1	13.974	13.388	3.41	38
IRP2	13.152	14.462	3.81	33
NON	14.592	15.036	3.23	113

Variable	SS	Df	MS	F	Sig.
Acclimation	35.324	2	17.662	2.789	.064
Error	1044.952	165	6.333		

*Note.*  $R = .438$ ,  $Adj. R = .376$ . Controlling for home country ( $p = .002$ ), roommate status ( $p = .005$ ), previously shared bedroom ( $p = .041$ ), spent time with American ( $p = .012$ ), happy to live in a residence hall ( $p = .013$ ), family lived in U.S. ( $p = .038$ ), and TOEFL score ( $p = .001$ ).

Table 25. Tests of Between-Subjects Effects of Social Relationships

Variable	MS	F	Sig.
Country	60.477	9.549	.002*
Hometown	10.717	1.692	.195
Gender	.934	.148	.701
Age	.014	.002	.963
Residence Hall	22.738	3.590	.060
Roommate Status	51.763	8.173	.005*
Family attended college	6.037	.953	.330
Shared bedroom	26.968	4.258	.041*
Time w/ American	40.839	6.449	.012*
Imp. Living w/ American	1.231	.194	.660
Happy in residence hall	39.531	6.242	.013*
Happy for the University	1.620	.256	.614
Lived in U.S.	4.228	.668	.415
Family lived in U.S.	27.731	4.379	.038*
Family studied in U.S.	2.887	.456	.500
TOEFL Score	69.159	10.920	.001*

*Note.*  $R = .438$ ,  $Adj. R = .376$ . Controlling for home country ( $p = .002$ ), roommate status ( $p = .005$ ), previously shared bedroom ( $p = .041$ ), spent time with American ( $p = .012$ ), happy to live in a residence hall ( $p = .013$ ), family lived in U.S. ( $p = .038$ ), and TOEFL score ( $p = .001$ ).

These findings for Enabling Social Relationships indicate that the difference between the IRP1/IRP2/NON was minimal and not statistically significant ( $p = .064$ ). The social programming aspect of the IRP (targeting the IRP2 but also open to the IRP1) was intended to create opportunities for relationship-building; however, this was not found, and, in fact, the NON group reported greatest social opportunities. A possible explanation for these findings is that residence halls are a social environment with large number of students living in close proximity and commonly participating in programming intended to build relationships amongst students. Subsequently, students may feel engaged and have established opportunities for social engagement and relationship building even when they are not part of an intentional program aimed at facilitating social interactions.

### Summary

The study results were yielded from an analysis of data collected from 185 first-year international students living on-campus. Factor analysis was used to reduce the number of outcome variables to eight. The relationship between each of these eight factors (themes) and program type was investigated with ANCOVA. Table 26 reports the statistically significant findings.

Table 26. Multiple Comparisons and Mean Differences with Statistical Significance

Variable	Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's <i>d</i>
Acclimation	IRP1 vs. IRP2	-3.373	1.327	.012 <sup>a</sup>	-5.992, -.754	-.610
Food	IRP1 vs. IRP2	-2.707	1.188	.024 <sup>b</sup>	-5.054, -.361	-.546
	IRP1 vs. NON	-2.481	.958	.010 <sup>b</sup>	-4.372, -.590	-.545
Satisfaction	IRP1 vs. IRP2	-2.745	1.019	.008 <sup>c</sup>	-4.758, -.2607	-.646
Recommendation	IRP2 vs. NON	1.421	.510	.006 <sup>d</sup>	.413, 2.429	.647

*Note.* Comparisons based upon ANCOVA adjusted means. A) Acclimation is statistically different between IRP1 and IRP2 ( $p = .012$ ). B) Food is statistically different between IRP1 and IRP2/NON. C) Satisfaction is statistically different between IRP1 and IRP2. D) Recommendation is statistically different between IRP2 and NON.

Just because a finding is statistically significant, does not mean it is substantial or meaningful to practitioners (Tao, 2015). To provide context and help stakeholders better understand the results, seven of the eight studied variables have been converted to a 7-point scale to allow for comparison and greater understanding of how international students view their residential experience (Figure 5). The eighth variable, academic outcomes, was left on a 4.0 scale to mirror the academic scale on which it is based.



Figure 6. Independent Variables Converted to 7-point Scale (with the exception of Academic Outcomes). The scale is as follows: 7) Strongly agree, 6) Agree, 5) Somewhat agree, 4) Neither agree or disagree, 3) Somewhat disagree, 2) Disagree, and 1) Strongly disagree. Note that Academic Outcomes is on a 4.0 GPA scale (and not converted to 7-point). \* denotes statistical significant ( $p < .05$ ).

Examining the seven variables on a 7-point Likert scale supports the assertion that international students (IRP1/IRP2/NON) have a positive residential experience at the University. With the exception of Food for the IRP1, the findings show that international students report being neutral to somewhat agreeing that they have a positive residential experience. This positive finding reinforces the efforts of Residence Life to create an engaging and welcoming community for all students, regardless of participation in a formal program like the IRP. A follow up study of the domestic students at the University could examine whether they report similarly positive residential experiences.

Of the variables studied, the food satisfaction results are the most notable and conclusive. Students within the IRP1 had decreased levels of food satisfaction compared to both the IRP2 and NON groups. Of the seven variables (on a 7-point scale), food had the lowest score across the board for each group. This is particularly concerning for the IRP1 because it dipped below the 4.0 threshold, between neutral and somewhat disagree. Subsequently, Residence Life may want to prioritize dining experience for international students in an effort to strengthen the

overall experience for international students. Looking through the lens of Maslow's Hierarchy of Needs (1943), it is imperative to address the physiological needs of individuals first. If students in the IRP1 increase their level of satisfaction with food, it may raise their overall satisfaction, acclimation, and likelihood of recommending the University based on their residential experience.

Examining the IRP2 through the variables that were statistically significant supports the finding that the IRP2 was more successful than the IRP1. This was true for Satisfaction, Acclimation, and Food. The fourth variable, recommendation of the University based on residential experience, was close to being statistically significant. This success of the IRP2 warrants inquiry into the causality of the success. It is likely the physical environment of living in an apartment style residence hall was a key factor. This environment provides students with kitchen facilities to prepare their own meals, offers private bedrooms and bathrooms, provides a living space, and gives students a sense of mature living. Furthermore, the international students of the IRP2 had the benefit of having a domestic upperclass student roommate who had successfully navigated the University as a freshman and can share lessons learned, resources, and insights based on their own experience. With that being said, it is not possible for this study to determine this causality because of differences between the IRP1 (corridor housing, dining hall, and first-year domestic roommate) and IRP2 (apartment housing, private kitchen, and upperclass roommate). A combination of multiple factors may have lead to the IRP2's success over the IRP1. Future studies should examine these differences to determine causality. This will allow universities to further strengthen and align their current programs.

One statistically significant finding is that international students in IRP2 were more likely to recommend the University based on their residential experience compared to the NON group.

The importance of this finding should not be overlooked. The increase in positive recommendations from current international students has the potential to increase recruitment of prospective international students to the university. Should the IRP2 continue to yield positive results in this area, the University may benefit from expanding the IRP2 program to recruit and enroll international students.

Perhaps most importantly, this study provides baseline data for Residence Life and can facilitate the assessment of IRP program effectiveness in the future. With this purpose, the following chapter offers further recommendations for stakeholders.



## CHAPTER 5: DISCUSSION

The semi-traditional format for this dissertation allows for greater engagement with the findings as they relate to the study stakeholders: Residence Life staff at the University. As such, this chapter includes key findings, a synopsis of the stakeholder meeting, including stakeholder feedback and concerns; implications and recommendations; and concluding thoughts.

### Key Findings

This research study addressed the question: Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships? While the results of the study found positive results of the international roommate-pairing program, it drew more more questions than conclusive findings. The following key findings support further examination of such programs:

1. IRP2 participants were more likely than NON participants to recommend the University based on their residential experience ( $p = .006$ ).
2. The IRP2 participants had greater overall satisfaction ( $p = .008$ ), acclimation ( $p = .012$ ), and food satisfaction ( $p = .008$ ) than IRP1 participants. In addition, while not statistically significant, the IRP2 had greater overall satisfaction, acclimation, food satisfaction, and benefit from having an American roommate than NON participants.
3. The IRP1 participants had lower food satisfaction than the IRP2 ( $p = .024$ ) and NON ( $p = .010$ ).

There was only one area, which was indirectly related to the primary research question, that found statistical significance between the IRP and NON participants. Within the IRP2, students were more likely to positively recommend the University based on their residential

experience compared to their NON program counterparts ( $p = .006$ ). This finding is important, as it demonstrates that not only is the IRP2 beneficial to international students (as they found value in it), but equally if not more important it is beneficial to the University. International students increasing their recommendation of the University to prospective students is a great advantage to the University. This finding warrants additional consideration be given to such programs for marketing and recruitment purposes for the institution.

While not statistically significant, it must be noted that the IRP2 showed greater levels of satisfaction/agreement in three areas of the primary research question (compared to the NON): Acclimation, Food, and Satisfaction. In the area of satisfaction, it is notable that the difference between the IRP2 and NON were close to being statistically significant. Had the study achieved a greater response rate from the NON group (which is a central limitation of the study), it is possible this finding could have been statistically significant. This finding, coupled with the statistically insignificant but larger means of acclimation and food, add to the compelling case of the benefits of the IRP2.

Further examining the IRP2, comparisons should be made to the IRP1 to determine which of these programs is most effective. In seven out eight of the variables studied, the IRP2 had increased scores over the the IRP1. Further strengthening this finding, it was found that the increased scores of the IRP2 compared to the IRP1 in acclimation ( $p = .012$ ), satisfaction ( $p = .008$ ), and food ( $p = .010$ ) were statistically significant. However, caution should be given not to dissolve the IRP1 based on these results. The causality of the IRP2 benefits is not known, as there are multiple variables/factors between the IRP1 and IRP2 (i.e. corridor vs apartments, dining hall vs. private kitchen, first-year vs. upperclass roommate, etc.). Identifying which

factor(s) lead to the observed results could facilitate modifications to the IRP1 that could further strengthen the program and increase benefits.

When examining the IRP1, Residence Life should attend to the food and dining options available to international students. This was the only statistically significant variable that differentiated the IRP2 (.024) and NON (.010). The decreased satisfaction with food may result from IRP1 participants eating in the dining hall (as they do not have kitchens to prepare their own meals). Future studies should explore whether other dining halls provide more preferable food options for international students (and if so, consideration of relocating the IRP1 to that campus), working with the current dining hall to increase food options/accommodation for international students, and mechanisms that would enable these students to prepare some of their own meals.

### **Stakeholder Meeting**

To capitalize on the practical utility of the study findings, I presented the results at a stakeholder meeting where I engaged graduate and professional staff in scholarly dialog and helped them interpret the results. Additionally, I provided an executive summary of the findings that could serve as historical documentation for later reference. Residence Life professionals commonly hold positions for three years on average, creating a high level of staff turnover. As such, this documentation can serve as an important source of information for new employees.

On November 12, 2015, I met with the department of Residence Life to present the findings of the research study. At this presentation were 75 professional and graduate staff members from the department. This included the primary stakeholders of the study; the Director of Residence Life, the Assistant Director of Residence Life responsible for the IRP, and the Residence Life Coordinator who serves as the Director of the IRP. The presentation to the

department consisted of the Director of the IRP giving an overview of the program (and its impetus for creation) and how it has changed in its second year, my presenting the study and findings (supported by a PowerPoint presentation), and answering questions at the end. All together, the presentation was 90 minutes in length.

Collectively, the members of Residence Life were greatly appreciative of the study and presentation. Participants observed multiple times that while their department has been the site of studies over the years, the results are seldom shared and no one has presented the data to them directly. This reinforces the need to involve stakeholders in the process and prepare the findings for them in a meaningful way. To this end, I believe my preparation of an executive summary and presentation of findings was ideal. As I conduct future studies, I will likely make this a staple of my practice as a researcher.

My presentation style enabled the audience to interact and ask questions as I presented. This created a dialogue between the stakeholders and myself, which lead to an engaged conversation. Through this dialogue, I found that the stakeholders interpreted the findings and its implications parallel to my own understanding. This reinforced that I understood the institution, student population, and impact of the program correctly. One of the most insightful aspects of the conversation revolved around the theoretical framework. I posed to the audience the need to scaffold the study around a framework and asked they propose one. As they discussed this amongst themselves, two theories emerged; Maslow's Hierarchy of Needs and Schlossberg's Transition Theory. I was elated at this, as these are the theoretical underpinnings I identified for this study. As I processed through the findings, I found the audience was able to make a deeper understanding as they were viewing it through the theoretical framework.

Through the engaged dialogue that I fostered during the presentation, I was surprised by the absence of questions regarding my interpretation of the findings and suggested recommendations. There were numerous questions throughout the presentation about the methodology as there was a desire from individuals to conduct their own research in the future. I believe my intimate understanding of Residence Life and the University specifically enabled me to analyze the findings effectively. With that being said, I do believe individuals will have questions as they “digest” the findings and consider implementing the recommendations. Acknowledging this, I shared my contact information and offered to answer additional questions at a later time and assist with future evaluations of the IRP should they wish. The Executive Summary can be found in Appendix H.

### **Future considerations**

Ideally, future studies should compare programs with similar environments, thus making it easier to draw conclusions, determine causality, and generalize the study. The study of the IRP1/IRP2 proved to be challenging as there was a different living environment (corridor vs. suite style), dietary accommodations (dining hall vs. private kitchen), roommate status (upperclass vs. freshmen), and program requirements (optional vs. required components). It would be particularly interesting and beneficial to replicate the IRP1/IRP2 program but create a version of each in corridor and suite-style. In other words, implement the IRP1/IRP2 in both corridor and suite-style housing. Doing so would eliminate the difference in living environment (including dietary) and better facilitate program evaluation with the non-participants. To this end, comparing similar environments would more effectively allow an “apples-to-apples” comparison.

Efforts must also be made to increase response rate of the participants. While email surveys are the most convenient and cost effective method of distribution, they may become an unusable medium due to the high volume of emails college students receive from administrators/faculty. Additionally, students often receive surveys seeking feedback, as program evaluation and assessment has become an expectation from many departments/programs. This “flooding” of their inbox likely influenced the low response rate in this study. This is perplexing for the future state of research within Higher Education, as it will limit the number of rigorous quantitative studies that will be done.

### **Conclusion**

While this study has found several ways to improve the residential experience for international students, it is notable and impressive that the reported satisfaction levels of all international students (regardless of IRP participation) were positive. By and large, all of these students reported between neutral and somewhat agree for each of the variables. These positive results reinforce Residence Life’s effort to create a residential community that is inclusive and supportive. This study will provide an excellent baseline for Residence Life to compare changes to the IRP and future initiatives involving the residential experience of international students.

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## APPENDIX A: IRP1 Instrument

IRP1 Instrument. Constructed and implemented through the software package, Qualtrics. To provide insight into how the forms were created, enclosed in the export of the form directly from Qualtrics.

**Q1 CONSENT FORM:** You are invited to participate in a research study that is being conducted by Steven Tolman, who is a Doctoral Student in the Graduate School of Education at Rutgers University. To participate in the study, you will be asked to complete an anonymous online survey between 3/23/15 – 4/22/15 that should take less than ten minutes. The purpose of this research is to determine impact of the International Roommate-Pairing Program on first-year international students and their roommates at your University. The study seeks to examine the approximate 1,000 students who meet this criteria. This research is anonymous.

Anonymous means that I will record no information about you that could identify you. There will be no linkage between your identity and your response in the research. This means that I will not record your name, address, phone number, date of birth, etc. If you agree to take part in the study, there will be no way to link your responses back to you. Therefore, data collection is anonymous. The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for three years. There are no foreseeable risks to participation in this study. In addition, you may receive no direct benefit from taking part in this study, aside from being eligible to enter a drawing for a free iPad

Mini. Participation in this study is voluntary and there is no cost for you to participate. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable. If you have any questions about the study or study procedures, you may contact myself at [steventolman@gmail.com](mailto:steventolman@gmail.com) or 973.655.4404. You can also contact my faculty advisor, Melinda Mangin, at [melinda.mangin@gse.rutgers.edu](mailto:melinda.mangin@gse.rutgers.edu) or 848-932-0723. If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB: Institutional Review Board | Rutgers University, Liberty Plaza / Suite 3200, 335 George Street, 3rd Floor, New Brunswick, NJ 08901. If you are 18 years of age or older, understand the statements above, and will consent to participate in the study, click on the “Continue/Next” button and begin the survey. If not, please continue no further and close your browser, which will exit this program. At the end of the survey you can enter into a drawing for a free Apple iPad Mini.

Q4 Which country are you from?

- ☐ Canada (1)
- ☐ China (2)
- ☐ India (3)
- ☐ Russia (4)
- ☐ Singapore (5)
- ☐ Taiwan (6)
- ☐ Other (7)

Answer If Which country are you from? Other Is Selected

Q43 Please specify which country you are from:

Q5 How would you describe your hometown?

- ☐ Urban (city) (1)
- ☐ Suburban (suburbs) (2)
- ☐ Rural (farms, country) (3)

Q7 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Transgendered (3)
- ☐ Gender Identity not listed (4)

Q8 How old are you?

- ☐ 17 (1)
- ☐ 18 (2)
- ☐ 19 (3)
- ☐ 20 (4)
- ☐ 21 (5)
- ☐ 22 (6)
- ☐ 23 (7)
- ☐ 24 (8)
- ☐ 25+ (9)

Q9 Which residence hall do you live in?

Answer If Which residence hall do you live in? Other Is Selected

Q44 Please specify your residence hall:

Q10 Which best describes your roommate(s)?

- ☐ I have one roommate and they are an American student (1)
- ☐ I have one roommate and they are an international student (2)
- ☐ I have multiple roommates, but only one is American student (3)
- ☐ I have multiple roommates and at least two of them are American (4)
- ☐ None of the above (6)

Q11 What was your GPA in Fall? What do you anticipate it will be in the Spring? (i.e. 3.4, 2.85, etc)

Fall Semester (1)

Spring Semester (2)

Q12 Have members of your immediate family attended college?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q14 Before coming to the University, did you share a bedroom with another individual after the age of 12? Excluding short periods of time like summer camp, vacations, etc.

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q15 Before coming to the University, had you spent substantial time with an American? Example: An American student studying abroad in your home country

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q16 Before coming to the University:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Was living with an American important to you? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy to live on-campus in a residence hall? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy that you would be going to school at the University? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc.

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Answer If Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc  
 Yes Is Selected

Q21 Please share what this experience was and how long you were in the U.S.

Q19 Have any members of your family and/or close friends lived in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Q20 Have any members of your family and/or close friends gone to college in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Q23 How well did you score on your TOEFL? TOEFL is the standardized test of English language proficiency for non-native English language speakers wishing to enroll in U.S. universities

- ☐ Very high score (1)
- ☐ High score (2)
- ☐ Somewhat high score (3)
- ☐ Neither low score or high score (4)
- ☐ Somewhat low score (5)
- ☐ Low score (6)
- ☐ Very low score (7)

Q46 Do you know your approximate TOEFL score?

- ☐ Yes (1)
- ☐ No (2)

Answer If Do you know your approximate TOEFL score? Yes Is Selected

Q47 What was your TOEFL score?

Q24 Before coming to the University, how confident were you:

[illegible]

Q25 Now that you have been at the University for over a semester, how confident are you:

	Strongly unconfident (1)	Unconfident (2)	Somewhat unconfident (3)	Neither confident or unconfident (4)	Somewhat confident (5)	Confident (6)	Strongly confident (7)
Speaking in English (having conversations, speaking in class, etc)? (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing in English (Writing papers, sending emails, etc.)? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding English (Spoken instructions, following class conversations, etc.)? (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q42 Has having an American roommate(s) helped you to feel more confident in your English language skills (i.e. speaking, writing, and understanding others)?

- ☐ Very unhelpful (1)
- ☐ Unhelpful (2)
- ☐ Somewhat unhelpful (3)
- ☐ Neither helpful or unhelpful (4)
- ☐ Somewhat helpful (5)
- ☐ Helpful (6)
- ☐ Very helpful (7)



[illegible][illegible]



Q31 To what extent do you agree:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
The RA/AA has helped you to have a positive experience (This is the student staff member who lives on your floor) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Strongly disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Somewhat disagree Is Selected

Q33 You have indicated that your RA/AA has had less than a positive influence on your experience. Please share why this is the case and if/how they could better meet your needs.

Answer If . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Completely dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Mostly dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Somewhat dissatisfied Is Selected

Q34 You have indicated that you less than satisfied with the physical environment of your room. Please share why this and if there is anything Residence Life could do to make it better in the future.

Q32 Have you met the Residence Life Educator/Coordinator (RLE/RLC) for your building? This is the professional staff member who supervises all of the RAs/AAs and oversees your residence hall

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q35 Next year, how likely are you to:

[illegible]

Answer If Next year... How likely are you to continue your studies at the University next year? - Very Unlikely Is Selected Or Next year... How likely are you to continue your studies at the University next year? - Unlikely Is Selected Or Next year... How likely are you to continue your studies at the University next year? - Somewhat Unlikely Is Selected

Q36 You have indicated that you are not likely to live on-campus next year. Should you not live on-campus, where would you live and with whom would you live?

**Q37 International Roommate Program (IRP1)** The International Roommate Program (IRP1) pairs incoming international and domestic students to live together as Freshmen roommates. All of the students participating in this program live in the same residence hall and are encouraged to attend social events together.

Q38 Where are your roommate(s) from? For American roommates list their state. For International roommates, list their country.

Q39 To what extent to do you agree:

[illegible]

Q41 How many IRP1 sponsored events have you attended?

- ☐ 0 (1)  
☐ 1 (2)  
☐ 2 (3)  
☐ 3 (4)  
☐ 4 (5)  
☐ 5+ (6)

Q42 When attending these events, who did you attend them with? (Check all that apply)

- ☐ American roommate(s) (1)  
☐ International roommate(s) (2)  
☐ American friend(s) (3)  
☐ International friend(s) (4)  
☐ By yourself (5)  
☐ I did not attend (6)

Q43 By being a part of the IRP1, to what extend do you agree:

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
It has enhanced your college experience. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to build a group of friends. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to transition/acclimate into college. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to succeed academically. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q44 What has been the best part about being in the IRP1?

Q45 Do you have suggestions of how to improve the IRP1?

Q46 How likely are you to:

	Very unlikely (1)	Unlikely (2)	Somewhat Unlikely (3)	Neither likely or unlikely (4)	Somewhat Likely (5)	Likely (6)	Very Likely (7)
Recommend friends/family to participate in the International Roommate Program? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommend friends/family to attend the University? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q47 To what extent do you agree International Students benefit from:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Having an American roommate (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having an International roommate (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q48 Which do you believe to be the most beneficial to international students?

- ☐ American Roommate (1)  
☐ International Roommate from home country (2)  
☐ International Roommate from another country (3)  
☐ No Roommate (4)

Q49 Is there anything you would like to share about your experience being in the International Roommate Program and/or living on-campus that you haven't shared already?

## APPENDIX B: IRP2 Instrument

IRP2 Instrument. Constructed and implemented through the software package, Qualtrics. To provide insight into how the forms were created, enclosed in the export of the form directly from Qualtrics.

**Q1 CONSENT FORM:** You are invited to participate in a research study that is being conducted by Steven Tolman, who is a Doctoral Student in the Graduate School of Education at Rutgers University. To participate in the study, you will be asked to complete an anonymous online survey between 3/23/15 – 4/22/15 that should take less than ten minutes. The purpose of this research is to determine impact of the International Roommate-Pairing Program on first-year international students and their roommates at your University. The study seeks to examine the approximate 1,000 students who meet this criteria. This research is anonymous.

Anonymous means that I will record no information about you that could identify you. There will be no linkage between your identity and your response in the research. This means that I will not record your name, address, phone number, date of birth, etc. If you agree to take part in the study, there will be no way to link your responses back to you. Therefore, data collection is anonymous. The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for three years. There are no foreseeable risks to participation in this study. In addition, you may receive no direct benefit from taking part in this study, aside from being eligible to enter a drawing for a free iPad

Mini. Participation in this study is voluntary and there is no cost for you to participate. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable. If you have any questions about the study or study procedures, you may contact myself at [steventolman@gmail.com](mailto:steventolman@gmail.com) or 973.655.4404. You can also contact my faculty advisor, Melinda Mangin, at [melinda.mangin@gse.rutgers.edu](mailto:melinda.mangin@gse.rutgers.edu) or 848-932-0723. If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB: Institutional Review Board | Rutgers University, Liberty Plaza / Suite 3200, 335 George Street, 3rd Floor, New Brunswick, NJ 08901. If you are 18 years of age or older, understand the statements above, and will consent to participate in the study, click on the “Continue/Next” button and begin the survey. If not, please continue no further and close your browser, which will exit this program. At the end of the survey you can enter into a drawing for a free Apple iPad Mini.

Q4 Which country are you from?

- ☐ Canada (1)
- ☐ China (2)
- ☐ India (3)
- ☐ Russia (4)
- ☐ Singapore (5)
- ☐ Taiwan (6)
- ☐ Other (7)

Answer If Which country are you from? Other Is Selected

Q43 Please specify which country you are from:

Q5 How would you describe your hometown?

- ☐ Urban (city) (1)
- ☐ Suburban (suburbs) (2)
- ☐ Rural (farms, country) (3)

Q7 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Transgendered (3)
- ☐ Gender Identity not listed (4)

Q8 How old are you?

- ☐ 17 (1)
- ☐ 18 (2)
- ☐ 19 (3)
- ☐ 20 (4)
- ☐ 21 (5)
- ☐ 22 (6)
- ☐ 23 (7)
- ☐ 24 (8)
- ☐ 25+ (9)

Q9 Which residence hall do you live in?

Answer If Which residence hall do you live in? Other Is Selected

Q44 Please specify which residence hall you live in

Q10 Which best describes your roommate(s)?

- ☐ I have one roommate and they are an American student (1)
- ☐ I have one roommate and they are an international student (2)
- ☐ I have multiple roommates, but only one is American student (3)
- ☐ I have multiple roommates and at least two of them are American (4)
- ☐ None of the above (5)

Q11 What was your GPA in Fall? What do you anticipate it will be in the Spring? (i.e. 3.4, 2.85, etc)

Fall Semester (1)

Spring Semester (2)

Q12 Have members of your immediate family attended college?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q14 Before coming to the University, did you share a bedroom with another individual after the age of 12? Excluding short periods of time like summer camp, vacations, etc.

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q15 Before coming to the University, had you spent substantial time with an American? Example: An American student studying abroad in your home country

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q16 Before coming to the University:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Was living with an American important to you. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy to live on-campus in a residence hall. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy that you would be going to school at the University. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc.

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Answer If Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc; Yes Is Selected

Q21 Please share what this experience was and how long you were in the U.S.

Q19 Have any members of your family and/or close friends lived in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Q20 Have any members of your family and/or close friends gone to college in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)





Q25 Now that you have been at the University for over a semester, how confident are you:

	Strongly unconfi- dent (1)	Unconfi- dent (2)	Somew- hat unconfi- dent (3)	Neither confide- nt or unconfi- dent (4)	Somew- hat confide- nt (5)	Confide- nt (6)	Strongly confide- nt (7)
Speaking in English (having conversations, speaking in class, etc) (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing in English (Writing papers, sending emails, etc.) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding English (Spoken instructions, following class conversations, etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q42 Has having an American roommate(s) helped you to feel more confident in your English language skills (i.e. speaking, writing, and understanding others)?

- ☐ Very unhelpful (1)
- ☐ Unhelpful (2)
- ☐ Somewhat unhelpful (3)
- ☐ Neither helpful or unhelpful (4)
- ☐ Somewhat helpful (5)
- ☐ Helpful (6)
- ☐ Very helpful (7)



[illegible][illegible]

Q31 To what extent do you agree:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
The RA/AA has helped you to have a positive experience (This is the student staff member who lives on your floor) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Strongly disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Somewhat disagree Is Selected

Q33 You have indicated that your RA/AA has had less than a positive influence on your experience. Please share why this is the case and if/how they could better meet your needs.

Answer If . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Completely dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Mostly dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Somewhat dissatisfied Is Selected

Q34 You have indicated that you less than satisfied with the physical environment of your room. Please share why this and if there is anything Residence Life could do to make it better in the future.

Q32 Have you met the Residence Life Educator/Coordinator (RLE/RLC) for your building? This is the professional staff member who supervises all of the RAs/AAs and oversees your residence hall

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

[illegible]

Q36 You have indicated that you are not likely to live on-campus next year. Should you not live on-campus, where would you live and with whom would you live?

Q38 Where are your roommate(s) from? For American roommates list their state. For International roommates, list their country.

[illegible]

Q41 How many IRP2 sponsored events have you attended?

- ☐ 0 (1)  
☐ 1 (2)  
☐ 2 (3)  
☐ 3 (4)  
☐ 4 (5)  
☐ 5+ (6)

Q42 When attending these events, who did you attend them with? (Check all that apply)

- ☐ American roommate(s) (1)  
☐ International roommate(s) (2)  
☐ American friend(s) (3)  
☐ International friend(s) (4)  
☐ By yourself (5)  
☐ I did not attend (6)

Q43 By being a part of the International Roommate Program #2, to what extent do you agree:

	Strongl y Disagr ee (1)	Disagr ee (2)	Somew hat Disagr ee (3)	Neither Agree nor Disagr ee (4)	Somew hat Agree (5)	Agree (6)	Strongl y Agree (7)
It has enhanced your college experience. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to build a group of friends. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to transition/acclimate into college. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to succeed academically. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q44 What has been the best part about being in the International Roommate Program #2?

Q45 Do you have suggestions of how to improve the International Roommate Program #2?

Q46 How likely are you to:

	Very unlikely (1)	Unlikely (2)	Somewhat Unlikely (3)	Neither likely or unlikely (4)	Somewhat Likely (5)	Likely (6)	Very Likely (7)
Recommend friends/family to participate in the International Roommate Program? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommend friends/family to attend the University? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q47 To what extent do you agree International Students benefit from:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Having an American roommate (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having an International roommate (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q48 Which do you believe to be the most beneficial to international students?

- ☐ American Roommate (1)
- ☐ International Roommate from home country (2)
- ☐ International Roommate from another country (3)
- ☐ No Roommate (4)

Q49 Is there anything you would like to share about your experience being in the International Roommate Program and/or living on-campus that you haven't shared already?



### APPENDIX C: NON Instrument

NON PROGRAM Instrument. Constructed and implemented through the software package, Qualtrics. To provide insight into how the forms were created, enclosed in the export of the form directly from Qualtrics.

Q1 CONSENT FORM: You are invited to participate in a research study that is being conducted by Steven Tolman, who is a Doctoral Student in the Graduate School of Education at Rutgers University. To participate in the study, you will be asked to complete an anonymous online survey between 3/23/15 – 4/22/15 that should take less than ten minutes. The purpose of this research is to determine impact of the International Roommate-Pairing Program on first-year international students and their roommates at your University. The study seeks to examine the approximate 1,000 students who meet this criteria. This research is anonymous.

Anonymous means that I will record no information about you that could identify you. There will be no linkage between your identity and your response in the research. This means that I will not record your name, address, phone number, date of birth, etc. If you agree to take part in the study, there will be no way to link your responses back to you. Therefore, data collection is anonymous. The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for three years. There are no foreseeable risks to participation in this study. In addition, you may receive no direct benefit from taking part in this study, aside from being eligible to enter a drawing for a free iPad

Mini. Participation in this study is voluntary and there is no cost for you to participate. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable. If you have any questions about the study or study procedures, you may contact myself at [steventolman@gmail.com](mailto:steventolman@gmail.com) or 973.655.4404. You can also contact my faculty advisor, Melinda Mangin, at [melinda.mangin@gse.rutgers.edu](mailto:melinda.mangin@gse.rutgers.edu) or 848-932-0723. If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB: Institutional Review Board | Rutgers University, Liberty Plaza / Suite 3200, 335 George Street, 3rd Floor, New Brunswick, NJ 08901. If you are 18 years of age or older, understand the statements above, and will consent to participate in the study, click on the “Continue/Next” button and begin the survey. If not, please continue no further and close your browser, which will exit this program. At the end of the survey you can enter into a drawing for a free Apple iPad Mini.

Q4 Which country are you from?

- ☐ Canada (1)
- ☐ China (2)
- ☐ India (3)
- ☐ Russia (4)
- ☐ Singapore (5)
- ☐ Taiwan (6)
- ☐ Other (7)

Answer If Which country are you from? Other Is Selected

Q55 Please specify which country you are from:

Q5 How would you describe your hometown?

- ☐ Urban (city) (1)
- ☐ Suburban (suburbs) (2)
- ☐ Rural (farms, country) (3)

Q7 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Transgendered (3)
- ☐ Gender Identity not listed (4)

Q8 How old are you?

- ☐ 17 (1)
- ☐ 18 (2)
- ☐ 19 (3)
- ☐ 20 (4)
- ☐ 21 (5)
- ☐ 22 (6)
- ☐ 23 (7)
- ☐ 24 (8)
- ☐ 25+ (9)

Q9 Which residence hall do you live in?

Answer If Which residence hall do you live in? Other Is Selected

Q56 Please specify your residence hall:

Q10 Which best describes your roommate(s)?

- ☐ I have one roommate and they are an American student (1)
- ☐ I have one roommate and they are an international student (2)
- ☐ I have multiple roommates, but only one is American student (3)
- ☐ I have multiple roommate and all are international students (6)
- ☐ I have multiple roommates and at least two of them are American (4)
- ☐ I don't have a roommate (5)

Q11 What was your GPA in Fall? What do you anticipate it will be in the Spring? (i.e. 3.4, 2.85, etc)

Fall Semester (1)

Spring Semester (2)

Q12 Have members of your immediate family attended college?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q14 Before coming to the University, did you share a bedroom with another individual after the age of 12? Excluding short periods of time like summer camp, vacations, etc.

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q15 Before coming to the University, had you spent substantial time with an American? Example: An American student studying abroad in your home country

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q16 Before coming to the University:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Was living with an American important to you? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy to live on-campus in a residence hall? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you happy that you would be going to school at the University? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc.

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Answer If Have you previously lived and/or studied in the U.S.? Examples: Going to boarding school, a summer camp, staying with family members, etc.; Yes Is Selected

Q21 Please share what this experience was and how long you were in the U.S.

Q19 Have any members of your family and/or close friends lived in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)

Q20 Have any members of your family and/or close friends gone to college in the U.S.?

- ☐ Yes (1)  
☐ No (2)  
☐ Unsure (3)



Q25 Now that you have been at the University for over a semester, how confident are you:

	Strongly unconfident (1)	Unconfident (2)	Somewhat unconfident (3)	Neither confident or unconfident (4)	Somewhat confident (5)	Confident (6)	Strongly confident (7)
Speaking in English? (having conversations, speaking in class, etc.) (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing in English? (Writing papers, sending emails, etc.) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding English? (Spoken instructions, following class conversations, etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q42 Has having an American roommate(s) helped you to feel more confident in your English language skills (i.e. speaking, writing, and understanding others)?

- ☐ Very unhelpful (1)
- ☐ Unhelpful (2)
- ☐ Somewhat unhelpful (3)
- ☐ Neither helpful or unhelpful (4)
- ☐ Somewhat helpful (5)
- ☐ Helpful (6)
- ☐ Very helpful (7)



[illegible][illegible][illegible]



Answer If The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Strongly disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Disagree Is Selected Or The RA/AA has helped you to have a positive experience. This is the student staff member who lives on your floor. - Somewhat disagree Is Selected

Q33 You have indicated that your RA/AA has had less than a positive influence on your experience. Please share why this is the case and if/how they could better meet your needs.

Answer If . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Completely dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Mostly dissatisfied Is Selected Or . How satisfied are you with the residence hall room that you live in (amenities, furniture, layout, size, temperature, etc)? - Somewhat dissatisfied Is Selected

Q34 You have indicated that you less than satisfied with the physical environment of your room. Please share why this and if there is anything Residence Life could do to make it better in the future.

Q32 Have you met the Residence Life Educator/Coordinator (RLE/RLC) for your building? This is the professional staff member who supervises all of the RAs/AAs and oversees your residence hall

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)

Q35 Next year, how likely are you to:

	Very Unlikely (1)	Unlikely (2)	Somewhat Unlikely (3)	Undecided (4)	Somewhat Likely (5)	Likely (6)	Very Likely (7)
Continue your studies at the University? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Live in a residence hall? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Live with an American roommate? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If Next year... How likely are you to continue your studies at the University next year? - Very Unlikely Is Selected Or Next year... How likely are you to continue your studies at the University next year? - Unlikely Is Selected Or Next year... How likely are you to continue your studies at the University next year? - Somewhat Unlikely Is Selected

Q36 You have indicated that you are not likely to live on-campus next year. Should you not live on-campus, where would you live and with whom would you live?

Answer If Which best describes your roommate(s)? I have one roommate and they are an international student Is Selected Or Which best describes your roommate(s)? I have multiple roommate and all are international students Is Selected

Q43 Living with an International Roommate, to what extent do you agree:

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
You enjoy living with an International roommate(s). (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You have benefited from living with an International roommate(s) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has enhanced your college experience. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to build a group of friends. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to transition/acclimate into college. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to succeed academically. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If Which best describes your roommate(s)? I have one roommate and they are an American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates, but only one is American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates and at least two of them are American Is Selected

Q48 Living with an American Roommate, to what extent do you agree:

	Strongl y Disagr ee (1)	Disagr ee (2)	Somew hat Disagr ee (3)	Neither Agree nor Disagr ee (4)	Somew hat Agree (5)	Agree (6)	Strongl y Agree (7)
You enjoy living with an American roommate(s). (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You have benefited from living with an American roommate(s) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has enhanced your college experience. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to build a group of friends. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to transition/acclimate into college. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to succeed academically. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If Which best describes your roommate(s)? I don't have a roommate Is Selected

Q52 Living by yourself, to what extent do you agree:

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
You enjoy not having a roommate (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You have benefited from not having a roommate (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has enhanced your college experience. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to build a group of friends. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to transition/acclimate into college. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It has helped you to succeed academically. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer If Which best describes your roommate(s)? I don't have a roommate Is Not Selected  
 Q38 Where are your roommate(s) from? For American roommates list their state. For International roommates, list their country.

Answer If Which best describes your roommate(s)? I have one roommate and they are an international student Is Selected Or Which best describes your roommate(s)? I have multiple roommate and all are international students Is Selected

Q44 What has been the best part about living with an International Roommate?

Answer If Which best describes your roommate(s)? I don't have a roommate Is Selected  
 Q53 What has been the best part about living without a roommate?

Answer If Which best describes your roommate(s)? I have one roommate and they are an American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates, but only one is American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates and at least two of them are American Is Selected  
 Q49 What has been the best part about living with an American Roommate?

Answer If Which best describes your roommate(s)? I have one roommate and they are an international student Is Selected Or Which best describes your roommate(s)? I have multiple roommate and all are international students Is Selected

Q45 Do you have suggestions of how to improve the residential experience of living with a fellow international student(s)?

Answer If Which best describes your roommate(s)? I have one roommate and they are an American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates, but only one is American student Is Selected Or Which best describes your roommate(s)? I have multiple roommates and at least two of them are American Is Selected

Q51 Do you have suggestions of how to improve the residential experience of living with a fellow American student(s)?

Answer If Which best describes your roommate(s)? I don't have a roommate Is Selected

Q54 Do you have suggestions of how to improve the residential experience of living without a roommate?

Q46 How likely are you to:

	Very unlikely (1)	Unlikely (2)	Somewhat Unlikely (3)	Neither likely or unlikely (4)	Somewhat Likely (5)	Likely (6)	Very Likely (7)
Recommend friends/family to live with an American roommate? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommend friends/family to attend the University? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q44 Residence Life implemented an International Roommate-Pairing Program this year. The program pairs domestic and international students to live together in the residence halls as roommates. Participants are able to attend social events throughout the year.

Q45 Do you think you would have benefited from participating in the IRP1? The IRP1 pairs incoming international and domestic students to live together as Freshmen roommates. All of the students participating in this program live in the same residence hall.

- ☐ Very unlikely (1)
- ☐ Unlikely (2)
- ☐ Somewhat unlikely (3)
- ☐ Neither likely or unlikely (4)
- ☐ Somewhat likely (5)
- ☐ Likely (6)
- ☐ Very likely (7)

Q46 Do you think you would have benefited from participating in the International Roommate Pairing Program #2? The International Roommate Program #2 (IRP2) pairs two returning domestic students and two international students to live together in groups of four: two returning domestic students and two international students of the same gender in an apartment.

- ☐ Very unlikely (1)
- ☐ Unlikely (2)
- ☐ Somewhat unlikely (3)
- ☐ Neither likely or unlikely (4)
- ☐ Somewhat likely (5)
- ☐ Likely (6)
- ☐ Very likely (7)

Q47 To what extent do you agree International Students benefit from:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Having an American roommate (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having an International roommate (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q48 Which do you believe to be the most beneficial to international students?

- ☐ American Roommate (1)
- ☐ International Roommate from home country (2)
- ☐ International Roommate from another country (3)
- ☐ No Roommate (4)

Q49 Is there anything you would like to share about your experience being in the International Roommate Program and/or living on-campus that you haven't shared already?

**APPENDIX D: Descriptive Statistics of Independent Variables***Descriptive Statistics of Independent Variables by Program Type (IRP1/IRP2/NON)*

Variable	Mean	SD	Median	Mode	Min	Max
IRP1 – Age	2.63	.71	3.0	2.0	2.0	5.0
IRP2 - Age	2.67	.89	2.0	2.0	2.0	5.0
NON - Age	2.94	.78	3.0	3.0	2.0	5.0
IRP1 – Family attended college	1.39	.55	1.0	1.0	1.0	3.0
IRP2 – Family attended college	1.52	.67	1.0	1.0	1.0	3.0
NON – Family attended college	1.42	.61	1.0	1.0	1.0	3.0
IRP1 – Shared bedroom	1.50	.51	1.5	1.0	1.0	2.0
IRP2 – Shared bedroom	1.45	.51	1.0	1.0	1.0	2.0
NON – Shared bedroom	1.48	.52	1.0	1.0	1.0	2.0
IRP1 – Spent time with American	1.63	.49	2.0	2.0	1.0	2.0
IRP2 - Spent time with American	1.55	.51	2.0	2.0	1.0	2.0
NON - Spent time with American	1.62	.51	2.0	2.0	1.0	2.0
IRP1 – Importance of living w/Am.	4.18	1.63	4.0	4.0	1.0	7.0
IRP2 – Importance of living w/Am.	4.73	1.81	5.0	4.0	1.0	7.0
NON – Importance of living w/Am.	4.38	1.62	4.0	4.0	1.0	7.0
IRP1 – Happy to live in res. hall	4.89	1.47	5.0	4.0	1.0	7.0
IRP2 – Happy to live in res. hall	4.94	1.37	5.0	6.0	2.0	7.0
NON – Happy to live in res. hall	5.31	1.42	6.0	6.0	1.0	7.0
IRP1 – Happy to go to University	5.68	1.44	6.0	6.0	1.0	7.0
IRP2 - Happy to go to University	5.45	1.18	6.0	5.0	2.0	7.0
NON - Happy to go to University	5.50	1.34	6.0	6.0	1.0	7.0
IRP1 – Previously lived in U.S.	1.74	.50	2.0	2.0	1.0	2.0
IRP2 - Previously lived in U.S.	1.61	.50	2.0	2.0	1.0	2.0
NON - Previously lived in U.S.	1.61	.51	2.0	2.0	1.0	2.0
IRP1 – Family lived in U.S.	1.76	.59	2.0	2.0	1.0	3.0
IRP2 – Family lived in U.S.	1.76	.56	2.0	2.0	1.0	3.0
NON – Family lived in U.S.	1.46	.54	1.0	1.0	1.0	3.0
IRP1 – Family went to college	1.58	.55	2.0	2.0	1.0	3.0
IRP2 – Family went to college	1.61	.61	2.0	2.0	1.0	3.0
NON – Family went to college	1.28	.45	1.0	1.0	1.0	2.0
IRP1 – TOEFL Score	3.47	1.29	4.0	4.0	1.0	6.0
IRP2 – TOEFL Score	3.30	1.02	3.0	4.0	1.0	5.0
NON – TOEFL Score	2.92	1.12	3.0	3.0	1.0	6.0
IRP1 – Pre-Speaking (English)	4.0	1.87	4.0	5.0	1.0	7.0
IRP2 – Pre-Speaking (English)	4.12	1.60	4.0	3.0	1.0	7.0
NON – Pre-Speaking (English)	5.06	1.57	5.0	6.0	1.0	7.0
IRP1 – Pre-Writing (English)	3.76	1.82	4.0	2.0	1.0	7.0

IRP2 – Pre-Writing (English)	3.85	1.60	4.0	3.0	1.0	7.0
NON – Pre-Writing (English)	5.0	1.44	5.0	5.0	1.0	7.0
IRP1 – Pre-Understanding (English)	4.11	1.83	4.0	4.0	1.0	7.0
IRP2 – Pre-Understanding (English)	4.24	1.58	4.0	4.0	1.0	7.0
NON – Pre-Understanding (English)	5.40	1.39	6.0	6.0	1.0	7.0



**APPENDIX E: Descriptive Statistics of Dependent Variables***Descriptive Statistics of Dependent Variables by Program Type (IRP1/IRP2/NON)*

Variable	Mean	SD	Median	Mode	Min	Max
IRP1 – Satisfaction	20.55	3.73	21.00	22.00	10.00	27.00
IRP2 – Satisfaction	23.06	3.22	23.00	22.00	16.00	28.00
NON – Satisfaction	21.41	3.80	22.00	27.00	4.00	27.00
IRP1 – Food	11.66	3.87	12.00	12.00	3.00	19.00
IRP2 – Food	14.52	3.75	15.00	18.00	8.00	21.00
NON – Food	14.20	3.71	15.00	18.00	3.00	21.00
IRP1 – Acclimation	23.76	4.21	23.50	23.00	12.00	31.00
IRP2 - Acclimation	26.39	4.31	26.00	25.00	18.00	35.00
NON - Acclimation	25.33	5.04	26.00	30.00	6.00	35.00
IRP1 – Social	13.97	3.28	14.00	14.00	5.00	21.00
IRP2 – Social	13.15	2.67	13.00	13.00	7.00	20.00
NON – Social	15.22	3.14	15.00	16.00	9.00	21.00
IRP1 – Academic Outcomes	2.90	.083	3.19	3.30	.60	4.00
IRP2 – Academic Outcomes	3.20	.44	3.20	2.50	2.50	3.90
NON – Academic Outcomes	3.05	.72	3.20	3.00	.50	4.00
IRP1 – English	24.05	4.93	24.50	23.00	12.00	35.00
IRP2 - English	23.06	4.42	24.00	24.00	12.00	35.00
NON - English	25.95	5.03	26.00	27.00	15.00	35.00
IRP1 – Benefit of American	36.61	8.51	35.50	35.00	16.00	49.00
IRP2 - Benefit of American	33.61	7.28	34.00	34.00	14.00	47.00
NON - Benefit of American	35.75	8.72	36.00	35.00	7.00	49.00
IRP1 – Impact of Residential Exp.	11.03	2.14	12.00	12.00	5.00	14.00
IRP2 - Impact of Residential Exp.	11.30	1.61	11.00	10.00	9.00	14.00
NON - Impact of Residential Exp.	10.65	2.05	11.00	12.00	2.00	14.00

**APPENDIX F: Correlation Table of Dependent/Independent Variables**

Correlation Table. Means, standard deviations, and intercorrelations of dependent and independent variables.

Variable	Mean	SD	Academic	Acclimation	English	Food	Satisfaction	Social	American	Recommend
Country	3.38	2.021	.065	.025	.387* *	.036	.054	.191* *	.416	.057
Hometown	1.14	.393	.049	.082	.169*	.050	.086	.158*	.045	.042
Gender	1.59	.553	.147*	-.028	.074	-.063	.084	.031	-.031	-.009
Age	2.83	.798	-.090	-.059	-.071	-.056	-.134	-.079	-.043	-.082
Res. Hall	14.80	13.12	-.004	.062	.077	.155*	-.070	-.087	.060	-.046
Roommate	2.03	1.178	.158*	-.028	-. .248**	.057	.062	-.099	-.088	-.030
Family attended college	1.43	.605	-.141	-.060	-.140	.014	-.136	-.097	-.103	-.102
Shared bedroom	1.48	.512	.070	.010	.076	.009	.028	.091	.094	.085
Time w/Americ.	1.61	.500	-.007	-.021	-. .227**	-.096	.014	-.068	.136	-.007
Imp. Living w/Americ.	4.40	1.657	-.029	.168*	.089	.233* *	.198* *	.031	.211*	.195 **
Happy in Res. Hall	5.16	1.427	.024	.583* *	.313* *	.398* *	.570* *	.383* *	.368* *	.533 **
Happy for the University	5.53	1.326	.070	.469* *	.149* *	.293* *	.503* *	.287* *	.425* *	.552 **
Lived in US	1.64	.505	-.043	-.047	-.014	-. .164*	-.020	.036	.218*	.013
Family lived in US	1.58	.568	.075	-.168*	-. .244* *	-.096	-.139	-. .157*	-.093	-.049
Family stud. in US	1.40	.524	.090	-. .198* *	-.172* *	-.108	-.086	-.076	-.129	-.085
TOEFL	3.10	1.157	-.021	-.005	-. .380* *	-.055	-.043	.205* *	-.010	.002

Note. \* Correlation is significant at the .05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

**APPENDIX G: Correlation Table of Dependent Variables**

Correlation Table. Means, standard deviations, and intercorrelations of the study's dependent variables.

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Academic Outcomes	3.05	.71	-	.024	.041	-.101	.152*	.205**	.106	.114
2. Acclimation	25.34	4.47		-	.259**	.646**	.774**	.468**	.147*	.770**
3. English	25.03	5.02			-	.143	.288**	.458**	.141	.237**
4. Food	13.73	3.89				-	.533**	.178*	-.069	.439**
5. Satisfaction	31.45	5.58					-	.638**	.353**	.835**
6. Social	12.77	3.69						-	.337**	.397**
7. American	24.22	18.02							-	.317**
8. Recommend	10.84	2.00								-

*Note.* \* Correlation is significant at the .05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

**APPENDIX H: Correlation Table of Independent Variables**

Correlation Table. Means, standard deviations, and intercorrelations of the study's independent variables.

Variables	Mean	SD	1	2	3	4
1. Country	3.4	2.0	-	.160*	.030	.047
2. Hometown	1.1	.39		-	-.060	.009
3. Gender	1.6	.56			-	-.001
4. Age	2.8	.80				-

Variables	Mean	SD	5	6	7	8
1. Country	3.4	2.0	.070	-.141	.011	.116
2. Hometown	1.1	.39	.075	-.116	-.004	-.093
3. Gender	1.6	.56	-.082	.204**	-.159*	-.176*
4. Age	2.8	.80	.069	.064	.133	-.036
5. Residence Hall	14.9	13.1	-	-	.009	.032
				.219**		
6. Roommate Status	2.0	1.2		-	-.027	-.026
7. Family attended college	1.4	.61			-	.074
8. Shared bedroom	1.5	.51				-

Variables	Mean	SD	9	10	11	12
1. Country	3.4	2.0	-.168*	.036	.165*	.023
2. Hometown	1.1	.39	-.106	-.079	.155*	.075
3. Gender	1.6	.56	.032	.102	.095	-.023
4. Age	2.8	.80	.020	.053	.043	-.088
5. Residence Hall	14.9	13.1	.101	.012	.090	.050
6. Roommate Status	2.0	1.2	.012	-.024	-.094	-.095
7. Family attended college	1.4	.61	-.056	-.108	-.117	-.082
8. Shared bedroom	1.5	.51	.116	-.061	-.029	.090
9. Time w/ American	1.6	.50	-	-.119	-.112	-.047
10. Imp. Living w/ American	4.4	1.7		-	.331**	.273*
						*
11. Happy in residence hall	5.2	1.4			-	.490*
						*
12. Happy for the University	5.5	1.3				-

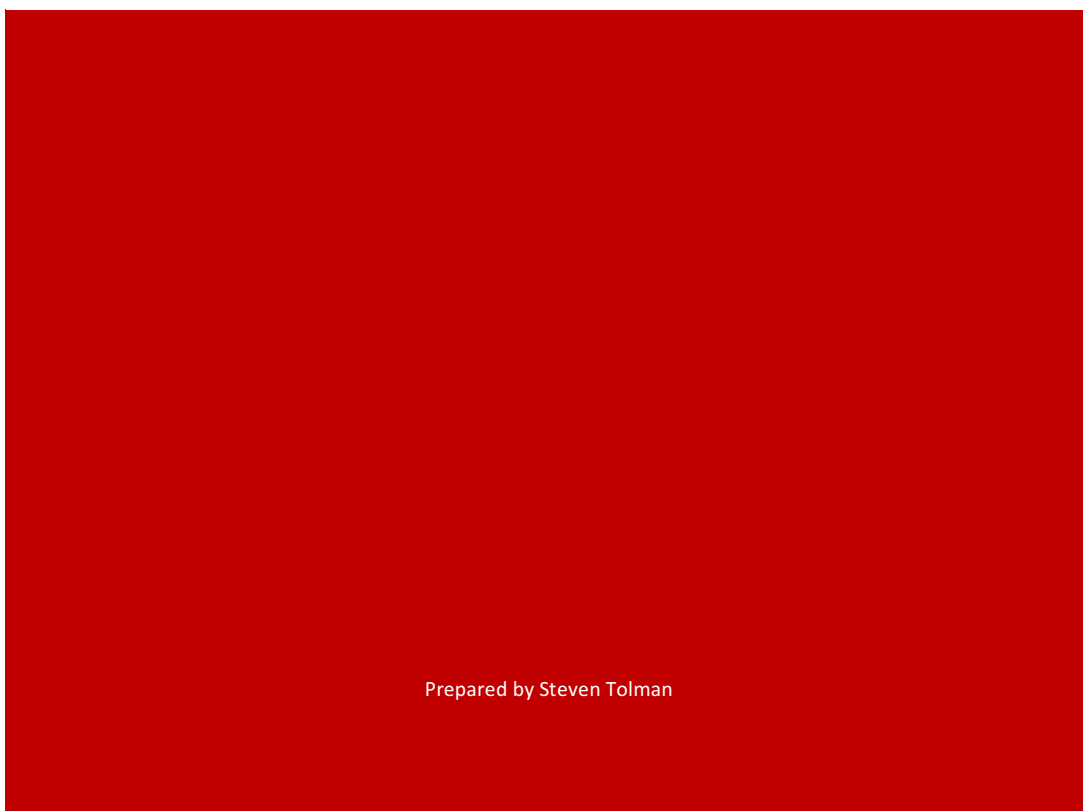
Variables	Mean	SD	13	14	15	16
1. Country	3.4	2.0	-.176*	-.085	-.092	.032*
2. Hometown	1.1	.39	-.015	.049	.014	-.080
3. Gender	1.6	.56	.111	-.187*	-.128	.040
4. Age	2.8	.80	-.036	.090	-.067	-.028
5. Residence Hall	14.9	13.1	-.095	-	-	-.081
				.206**	.216**	
6. Roommate Status	2.0	1.2	.011	.143	.156*	.070
7. Family attended college	1.4	.61	-.058	.199**	.107	.069
8. Shared bedroom	1.5	.51	.001	.025	.053	-.084
9. Time w/ American	1.6	.50	.298**	.067	.041	.136
10. Imp. Living w/ American	4.4	1.7	-.040	-.033	-.131	-.033
11. Happy in residence hall	5.2	1.4	-.102	-	-	-.060
				.255**	.407**	
12. Happy for the University	5.5	1.3	-.003	-.040	-.090	.089
13. Lived in U.S.	1.6	.51	-	.202**	.082	-.057
14. Family lived in U.S.	1.6	.57		-	.503**	.084
15. Family studied in U.S.	1.4	.52			-	.039
16. TOEFL Score	3.1	1.16				-

Note. \* Correlation is significant at the .05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

**APPENDIX I: Executive Summary**



# Evaluation of the International Roommate-Pairing Program



Prepared by Steven Tolman

**ABSTRACT of Study**

There are over 700,000 international students currently studying in the U.S. (McMurtrie, 2011) contributing close to \$12 billion yearly to the U.S. economy (Altbach, 2004). Universities cannot take for granted that international students will choose U.S. institutions. While great attention and research efforts have been given to support programs like international student orientation, there is a gap in the literature examining support programs within residence halls targeting international students. The purpose of this quantitative study was to evaluate an international roommate program (IRP) to determine its impact on international students at a large state school in the Northeast. This research addressed the question: Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships? This research question was addressed by surveying first-year international students living in residence halls and comparing outcomes of those participating in one of two international roommate programs with those not participating (NON). Using the statistical method of Factor Analysis for data reduction of survey responses, eight variables were created based on themes addressing the primary research question. These eight variables were analyzed through ANCOVA (statistically controlling for 16 demographic variables). The results showed differences between each of the IRP programs and NON groups. Students' residential environment (living accommodations and dining) and structured support appeared to have the greatest positive impact on international students. The findings from this study will contribute important information to the existing literature base and can be used by Residence Life professionals to establish effective support programs for international students within the residence halls.

**About this Executive Summary**

This executive summary is intended to capture a quick snapshot of the study and findings. The summary includes an introduction to the methodology, an explanation of the statistical analysis for the eight identified themes will be provided and results/implications discussed, and the inclusion of the statistical findings/data will be provided. In addition to providing Residence Life with this Executive Summary, a final copy of the research study will be provided.

**About the Researcher**

Steven Tolman has extensive knowledge of Residence Life and familiarity with the university studied. His experiences working in Residence Life at Central Michigan University, Texas Tech University, the New Jersey Institute of Technology, Barnard College, and Rutgers University University helped shape the methodology, theoretical framework, and interpretation of the results of this study. Currently, he serves as the Program Coordinator and faculty member of the Higher Education Leadership Program (M.A. in Educational Leadership) at Montclair State University. Steven Tolman will gladly answer questions regarding this study and/or assist with further evaluation(s) of International Roommate Pairing Programs.

**Contact Information**

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**The International Roommate Program**

The International Roommate Program (IRP) is a newly implemented program. The IRP pairs international students with domestic students as roommates living within the residence halls. International and domestic students self-select into this program and by doing so, agree to adhere to the expectations of the program. These expectations include being supportive and tolerant of differences with their roommates, participating in events hosted by the IRP, and having open communication with the staff overseeing the program. While the impetus for the creation of the program was to create a supportive environment for international students and increase retention, it also aims to create a diverse environment within the residence halls and to expose the domestic roommates to a global perspective.

The IRP is comprised of two separate programs pairing international and domestic students as roommates in residence halls; the International Roommate Program #1 (IRP1) and the International Roommate Program #2 (IRP2). While both these programs pair roommates, they have different requirements, living conditions, and resources afforded to the students. These differences are described in the subsequent section.

**International Roommate Program #1 (IRP1)**

The IRP1 pairs international and domestic students with a desire to live with one another. It pairs incoming first-year international students with first-year domestic students as roommates. The requirements for the participants within this program are minimal and attendance is optional at events. The Director of the IRP directly oversees this component of the program, as she is the administrator directly responsible for the building the participants live in and the staff overseeing the students. This gives the Director the most autonomy, as she is able to directly influence the day-to-day operation of this program, establish requirements of the staff, hold them accountable, and commit resources to the program. All of the participants within the IRP1 live within a traditional corridor style building. Every room is a double shared by two students. It is one room with two beds, dressers, desks, and closets. There is a small, shared community space and communal bathroom on each floor, as well a large community space on the first floor.

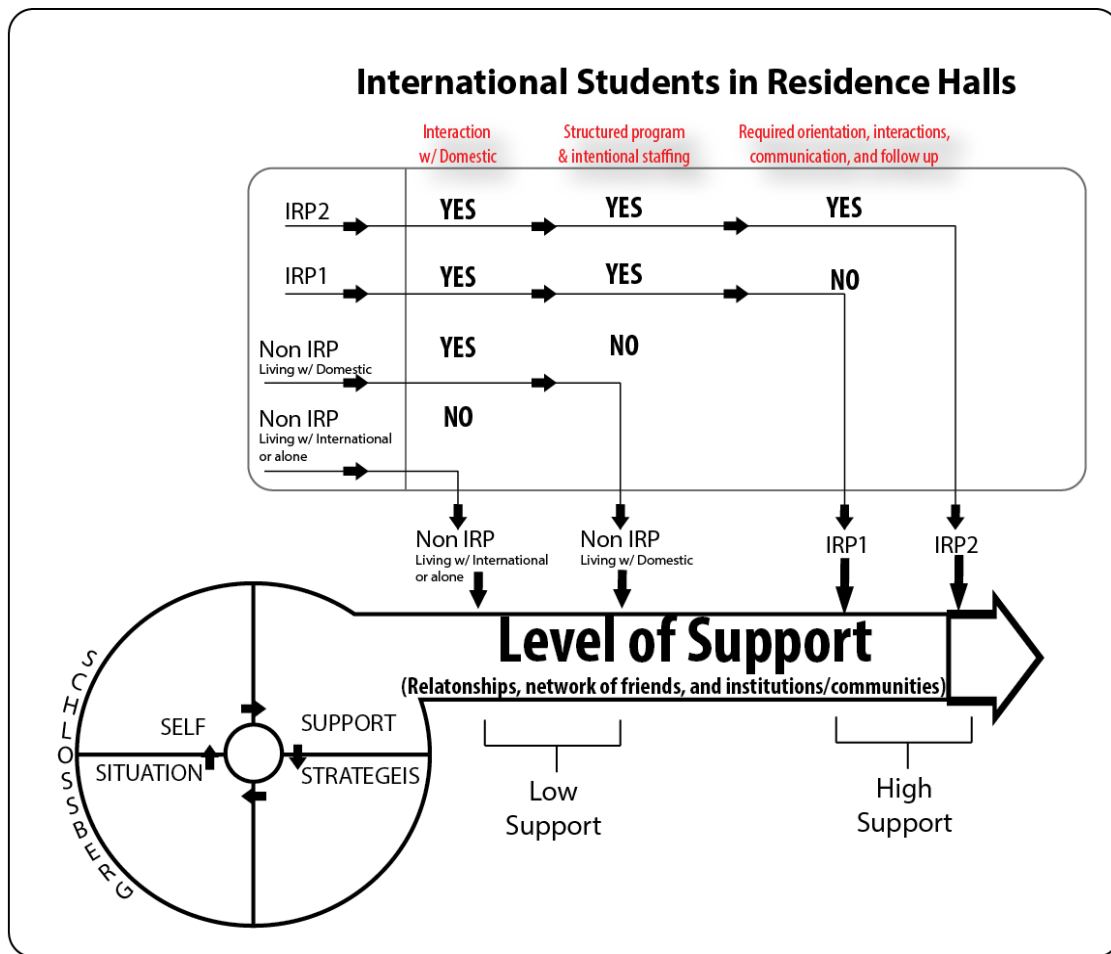
**International Roommate Program #2 (IRP2)**

The Global Roommate Program (IRP2) pairs upper-class domestic students with incoming first-year international students. The IRP2 requires students to participate in events (orientation), receive additional communication and guidance from Residence Life staff (via the program), and are invited to attend additional optional events/programs. Examples of these optional events include but are not limited to attending an MLB baseball game, participating holiday festivities in near-by metropolitan area, attending a ski trip, and involvement in the Day of Service. The program is intentionally located in suite/apartment style residence halls that includes communal space and kitchens within each apartment, acknowledging international students' needs. The communal space provides a location for international students to easily socialize with their roommate(s) and/or other friends. The kitchens allow international students to supplement their meals should the dining halls not meet their needs and/or their taste. These apartment spaces are considered by many students to be the best location to live on campus. By placing the IRP2 international students within these specific halls, the effort is being made to give them the best opportunity to succeed and be satisfied with their residential experience.



**Logic Model and Theoretical Framework of Study**

The logic model (below) hypothesizes that more interaction with domestic students and more participation in a structured support program, leads to greater support for international student, which makes them more likely to successfully transition to the University. The basis for this model is Schlossberg's (1995) Transition Theory which posits that support is one of the four key factors in an individual transitioning successfully. This theory examines the different forms of transitions, the transition process, and the factors that influence the likely successfulness of transition. This theory is the underpinning of this study, as first-year international students are an exemplar of an individual in transition; they are navigating higher education for the first time, leaving friends and family behind, coming to a new country, navigating a non-native language, being exposed to cultural differences, etc.



**Primary Research Question**

Does participation in an international/domestic roommate-pairing program have a positive impact on international students' satisfaction, acclimation, academic success, navigation of the English language, and social relationships?

**Methodology**

An online survey of approximately 50 questions was emailed to all first-year international students living in the residence halls (IRP1, IRP2, and NON IRP). The time frame for the survey was early April 2015, which gave students nearly two full semesters to reflect on their experience living on campus with a domestic/international roommate and the impact it had on them. The email communication indicated participant anonymity with no way to connect the responses back to an individual user.

**Descriptive Statistics**

Descriptive statistics were performed to describe the responses of all survey questions. The majority of the dependent variables were asked on a 7-point Likert scale. While descriptive statistics do not allow conclusions to be drawn or asserted, they help to describe and summarize the dataset. -These statistics provide context for the interpretation of inferential statistics.

**Inferential Statistics**

Inferential statistical analyses were conducted to determine whether outcomes on the dependent variables differed significantly by program type (IRP1/IRP2/NON). The use of inferential statistics allows for the results of the study to be generalized. Two statistical methods were employed; Factor Analysis and ANCOVA.

**Factor Analysis**

Factor Analysis is the process of data reduction. It allows the researcher to statistically create themes from the larger dataset and generate new variables accordingly. Consistent with the primary research question, eight corresponding themes (and in turn new variables) were developed. The survey questions that composed each theme are outlined at the end of this executive summary.

- Acclimation
- Food
- Satisfaction
- Recommendation based on Residential Experience
- Academic Outcomes
- Benefitted from having an American Roommate
- Development of English Skills
- Enabling Social Relationships

**Analysis of Covariance**

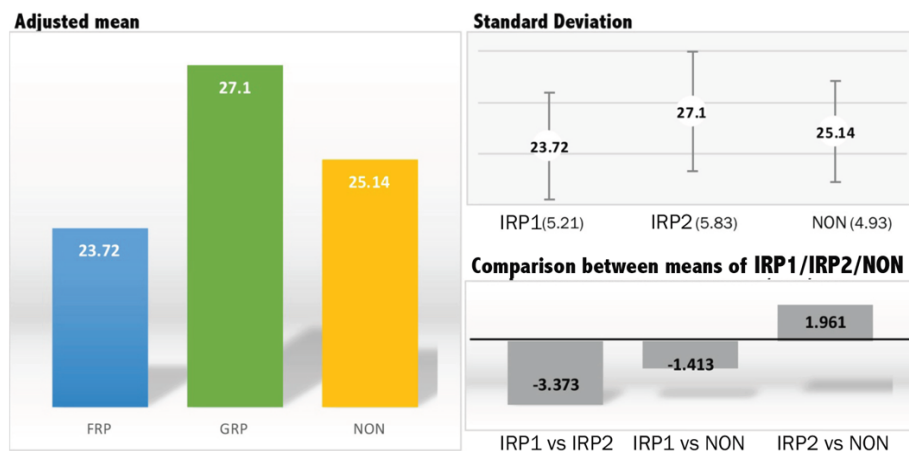
One-way analysis of covariance (ANCOVA) was conducted to investigate the association between the International Roommate-Pairing Program and eight outcomes for this study. ANCOVA facilitated comparison of the three groups while statistically controlling for demographic differences. In other words, ANCOVA levels the playing field and examined the three groups as if the students participating in each were similar in terms of demographics.

**Findings of Study**

Of the eight variables comparing the IRP1/IRP2/NON, findings from four (Acclimation, Food, Satisfaction, and Recommendation based on Residential Experience) were found to be statistically significant. The following sections details the findings for each variable.

## Statistically Significant Themes

## ACCLIMATION

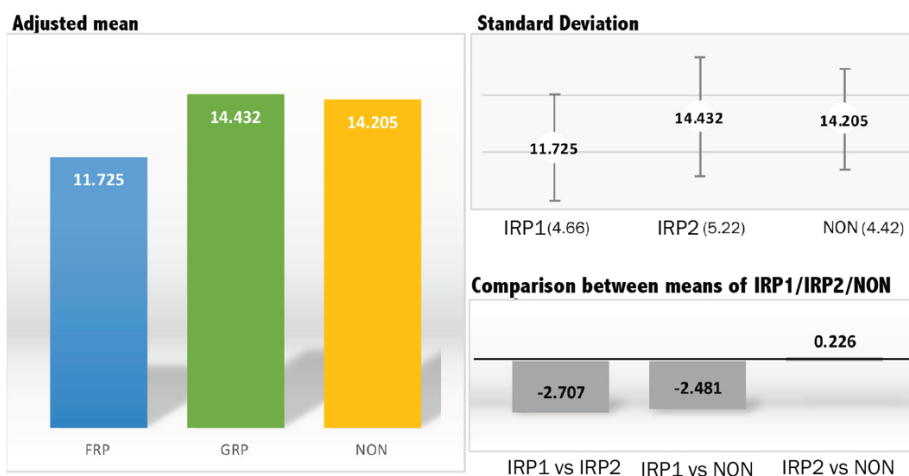


Happiness to live in a residence hall and happiness to attend the University were significantly associated with Acclimation

*Acclimation is statistically different between IRP1 and IRP2 ( $p = .012$ )*

Compared to the IRP2, students within the IRP1 had less support for their acclimation. Components of their acclimation included their residential experience and dining options. The increased acclimation of IRP2 students may be attributed to the environment afforded by suite-style living.

## FOOD



Happiness to live in a residence hall was significantly associated with Food

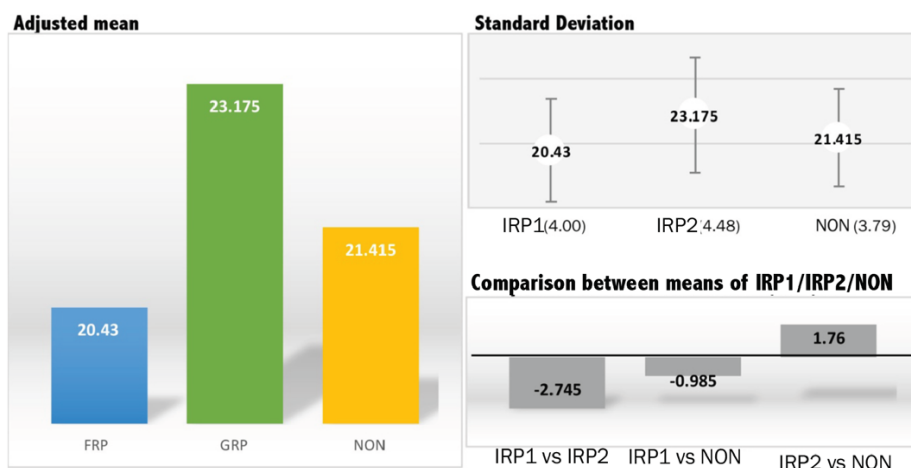
*Food is statistically different between IRP1 and IRP2/NON ( $p = .024$  vs IRP2,  $p = .010$  vs. NON)*

IRP1 students reported the greatest dissatisfaction with food. This is likely attributed to their primary food option being the dining hall.

Consideration should be given to examining the food options within the dining hall as it relates to international students and/or providing these students kitchens to prepare their own meals.

## Statistically Significant Themes

## SATISFACTION

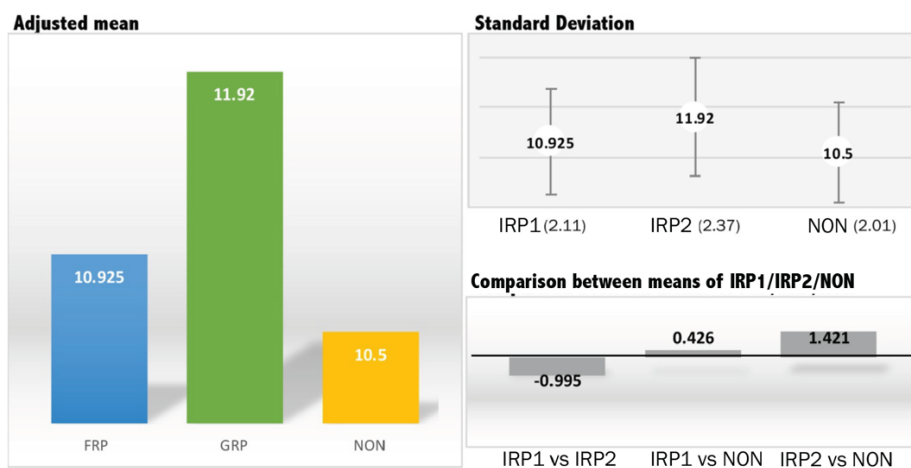


Compared to the IRP2, students within the IRP1 were less satisfied. This satisfaction was directly connected with their residential experience. I would assert this level of satisfaction is attributed to the type of residence hall (corridor vs. suite) and would likely parallel the satisfaction of all residential students.

Happiness to live in a residence hall and happiness to attend the University were significantly associated with Satisfaction

*Satisfaction is statistically different between IRP1 and IRP2 ( $p = .008$ )*

## RECOMMENDATION BASED ON RESIDENTIAL EXPERIENCE



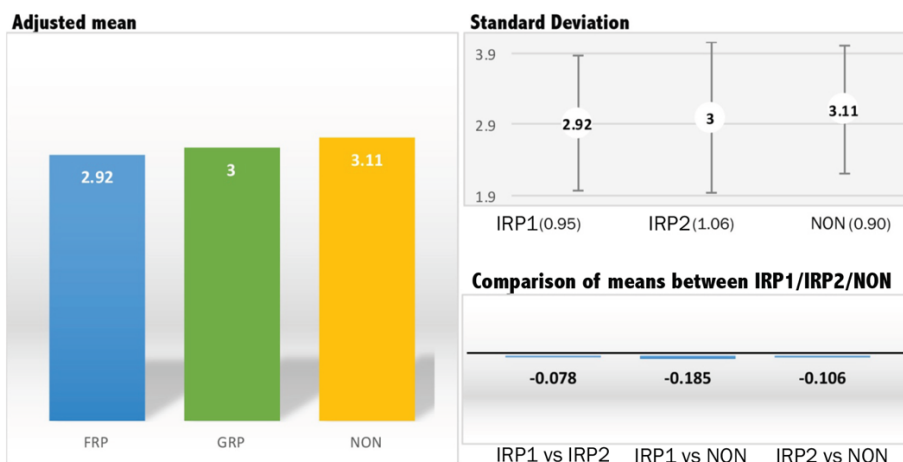
Compared to the NON group, students within the IRP2 were far more likely to recommend the University based on their residential experience. It is hypothesized that the support structure of the IRP2 program and the environment of suite-style lead high recommendation.

Happiness to live in a residence hall and happiness to be attending the University were significantly associated with Recommendation Based on Residential Experience

*Recommendation is statistically different between IRP2 and NON ( $p = .006$ )*

### Notable, but not Statistically Significant Themes

## ACADEMIC OUTCOMES

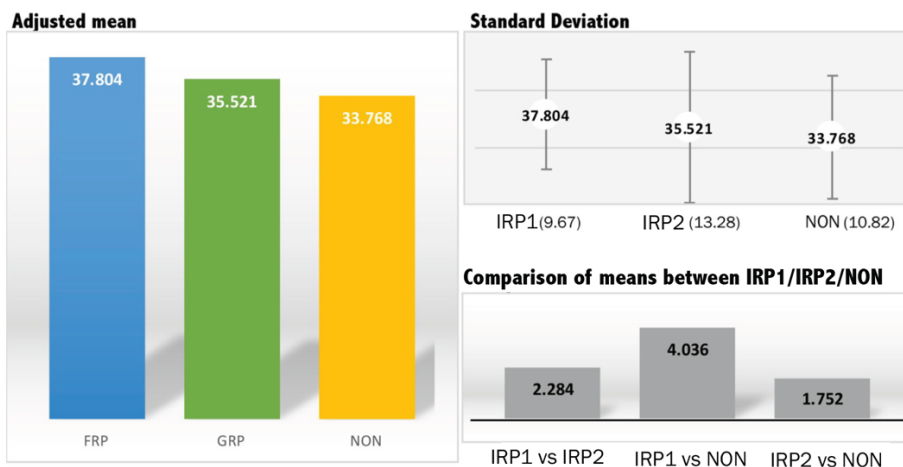


There was not an observed association of the independent variables with Academic Outcomes

There was not a difference between the Fall Semester GPA between groups. This may be an opportunity for growth for the IRP1/IRP2 to focus on academic success programs.

It would be interesting for future studies to examine the Spring Semester GPA and to compare Fall/Spring GPA to the student's high school grades.

## BENEFITTED FROM HAVING AMERICAN ROOMMATE

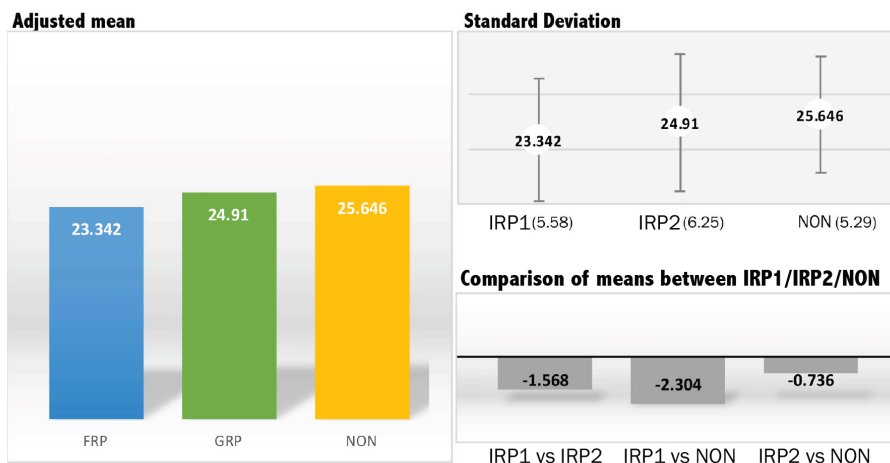


Happiness to live in a residence hall and happiness to attend the University were significantly associated with the Benefit from having an American Roommate

While it was not statistically significant, the higher mean of the IRP1 and IRP2 should be noted. This is an area that should be included in future studies. If these results are replicated, it supports the benefit of American roommates for international students regardless of participation in the program. Consideration could be given to intentional placement for all.

### Notable, but not Statistically Significant Themes

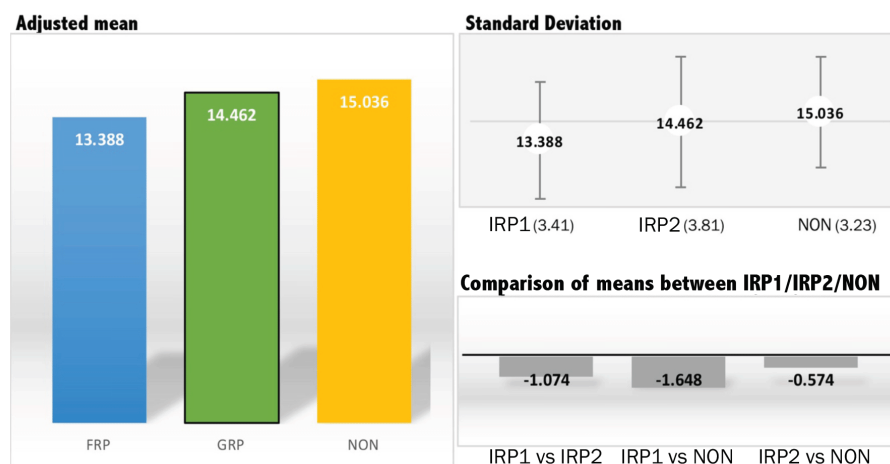
#### DEVELOPMENT OF ENGLISH SKILLS



Country, roommate status, time spent with an American, happiness to live in a residence hall, and TOEFL score were significantly associated with development of English skills

There was not a statistical difference in the development of English skills. However, the means are of interest for future studies. Should these results be replicated and be significant, it will warrant a need to explore this further. A possible reason could be that students who are least prepared actively sought out the IRP so they would be less developed.

#### ENABLING SOCIAL RELATIONSHIPS



Home country, roommate status, previously sharing a bedroom, time spent with an American, happiness to living in a residence hall, family having lived in the U.S., and TOEFL score were significantly associated with Social Relationships

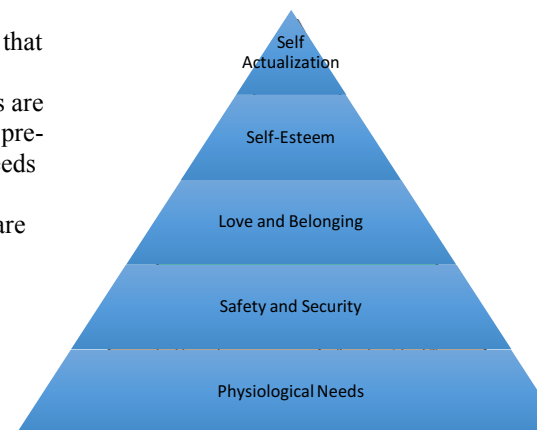
While not statistically significant, the means for the IRP1, IRP2, and NON groups are interesting. The action model suggests the IRP would have provided the greatest benefit in this area. Future studies should examine this further.

## RECOMMENDATIONS

This study provides one of the first empirical examinations of international roommate-pairing programs. Four of the eight themes/variables examined showed differences between program types (IRP1/IRP2/NON). Of these, the strongest finding was the decreased dietary satisfaction of international students within the IRP1 (related to the dining hall). Other differences observed are hypothesized to be related to the physical environment. Through placement into apartment/suite-style living, the IRP2 affords international students greater privacy, more social space, and greater ability to have control over their food. Subsequently, it is believed that this has an impact on the success of international students and greater gains between the IRP2 and IRP1.

Maslow's Hierarchy of Needs (1943) supports this assertion that residential environment has a significant impact on student success. The premise of Maslow's theory is that individuals are unable to progress in their development until their basic and pre-requisite needs are met. Within this model, physiological needs (food, shelter, etc.) are the base and must be met first. The results of this study have shown the needs of IRP1 students are not being met (in comparison to the other groups). Consequently, we would not expect to see the greatest gains/outcomes from the IRP1.

**Based on the findings of this study and my professional experience in Residence Life, I would recommend the following considerations for the future:**



1. Exploration of food options for international students within the dining hall and other on-campus food options. Determine if there is a dining hall that better meets the needs of international students, and if so, consider relocating the IRP1 to that campus.
2. Explore initiatives to foster academic success (thus increasing GPA).
3. Consider clustering the IRP2 and IRP1 to live in buildings that are supervised by the Director of the IRP or at minimum report to that individual's supervisor.
4. In an effort to better study differences between the IRP1 and IRP2 (to determine if one is more effective), consider better matching the programs to one another. Currently, the programs differ in two ways; upperclass vs. freshmen domestic students –and- type of housing (suite/apartment vs. corridor). It would be beneficial to eliminate one or both of these variables to better allow determination of causality. My recommendation would be to place the IRP1 within apartments and/or pair them with upperclass roommates.
5. The study should be replicated and greater effort made to secure high response rate. If this study had a higher response rate, especially from the NON group, it is possible more statistical significance would have been observed.
6. Future study examining the impact of domestic students in this program.

## DESCRIPTIVE &amp; INFERENTIAL STATISTICS

Response Rate by Program Type (IRP1/IRP2/NON)

Program Type	Participants	Total Population	Response Rate
International Roommate Program #1	38	73	52%
International Roommate Program #2	33	54	61%
Non Program (NON)	113	431	26%

The response rate of the NON group is the central limitation in this study.

The percentage of participants by Descriptive Category by Program Type (IRP1/IRP2/NON)

Descriptive Category	IRP1	IRP2	NON
1 <sup>st</sup> generation college student	63%	58%	65%
Shared bedroom as child	26%	33%	14%
Previous experience w/ American	37%	45%	39%
Previously lived in U.S.	15%	39%	40%
Family lived in U.S.	32%	30%	56%
Family studied in U.S.	45%	45%	72%
Country – Canada	0%	3%	0%
Country – China	58%	73%	57%
Country – India	16%	6%	12%
Country – Russia	0%	3%	0%
Country - Singapore	8%	3%	1%
Country – Taiwan	5%	12%	7%
Country – Other	13%	0%	24%
Hometown – Urban	87%	94%	86%
Hometown – Suburban	11%	6%	12%
Hometown - Rural	3%	0%	2%
Male	61%	33%	40%
Female	39%	61%	60%
Transgendered	0%	0%	0%
Other	0%	6%	0%

The demographics between the groups are generally close. The lower percentage of IRP1 having lived in the U.S. and the greater number of NON who had family study in the U.S. is of interest.



## Factor Analysis themes and Matrix Component.

Themes by Research Question	Survey Questions	Matrix Component
Acclimation	Met RLE	.020
	Helpful RA	.492
	Food met needs	.700
	Satisfied with daily meals	.769
	Satisfied living on campus	.845
	Satisfied with residence hall	.797
American Roommate	Continue living in residence hall	.442
	Benefited from living with American	.738
	American enhanced experience	.893
	American helped social life	.890
	American helped transition	.878
	American helped academics	.852
	International students benefit from Amer.	.589
English Skills	Post-reading in English	.903
	Post-writing in English	.875
	Post-understanding in English	.881
	Practicing English	.532
	Speaking English with others from home	.516
Food	Food met needs	.929
	Enjoyed taste of food	.900
	Satisfied with meals	.831
Satisfaction	Satisfied living on-campus	.889
	Satisfied with residence hall room	.866
	Satisfied with meals	.668
	Continue at the University	.618
Social Relationships	Eat with others	.323
	Eat with Americans	.612
	Post – understanding English	.859
	Post – speaking English	.908
Recommendation	Recommend the University	.829
	Satisfaction living on-campus	.829
Academic Outcomes	Fall Semester GPA	1

To ensure questions were related, questions were removed that had less than a .400 matrix component.

The remaining questions defined the newly created themes (variables)

Descriptive Statistics of Dependent Variables by Program Type (IRP1/IRP2/NON)

Variable	Mean	SD	Median	Mode	Min	Max
IRP1 – Satisfaction	20.55	3.73	21.00	22.00	10.00	27.00
IRP2 – Satisfaction	23.06	3.22	23.00	22.00	16.00	28.00
NON – Satisfaction	21.41	3.80	22.00	27.00	4.00	27.00
IRP1 – Food	11.66	3.87	12.00	12.00	3.00	19.00
IRP2 – Food	14.52	3.75	15.00	18.00	8.00	21.00
NON – Food	14.20	3.71	15.00	18.00	3.00	21.00
IRP1 – Acclimation	23.76	4.21	23.50	23.00	12.00	31.00
IRP2 – Acclimation	26.39	4.31	26.00	25.00	18.00	35.00
NON – Acclimation	25.33	5.04	26.00	30.00	6.00	35.00
IRP1 – Social	13.97	3.28	14.00	14.00	5.00	21.00
IRP2 – Social	13.15	2.67	13.00	13.00	7.00	20.00
NON – Social	15.22	3.14	15.00	16.00	9.00	21.00
IRP1 – Academic Outcomes	2.90	.083	3.19	3.30	.60	4.00
IRP2 – Academic Outcomes	3.20	.44	3.20	2.50	2.50	3.90
NON – Academic Outcomes	3.05	.72	3.20	3.00	.50	4.00
IRP1 – English	24.05	4.93	24.50	23.00	12.00	35.00
IRP2 – English	23.06	4.42	24.00	24.00	12.00	35.00
NON – English	25.95	5.03	26.00	27.00	15.00	35.00
IRP1 – Benefit of American	36.61	8.51	35.50	35.00	16.00	49.00
IRP2 – Benefit of American	33.61	7.28	34.00	34.00	14.00	47.00
NON – Benefit of American	35.75	8.72	36.00	35.00	7.00	49.00
IRP1 – Impact of Residential Exp.	11.03	2.14	12.00	12.00	5.00	14.00
IRP2 – Impact of Residential Exp.	11.30	1.61	11.00	10.00	9.00	14.00
NON – Impact of Residential Exp.	10.65	2.05	11.00	12.00	2.00	14.00

Multiple Comparisons and Mean Differences Program Type with Statistical Significance

Variable	Comparison	Mean Difference	s.e.	Sig.	Bonferroni Adjusted 95% CI	Cohen's <i>d</i>
Acclimation	IRP1 vs. IRP2	-3.373	1.327	.012 <sup>a</sup>	-5.992, -.754	-.610
	IRP1 vs. NON	-1.413	1.069	.188	-3.524, .699	-.279
	IRP2 vs. NON	1.961	1.257	.121	-.522, 4.443	.370
Food	IRP1 vs. IRP2	-2.707	1.188	.024 <sup>b</sup>	-5.054, -.361	-.546
	IRP1 vs. NON	-2.481	.958	.010 <sup>b</sup>	-4.372, -.590	-.545
	IRP2 vs. NON	.226	1.126	.841	-1.997, 2.450	.047
Satisfaction	IRP1 vs. IRP2	-2.745	1.019	.008 <sup>c</sup>	-4.758, -.2607	-.646
	IRP1 vs. NON	-.985	.821	.232	-2.607, .637	-.253
	IRP2 vs. NON	1.760	.966	.070	-3.668, .147	.424
Recommendation	IRP1 vs. IRP2	-.995	.539	.067	-2.058, .069	-.443
	IRP1 vs. NON	.426	.434	.328	-.431, 1.283	.206
	IRP2 vs. NON	1.421	.510	.006 <sup>d</sup>	.413, 2.429	.647

Note. Comparisons based upon ANCOVA adjusted means. A) acclimation is statistically different between IRP1 and IRP2 ( $p = .012$ ). B) food is statistically different between IRP1 and IRP2/NON ( $p = .024$  vs IRP2,  $p = .010$  vs. NON). C) satisfaction is statistically different between IRP1 and IRP2 ( $p = .008$ ). D) Recommendation is statistically different between IRP2 and NON ( $p = .006$ ).